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**STUDY OF THE BURIAL OF FILM EDGES USING WORKING ORGANS WITH
SPHERICAL DISCS**

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Аннотация. В статье изложено теоретическое исследование технологического процесса, выполняемого сферическими дисковыми рабочими органами орудия для укладки полиэтиленовой плёнки, разработанные для заделки краев плёнки в почву.

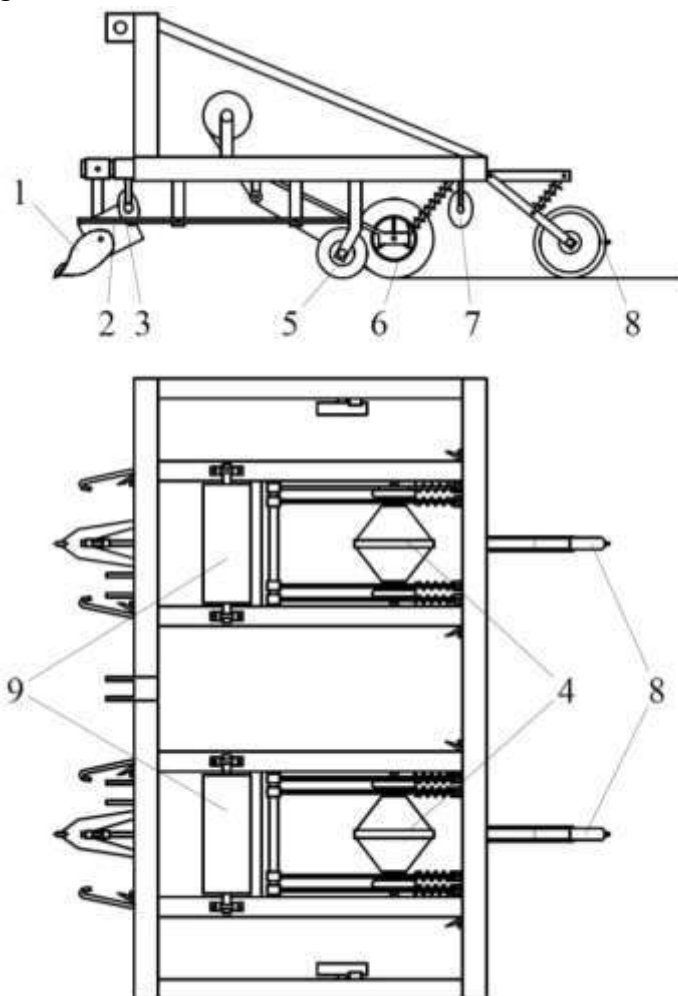
Annotation. The article presents a theoretical study of the technological process performed by spherical disk working bodies of a tool for laying a polyethylene film, designed to seal the edges of the film into the soil.

Ключевые слова: орудия для укладки пленки, сферические дисковые рабочие органы, края пленки, частицы почвы, расстояние выброса, почвенная насыпь, процесс заделки.

Keywords: tools for laying film, spherical disk working bodies, film edges, soil particles, ejection distance, soil saturation, sealing process.

Introduction. The results of previous studies [1–3] have shown that in the process of laying plastic film along the irrigation furrows of cotton interrows, it is advisable to use “spherical discs” as the working organs that open and then cover the trenches for burying the film edges (Fig. 1). In this method, two “oppositely mounted spherical discs” are employed: one pair to open the trenches for

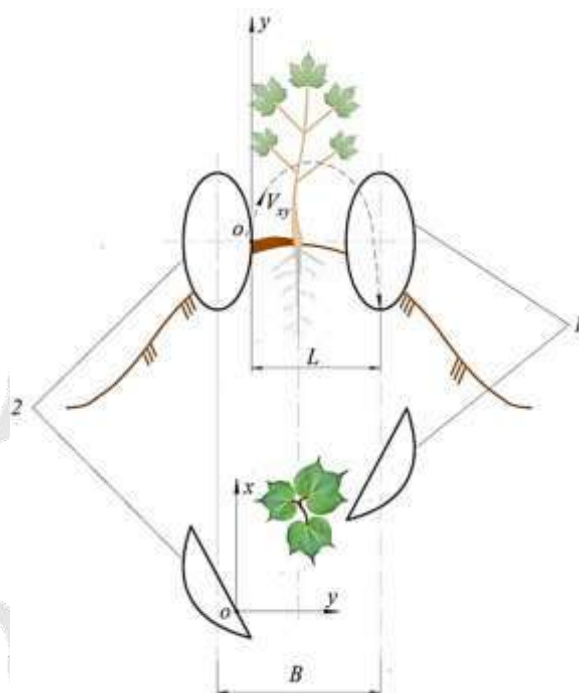
the film edges, and another to cover the laid film within these trenches (Fig. 2).



- 1 – furrow opener; 2 – device for bending cotton stalks; toward the adjacent furrow; 3 – spherical discs (right and left) for opening trenches to lay the film edges; 4 – profiled roller; 5 – support wheels; 6 – film edge pressing wheels; 7 – spherical discs (right and left) for covering the film edges; 8 – film perforating wheel; 9 – bobbin (reel) for feeding the film.

Figure 1. Structural diagram of the laboratory–field device

The soil clods falling from the spherical disc working organs that cover the film edges must satisfy the condition shown in the diagram in Figure 2 to ensure the complete burial of the film edges [4].



1 – spherical disc working organ that forms the trench for placing the film edge;

2 – spherical disc working organ that covers (buries) the film edge;

Figure 2. Schematic diagram ensuring the burial of the film edge using spherical disc working organs

$$L = B - R_d \sin \beta_s \sin \alpha_t, \quad (1)$$

where L – the transverse throwing distance of the soil clods falling from the spherical disc working organ, m; B – the transverse distance between the spherical discs that form and cover the trench for placing the film edges, m.

When condition (1) is satisfied, the soil clods thrown by the working organs that cover the film edges fall into the center of the trench where the film edge has been laid. As a result of spreading under the natural angle of repose, a soil mound is formed. Consequently, a stable soil ridge of sufficient height is obtained along the film edge (Fig. 3).

The transverse throwing distance of soil clods from the spherical disc working organ is determined by formulating and solving the equation of motion in the plane perpendicular to the direction of movement. This equation has the following form [5, 6]:

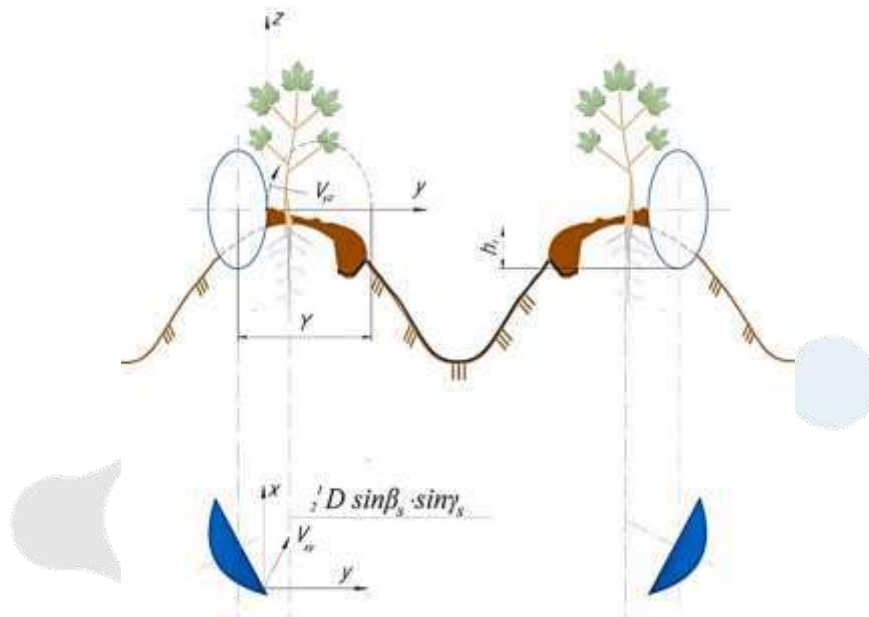


Figure 3. Process of burying the film edge by spherical disc working organs

$$L = V_y \frac{V_z + \sqrt{V_z^2 + 2[R_d(1 - \cos \alpha_t) - h_s]g}}{g}, \quad (2)$$

here, V_y and V_z – are the initial components of the absolute velocity V_a^t of the soil clod at the moment it leaves the spherical disc working organ, projected onto the Y and Z coordinate axes, respectively, in m/s.

The values of V_y and V_z in expression (2) are determined using the schematic shown in Figure 4. Accordingly,

$$V_y = V_n^t (\sin \varphi_t \cos \beta_s + \cos \varphi_t \sin \alpha_t \sin \beta_s) + V_\kappa^t \cos \alpha_t \sin \beta_s; \quad (3)$$

$$V_z = V_\kappa^t \sin \alpha_t - V_n^t \cos \varphi_t \cos \alpha_t, \quad (4)$$

here V_n^t – the relative velocity of the soil clod at the moment it leaves the spherical disc working organ, m/s; V_κ^t – the translational velocity of the soil clod at the moment it leaves the spherical disc working organ, m/s; φ_t – φ the limiting value of the angle, i.e., the angle of the soil clod at the moment it leaves the spherical disc working organ; α_t – the rotation angle of the soil clod relative to the vertical axis of the disc at the moment it leaves the disc, °.

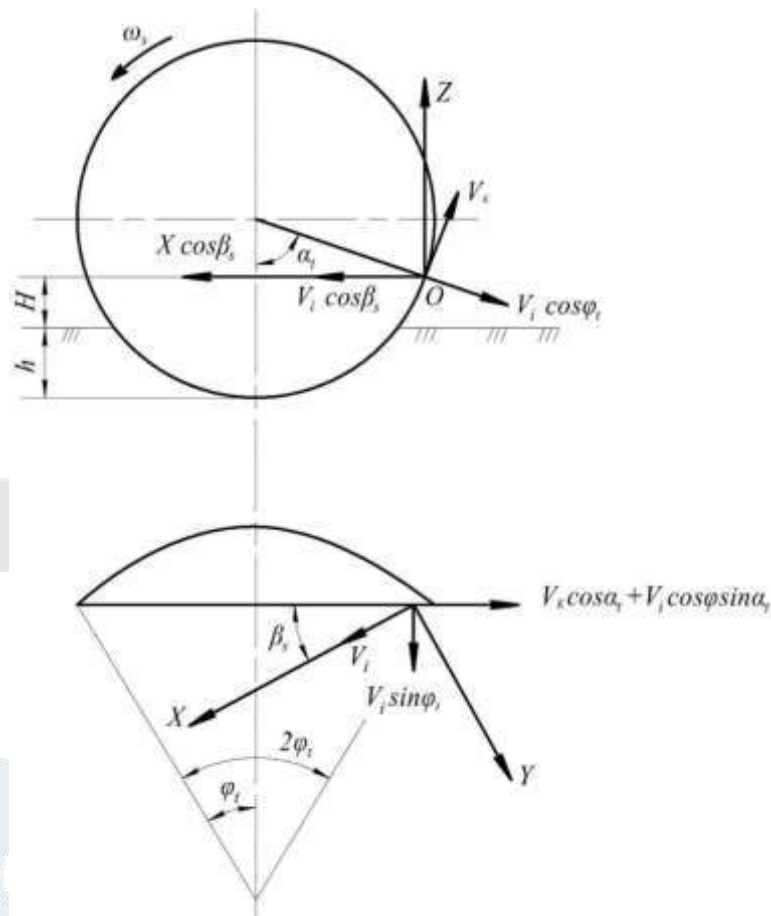


Figure 4. Schematic diagram for determining V_y and V_z

Based on the results of previously conducted studies

$$V_n^t = \left\{ -e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(1 - \frac{4f^2}{1+2f} \right) \times \right. \right. \\ \times \sin \varphi_0 \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \left. \right] + \\ + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+4f^2} \cos \alpha_t + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) + \\ + \cos \alpha_T + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \left. \right\}^{\frac{1}{2}} ; \quad (5)$$

$$V_\kappa^t = V_i \cos \beta_s ; \quad (6)$$

$$\cos \varphi_t = \frac{\sqrt{R_s^2 - R_d^2}}{R_s}; \quad (7)$$

$$\sin \varphi_t = \frac{R_d}{R_s}. \quad (8)$$

Taking these into account, expressions (3) and (4) take the following form

$$\begin{aligned} V_y = & \left\{ -e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) \sin \varphi_0 \times \right. \right. \\ & \times \cos \alpha + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \left. \right] + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+4f^2} \cos \alpha_t + \\ & + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \left. \right\}^{\frac{1}{2}} \times \\ & \times \left(\frac{R_d}{R_s} \cdot \cos \beta_s + \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \sin \alpha_t \sin \beta_s \right) + \frac{1}{2} V_i \sin 2\beta_s \cos \alpha_t; \quad (9) \end{aligned}$$

$$\begin{aligned}
 V_z = V_i \cos \beta \sin \alpha_t & - \left\{ -e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + \right. \right. \\
 & + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) \sin \varphi_0 \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_z \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \Bigg] + \\
 & + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+4f^2} \cos \alpha_t + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + \\
 & \left. + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \right\}^{\frac{1}{2}} + \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \cos \alpha_t. \quad (10)
 \end{aligned}$$

Taking expressions (9) and (10) into account, expression (1) takes the following form:

$$\begin{aligned}
 L = & \frac{1}{g} \left\{ \left[-e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) + \right. \right. \right. \\
 & + \sin \varphi_0 \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \left. \right] + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+2f} \cos \alpha_t + \\
 & + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \left. \right\}^{\frac{1}{2}} \times \\
 & \times \left(\frac{R_s^2}{R_d^2} \cos^2 \beta_s + \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \sin \alpha_t \sin \beta_s \right) + \frac{1}{2} V_i \sin 2\beta_s \cos \alpha_t \left\{ \{V_i \sin 2\beta_s \cos \alpha_t - \right. \\
 & - \left. \left\{ -e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) \sin \varphi_0 \cos \alpha_t + \right. \right. \right. \\
 & + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \left. \right] + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+2f} \cos \alpha_t + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + \\
 & + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \left. \right\}^{\frac{1}{2}} \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \cos \alpha_t \left. \right\} + \{V_i \cos \beta_s \sin \alpha_t - \\
 & - \left\{ -e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) \sin \varphi_0 \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \times \right. \right. \\
 & \times \left. \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \right] + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+4f^2} \cos \alpha_t + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \times \\
 & \times \left. \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \right\}^{\frac{1}{2}} \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \cos \alpha_t \left. \right\}^2 + 2[R_d(1 - \cos \alpha_t) + h_s]g \left. \right\}^{\frac{1}{2}}. \quad (11)
 \end{aligned}$$

Taking this into account, condition (1) takes the following

$$\begin{aligned}
 & \frac{1}{g} \left\{ \left[-e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) + \right. \right. \right. \\
 & \left. \left. \left. + \sin \varphi_0 \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \right] + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+2f} \cos \alpha_t + \right. \right. \\
 & \left. \left. + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \right]^{\frac{1}{2}} \times \right. \\
 & \left. \times \left(\frac{R_s^2}{R_d^2} \cos^2 \beta_s + \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \sin \alpha_t \sin \beta_s \right) + \frac{1}{2} V_i \sin 2\beta_s \cos \alpha_t \right\} \left\{ V_i \sin 2\beta_s \cos \alpha_t - \right. \\
 & \left. - \left\{ -e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) \sin \varphi_0 \cos \alpha_t + \right. \right. \right. \\
 & \left. \left. \left. + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \right] + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+2f} \cos \alpha_t + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + \right. \right. \\
 & \left. \left. + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \right]^{\frac{1}{2}} \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \cos \alpha_t \right\} + \left\{ V_i \cos \beta_s \sin \alpha_t - \right. \\
 & \left. - \left\{ -e^{2f(\varphi_0 - \arcsin(R_d/R_s))} \left[\frac{6fgR_s}{(1+4f^2)} \sin \varphi_0 \cos \alpha_t + 2gR_s \left(\frac{1-2f^2}{1+4f^2} \right) \sin \varphi_0 \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \times \right. \right. \right. \\
 & \left. \left. \left. \times \left(\frac{\sin 2\varphi_0}{f} - \sin^2 \varphi_0 \right) \right] + \frac{6fg\sqrt{R_s^2 - R_d^2}}{1+4f^2} \cos \alpha_t + 2gR_d \left(\frac{1-2f^2}{1+4f^2} \right) \cos \alpha_t + V_i^2 \frac{R_s^2}{R_d^2} \cos^2 \beta_s \times \right. \right. \\
 & \left. \left. \left. \times \left[\frac{2R_d\sqrt{R_s^2 - R_d^2}}{fR_s^2} - \left(\frac{R_d}{R_s} \right)^2 \right] \right]^{\frac{1}{2}} \frac{\sqrt{R_s^2 - R_d^2}}{R_s} \cos \alpha_t \right\}^2 + 2[R_d(1 - \cos \alpha_t) + h_s]g \right\}^{\frac{1}{2}} = B - R_d \sin \beta_s \sin \alpha_t. \quad (12)
 \end{aligned}$$

Analysis of this expression shows that the quality and adequacy of burying the film edges are primarily ensured by the radius (diameter) of the spherical disc working organ, its curvature radius,

the installation angle relative to the direction of movement, the transverse distance between the disc working organs that form and cover the trenches where the film edges are laid, as well as by selecting the correct forward speed of the implement.

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**QIYOSIY ADABIYOTSHUNOSLIK VA CHOG'ISHTIRMA TILSHUNOSLIKNI NAZARIY
ASOSLARI VA ZAMONAVIY YONDASHUVLARI**

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Annotatsiya: Mazkur maqolada qiyosiy va chog'ishtirma tilshunoslikning nazariy asoslari, ularning farqli va umumiy jihatlari, shuningdek, lingvistik tadqiqotlar uchun ahamiyati tahlil qilinadi. Qiyosiy tilshunoslik turli tillarning genealogik va tipologik o'xshashliklarini aniqlashga xizmat qilsa, chog'ishtirma tilshunoslik ularning strukturaviy va funksional jihatlari o'zaro taqqoslash orqali tadqiq qiladi. qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik fanlarining shakllanishi, ularning o'zaro aloqadorligi hamda zamonaviy ilmiy tadqiqotlarda tutgan o'rni tahlil qilinadi. Shuningdek, turli milliy adabiyotlar o'rtasidagi badiiy aloqalar, tarjima jarayonida milliylik va universallik muammolari, til va madaniyat o'rtasidagi uzviy bog'liqlik masalalari yoritilgan.

Kalit so'zlar: Qiyosiy tilshunoslik, chog'ishtirma tilshunoslik, til tahlili, genealogik tahlil, tipologiya, fikrlar, g'oyalar, metafora, struktura, usul va stil, interaktivlik, grammatik, konstruktsiyalar, rag'batlantirish, intertekstual aloqa, milliylik, madaniyat.

**THEORETICAL FOUNDATIONS AND MODERN APPROACHES OF COMPARATIVE
LITERATURE AND COMPARATIVE LINGUISTICS**

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Abstract: This article analyzes the theoretical foundations of comparative and comparative linguistics, their differences and common aspects, as well as their significance for linguistic research. While comparative linguistics serves to identify the genealogical and typological similarities of different languages, comparative linguistics studies their structural and functional aspects by comparing them. The formation of the disciplines of comparative literature and comparative linguistics, their interrelationships, and their place in modern scientific research are analyzed. The artistic connections between different national literatures, the problems of nationality and universality in the translation process, and the inextricable link between language and culture are also covered.

Keywords: Comparative linguistics, comparative linguistics, language analysis, genealogical analysis, typology, thoughts, ideas, metaphor, structure, method and style, interactivity, grammatical, constructions, motivation, intertextual communication, nationality, culture.

**ТЕОРЕТИЧЕСКИЕ ОСНОВЫ И СОВРЕМЕННЫЕ ПОДХОДЫ СРАВНИТЕЛЬНОГО
ЛИТЕРАТУРОВЕДСТВА И СРАВНИТЕЛЬНОГО ЯЗЫКОЗНАНИЯ**

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Аннотация: В статье анализируются теоретические основы сравнительного и компаративного языкознания, их различия и общие черты, а также их значение для лингвистических исследований. Сравнительное языкознание служит для выявления генеалогического и типологического сходства различных языков, в то время как сравнительное языкознание изучает их структурные и функциональные аспекты, сравнивая их. Анализируется становление дисциплин сравнительного литературоведения и сравнительного языкознания, их взаимосвязь и место в современных научных исследованиях. Также рассматриваются художественные связи между различными национальными литературами, проблемы национальности и универсальности в процессе перевода, неразрывная связь языка и культуры.

Ключевые слова: сравнительное языкознание, сопоставительное языкознание, языковой анализ, генеалогический анализ, типология, мысли, идеи, метафора, структура, метод и стиль, интерактивность, грамматические конструкции, мотивация, интертекстуальная коммуникация, национальность, культура.

Kirish.

Mamlakatimizda chet tillarini o'qitishni rivojlantirish, ta'lim sifatini yuksaltirish, o'quvchi yoshlarning chet tillarni o'rganish bo'yicha ko'nikma va malakalarini oshirish ustuvor vazifalardan biri hisoblanadi. O'zbekiston Respublikasi Prezidentining chet tillarni o'rganish tizimini yanada takomillashtirish chora-tadbirlari to'g'risidagi qarorini amalga oshirishda boshqa fanlar bilan bir qatorda adabiyotshunoslik, tilshunoslik va tarjimashunoslikning ham o'z maqsadi va vazifalari mavjud. Til murakkab muloqot tizimi hisoblanadi. Xalqlar muloqoti uchun, ijtimoiysiyosiy munosabatlar uchun ham til asosiy vositadir. Har bir xalqning rivojlanishida adabiy-aloqalar ham muhim o'rin tutadi. Adabiy aloqalarni rivojlantirish esa xalqlar o'rtasidagi ma'naviy-ma'rifiy munosabatlarni mustahkamlashga xizmat qiladi. Tarjimashunoslik bo'lsa barcha xalqlar urf-odatlarini va ilmiy ishlari bilan yaqindan tanishishga imkon beradi. Ko'rinib turibdiki, adabiyotshunoslik, tilshunoslik va tarjimashunoslik kabi fanlar yurtimiz ravnaqida muhim ahamiyat kasb etadi.

Qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik zamonaviy filologiya fanining ikki muhim yo'nalishi hisoblanadi. Ular turli madaniyat va tillar o'rtasidagi o'xshashlik hamda farqlarni aniqlash orqali umumiy qonuniyatlarni ochib beradi. XIX asrning ikkinchi yarmidan boshlab Yevropa va Rossiyada bu yo'nalishlar mustaqil ilmiy tizim sifatida shakllandi. O'zbek filologiyasida ham so'nggi yillarda qiyosiy tadqiqotlar va tarjimashunoslikning faol rivojlanishi kuzatilmoqda.[1]

Mavzu bo'yicha adabiyotlarni tahlili.

Qiyosiy adabiyotshunoslikning mohiyati - turli xalqlarning adabiyotlarini o'zaro solishtirish orqali ularning badiiy tafakkuridagi umumiylik va milliy o'ziga xoslikni tahlil etuvchi fan yo'nalishidir. Ushbu soha V. Komparativ, R. Wellek, A. Dyurkxaym, O. Freidenberg kabi olimlar tomonidan nazariy jihatdan asoslab berilgan. Bu yo'nalish nafaqat adabiyotlararo ta'sirni, balki madaniyatlararo muloqotni ham o'rganadi. Masalan, Alisher Navoiy ijodining fors, arab, turk va hind adabiyoti bilan o'zaro aloqasi o'zbek adabiy tafakkurining boyligi va universalligini ko'rsatadi.

Chog'ishtirma tilshunoslik (lingvistik komparativistika) turli tillarni qiyoslab o'rganish orqali ularning genealogik yoki tipologik o'xshashliklarini aniqlaydi. Bu yo'nalishning asoschilari sifatida Fridrix Bopp, Yakob Grimm va Rasmus Rask kabilar tilga olinadi. Bugungi kunda chog'ishtirma tilshunoslik nafaqat grammatik tizimlarni, balki semantik, pragmatik, va diskursiv darajadagi

farqlarni ham o'rganadi. Shu jihatdan u qiyosiy adabiyotshunoslik bilan uzviy aloqada bo'lib, badiiy matnlarning til strukturasini, obrazlilikni va madaniy konnotatsiyalarni tahlil qilishda qo'llaniladi.[2] Til - adabiyotning asosiy vositasi, adabiyot esa tilning estetik shaklidir. Shu bois, adabiyotshunoslikdagi qiyosiy tahlillar tilshunoslik usullari bilan boyitilmoqda. Masalan, chog'ishtirma tahlil yordamida Shekspir, Navoiy, Pushkin yoki G'afur G'ulom asarlaridagi metaforik ifodalar o'xshashliklari va farqlari aniqlanadi. Tarjima jarayonida esa til strukturasidagi farqlar madaniy tafovutlarni aks ettiradi. Bu jarayonda tarjimon ikki madaniyat o'rtasida vositachi rolini bajaradi.

Tahlil va natija.

Bugungi global axborot asrida qiyosiy tadqiqotlar yanada interdisciplinar tus olmoqda. "Madaniyatlararo kommunikatsiya", "intertekstual tahlil", "kognitiv lingvistika" kabi yangi metodlar qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslikni yangicha bosqichga olib chiqmoqda. Masalan, o'zbek va ingliz tillaridagi badiiy metaforalarning kognitiv tahlili yoki Navoiy hamda Dante asarlarining ruhiy-estetik umumiyliklarini qiyosiy o'rganish – bu yangi ilmiy yo'nalishlarning yorqin namunasidir.

1. Qiyosiy adabiyotshunoslikdagi tahlil usullari va ularning qo'llanilishi.

Qiyosiy adabiyotshunoslikda asosiy metod sifatida adabiyotlararo ta'sir, parallelizm va tipologik o'xshashliklarni aniqlashga qaratilgan usullar qo'llaniladi. Bu jarayon nafaqat asarlar o'rtasidagi o'xshash g'oyaviy yo'nalishlarni, balki har bir xalqning badiiy tafakkuridagi o'ziga xoslikni ochib beradi. Masalan, Alisher Navoiy asarlaridagi insonparvarlik, adolat, go'zallik va ma'naviy komillik g'oyalari Firdavsiy, Jomiy, Dante yoki Goethe asarlarida ham muayyan darajada aks etadi. Bu o'xshashliklar turli davr va madaniyatlarda insoniyat tafakkurining umumiy yo'nalishlarini ko'rsatadi.

Shu bilan birga, adabiyotlararo qiyosiy tahlil orqali muallifning uslubi, badiiy timsollarning shakllanish manbalari va janr evolyutsiyasini aniqlash mumkin. Misol uchun, Sharq adabiyotida shakllangan "Layli va Majnun" syujeti G'arb adabiyotidagi "Romeo va Juletta" kabi asarlarda ham qayta talqin qilingan bo'lib, bu umumiy insoniy qadriyatlarning badiiy timsollardagi ifodasini tasdiqlaydi. Zamonaviy o'zbek adabiyotshunosligida ham qiyosiy tadqiqotlar kengayib bormoqda. Ayniqsa, XX asr adabiyotida turli milliy maktablarning o'zaro ta'siri, realizm va modernizm oqimlarining milliy shakllari tahlil qilinmoqda. Masalan, Abdulla Qahhor, Oybek yoki G'afur G'ulom ijodini rus, turk va g'arb yozuvchilari bilan qiyoslash orqali milliy adabiyotning badiiy o'sish yo'nalishlari aniqlanadi.[3]

2. Chog'ishtirma tilshunoslikda nazariy va amaliy tahlillar.

Chog'ishtirma tilshunoslik (comparative linguistics) nafaqat tillar o'rtasidagi genealogik bog'liqlikni, balki fonetik, morfologik, semantik, sintaktik darajadagi tipologik o'xshashlik va farqlarni ham o'rganadi. Tilshunoslikdagi bunday tahlillar, ayniqsa, tarjimashunoslik va madaniyatlararo kommunikatsiyada muhim ahamiyat kasb etadi. Masalan, o'zbek va ingliz tillaridagi metaforalar yoki idiomatik iboralarni tahlil qilish natijasida har bir tilning madaniy asoslari ochiladi:

O'zbek tilidagi "ko'ngli tog'dek keng" iborasi xalqning mehmondo'stligi va ruhiy iliqligini bildirsa, Ingliz tilidagi "big-hearted" iborasi ham shunga o'xshash ijobiy ma'noni beradi, ammo u shaxsning saxiylikni, moddiy yordamga tayyorligini urg'ulaydi.

Bu o'xshashliklar va farqlar madaniyatlar tafakkurining o'ziga xosligini ifodalaydi. Shu bois, chog'ishtirma tahlil nafaqat lingvistik, balki madaniy-semantik tahlil sifatida ham katta ilmiy

ahamiyatga ega. Tilshunoslikda so'nggi yillarda kognitiv lingvistika va diskurs tahlili usullari keng qo'llanmoqda. Ular so'zlarning ma'no maydoni, milliy dunyoqarashni ifodalovchi birliklar, mental xaritalar orqali tahlil qilinadi. Masalan, o'zbek tilida "ko'z" so'zi ko'plab metaforik ma'nolarga ega ("ko'z qorachig'iday asrash", "ko'z tegdi" va boshqalar), ingliz tilida esa bu so'z ko'proq "awareness" yoki "perception" mazmunida ishlatiladi. Bu holat xalq tafakkurining milliy tafovutlarini ko'rsatadi.[4]

3. Qiyosiy adabiyotshunoslik va tilshunoslikning o'zaro uyg'unligi.

Bugungi global ilmiy muhitda bu ikki yo'nalish o'zaro yaqinlashmoqda. Chunki badiiy asarni to'liq tushunish uchun nafaqat uning mazmuni, balki lingvistik struktura, uslubiy xususiyatlar, diskursiv kontekst ham o'rganilishi kerak.[5] Masalan, Shekspir asarlarining o'zbek tiliga tarjimasida so'z o'yini, ironiya, ritmik qurilish kabi lingvistik jihatlar o'zbek tilining semantik imkoniyatlariga moslashtirilgan. Shu bilan birga, Alisher Navoiyning "Xamsa"si ingliz tiliga tarjima qilinganda, so'fiyona ma'nolarni to'liq ifodalash uchun tarjimon madaniy izohlar bilan to'ldirishga majbur bo'ladi. Bu holat qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslikning amaliy kesishuv nuqtasini namoyon etadi.

Tahlil natijalariga ko'ra, qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik bir-birini to'ldiruvchi fanlardir. Ularning integratsiyasi quyidagi ilmiy natijalarga olib keladi:

- Badiiy tafakkurning umumiy qonuniyatlarini aniqlash – turli adabiyotlarda inson, tabiat, jamiyat haqidagi umumiy g'oyalar ochiladi.
- Milliy adabiyotning xalqaro kontekstdagi o'rni belgilanadi – o'zbek adabiyotining jahon adabiy jarayoniga qo'shgan hissi tahlil qilinadi.
- Til va madaniyat o'rtasidagi bog'liqlik ochiladi – har bir tildagi so'z boyligi, frazeologiya, metafora va simvolik qatlam orqali milliy mentalitet aniqlanadi.
- Tarjima jarayonlarida ilmiy yondashuv kuchayadi – lingvokulturologik tahlil asosida matnning badiiy-estetik mohiyati saqlanadi.
- Madaniyatlararo kommunikatsiya rivojlanadi – turli xalqlarning adabiy merosini o'zaro anglash, xalqaro muloqot madaniyatini chuqurlashtiradi.

Yuqoridagi jihatlar shuni ko'rsatadiki, zamonaviy filologiyada qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik integratsiyasi ilmiy tafakkurning yangi bosqichini ifodalaydi. Ular nafaqat nazariy, balki amaliy ahamiyatga ham ega bo'lib, ta'lim, tarjimashunoslik, madaniyatshunoslik va kommunikatsiya sohalarida keng qo'llanilishi mumkin.

Qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik bir-birini to'ldiruvchi ilmiy sohalaridir. Ularning integratsiyasi milliy adabiyotlarni jahon adabiy jarayoni kontekstida o'rganish, tarjima sifatini oshirish, madaniyatlararo muloqotni chuqurlashtirish imkonini beradi. Shu sababli, zamonaviy o'zbek filologiyasida ushbu yo'nalishlar yanada chuqurroq rivojlantirilishi zarur.[6]

Qiyosiy-tarixiy tilshunoslik til tizimlarining kelib chiqishi, rivojlanish jarayoni va o'zaro aloqadorligini o'rganishga qaratilgan muhim sohadir. Ushbu yo'nalish tilshunoslikda turli xalqlar tillarining o'xshash va farqli tomonlarini, ularning tarixiy ildizlari va umumiy ajdod tillarini aniqlashda asosiy rol o'ynaydi. Bu yo'nalish orqali olimlar dunyo tillarining madaniy va lingvistik xilma-xilligini chuqurroq tushunish imkoniga ega bo'ldilar.

Qiyosiy tilshunoslikning rivojlanishi natijasida turli tillar o'rtasidagi genealogik bog'liqlik aniqlandi hamda ular til oilalariga ajratildi. Masalan, hind-yevropa, afro-osiyo, xitoy-tibet tillar oilalari shular jumlasidandir. Shuningdek, qiyosiy tahlil asosida tilshunoslar o'zaro qarindosh tillarning umumiy

ajdod tili bo'lgan proto-tillarni qayta tiklash (rekonstruksiya)ga erishdilar. Bu jarayon tilning fonetik, morfologik va semantik tuzilishida vaqt o'tishi bilan sodir bo'lgan o'zgarishlarni tahlil etish orqali amalga oshiriladi.[7]

Tilshunoslikdagi tipologik yondashuv esa tillarning strukturaviy jihatdan o'xshashlik va farqlarini o'rganishga qaratilgan. Tipologiya tilda uchraydigan universal hodisalarni aniqlaydi hamda ularni fonologik, morfologik, sintaktik va semantik darajalarda tasniflaydi. N. Xomskiy tomonidan ilgari surilgan tipologik qarashlar lingvistik universalialarni - ya'ni barcha tillarga xos bo'lgan umumiy qonuniyatlarni aniqlashda muhim ahamiyat kasb etdi.

Turkiy tillar tipologiyasi, xususan, ko'plik kategoriyasi, mayl shakllari, so'z tartibi, tovush tizimi kabi grammatik va fonetik jihatlar bo'yicha o'ziga xos xususiyatlarga ega. Masalan, o'zbek tilida so'z tartibi asosan qat'iy bo'lsa, ayrim turkiy tillarda u erkinroq bo'lishi mumkin. Shuningdek, tillarning tovush tizimi, urg'u joylashuvi, fonemalar soni ham tipologik jihatdan farq qiladi.[8]

Til tipologiyasi masalasida Mahmud Qoshg'ariyning "Devonu lug'otit-turk" asari ham beqiyos ahamiyatga ega. U turkiy tillarni o'zaro qiyoslash orqali ularning leksik va grammatik jihatlaridagi umumiylik hamda farqlarni ko'rsatgan. Shu kabi yondashuvni Alisher Navoiy ham "Muhokamat ul-lug'atayn" asarida qo'llab, turkiy va forsiy tillarni qiyosiy tahlil etgan, har birining badiiy imkoniyatlarini ochib bergan.[9]

Qiyosiy tilshunoslikning muhim tarkibiy qismi - lingvistik tipologiya bo'lib, u tillarni strukturaviy xususiyatlariga ko'ra turli tiplarga ajratadi. Masalan, aglutinativ, flektiv, izolyativ tillar turlari shular jumlasidandir. Shuningdek, tipologiyada allomorfizm - ya'ni morfemalarning turli shakllarda ifodalanishi hodisasi ham muhim nazariy tushunchalardan biridir.

Chog'ishtirma tilshunoslik (kontrastiv lingvistika) esa o'zaro qarindosh va qarindosh bo'lmagan tillarni bir-biri bilan solishtirish orqali ularning fonetik, grammatik, leksik va stilistik xususiyatlarini aniqlaydi. Bu yo'nalishda leksik-stilistik usullar, semasiologik tahlil hamda pragmalingvistik yondashuv keng qo'llaniladi. Natijada, turli tillardagi so'z boyligi, ma'no tizimi va nutq uslubi o'rganiladi.[10]

Tilni tipologik va chog'ishtirma jihatdan o'rganishda lingvokulturologiya va kognitiv tilshunoslik alohida o'rin tutadi. Chunki har bir tilda ifoda etilgan tushunchalar va semantik birliklar shu xalqning dunyoqarashi, qadriyatlarini hamda madaniyatini aks ettiradi. "Dunyoni qurish nazariyalari" ham til orqali inson tafakkuri va dunyo haqidagi bilimlarini shakllantirish jarayonini tahlil qiladi.

Qiyosiy tilshunoslikning eng muhim farqlovchi jihatlaridan biri uning tarixiy yondashuvidir. U tilning hozirgi holatini emas, balki uning evolyutsiyasi va tarixiy o'zgarishlarini o'rganadi. Shu sababli, bu fan sintaksis, fonologiya yoki semantika kabi boshqa yo'nalishlar bilan o'xshash bo'lsa-da, rekonstruksiya metodiga tayanishi bilan ajralib turadi.[11]

Umuman olganda, qiyosiy-tarixiy tilshunoslik tillarning tarixiy rivojlanishi, o'zaro qarindoshligi, tipologik o'xshashliklari va universalliklarini o'rganishga qaratilgan kompleks ilmiy yo'nalishdir. Bu fan tilshunoslikning boshqa tarmoqlari - kognitiv lingvistika, lingvokulturologiya, pragmalingvistika bilan uzviy bog'liq bo'lib, tilning nafaqat grammatik tizimini, balki u orqali ifodalangan madaniyat va tafakkur shakllarini ham tahlil qiladi.

Xulosa va takliflar.

Qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik - zamonaviy filologiyaaning ikki asosiy tarmog'i bo'lib, ular o'zaro chambarchas bog'langan holda til, madaniyat va badiiy tafakkur taraqqiyotini o'rganishga xizmat qiladi. Har ikkala yo'nalishning asosiy maqsadi — turli milliy

adabiyotlar va tillarni solishtirish orqali ularning o'xshash va farqli jihatlarini, umumiy estetik va ma'naviy tamoyillarini aniqlashdan iboratdir.

Bugungi kunda qiyosiy adabiyotshunoslik fani nafaqat adabiyotlararo ta'sirni tahlil etish, balki madaniyatlararo muloqot, tarjima jarayoni, badiiy tafakkurning global qonuniyatlarini aniqlash kabi masalalarni ham qamrab olmoqda. Bu sohada olib borilgan tadqiqotlar shuni ko'rsatadiki, har bir milliy adabiyot insoniyatning umumiy ma'naviy boyligiga hissa qo'shadi, lekin bu hissaning to'liq anglanishi uchun uni boshqa adabiyotlar bilan qiyoslab o'rganish zarur.

Shu jihatdan qaraganda, Alisher Navoiy, Jomiy, Pushkin, Goethe, Shekspir, Tagor kabi jahon adabiyoti vakillarining asarlarini qiyosiy tahlil qilish orqali biz nafaqat ularning badiiy dunyoqarashini, balki inson tafakkurining universalligi va milliylik o'rtasidagi nozik muvozanatni ham ko'ra olamiz. Navoiy asarlarida ko'tarilgan axloq, muhabbat, adolat va komillik g'oyalari dunyo adabiyotidagi umumiy falsafiy yo'nalishlar bilan uyg'unlikda namoyon bo'ladi. Bu esa o'zbek adabiyotining jahon madaniy maydonidagi o'rnini belgilaydi.[12]

Chog'ishtirma tilshunoslik esa bunday badiiy aloqalarni til darajasida tahlil qilish imkonini beradi. Tillar o'rtasidagi o'xshashlik va farqlarni o'rganish orqali biz milliy tafakkur, dunyoqarash va madaniyatning o'ziga xos ifodasini anglaymiz. Masalan, o'zbek va ingliz tillaridagi frazeologizmlar, metaforalar, madaniy birliklar tahlili shuni ko'rsatadiki, har bir til dunyoni o'ziga xos tarzda konseptualashtiradi. Shu bois, chog'ishtirma tilshunoslik nafaqat lingvistik, balki kulturologik va psixologik tahlilni ham o'z ichiga oladi.

Qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslikning o'zaro uyg'unlashuvi natijasida adabiy matnni kompleks yondashuv asosida o'rganish imkoniyati paydo bo'ladi. Adabiyotshunos tilshunoslik yondashuvlaridan, tilshunos esa badiiy-estetik tahlil usullaridan foydalanib, asar mohiyatini yanada chuqurroq anglay oladi. Ayniqsa, tarjima sohasida bu integratsiya alohida ahamiyatga ega. Tarjimon faqat so'zlarni emas, balki ularning ortidagi madaniy konnotatsiyalarni ham tushunishi, milliy ruhni saqlagan holda yangi madaniy muhitga mos ifoda topishi lozim.

Zamonaviy ilm-fan taraqqiyoti shuni ko'rsatmoqdaki, interdisiplinar yondashuvlar - ya'ni filologiyaning turli sohalarini birlashtirgan tahlillar eng samarali natijalarni bermoqda. Masalan, kognitiv lingvistika, diskurs tahlili, intertekstual yondashuv, semiotik tahlil kabi usullar adabiy va lingvistik qiyosiy tadqiqotlarga yangi imkoniyatlar ochib bermoqda.

Shuningdek, globallashuv sharoitida tillar va madaniyatlar o'rtasidagi aloqa yanada kuchayib, qiyosiy tahlillarga bo'lgan ehtiyoj ortib bormoqda. Bu jarayonda o'zbek filologiyasi ham faol ishtirok etmoqda — o'zbek adabiyotining jahon miqyosida o'rganilishi, asarlarning xorijiy tillarga tarjimasi, xalqaro tadqiqotlar bilan uyg'unlashuvi milliy ilm-fanning yangi bosqichga ko'tarilayotganini ko'rsatadi.

Umuman olganda, qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik fanlarining ahamiyati quyidagilarda namoyon bo'ladi:

- ❖ milliy adabiyotlarning jahon adabiyoti kontekstidagi o'rnini aniqlash;
- ❖ til va madaniyat o'rtasidagi uzviy bog'liqlikni ilmiy asosda tushuntirish;
- ❖ tarjima jarayonlarida madaniy muvozanatni saqlash;
- ❖ madaniyatlararo kommunikatsiyani mustahkamlash;
- ❖ yosh avlodda dunyoqarashni kengaytirish va ilmiy tafakkurni rivojlantirish.

Shunday qilib, mazkur sohalarni yanada chuqurroq o'rganish, ularni ta'lim jarayoniga integratsiya qilish hamda xalqaro miqyosda tadqiqotlar olib borish zamonaviy filologiya fani rivojining muhim yo'nalishlaridan biridir.

Qiyosiy adabiyotshunoslik va chog'ishtirma tilshunoslik insoniyat tafakkurining turli shakllarini birlashtiruvchi, xalqlar o'rtasidagi ma'naviy ko'priklarni mustahkamlovchi fanlardir. Ularning taraqqiyoti nafaqat ilmiy, balki ma'naviy-ma'rifiy ahamiyat kasb etadi. Shu sababli, bu yo'nalishlarni yanada chuqur o'rganish, yosh tadqiqotchilarni bu sohalarga jalb etish va xalqaro ilmiy hamkorlikni kengaytirish hozirgi davrning dolzarb vazifasidir.

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THE EVOLUTION OF CINEMATIC LANGUAGE AND VISUAL EXPRESSION
METHODS

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ANNOTATION

The progression of cinematic language and visual expression illustrates the ongoing transformation of film as both an artistic medium and a form of communication. Beginning with the silent era—when filmmakers depended on gesture, framing, and montage—cinema has continually evolved through the introduction of synchronized sound, color, and digital technology, each innovation broadening its expressive capacity. Advances in editing, camera movement, lighting, and composition have reshaped the ways emotions, stories, and concepts are visually conveyed. Modern filmmaking, shaped by virtual production, computer-generated imagery (CGI), and online streaming platforms, represents a dynamic fusion of traditional storytelling techniques and contemporary technological developments. This research explores the major stages in the evolution of cinematic language and analyzes how new visual strategies have influenced audience experience and film aesthetics.

Keywords: cinematic language, visual expression, film evolution, montage, cinematography, visual storytelling, digital cinema, film aesthetics, visual communication, narrative techniques.

ЭВОЛЮЦИЯ КИНЕМАТИЧЕСКОГО ЯЗЫКА И СПОСОБОВ ВИЗУАЛЬНОГО
ВЫРАЖЕНИЯ
АННОТАЦИЯ

Развитие кинематографического языка и средств визуального выражения иллюстрирует продолжающуюся трансформацию кино как художественного средства и формы коммуникации. Начиная с эпохи немого кино, когда кинематографисты полагались на жест, кадрирование и монтаж, кинематограф непрерывно развивался благодаря внедрению синхронизированного звука, цвета и цифровых технологий, каждое нововведение расширяло его выразительные возможности. Достижения в монтаже, движении камеры, освещении и композиции изменили способы визуальной передачи эмоций, историй и концепций. Современное кинопроизводство, сформированное виртуальным производством, компьютерной графикой (CGI) и онлайн-платформами потокового вещания, представляет собой динамичное сочетание традиционных техник повествования и современных технологических достижений. Данное исследование рассматривает основные этапы эволюции киноязыка и анализирует, как новые визуальные стратегии повлияли на восприятие зрителя и эстетику кино.

Ключевые слова: киноязык, визуальное выражение, эволюция кино, монтаж, кинематография, визуальное повествование, цифровое кино, эстетика кино, визуальная коммуникация, повествовательные приемы.

INTRODUCTION

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Cinema has long stood as one of the most influential and versatile forms of artistic expression. Since its origins in the late 19th century, it has grown from a mere visual attraction into a sophisticated medium capable of expressing profound emotions, complex ideas, and multi-layered narratives. The transformation of cinematic language and visual expression reflects not only advancements in technology but also changes in cultural values, artistic trends, and audience perceptions. Pioneering filmmakers like Georges Méliès and the Lumière brothers laid the foundation for visual storytelling through motion and composition, while later visionaries such as Sergei Eisenstein, Alfred Hitchcock, and Andrei Tarkovsky expanded the cinematic vocabulary with techniques of montage, symbolism, and visual metaphor.[1]

As cinema evolved, innovations in sound, color, editing, camera movement, and digital effects revolutionized the art of storytelling and viewing experience. Each period introduced distinctive aesthetic principles and expressive methods, reshaping the connection between image, time, and meaning. In today's era of digital filmmaking, virtual production, and global streaming platforms, cinematic language continues to develop, merging classical artistic traditions with cutting-edge technologies. Studying this evolution deepens our understanding of how cinema communicates beyond spoken language, influencing human perception, emotion, and collective imagination.

DISCUSSION AND RESULTS

The evolution of cinematic language and visual expression can be followed through several major historical and technological phases, each representing a shift in how filmmakers convey meaning and emotion.[2]

1. The Silent Film Era and the Birth of Visual Language;
2. The Introduction of Sound and Color;
3. The Classical and Modernist Eras of Film;
4. The Digital Revolution and New Visual Aesthetics;
5. Globalization and the Hybridization of Visual Language.

An examination of the development of cinematic language and methods of visual expression shows that film is a dynamic and ever-evolving art form. Rather than remaining fixed, it adapts to ongoing technological, cultural, and social transformations. Every stage—from silent cinema to the modern digital era—has introduced innovative expressive tools and reshaped the way meaning is constructed through moving images.[3]

The discussion identifies several significant insights:[4]

1. The Interconnection Between Technology and Art. Technological progress has always played a crucial role in shaping cinematic language. The shifts from black-and-white to color, from analog to digital, and from practical effects to CGI have all widened filmmakers' creative opportunities. However, technology alone does not define artistry; it is a vehicle through which directors bring imagination to visual life.[5]
2. The Evolution of Narrative and Aesthetic Forms. As cinematic techniques advanced, storytelling approaches also transformed. The straightforward, dialogue-centered narratives of classic cinema evolved into fragmented, symbolic, and immersive forms typical of modern and postmodern works. This change reflects audiences' growing desire for emotional complexity, visual sophistication, and intellectual engagement.
3. Globalization and Cultural Fusion in Visual Storytelling. Contemporary cinema functions within a global context, where cultural interaction and exchange enrich film language. Asian, European, and

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American cinematic traditions continuously influence one another, generating diverse visual and narrative styles. Such hybridity expands cinema's artistic vocabulary and encourages a broader, more inclusive understanding of visual communication.[6]

4. Enduring Core Principles of Cinematic Art. Despite rapid technological change, the foundational elements of film—composition, movement, lighting, rhythm, and editing—remain essential to its expressive power. While the tools evolve, the essence of cinema as an art form that unites image, sound, and emotion to create meaning endures.[7]

Results: The research concludes that the progression of cinematic language represents humanity's persistent effort to push the limits of visual expression. From the earliest explorations of light and shadow to today's digitally enhanced realities, filmmakers continually seek new ways to stimulate both the senses and the intellect. The main outcomes reveal that:

- Cinematic language develops in recurring cycles, where new technologies inspire creative breakthroughs.
- Visual expression is becoming increasingly interdisciplinary, incorporating elements of art, literature, design, and digital culture.
- The future of cinema depends on maintaining a balance between technological innovation and the preservation of its emotional and narrative depth.

Ultimately, the evolution of cinematic language confirms cinema's lasting role as a universal medium of communication—one that visually embodies the richness of human thought, feeling, and experience.

CONCLUSION

The evolution of cinematic language and visual expression highlights the ever-changing interplay between art, technology, and human imagination. From the earliest silent films that depended entirely on movement and composition to the sophisticated, digitally enhanced visuals of modern cinema, filmmakers have persistently explored new means of conveying meaning through imagery. Each era in film history has enriched the expressive potential of cinema, influencing how audiences experience narratives, emotions, and ideas on screen.

This research emphasizes that cinematic language is far more than a set of technical tools—it embodies cultural transformation and artistic creativity. Innovations such as sound, color, digital editing, and computer-generated imagery have not eliminated earlier methods but have blended with and redefined them. Consequently, contemporary cinema represents a fusion of heritage and progress, where timeless visual principles coexist with emerging technologies and global artistic influences.

Looking to the future, advancements in artificial intelligence, virtual reality, and interactive media will further reshape cinematic expression. Yet, despite ongoing technological change, the true essence of cinema endures: to engage audiences on emotional and intellectual levels through the art of visual storytelling. Therefore, the evolution of cinematic language stands as evidence of both the medium's remarkable adaptability and humanity's continual quest for new and deeper modes of artistic communication.

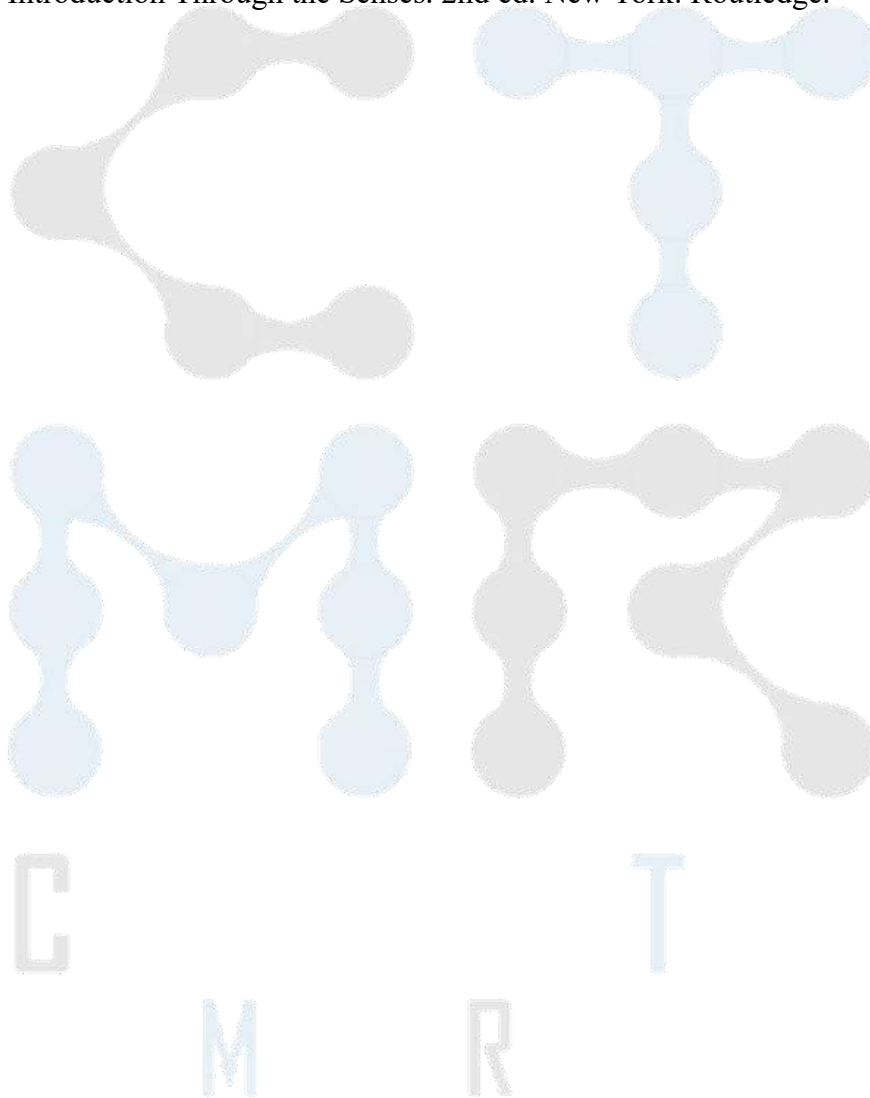
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МЕЖДУНАРОДНЫЙ ОПЫТ И СОВРЕМЕННЫЕ ПОДХОДЫ К РАБОТЕ С ОДАРЁННЫМИ СТУДЕНТАМИ В СИСТЕМЕ ВЫСШЕГО ОБРАЗОВАНИЯ

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Аннотация: В статье рассматриваются международные практики и методические подходы к работе с одарёнными студентами в системе высшего образования. Анализируется опыт ведущих стран мира - США, Великобритании, Германии, Финляндии, Южной Кореи и Сингапура - в области выявления, сопровождения и развития талантливых студентов. Особое внимание уделено созданию индивидуальных образовательных траекторий, внедрению инновационных педагогических технологий и системе мотивации. Рассмотрены также современные тенденции интеграции талантливой молодёжи в научные и инновационные проекты.

Abstract: The article examines international practices and methodological approaches to working with gifted students in higher education. It analyzes the experience of leading countries — the United States, the United Kingdom, Germany, Finland, South Korea, and Singapore — in identifying, supporting, and developing talented students. Particular attention is paid to the creation of individualized educational pathways, the implementation of innovative pedagogical technologies, and motivation systems. The article also explores current trends in integrating talented youth into scientific and innovation projects.

Ключевые слова: одарённые студенты, высшее образование, международный опыт, методические подходы, индивидуальная траектория, инклюзивная педагогика.

Современная система высшего образования направлена не только на массовую подготовку специалистов, но и на формирование элиты научного и интеллектуального потенциала общества. В этом контексте работа с одарёнными студентами становится одной из ключевых задач образовательных учреждений во всём мире. По данным ЮНЕСКО, талантливая молодёжь составляет около 3–5% контингента студентов, однако именно эта группа обеспечивает до 50% инновационного потенциала общества. Проблема выявления и сопровождения одарённых студентов требует комплексного подхода, включающего диагностику способностей, индивидуализацию образовательного процесса и формирование условий для самореализации. Международный опыт в данной области демонстрирует, что успешная работа с одарёнными студентами возможна только при взаимодействии педагогов, психологов и научных консультантов. Современная система высшего образования направлена не только на массовую подготовку специалистов, но и на формирование интеллектуальной элиты, способной обеспечивать инновационное развитие общества. По данным ЮНЕСКО, талантливая молодёжь составляет около 3–5% студенческого контингента, однако именно она

обеспечивает до 50% научно-инновационного потенциала общества¹. Это свидетельствует о необходимости системного подхода к выявлению и сопровождению одарённых студентов на всех уровнях образовательного процесса.

Опыт Соединённых Штатов Америки показывает, что успех работы с одарёнными студентами во многом зависит от гибкости образовательной системы и развития исследовательской среды. В таких университетах, как Harvard University, Stanford University и MIT, действует программа «Honors Program», предусматривающая ускоренное обучение, участие студентов в научных грантах и доступ к индивидуальному наставничеству². Важным компонентом американской модели является комплексная диагностика способностей студентов, которая включает тестирование, портфолио достижений и анализ исследовательского потенциала³.

Европейские страны развивают собственные подходы к поддержке талантливой молодёжи. В Германии с 2011 года успешно функционирует программа Deutschlandstipendium, которая объединяет государственную и частную поддержку студентов, проявивших выдающиеся способности в науке, культуре и спорте⁴. В Финляндии реализуется модель гибкого обучения, предусматривающая индивидуальные учебные планы и тьюторскую поддержку. Британские университеты, такие как Oxford и Cambridge, создают специализированные колледжи (Honors Colleges), где студенты работают над исследовательскими проектами в тесном взаимодействии с научными руководителями⁵. В странах Восточной Азии, например в Южной Корее и Сингапуре, работа с одарёнными студентами имеет стратегическое значение. При Сеульском национальном университете создан Gifted Education Center, который реализует программы индивидуального обучения и проектной деятельности для наиболее талантливых студентов⁶. В Сингапуре же государственная политика ориентирована на интеграцию талантливых студентов в инновационную экономику: для них создаются технопарки, исследовательские лаборатории и стартап-инкубаторы при университетах⁷.

Методические подходы к работе с одарёнными студентами в мировой практике включают индивидуализацию образовательных траекторий, внедрение интерактивных технологий, проектно-исследовательскую деятельность и систему тьюторства. Индивидуальный подход предполагает разработку персональных программ обучения с учётом интересов, темпа усвоения знаний и профессиональных целей студента⁸. Активное использование исследовательских и практико-ориентированных заданий способствует развитию критического мышления, лидерских качеств и способности решать комплексные задачи. Наряду с педагогическими аспектами большое значение имеет психологическая поддержка одарённых студентов. Согласно исследованиям Питерсона (Peterson, 2020), одарённые

¹ UNESCO. Education for the 21st Century: Issues and Prospects. — Paris, 2022.

² Harvard University. Gifted Education Initiatives. — <https://www.harvard.edu>

³ Sternberg R. The Theory of Successful Intelligence. — Cambridge University Press, 2019.

⁴ European Commission. Supporting Talent in Higher Education. — Brussels, 2021.

⁵ Cambridge University. Honors and Research Programs for Gifted Students. — Cambridge, 2022.

⁶ Seoul National University Gifted Education Center. Annual Report 2023. — Seoul, 2023.

⁷ Ministry of Education Singapore. Talent Development Strategy 2022–2030. — Singapore, 2023.

⁸ OECD. Personalized Learning in Higher Education. — Paris, 2021.

личности чаще подвержены стрессу, тревожности и синдрому перфекционизма, что требует постоянного психолого-педагогического сопровождения⁹. В этой связи многие университеты создают центры психологической поддержки, которые помогают студентам адаптироваться к высоким требованиям и сохранить эмоциональное равновесие.

В XXI веке значительное влияние на систему работы с талантливой молодёжью оказывают цифровые технологии. Искусственный интеллект и анализ больших данных позволяют выявлять скрытые способности учащихся и разрабатывать персонализированные образовательные траектории. Организация экономического сотрудничества и развития (ОЭСР) отмечает, что применение цифровых инструментов повышает эффективность педагогического взаимодействия и способствует раскрытию индивидуального потенциала студентов¹⁰. Таким образом, международный опыт подтверждает, что эффективная работа с одарёнными студентами требует комплексного подхода, включающего педагогические, психологические и технологические механизмы. Создание условий для самореализации талантливой молодёжи — это стратегическое направление развития современного высшего образования, обеспечивающее формирование инновационной экономики и научного прогресса. Изучение международного опыта показывает, что поддержка одарённых студентов — это не разовая инициатива, а системная стратегия, направленная на раскрытие интеллектуального потенциала нации. Включение лучших мировых практик в национальную образовательную политику способствует развитию научного творчества, инновационного мышления и формированию новой генерации исследователей, способных решать глобальные задачи будущего.

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PRESERVATION OF CULTURAL HERITAGE AND COMPLIANCE THEREWITH (THE CASE OF THE CITIES OF BUKHARA AND SAMARKAND)

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Abstract: *This article examines the issues of preservation and compliance with cultural heritage in the ancient historical and cultural centers of Uzbekistan, specifically the cities of Bukhara and Samarkand, through a comprehensive approach. These cities have historically been centers for the development of science, commerce, religion, and architectural traditions over the centuries. Currently, they are inscribed on the UNESCO World Heritage List and hold a distinguished position in global tourism. Therefore, preserving the authenticity of historical monuments and the architectural fabric within the cities constitutes an essential strategic objective from the standpoint of Uzbekistan's national interests as well as the preservation of global cultural heritage. This article analyzes the restoration and conservation processes in Bukhara and Samarkand, the requirements for harmonious development alongside tourism infrastructure, and the factors detrimentally impacting the urban landscape. Issues such as the implementation of new mechanisms for heritage management in response to increased tourism flows, the application of restoration technologies grounded in scientific methodology, and the enhancement of local community participation are examined. Furthermore, the principles of sustainable development of cultural heritage are articulated in accordance with the guidelines established by international organizations, particularly UNESCO. The research findings indicate that the preservation of cultural heritage in these two cities enables the improvement of tourism sector efficiency, the broad dissemination of national identity, and the comprehensive transmission of the masterpieces of world civilization to future generations.*

Keywords: *cultural heritage, Samarkand, Bukhara, UNESCO, historical monuments, restoration, conservation, architectural ensembles, sustainable tourism, tourist infrastructure, heritage management, cultural tourism, historic cities, national values, heritage protection.*

Kirish: Bugungi globalashuv jarayonida madaniy merosni asrash va uni kelajak avlodlarga yetkazish masalasi dunyo hamjamiyati oldida turgan eng muhim vazifalardan biri hisoblanadi. Insoniyat tarixining taraqqiyot bosqichlariga oid moddiy va nomoddiy yodgorliklar har bir xalqning milliy o'zligini belgilab, uning madaniy taraqqiyot darajasi va tarixiy xotirasini ifodalaydi. Shu nuqtayi nazardan, qadimiy shaharlar bo'lgan Buxoro va Samarqandning o'zni beqiyosdir. Bu shaharlar nafaqat Markaziy Osiyoning, balki butun jahon sivilizatsiyasining yirik ilmiy, savdo, ma'muriy va diniy markazlari sifatida rivojlangan. Samarqandning Registon maydoni, Shohi Zinda majmuasi, Ulug'bek observatoriyasi, Bibixonim masjidi, shuningdek, Buxoroning Ark qal'asi, Poi Kalon ansambli, Mir Arab madrasasi va Labi Hovuz majmuasi kabi tarixiy yodgorliklar o'zining me'moriy bezaklari, noyob shakl va mazmuni bilan butun dunyo ahli e'tiborini tortadi. Ushbu yodgorliklar o'zining tarixiy va badiiy qiymati tufayli UNESCOning Butunjahon merosi ro'yxatiga kiritilgan bo'lib, ularni muhofaza qilish xalqaro miqyosda ham alohida nazorat ostida turadi. Shu bilan birga, turizmning jadallik bilan rivojlanishi, aholi sonining oshishi, infratuzilmaviy o'zgarishlar, tabiiy va antropogen omillarning kuchayishi ushbu meros obyektlariga tahdid tug'dirmoqda. Tarixiy

shahar markazlarida zamonaviy qurilishlarning ko'payishi, restavratsiya va rekonstruksiya jarayonlarining ayrim hollarda me'yoriy talablarga mos bo'lmashligi merosning asl qiyofasini yo'qotish xavfini keltirib chiqarmoqda. Shuning uchun madaniy merosni ilmiy asoslangan boshqaruv tizimi orqali asrab-avaylash, restavratsiya va konservatsiya ishlarining sifatini oshirish, turizm va merosni saqlash o'rtasidagi muvozanatni ta'minlash bugungi kunning dolzarb masalasiga aylanmoqda. O'zbekiston hukumati tomonidan so'nggi yillarda madaniy merosni muhofaza qilish va turizmni barqaror rivojlantirishga qaratilgan qator davlat dasturlari qabul qilindi. Xalqaro tashkilotlar, jumladan UNESCO bilan hamkorlikda olib borilayotgan loyihalar ushbu jarayonning samaradorligini oshirishga xizmat qilmoqda. Biroq mavjud muammolarni bartaraf etish va ilmiy tajribalarni amaliyotga joriy etish bo'yicha doimiy ravishda izlanishlar olib borish talab etiladi. Shu sababli mazkur tadqiqot Buxoro va Samarqand misolida madaniy merosni saqlash, restavratsiya jarayonlarida ekologik va me'moriy me'yorlarga rioya etish, turizmni samarali boshqarish va aholining ushbu jarayondagi ishtirokini kuchaytirish bo'yicha ilmiy yondashuvlarni o'rganishga qaratilgan bo'lib, bu mavzuning ilmiy va amaliy ahamiyati juda yuqoridir.

Adabiyot tahlili va muhokama: Xalqaro ilmiy adabiyotlarda madaniy merosni saqlash va rioya etish masalalari turizmning barqaror rivojlanishi bilan bevosita bog'liq ekanligi ta'kidlanadi. UNESCO, ICOMOS kabi nufuzli tashkilotlar tomonidan ishlab chiqilgan tavsiyalarga ko'ra, tarixiy shaharlarni muhofaza qilish jarayonida ularning me'moriy qiyofasi, ijtimoiy muhit va tarixiy manzarani saqlab qolish tamoyillari qat'iy amal qilinishi lozim. Shuningdek, ilmiy manbalarda restavratsiya ishlari obidaning asl strukturasi va materiallariga mos ravishda olib borilishi zarurligi alohida urg'u bilan qayd etiladi. Buxoro va Samarqand bo'yicha olib borilgan tadqiqotlarda ushbu shaharlar qadimdan ilm-fan, diniy-ma'rifiy hayot va davlat tizimining markazi bo'lgani, ularning me'moriy obidalari jahon madaniyati tarixida katta ahamiyat kasb etishi ta'kidlanadi. Adabiyotlarda Samarqandning Amir Temur davridagi qurilish maktabi va Buxoroning Islom sivilizatsiyasidagi o'rniga oid ilmiy ma'lumotlar keng yoritilgan. Bu yodgorliklar o'zida turli davrlar me'morchilik an'analarini mujassam etganligi sababli, restavratsiya jarayonlarida arxeologik, tarixiy va estetik tamoyillar uyg'unligi talab etiladi. So'nggi yillarda mahalliy va xorijiy olimlar tomonidan tarixiy shaharlar markazida turizmni boshqarishning zamonaviy modellari, ekologik va antropogen bosimni kamaytirish strategiyalari taklif etilmoqda. Adabiyotlarda turizm infratuzilmasini rivojlantirish va madaniy merosni muhofaza qilish o'rtasida muvozanatni saqlash eng murakkab vazifa ekani qayd etiladi. Xususan, turistlar oqimining oshishi infratuzilmaviy kengayishni talab qiladi, bu esa ayrim hollarda tarixiy arxitektura yaxlitligiga xavf tug'dirishi mumkin. Shu jihatdan, manbalarda davlat siyosati, turizm boshqaruvi va mahalliy jamoaning faol ishtiroki uyg'unlashtirilishi lozimligi ta'kidlanadi. Buxoro va Samarqandda olib borilayotgan restavratsiya ishlari samarasini oshirish uchun xalqaro ekspertiza, innovatsion konservatsiya texnologiyalari va ilmiy asoslangan metodikalardan foydalanish zarur. Adabiyotlar tahlili shuni ko'rsatadiki, merosni saqlash jarayonida iqtisodiy foyda va madaniy merosni himoya qilish bir-birini to'ldirishi kerak bo'lgan jarayonlar bo'lib, ular o'rtasida to'g'ri boshqaruv qarorlari qabul qilinishi hal qiluvchi ahamiyatga ega. Demak, ilmiy manbalar Buxoro va Samarqandda madaniy merosni saqlash masalalariga keng e'tibor qaratib, ushbu shaharlarni global madaniy turizm xaritasida munosib o'rin egallashini ta'minlash uchun ham nazariy, ham amaliy yondashuvlarni taklif qiladi. Bu esa ushbu mavzuning keyingi tadqiqotlar uchun ham dolzarbligini ko'rsatadi.

Xulosa: Yuqoridagi ilmiy tahlillar va adabiyotlarni o'rganish natijalari shuni ko'rsatadiki, Buxoro va Samarqand shaharlarining madaniy merosini saqlash va unga rioya etish masalasi O'zbekistonning milliy taraqqiyot siyosati hamda xalqaro maydondagi nufuzini oshirishda muhim ahamiyatga ega. Ushbu tarixiy shaharlar o'zida ko'plab madaniy qatlamlar, me'moriy uslublar va sivilizatsiyalarning izini mujassam etgani bois dunyo madaniy merosining bebaho tarkibiy qismi hisoblanadi. Ularning asl qiyofasini saqlab qolish, nafosatini tiklash va jahon jamoatchiligiga munosib namoyish etish madaniy va ilmiy mas'uliyatdir. Merosni muhofaza qilish jarayonida turizmning jadal rivoji bilan bog'liq bo'lgan antropogen bosimni kamaytirish, shaharsozlikdagi o'zgarishlarni qat'iy nazorat qilish, ilmiy asoslangan restavratsiya me'yorlariga rioya qilish zarur. Tarixiy obyektlarni konservatsiya qilishda zamonaviy texnologiyalarni qo'llash, yadroni muhofaza qilish zonalarini kengaytirish va madaniy manzarani bir butun holda saqlash xalqaro standartlarga mos bo'lgan yondashuvlardir. Xalqaro tashkilotlar, xususan UNESCO bilan hamkorlikda amalga oshirilayotgan loyihalarning doimiyliigi ushbu strategiyalarning muvaffaqiyatli amalga oshirilishiga xizmat qiladi. Shu bilan birga, merosni boshqarishda mahalliy jamoalarning ishtirokini kuchaytirish, ta'lim va targ'ibot orqali aholining mas'uliyatini oshirish, turizm infratuzilmasini madaniy muhitga mos rivojlantirish ham madaniy merosni asrab-avaylashda hal qiluvchi omil hisoblanadi. Buxoro va Samarqandning tarixiy-madaniy salohiyati faqatgina iqtisodiy manfaat emas, balki milliy o'zlik, tarixiy xotira va ma'naviy merosni mustahkamlashga xizmat qilishi kerak. Xulosa o'rnida ta'kidlash joizki, Buxoro va Samarqand shaharlarida madaniy merosning asrab-avaylanishi O'zbekistonning xalqaro turizm sohasidagi mavqeini kuchaytiradi, milliy brendini yanada mustahkamlaydi hamda barqaror rivojlanish strategiyalarini ta'minlashga bevosita ta'sir ko'rsatadi. Ushbu yo'nalishda ilmiy-amaliy izlanishlarni davom ettirish tarixiy merosni kelajak avlodlarga to'laqonli yetkazishning eng muhim garovidir.

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DESIGN AND IMPLEMENTATION OF A SOFTWARE INTERFACE FOR GARMENT
PRODUCTION PROCESS

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В статье рассматривается процесс разработки программного интерфейса, предназначенного для проектирования технологических процессов в швейной промышленности. Представлены основные этапы создания — от анализа пользовательских требований и изучения существующих производственных процессов до проектирования архитектуры, программной реализации и тестирования. Обоснована значимость каждого этапа, что обеспечивает создание функционального, удобного и интуитивно понятного программного решения, направленного на повышение эффективности труда и улучшение качества готовой продукции в швейном производстве.

This article explores the development process of a software interface designed for planning technological processes in clothing manufacturing. It outlines the main stages of development — from studying user requirements and analyzing current workflows to designing the interface architecture, software development, and testing. The paper highlights the importance of each stage, contributing to the creation of efficient, user-friendly, and intuitive software that enhances productivity and improves the quality of finished garments in the apparel industry.

Ключевые слова: программный интерфейс, системы автоматизации, проектирование технологических процессов, цифровая трансформация, интерактивное моделирование, производство швейных изделий.

Keywords: interface, software, technological processes, automation, digitalization, interactive models, clothing production.

Introduction. Modern technologies are rapidly integrating into all spheres of production, including the garment industry. The automation and digitalization of technological processes greatly improve efficiency, product quality, and production speed. One of the most important directions in this field is the development of specialized software that supports the design of technological processes at various stages of garment manufacturing.

Literature Review. Today's manufacturing enterprises represent complex systems that perform numerous technological operations on a daily basis. To ensure the coordinated functioning of each production unit and the effective execution of tasks, various specialized software solutions have been created to automate production workflows. The introduction of such software for process automation has become one of the main tools driving progress across different industrial sectors [1,2].

This study examines existing software systems used for production management:

- FastReactPlan – a planning and production management system designed to optimize manufacturing operations and shorten order fulfillment cycles.
- GSD (General Sewing Data) – a software tool for analyzing and standardizing sewing operations, improving productivity, and reducing production costs (Figure 1).

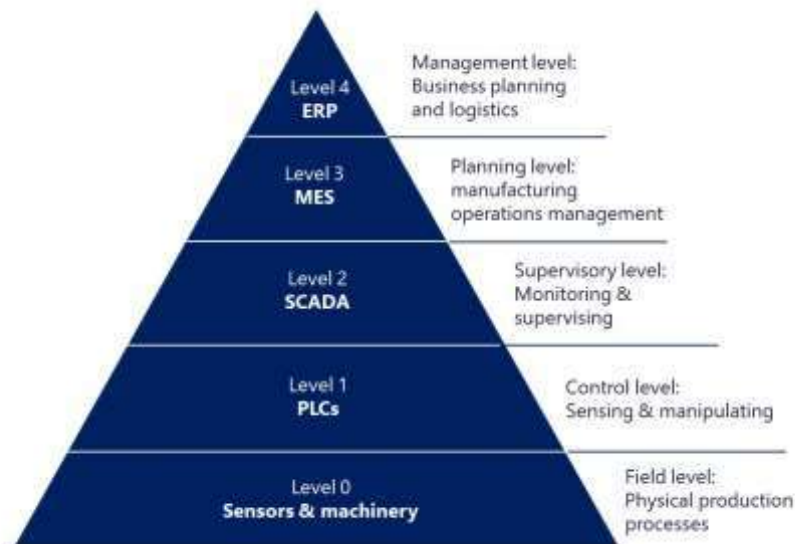


Figure-1. MES Systems for Production Management.

Research Methodology. The main objective of this study is to explore in detail the stages involved in developing a software interface for designing technological processes, to justify the significance of each stage, and to analyze the resulting outcomes.

1. Requirements Analysis and Task Definition

1.1 Studying User Needs.

The first stage focuses on identifying the requirements of end users — such as designers, technologists, and sewing machine operators. Surveys and interviews are conducted to determine their primary tasks, challenges, and expectations from the software.

1.2 Workflow Analysis.

A comprehensive analysis of existing production workflows is carried out to identify inefficiencies and determine which processes should be automated. The analysis covers all stages — from product design and development to final quality control.

2. Interface Architecture Design

2.1 Conceptual Model Development.

Based on collected data, a conceptual interface model is created. The design emphasizes logical structure and ease of user interaction. Key modules, their interconnections, and functional requirements for each component are defined at this stage.

2.2 Prototype Creation.

Interface prototypes are developed — starting with simple sketches and evolving into interactive models. These prototypes help visualize the expected layout and functionality, allowing users to evaluate and suggest improvements before full-scale software implementation.

3. Interface Implementation

3.1 Technology Selection.

Appropriate tools, programming languages, frameworks, and libraries are chosen to ensure a user-friendly and intuitive interface. Special consideration is given to cross-platform compatibility, system performance, and scalability.

3.2 Interface Development.

The programming phase involves translating the prototypes and architecture into a functional interface. The focus is placed on usability, ergonomics, and design aesthetics. Integration with databases and internal systems ensures seamless software operation.

4. Testing and Optimization

4.1 Internal Testing.

The initial testing is conducted by the development team to detect and fix errors, optimize performance, and verify that all modules meet the defined requirements and functions.

4.2 User Testing.

The next phase includes beta testing with actual end users. Feedback collected during this process helps identify usability issues, enhance functionality, and improve the interface design. Necessary adjustments are made based on user recommendations.

5. Deployment and Maintenance

5.1 Implementation.

Following successful testing, the software interface is deployed into the production environment. This includes installation, configuration, and staff training to ensure effective use of the new system.

5.2 Technical Support and Updates.

Regular maintenance and software updates are essential to maintain performance and adapt to evolving production requirements. The development team continues to enhance functionality, fix bugs, and ensure compatibility with new technologies and workflows [3,4,5].

Analysis and results. The developed software facilitates the automation of routine operations, simplifies the planning and control process, and enables quick response to changes in the production process. Implementing such a tool allows garment manufacturing companies to remain competitive in the face of constantly growing market demands and technological innovations.

Conclusion/Recommendations. Developing software interface for designing technological processes in garment manufacturing is indeed a complex, multi-stage process that requires careful attention to each phase. From thorough requirements gathering and analysis of current workflows to meticulous testing and software deployment, every stage plays a crucial role in creating an effective and user-friendly tool. Successfully implementing such a project can significantly increase productivity, reduce costs, and improve the quality of the final product.

Analysis and Results. The developed software system has demonstrated a significant positive impact on the organization and efficiency of technological processes within garment manufacturing enterprises. By automating repetitive and time-consuming operations, the software reduces human error and frees up employees to focus on higher-level analytical and creative tasks. The system streamlines planning, coordination, and monitoring activities across departments, ensuring that production schedules are maintained and resources are optimally allocated. One of the most valuable outcomes of this development is the improved responsiveness of production management to real-time changes. The interface provides immediate access to operational data, enabling managers and

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technologists to make informed decisions quickly. This flexibility is especially important in modern garment production, where frequent model updates, fluctuating material supplies, and changing customer demands require rapid adaptation.

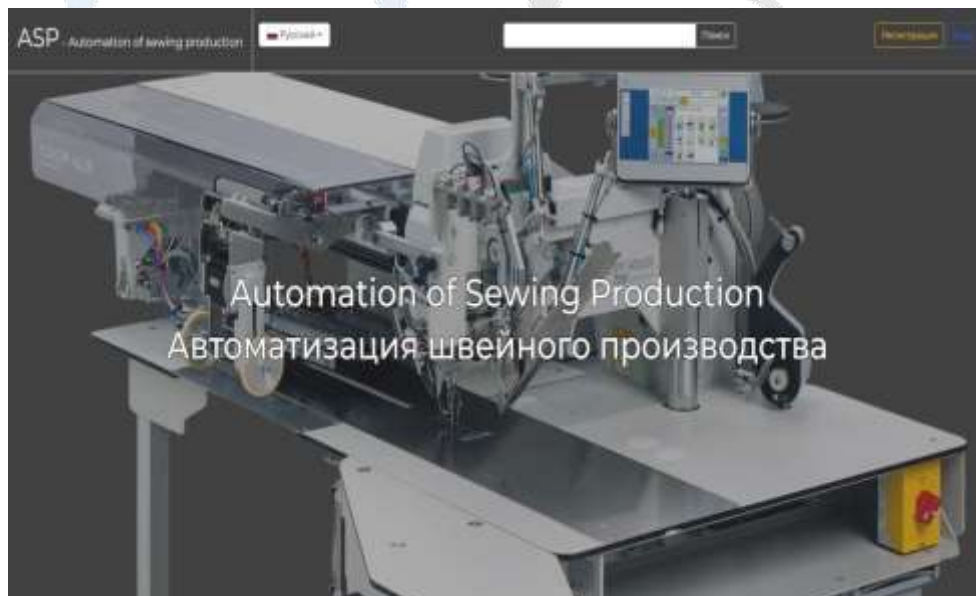
In addition, the integration of this interface with other digital systems—such as computer-aided design (CAD), enterprise resource planning (ERP), and quality control modules—creates a unified information environment. This contributes to better communication between departments, transparency of production stages, and traceability of technological operations. As a result, production downtime is reduced, the efficiency of material usage increases, and the overall productivity of the enterprise improves [6,7,8].

Moreover, the software enhances the quality management process by enabling detailed analysis of production parameters and the identification of deviations at early stages. Automated data collection and processing allow for more accurate forecasting, continuous process optimization, and maintenance of consistent product quality standards. Implementing such a digital tool allows garment enterprises to strengthen their competitiveness and ensure sustainable development in a rapidly evolving market driven by technological innovation.

In the course of this research, a software interface for managing the operations of garment manufacturing enterprises was developed. The main panel of the system includes essential functions such as “Language Selection,” “Search,” “User Registration,” and “System Login.” The interface of the “ASP – Automation of Sewing Production” MES software system was developed for designing automated technological processes in garment manufacturing enterprises (Figure 2.)

Figure 2. Main panel of the “ASP – Automation of Sewing Production” MES software system.

From a scientific and engineering standpoint, the design of these interface components ensures user accessibility, data security, and system adaptability to different operating conditions. The inclusion of



multilingual support enhances the software’s usability across various regions, while the integrated search and authentication mechanisms facilitate efficient navigation, personalized access, and data integrity.

Furthermore, the modular architecture of the developed interface allows for scalability and integration with other digital subsystems such as production planning, quality control, and inventory

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management. As a result, the system not only improves the efficiency of administrative and technological operations but also contributes to the digital transformation and intelligent management of garment manufacturing enterprises.

Conclusion and Recommendations. The development of a software interface for designing technological processes in garment manufacturing represents a complex and multi-faceted engineering and research task. It requires a systematic approach that integrates knowledge from software engineering, production technology, ergonomics, and design thinking. Each stage of the development cycle—from initial requirements analysis and modeling of workflows to software architecture design, interface prototyping, testing, and implementation—plays a vital role in achieving a functional and efficient solution. A thorough understanding of end-user needs is the cornerstone of success. The interface must be intuitive, logical, and tailored to the real conditions of sewing production, where operators, technologists, and designers interact with different types of information and tasks. Equally important is ensuring the system's flexibility and scalability, allowing it to adapt to future technological upgrades and expansions in production capacity.

Comprehensive testing and iterative refinement of the software are essential to achieve stability, performance, and ease of use. Continuous feedback from actual users during the beta testing stage helps to refine the interface and eliminate potential usability barriers.

Successful implementation of such software provides measurable benefits, including:

- A reduction in production time through process automation and synchronization of operations;
- Improved accuracy and consistency in process planning and execution;
- Lower operational costs due to optimized resource utilization;
- Enhanced product quality through precise monitoring and data-driven decision-making;
- Greater adaptability to new models, materials, and customer requirements.

For further development, it is recommended to integrate artificial intelligence and data analytics tools to predict production bottlenecks, optimize workflow configurations, and support decision-making processes. Additionally, creating mobile and web-based versions of the interface would provide greater accessibility and real-time control capabilities for managers and production staff.

Overall, the implementation of this software interface marks a step toward the full digital transformation of garment manufacturing enterprises, fostering innovation, sustainability, and competitiveness in the global textile industry.

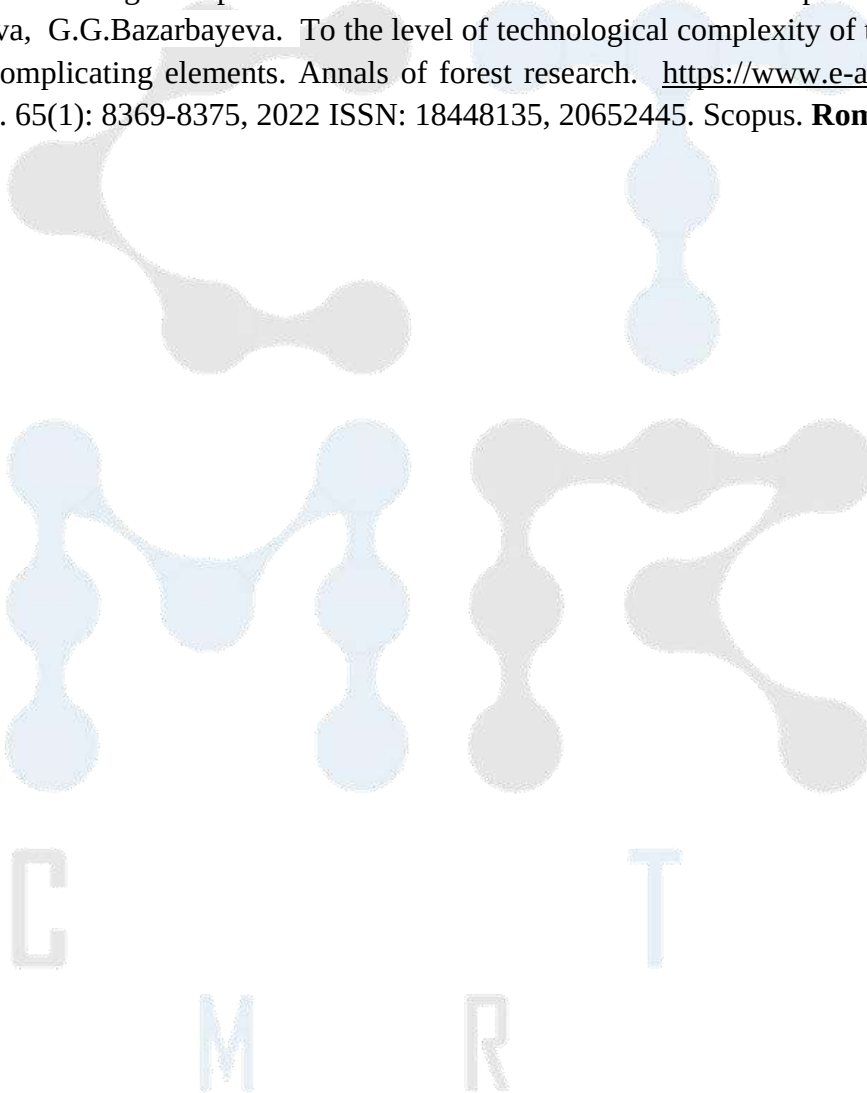
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DEVELOPMENT OF GRAPHIC NOVELS AS AN EDUCATIONAL TOOL

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Abstract: This article explores the historical and theoretical development of graphic novels as a form of art and an educational tool. It highlights how visual storytelling evolved from ancient cave paintings to modern illustrated literature. The study focuses on the transformation of comics into graphic novels and their growing use in educational contexts. The article also explains how graphic novels improve students' visual literacy, motivation, and critical thinking skills.

Keywords: Graphic novels, education, comics, visual storytelling, literacy, teaching tool, history, learning motivation.

Annotaciya: Ushbu maqolada grafik romanlarning san'at shakli va ta'lim vositasi sifatidagi tarixiy hamda nazariy rivojlanishi yoritilgan. Unda vizual hikoya qilish qadimgi g'or rasmlaridan boshlab zamonaviy illyustratsiyalangan adabiyotlarga qanday rivojlanganligi ko'rsatib o'tiladi. Tadqiqotda komikslardan grafik romanlarga o'tish jarayoni va ularning ta'lim sohasida tobora keng qo'llanilishi tahlil qilinadi. Shuningdek, maqolada grafik romanlarning o'quvchilarning vizual savodxonligini, o'qishga bo'lgan motivatsiyasini va tanqidiy fikrlash qobiliyatlarini rivojlantirishdagi ahamiyati tushuntiriladi.

Kalit so'zlar: Grafik romanlar, ta'lim, komikslar, vizual hikoyalash, savodxonlik, o'qitish vositasi, tarix, o'rganishga motivatsiya.

Graphic novels are one of the most creative and effective ways to combine art and education. Nowadays, they are not only a source of entertainment but also a strong educational tool that helps students learn better. Visual storytelling makes it easier to understand information and remember it for a long time. When pictures and words work together, they can express emotions, ideas, and social messages more clearly. For this reason, graphic novels are becoming more popular in schools and universities. Many teachers use them to make lessons more interesting and to increase students' motivation. In this paper, we will discuss how graphic novels developed through history and how they are used in modern education to improve students' visual literacy and critical thinking skills.

According to McCloud, graphic novels represent a natural evolution of storytelling that combines visual art and written language in a unique form [1].

By supporting this idea we can say that pictures and texts together make learning more engaging. Also this combination helps students understand the meaning faster and more deeply.

Schwarz states that graphic novels can play an important role in education because they allow students to think critically and interpret visual and textual information at the same time [2]. This view is well-founded since critical thinking is very important for young learners. Based on classroom experience, analyzing pictures while reading develops imagination and creativity too.

Versaci claims that the use of graphic novels in the classroom increases students' reading motivation and helps them connect emotionally with the characters [3]. It can also be argued that

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emotional connection makes reading more enjoyable and memorable. Besides, motivated students usually perform better and show more interest in lessons.

Carter explains that graphic novels are useful teaching tools for improving visual literacy, which means understanding and interpreting visual symbols and images [4]. This view is supported because today's students live in a digital world where visual communication is everywhere. If they learn to read images well, they will understand modern media and society more effectively.

Schneider argues that graphic novels help students who struggle with traditional texts because the combination of images and words provides visual support and makes complex ideas easier to understand [5]. This point is strongly supported since not all students learn in the same way. Visual learners especially benefit from pictures, as they can see the meaning instead of just reading about it.

Sabeti mentions that graphic novels encourage discussions about social, cultural, and moral issues among students, which develops empathy and communication skills [6]. This idea is highly significant because modern education should not only teach knowledge but also shape students' character. When learners discuss social topics through stories, they become more open-minded and respectful toward others.

In conclusion, graphic novels are powerful educational tools that connect art, language, and imagination. They make learning more interesting and help students understand complex ideas through visual and textual elements. By combining pictures and words, graphic novels encourage creativity, critical thinking, and emotional engagement, which are essential skills in today's world. They also support different learning styles and help students who find traditional reading difficult. Through visual storytelling, learners can better understand characters, historical events, and moral lessons. Moreover, graphic novels promote discussions about social and cultural issues, helping students become more open-minded and empathetic individuals. Overall, graphic novels should be seen as more than entertainment—they are an effective modern approach to education that inspires curiosity and lifelong learning.

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СРАВНЕНИЕ ЭФФЕКТИВНОСТИ СПЕКТРАЛЬНОГО И КОНЕЧНО-РАЗНОСТНОГО МЕТОДОВ ПРИ РЕШЕНИИ НЕЛИНЕЙНЫХ ГАЗОВЫХ УРАВНЕНИЙ ТИПА БЮРГЕРСА

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Аннотация

В данной статье рассматривается сравнительный анализ спектрального и конечно-разностного методов решения нелинейных газовых уравнений типа Бюргерса. Уравнение Бюргерса является одной из базовых моделей в теории газовой динамики и гидродинамики вязких сред, отражающей взаимодействие нелинейных конвективных и вязкостных эффектов. Сравнение проводится по критериям точности, устойчивости, вычислительной эффективности и способности воспроизводить основные физические характеристики потока, включая формирование ударных волн и диссипацию энергии. Применение спектрального метода на основе преобразования Фурье позволяет достичь экспоненциальной сходимости и высокой точности при моделировании гладких решений, тогда как конечно-разностные схемы удобны для локальных аппроксимаций и не требуют глобальных базисных функций. В работе представлены результаты численных экспериментов, демонстрирующих преимущества и ограничения каждого метода при решении задач газовой динамики. Полученные результаты могут быть использованы для выбора оптимальных вычислительных алгоритмов при численном моделировании течений газа в инженерных и физических приложениях.

Ключевые слова. Уравнение Бюргерса, спектральный метод, конечно-разностный метод, газовые потоки, нелинейная динамика, турбулентность, численное моделирование, устойчивость, точность.

Abstract

This article presents a comparative analysis of spectral and finite-difference methods for solving nonlinear Burgers-type gas equations. The Burgers equation is a fundamental model in the theory of gas dynamics and viscous fluid dynamics, reflecting the interaction of nonlinear convective and viscous effects. The comparison is based on accuracy, stability, computational efficiency, and the ability to reproduce the fundamental physical characteristics of the flow, including shock wave formation and energy dissipation. The use of the spectral method based on the Fourier transform allows for exponential convergence and high accuracy when modeling smooth solutions, while finite-difference schemes are convenient for local approximations and do not require global basis functions. The paper presents the results of numerical experiments demonstrating the advantages and limitations of each method for solving gas dynamics problems. The obtained results can be used to select optimal computational algorithms for numerical modeling of gas flows in engineering and physical applications.

Key words. Burgers equation, spectral method, finite difference method, gas flows, nonlinear dynamics, turbulence, numerical modeling, stability, accuracy.

ВВЕДЕНИЕ

Нелинейные процессы в газовой динамике представляют собой одно из наиболее сложных направлений вычислительной физики. При описании газовых потоков, особенно в областях с большими градиентами скорости и давлением, возникают математические трудности, связанные с решением нелинейных дифференциальных уравнений в частных производных. Одним из наиболее простых, но показательных уравнений, отражающих фундаментальные свойства таких систем, является уравнение Бюргерса.

Уравнение Бюргерса можно рассматривать как одномерный аналог уравнений Навье — Стокса. Оно описывает совместное действие нелинейной адвекции и вязкостной диффузии и записывается в виде:

$$\frac{\partial u}{\partial t} + u \frac{\partial u}{\partial x} = \nu \frac{\partial^2 u}{\partial x^2}$$

где $u(x, t)$ — скорость газа, ν — коэффициент кинематической вязкости. В пределе $\nu \rightarrow 0$ уравнение становится гиперболическим и допускает образование ударных волн, что делает его удобным тестом для оценки численных методов, предназначенных для задач газовой динамики.

Традиционно для численного решения уравнения Бюргерса применяются два подхода: методы на сетках конечных разностей и спектральные методы. Первый подход основывается на локальной аппроксимации производных, а второй — на представлении решения в виде разложения по базисным функциям (обычно тригонометрическим). Конечно-разностные методы широко распространены благодаря простоте реализации, однако страдают от численной диффузии и ограниченной точности при моделировании гладких решений. Спектральные методы, напротив, обеспечивают крайне высокую точность при малом числе узлов сетки, но требуют строгих условий гладкости и периодичности решения.

Сравнение этих методов представляет научный и практический интерес, поскольку выбор схемы определяет эффективность моделирования физических процессов, включая турбулентность, взаимодействие волн и диссипативные явления. Цель данной работы заключается в сравнительном исследовании спектрального и конечно-разностного методов для решения уравнения Бюргерса в контексте моделирования газовых потоков, а также в выявлении преимуществ и ограничений каждого из них при различных параметрах вязкости и шагах сетки.

АНАЛИЗ И МЕТОДОЛОГИЯ ЛИТЕРАТУРЫ

Первые аналитические исследования уравнения Бюргерса были проведены Дж. Бюргерсом (Burgers, 1948), который показал, что данное уравнение может служить моделью турбулентных течений с учетом вязкости. Позднее Хопф (Hopf, 1950) и Коул (Cole, 1951) предложили преобразование, известное как преобразование Коула — Хопфа, позволяющее линеаризовать уравнение и получать точные решения. Эти работы заложили основу для использования уравнения Бюргерса в качестве тестовой задачи при проверке точности и устойчивости численных схем.

Развитие спектральных методов связано с работами Орсага (Orszag, 1971) и Готтлиба (Gottlieb, 1977), которые показали, что представление решения через ряды Фурье обеспечивает

экспоненциальную сходимость для гладких функций. Пейре (Peyret, 2002) и Бойд (Boyd, 2001) подробно описали применение спектральных и псевдоспектральных методов для решения задач гидродинамики и показали их преимущества перед методами конечных разностей при периодических граничных условиях.

В то же время классические конечно-разностные методы, рассмотренные Флетчером (Fletcher, 1991) и Хиршем (Hirsch, 2007), остаются основным инструментом при решении задач с разрывами и сложной геометрией. Эти методы устойчивы и универсальны, но требуют значительно большего числа узлов для достижения той же точности, что и спектральные методы. В последние десятилетия активно исследуются гибридные методы (Karniadakis, 2013), объединяющие преимущества обоих подходов.

Современные исследования (Ху, 2015; Keeling, 2018) демонстрируют, что спектральные методы особенно эффективны для моделирования переходных процессов и турбулентных структур в газах при умеренных числах Рейнольдса. Тем не менее, при наличии разрывов (ударных волн) эффективность спектральных методов снижается из-за эффекта Гиббса. Для борьбы с этим применяются фильтрация высокочастотных мод и регуляризация решений.

Таким образом, анализ литературы показывает, что оба метода имеют свои области применения: спектральные методы — при моделировании гладких, периодических решений, а конечно-разностные — при задачах с локальными особенностями, не требующих глобального базиса. В настоящей работе проводится их количественное сравнение по параметрам точности, устойчивости и вычислительных затрат.

Для численного решения уравнения Бюргерса рассмотрены два подхода — спектральный и конечно-разностный. Расчёты выполняются на одинаковом временном интервале и при одинаковых условиях вязкости. В качестве тестовой задачи используется периодическая область длиной $L=2\pi$ с начальными условиями $u(x,0)=\sin(x)$.

В спектральном методе решение представляется в виде ряда Фурье:

$$u(x, t) = \sum_{k=-N/2}^{N/2} \hat{u}_k(t) e^{ikx}$$

$$\hat{u}_k(t)$$

где — спектральные коэффициенты. Нелинейный член вычисляется в физическом пространстве с помощью быстрого преобразования Фурье (FFT), после чего производится обратное преобразование для получения спектра. Вязкостный член интегрируется аналитически, что обеспечивает высокую точность и стабильность при малых шагах по времени. Для интегрирования по времени применяется метод Рунге–Кутты четвёртого порядка.

В конечно-разностном методе используются центральные аппроксимации второго порядка для пространственных производных:

$$\frac{\partial u}{\partial x} \approx \frac{u_{i+1} - u_{i-1}}{2\Delta x}, \quad \frac{\partial^2 u}{\partial x^2} \approx \frac{u_{i+1} - 2u_i + u_{i-1}}{\Delta x^2}.$$

Для интегрирования во времени применяется схема Кранка–Николсона или метод Мак-Кормика. Шаг по времени выбирается из условия устойчивости Куранта–Фридрихса–Леви (CFL).

Сравнение методов проводится по следующим критериям:

1. **Погрешность** по нормам L_2 и L_∞ ;
2. **Скорость сходимости** при увеличении числа узлов;
3. **Вычислительная сложность** (число операций и время счета);
4. **Поведение при малых значениях вязкости** (формирование ударной волны).

Для визуализации результатов строятся профили скорости $u(x,t)$ в различные моменты времени и энергетические спектры $E(k)$. Расчеты выполняются в программной среде Python с использованием библиотек NumPy и SciPy.

ПОЛУЧЕННЫЕ РЕЗУЛЬТАТЫ

Результаты численных экспериментов показали, что спектральный метод обеспечивает значительно более высокую точность при меньшем числе узлов сетки. При $N=64$ точность спектрального решения сопоставима с конечно-разностным решением при $N=512$. Нормы ошибок демонстрируют экспоненциальное снижение для спектрального метода и лишь степенное для конечно-разностного.

При малых коэффициентах вязкости ($\nu=0.01$) спектральный метод чётко воспроизводит образование ударной волны, но при дальнейшем снижении вязкости возникает эффект Гиббса — осцилляции около разрывов. Конечно-разностная схема при тех же условиях показывает более сглаженный профиль за счёт численной диффузии, но теряет точность в центральной части волны.

Энергетический спектр, полученный спектральным методом, демонстрирует правильное распределение энергии по модам, что подтверждает его способность описывать турбулентные переходы. При увеличении числа узлов спектр совпадает с теоретическим законом затухания. Конечно-разностная аппроксимация демонстрирует избыточное затухание высокочастотных мод, что указывает на наличие искусственной вязкости.

По вычислительным затратам спектральный метод требует больше операций на одну итерацию, но общее время решения оказывается меньше из-за более быстрой сходимости. Таким образом, при гладких решениях спектральный подход более эффективен. Однако при наличии разрывов или сложной геометрии предпочтительнее конечно-разностный метод, обеспечивающий лучшую устойчивость.

ВЫВОД

Проведённое исследование показало, что выбор численного метода для решения нелинейных газовых уравнений типа Бюргерса должен определяться характером задачи. Спектральные методы обеспечивают высокую точность и экспоненциальную сходимость при моделировании гладких решений, что делает их предпочтительными для задач с периодическими граничными условиями и умеренной нелинейностью. Конечно-разностные методы обладают большей универсальностью и устойчивостью при решении задач с разрывами и нестационарными граничными условиями.

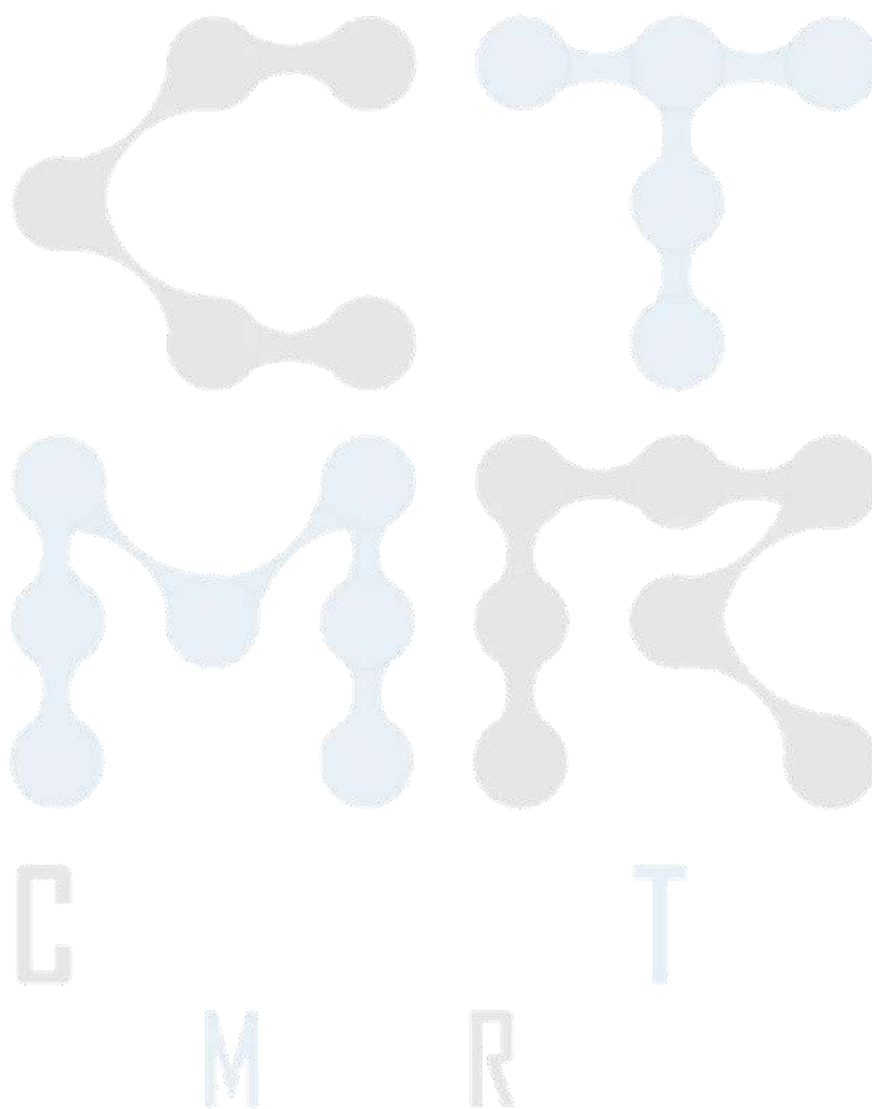
Численные эксперименты подтвердили, что при одинаковом числе узлов спектральный метод превосходит конечно-разностный по точности на несколько порядков. Однако в областях с сильной нелинейностью или при низкой вязкости, где формируются ударные волны, конечно-разностные схемы показывают более стабильные результаты.

Таким образом, комбинированное использование спектральных и конечно-разностных подходов может стать оптимальным решением для моделирования газодинамических систем, где требуется высокая точность в гладких областях и устойчивость вблизи разрывов. Перспективными направлениями дальнейших исследований являются разработка гибридных методов, адаптивных сеток и параллельных вычислительных алгоритмов, обеспечивающих баланс между скоростью, точностью и устойчивостью численного моделирования.

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THE ROLE OF STEAM PROJECTS IN DEVELOPING CREATIVE THINKING IN
ELEMENTARY TEACHERS

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Abstract. This in the article start class of students creative thinking STEAM (Science, Technology, Engineering, Arts, Mathematics) projects in development pedagogical importance , methodological opportunities and results analysis In the study experiment works based on of the students creative thinking , problematic in situations independent decision acceptance to do , in collaboration work , logical and aesthetic thought such as skills change dynamics studied . Obtained results this showed that in STEAM projects participated students creative thinking 27 percent at the level growth manifestation reached , this and project approach elementary in education creativity in development efficiency confirms .

Key words : STEAM , creative thinking , beginning education , project activity , innovation approach , logical thought

Login . In the 21st century education process main The goal is for students independent , critical and creative thinking Creative thinking (creative) thought) – this new ideas create , exist knowledge to oneself typical in a way hand knowledge , unusual solutions find is the ability . Start eating education during this adjectives especially important because this child's thinking at different stages flexibility , imagination power and to know was natural interest the most high at the level will be .

Modern STEAM (Science, Technology, Engineering, Arts, Mathematics) approach in education of the students practical , analytical and creative activity harmonizing effective system as confession This is being done . approach in children not only interdisciplinary connection understand , maybe them practical in situations apply , new ideas try view , collective work and communication culture formation opportunity gives .

Uzbekistan education STEAM projects in the system last in years active current is being done . But start class students creative thinking in development clear mechanisms , stages and results according to empirical research enough not . This because of this article following to questions answer is looking for :

1. Start drinking class students creative thinking STEAM projects in development how role plays ?
2. Based on STEAM organization done education process in the students creative skills impact how ?
3. This the process effective organization to grow for how pedagogical conditions necessary ?

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Modern education in the system of the students creative thinking develop the most important strategic from directions one as confession The 21st century is being competencies in the center located **creative thinking** is person's news create , non-standard in situations effective solution find and there is knowledge new in context application Therefore , education in the system **The STEAM approach** (Science, Technology, Engineering, Art, Mathematics) is creative thinking development modern and effective model as is being considered .

Today on the day world education in the system of the students " **knowledge** " from **memorization knowledge in practice to apply** " **pass** " on the principle based training activities priority profession OECD (2022) , UNESCO (2023) etc. international organizations in reports record It is believed that the beginning education in the phase creative thinking to develop directed interdisciplinary approach students not only academic indicators , but their personal activity , communication and problem solution to grow skills are also noticeable at the level increases .

Start drinking class students are to know curiosity , imagination wealth and experience through to study high to need has was young Category . Exactly this in stages their thought to the processes creativity elements to absorb , to absorb them observation , analysis to make , to synthesize and to evaluate to teach important importance profession STEAM projects are in process to oneself typical training tool as manifestation will be .

STEAM approach traditional education in the system interdisciplinary borders breaks and students' real - life problems complex approach based on solution to do ability Especially the “ Art” component addition (i.e. creative art and design elements) creative thinking in formation important factor become service does . Because this component student 's aesthetic taste , expression tools choice ability and own the idea visual or verbally expression opportunity expands .

Uzbekistan " Education " of the Republic "about" Law (2020), “ New Uzbekistan – school from the threshold " begins " idea , and the plan for 2030 National education in the program students **creative thinking , critical thinking and problematic in situations solution find abilities formation** main from goals one as In this respect STEAM technology start in education of teaching new model is , it is the students' independent thinking , communicating free to be , scientific analysis and synthesis based on conclusions take out to take provides .

Last in years Uzbekistan education in the STEAM direction in the system one row experiments done is being increased . Including , Innovation development Ministry of the People education ministry and by IT-Park start in education “**STEAM clubs** ” organization to be students practical experience based on thinking is activating . With this together , this process of the students methodical literacy , project-based thinking It also requires developing skills .

So so , this of the research relevance the following with is marked :

- Start drinking in education creative thinking develop problem modern education in the system leader from topics one is considered ;

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- STEAM approach of the students scientific , technological and artistic thinking integration opportunity gives ;
- There is education in methodologies students creativity activity systematic to develop directed integrative projects enough at the level working not released .

Therefore , this research **start class in students creative thinking STEAM projects in development place and importance to determine** , their pedagogical the basics analysis to do and practical recommendations working to go out focused .

Methods. Research design . Research experiment in character divided into three in stages conducted : diagnostic , experiment and control stages . Mixing method (quantitative and quality) was used .

Participants: Experience 3 secondary schools in Tashkent region It was held in grades 2–4 of the school . General 96 people on the account student participation seven , 48 of them experience , 48 people control to the group separated .

Criteria : Creative thinking assessment for following criteria marked :

- **Thinking fluency** — ideas number ;
- **Originality** — unusual solution find ability ;
- **Imagination power (imagination)** — visual and verbal creativity level ;
- **Logical logical consistency** — the idea justification , cause and effect show

Evaluation Torrance creative thinking test customized shape based on done increased .

STEAM projects content . Experience in the phase students 6 integrative for project working output :

1. " **Plants " life** " (Natural Science + Art);
2. " **Water is life" source** " (Natural Science + Technology);
3. " **Construction engineer (Mathematics + Engineering)** ;
4. " **Robotics " Fundamentals** " (Technology + Mathematics);
5. " **Creative numbers** " (Mathematics + Visual art);
6. " **Ecological city** " (Interdisciplinary project : Natural science, art , technology).

Each project 2–3 weeks continue reached and finally students own developments , models and ideas presented they did .

Data assembly and analysis to do . Start drinking in stages students creative thinking level determined , experiment in the end again measurement done The data were analyzed using a t-test . analysis done , quality in analysis of the students works , painting and project descriptions encoded .

Results . Experience group of the students creative thinking average index from 2.98 to 3.78 increased , i.e. 27% increase record Control in the group and this index from 3.01 to 3.19 changed (6% increase) . T-test result according to , groups between noticeable difference detected ($p < 0.01$).

Creative of thinking the most many growth observed directions :

1. **Imagination Strength** : 33% increase
2. **Originality** : 28% increase
3. **Thinking Flexibility** : 25% increase
4. **Logical consistency** : 21% increase

Quality results . Students in interviews following thoughts reported : “ Projects on time we own our idea say Let's get it , everyone. the idea "I hear the water ." saving I made a video about it — this me to think " The picture and mathematics together if , read interesting " It will be ."

Readers and STEAM projects in students cooperation , initiative and creative approach in development positive the impact they emphasized .

Discussion. Research results this showed that STEAM projects students creative his/her thinking in formation important role plays . This result international with studies (Bybee , 2013; Yakman , 2019; UNESCO, 2022) harmonious is , integrative education model students motivation and cognitive activity increase approved .

STEAM activities students :

problematic situations independent solution to reach ,

interdisciplinary connection to see ,

new ideas previously to push ,

aesthetic and scientific thinking to reconcile teaches . However, in experience some problems were also observed : lack of material resources lack of time limitation and students ' STEAM methodical readiness Therefore , education in institutions special “STEAM laboratories ” were established to teach , to teach Seminars and trainings for transfer recommendation is being done .

Conclusion . Experience results based on following to conclusions bride :

1. STEAM projects start class in students creative thinking in development effective tool is considered .
2. Project activity the students active learning , collaboration work , ideas in practice to try encourages .
3. Based on STEAM organization done training students logical , visual and verbal thinking complex develops .
4. Process efficiency increase for STEAM methodology for teachers according to systematic preparation necessary .

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Expression of p53 and CD31 in Malignant Salivary Gland Tumors: A Clinicopathological and Immunohistochemical Study

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Abstract: Background: Salivary gland malignancies represent a diagnostically and therapeutically challenging group of head and neck tumors. Immunohistochemical biomarkers such as p53, CD31, VEGFR, and Ki-67 are essential in assessing the proliferative and angiogenic activity of these neoplasms.

To evaluate the expression patterns of p53 and CD31 in malignant salivary gland tumors (MSCTs) and determine their diagnostic, prognostic, and clinical implications. Seventy patients diagnosed with MSCTs between 2017–2022 were analyzed. Immunohistochemical studies were conducted on 40 selected cases (20 mucoepidermoid carcinomas and 20 adenocarcinomas) using Bond Leica (Australia) processors with antibodies against p53, CD31, Ki-67, and VEGFR. Expressions were semi-quantitatively evaluated using the Allred scoring system. p53 expression in mucoepidermoid carcinoma was low in 70%, moderate in 20%, and high in 10% of cases, while adenocarcinomas showed low in 10%, moderate in 20%, and high in 70%. For CD31, 100% of mucoepidermoid tumors exhibited weak vascular density (10–15 vessels/field), whereas adenocarcinomas displayed strong vascularity (30–40 vessels/field).

Adenocarcinomas of the salivary glands demonstrate significantly higher proliferative and angiogenic activity compared to mucoepidermoid carcinomas. p53 and CD31 can serve as reliable prognostic indicators for tumor aggressiveness and metastatic potential.

Keywords: Salivary gland carcinoma, p53, CD31, angiogenesis, immunohistochemistry, prognosis, molecular pathology

Introduction Salivary gland tumors (SGTs) are rare neoplasms accounting for 3–6% of all head and neck tumors. Despite their low incidence, these tumors pose significant diagnostic and therapeutic challenges due to their diverse histopathological spectrum. According to the World Health Organization (WHO, 2022), over 30 histological types of salivary gland tumors have been described. Malignant forms such as mucoepidermoid carcinoma, adenoid cystic carcinoma, and adenocarcinoma differ substantially in cellular morphology, proliferative activity, and metastatic potential.

In recent years, the integration of molecular pathology and immunohistochemistry (IHC) has revolutionized salivary gland cancer diagnostics. Molecular biomarkers including p53, CD31, VEGFR, and Ki-67 are valuable tools for assessing proliferation, angiogenesis, and tumor aggressiveness. Understanding their expression profiles in malignant salivary tumors could enhance prognostic accuracy and guide individualized treatment strategies.

Materials and Methods: This retrospective study was conducted at the Republican Oncology and Radiology Center, Tashkent, from 2017 to 2022. Seventy cases of malignant salivary gland tumors

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were reviewed, and 40 representative cases (20 mucoepidermoid carcinomas and 20 adenocarcinomas) were subjected to IHC analysis.

Sections of 4 μ m were prepared and stained using antibodies for p53, CD31, Ki-67, and VEGFR. The Bond Leica (Australia) automated processor was used. Staining visualization was performed using DAB chromogen, and counterstaining was achieved with Mayer's hematoxylin. The results were semi-quantitatively evaluated using the Allred scoring system (0–3) based on staining intensity and percentage of positive cells.

p53 expression was predominantly low in mucoepidermoid carcinomas (70%), while adenocarcinomas showed high expression in 70% of cases. CD31 staining indicated strong vascular proliferation in adenocarcinomas compared to weak vascularization in mucoepidermoid carcinomas.

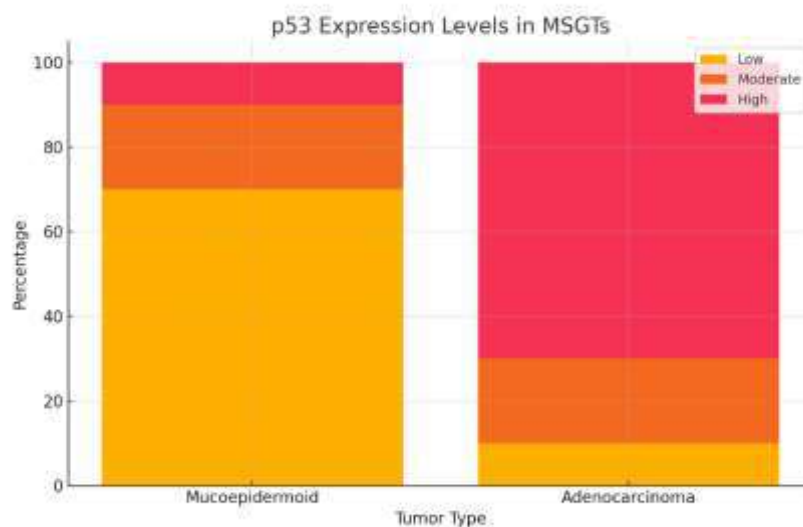


Figure 1. p53 expression levels in mucoepidermoid vs. adenocarcinoma.

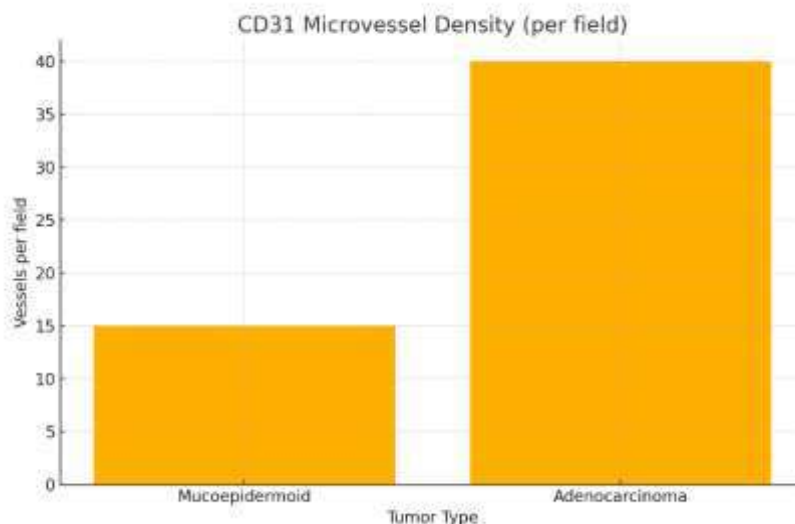


Figure 2. CD31 vascular density comparison between tumor types.

Discussion: The findings reveal a clear correlation between p53 overexpression and high CD31 vascular density in adenocarcinomas, suggesting enhanced proliferative and angiogenic potential within the tumor microenvironment. The p53 gene, a critical tumor suppressor,

normally regulates cell cycle arrest, DNA repair, and apoptosis. However, mutations in p53 lead to loss of these regulatory functions, resulting in uncontrolled cellular proliferation and resistance to programmed cell death. This loss of apoptotic control not only promotes tumor growth but also induces the secretion of angiogenic factors such as vascular endothelial growth factor (VEGF) and basic fibroblast growth factor (bFGF), further stimulating neovascularization. On the other hand, CD31 (platelet endothelial cell adhesion molecule-1, PECAM-1) serves as a reliable immunohistochemical marker for microvessel density (MVD), reflecting the degree of tumor angiogenesis. Elevated CD31 expression in adenocarcinomas indicates an increased formation of new blood vessels, providing essential nutrients and oxygen to the growing neoplasm and facilitating the dissemination of malignant cells via hematogenous routes. The concurrent overexpression of p53 and increased CD31 density implies that p53 dysregulation may indirectly enhance angiogenic activity, establishing a microenvironment favorable for tumor invasion and distant metastasis. These results are consistent with prior studies by Speight et al. (2018) and Kawakita et al. (2019), who demonstrated that p53 abnormalities were associated with higher microvessel counts and poor differentiation grades in salivary gland carcinomas. Moreover, their investigations suggested that combined evaluation of p53 and angiogenic markers could serve as an important diagnostic and prognostic tool, aiding in the stratification of patients and guiding therapeutic decisions. Recent molecular analyses further support this interplay, highlighting that mutant p53 proteins can activate pro-angiogenic pathways through upregulation of HIF-1 α and VEGF signaling, while CD31-positive endothelial proliferation is often seen at the invasive fronts of aggressive tumors. Therefore, assessing the expression profiles of both p53 and CD31 not only provides insight into the biological behavior of adenocarcinomas but also offers potential targets for anti-angiogenic and molecular-based therapies aimed at improving clinical outcomes. Incorporating IHC-based molecular profiling into routine histopathological diagnostics significantly enhances the accuracy of tumor classification and reduces the risk of diagnostic discrepancies, particularly in morphologically overlapping carcinoma subtypes. By combining conventional morphology with immunophenotypic and molecular markers—such as p53, Ki-67, CD31, HER2/neu, and EGFR—clinicians are able to obtain a more comprehensive understanding of tumor biology, leading to more personalized and effective therapeutic approaches. The mean diagnostic cost per patient, estimated at approximately 3,333,000 UZS, demonstrated a favorable cost-benefit ratio when compared with the long-term economic and clinical outcomes. Although the initial expenditure for IHC and molecular testing may appear substantial, it translates into substantial economic advantages by minimizing unnecessary treatments, reducing recurrence rates, and improving overall survival. Early molecular stratification allows the selection of targeted therapies, resulting in shorter hospital stays, fewer complications, and optimized use of healthcare resources.

Furthermore, implementation of such profiling in tertiary oncology centers has shown to enhance prognostic accuracy, especially in tumors with complex histogenesis such as salivary gland, colorectal, and hepatocellular carcinomas. Studies have indicated that patients whose treatment plans were guided by IHC and molecular markers exhibited a 20–30% improvement in 3-year disease-free survival compared to those managed with conventional histology

alone. Beyond its diagnostic and prognostic value, IHC-based molecular profiling also facilitates tumor behavior prediction, identification of therapy-resistant clones, and monitoring of treatment response dynamics. For example, overexpression of mutant p53 combined with high CD31 vascular density may indicate an aggressive phenotype with enhanced metastatic potential, warranting intensified follow-up and adjuvant therapy. Overall, integrating molecular immunohistochemistry into standard oncologic protocols represents a pivotal step toward precision oncology in Uzbekistan. It ensures that therapeutic strategies are not only morphologically justified but also molecularly tailored, improving both patient outcomes and the economic sustainability of cancer care systems.

Conclusion

1. Adenocarcinomas of the salivary glands exhibit higher expression of p53 and CD31 than mucoepidermoid carcinomas.
2. Combined immunohistochemical evaluation of p53 and CD31 serves as a reliable prognostic tool for tumor aggressiveness.
3. Integration of these biomarkers into diagnostic protocols can enhance personalized management of malignant salivary gland tumors.

Practical Recommendations

It is recommended to include p53 and CD31 evaluation in the diagnostic panel for all malignant salivary gland tumors. Development of regional IHC laboratories across Uzbekistan would promote early detection and improve patient outcomes.

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ZAMONAVIY YONDASHUVLAR ASOSIDA BO'LAJAK O'QITUVCHILARNING NUTQ
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Annotatsiya: Ushbu maqolada zamonaviy pedagogik yondashuvlar asosida bo'lajak o'qituvchilarning nutq madaniyatini rivojlantirish metodikasini takomillashtirishning usullari tahlil etilgan. Nutq madaniyati ta'lim jarayonining asosiy jihatlaridan biri sifatida o'qituvchining professional kompetensiyasini shakllantiradi. Zamonaviy ta'lim tizimida o'qituvchilarning nutq madaniyati o'quvchilar bilan samarali va ta'sirli muloqot o'rnatish, bilimlarni aniq va tushunarli tarzda etkazish, shuningdek, o'quvchilarning shaxsiy rivojlanishiga yordam berishda muhim ahamiyatga ega.

Kalit so'zlar: nutq madaniyati, ta'lim sifati, pedagog, rivojlanish, zamonaviy usullar.

Abstract: This article analyzes the methods of improving the methodology of developing the speech culture of future teachers based on modern pedagogical approaches. Speech culture forms the teacher's professional competence as one of the main aspects of the educational process. In the modern education system, the speech culture of teachers is important in establishing effective and effective communication with students, conveying knowledge clearly and comprehensibly, as well as helping students' personal development.

Key words: speech culture, quality of education, pedagogue, development, modern methods.

Аннотация: В данной статье анализируются методы совершенствования методики развития речевой культуры будущих учителей на основе современных педагогических подходов. Культура речи формирует профессиональную компетентность учителя как один из основных аспектов образовательного процесса. В современной системе образования речевая культура учителей имеет важное значение для установления эффективного и результативного общения с учащимися, четкой и понятной передачи знаний, а также содействия личностному развитию учащихся.

Ключевые слова: культура речи, качество образования, педагог, развитие, современные методы.

O'qituvchilarning nutq madaniyati, pedagogik faoliyatda muvaffaqiyatning muhim omili sifatida ko'rib chiqiladi. Bu soha bo'yicha ko'plab ilmiy tadqiqotlar olib borilgan bo'lib, ularning asosiy maqsadi - o'qituvchilarning nutq madaniyatini rivojlantirish, ta'lim jarayonida samarali muloqot o'rnatish va o'quvchilarga ta'sirli ta'lim berishni ta'minlashdir. Nutqiy kommunikativ layoqatning rivojlanishi bilan bog'liq muammolar pedagogika va psilogiyaga oid asarlarda batafsil yoritilgan. Ular sirasiga G.S. Altshuller, V.I. Andreev, S.S. Goldektrix, V.I. Zagvyazinskiy, V.A. Kan-Kalik, A.A. Kirsanov, M.I. Maxmutov, R.Safarova, X.Muxitdinova, Sh.Abduraimovalarning ishlarini ko'rsatish mumkin. Nutq madaniyati muammolari taniqli tilshunoslar V.V. Vinogradov, B.N. Golovin, D.E. Rozental, G.O. Vinokur, N.Maxmuldov, X.Ne'matovlarning ishlarida batafsil

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yoritilgan. Shaxslararo muloqot madaniyatini rivojlantirish bilan bog'liq asosiy holatlar M.M. Baxtin, V.S. Bibler kabi olimlarning ishlarida o'z ifodasini topgan¹ Tahlillar shuni ko'rsatadiki, o'qituvchining nutqi ta'lim jarayonida samarali muloqot o'rnatishda muhim rol o'ynaydi. Nutq madaniyati nafaqat tilni to'g'ri ishlatishni, balki o'quvchilar bilan til orqali hissiy va intellektual aloqani o'rnatishni ham o'z ichiga oladi. Pedagogik nutqning samaradorligi o'qituvchining tilni ishlatish, muloqotda ishtirok etish va o'quvchilarni tinglash kabi ko'nikmalariga bog'liq. O'qituvchilarning nutq madaniyatini rivojlantirishda zamonaviy pedagogik texnologiyalar, o'yinlar, debatlar va boshqa interaktiv metodlar qo'llaniladi. Bu metodlar o'qituvchilarning kommunikatsion ko'nikmalarini rivojlantirishga yordam beradi. Bo'lajak o'qituvchi o'z nutqini takomillashtirishi uchun ta'lim va tarbiya jarayonida quyidagi yo'nalishlarga doimiy amal qilib borishi lozim: - o'zbek adabiy tili qonuniyatlari va normalarini mukammal bilishi; - o'z-o'zini va nutqiy faoliyatini muntazam nazorat qilishi; - o'zining nutqiy madaniyatini doimiy lozim Sodiqov H.bo'lajak o'qituvchi o'z nutqini takomillashtirib borishi uchun amal qilishi bo'lgan jihatlar rivojlantirib borishi; - nutqiy muloqotnint barcha holatlarida adabiy nutq qoidalarini egallash uchun o'ziga sharoit yaratishi. Zamonaviy pedagogika, shaxsga yo'naltirilgan ta'lim va interaktiv metodlar asosida bo'lajak o'qituvchilarning nutq madaniyatini rivojlantirishga qaratilgan ilmiy ishlar ham mavjud. Tadqiqotchilar, pedagogik jarayonni interaktiv tarzda olib borish orqali, o'qituvchilarning nutq madaniyatini faollashtirishni ko'rib chiqadilar. Pedagogik texnologiyalar, internet resurslari va multimediya vositalari orqali o'qituvchilarga tilni yanada samara bilan ishlatish imkoniyatlari taqdim etiladi. Shuningdek, o'qituvchilarning nutq madaniyatini rivojlantirishda guruh ishlari va rolli o'yinlar, muhokamalar orqali nutqni yaxshilashga yo'naltirilgan metodlar samarali natijalar ko'rsatadi. O'qituvchilarning nutq madaniyatini rivojlantirishda psixologik va ijtimoiy omillarni hisobga olish muhimdir. Nutq madaniyati nafaqat tilning to'g'ri ishlatilishi, balki o'quvchilar bilan psixologik, emosional muloqot o'rnatishni ham o'z ichiga oladi. O'qituvchilarning shaxsiy xususiyatlari, psixologik tayyorgarlik va o'zaro munosabatlar ham nutq madaniyatining shakllanishiga ta'sir qiladi. Tadqiqotlar shuni ko'rsatadiki, o'qituvchilarning o'zini tutish, o'z fikrini aniq ifodalash va o'quvchilarni tinglash qobiliyatlari ularning pedagogik faoliyatida muvaffaqiyatga erishishlariga yordam beradi. Pedagogik texnologiyalar va treninglar orqali o'qituvchilarning nutq madaniyatini rivojlantirishga oid ilmiy tadqiqotlar ko'proq e'tibor qaratadi. O'qituvchilarga treninglar orqali nutqni to'g'ri ishlatish, o'quvchilarni tinglash va javob qaytarish kabi ko'nikmalarni rivojlantirishga yo'naltirilgan metodlar taqdim etiladi. Tadqiqotlar shuni ko'rsatadiki, o'qituvchilarning treninglar va seminarlar orqali nutq madaniyatini oshirish ularga samarali pedagogik usullarni o'rgatadi va o'quvchilar bilan muloqotda bo'lishda ishonch hosil qilishlariga yordam beradi. Ilmiy asarlar tahlilidan shuni xulosa qilish mumkinki, bo'lajak o'qituvchilarning nutq madaniyatini rivojlantirishda zamonaviy pedagogik yondashuvlar, interaktiv metodlar, psixologik va ijtimoiy omillarni hisobga olish muhim ahamiyatga ega. Nutq madaniyatini rivojlantirish o'qituvchilarga nafaqat tilni to'g'ri ishlatishni, balki o'quvchilar bilan samarali muloqot o'rnatishni va ta'lim jarayonini yanada samarali qilish imkonini beradi. Shu bilan birga, treninglar, seminarlar va pedagogik texnologiyalar orqali o'qituvchilarning kommunikativ kompetensiyalarini mustahkamlashning samaradorligi ko'rsatilgan. Bu metodikalarni takomillashtirish va o'qituvchilarning pedagogik faoliyatida muvaffaqiyatga erishishlariga yordam beradi. Quyida zamonaviy yondashuvlar asosida bo'lajak o'qituvchilarning nutq madaniyatini rivojlantirishga oid ba'zi ilmiy asarlar tahlil qilinadi. "O'zbek tilining izohli lug'ati"da. "Nutq-fikrni so'z orqali ifodalash

qobiliyati mahorati”, - deb taqidlanishi bilan birga uning amaldagi, so’zlashuv jarayonidagi ahamiyati va “Poetik nutq. Badiiy nutq. Og’zaki nutq. Jamoat nutqi oldida aytiladigan, o’qiladigan gap, vaz. Otashin nutq, xayajonli nutq. Notiqning nutqi. Nutq so’zlamog. Nutqqa tayorlanmoq” kabi turlari korsatilgan. Xamdo’stlik mamlakatlari psixolog olimlari A.B. Petrovskiy, M.G.Yaroshevskiylarning taqitlashicha: - “nutq-til vositasida inson faoliyatini o’zgartirishdagi, rivojlanishdagi muloqot shakli. Nutq shaxsiy faoliyatini nazorat qilish va boshqarish maqsadini axborot asosida amalga oshirish jarayoni. Psixologiyada nutq inson funktsiyasi ruxiyatining oliy tizimi. Bu tafakkur, ong, xotira, xis-tuygular va boshqalar”. S. I. Ojegovning “Словарь русского языка” lug’atida: 1. Nutq – bu gapirish qobiliyati. Nutqni o’zlashtirish. Nutq qiyinchiliklari.

1. Aniq ifodalangan nutq. San’at bilan chiroyli gapirish, nutq qilish.
2. Til mahoratining turli ko’rinishi. She’riy nutq, og’zaki nutq va yozma nutq. Gapirish nutqi.
3. Til jarangdorligi, musiqa nutqi, ko’p tilli nutq.
4. Gaplashish, suhbatlashish. Aqlli nutqni eshitish.
5. Ko’pchilik oldida so’zga chiqish. Notiq nutqi. Tabrik nutqi” O’zbekistonning faylasuf olimlaridan Y. Toirov, A. Choriyev, A. O’tamurodov, I. To’xtarov, J. Ramatovlarning ta’kidlashicha “ Nutq- inson tomonidan ijtimoiy- tarixiy tajribani o’zlashtirish, avlodlarga uzatish yoki kommunikatsiya o’rnatish, o’z shaxsiy xarakterlarini rejalashtirish va amalga oshirish maqsadida tildan foydalanish jarayoni. Nutq – axborot, xabar, ma’lumot va yangi bilim berish, aqliy toposhiriqlarni yechish faoliyatidan iborat. Agarda til aloqa vositasi bo’lsa, nutq esa aynan o’sha jarayonlarni amalga oshirishdir.

Nutq rivojlanish davrlari:

1) 2 oydan 11 oygacha;
2) 11 oydan 19 oygacha;
3) 19 oydan 3 yoshgacha”. Har qanday ta’lim-tarbiyaviy mashg’ulot oldidan bir necha bor o’z nutqingizni yozib olib tinglang va xatolaringizni tuzatishga harakat qiling, nutqingizni qaytarib mashq qiling. Nutqingizni rang-barang badiiy-adabiy so’zlar bilan boyiting. O’z taassurotlaringizni qo’shgan holda boyitib, to’ldirib boring. O’qituvchi nutqining mukammalligi, tozaligi, ta’sirchanligi bilan o’quvchilar e’tiborini jalb qiladi, ular qalbiga yo’l topadi, hech qanday qiyinchiliksiz kasbiy pedagogik faoliyatida keladigan barcha ziddiyatlarni bartaraf etadi. Natijada o’qituvchi pedagogik faoliyatda aslo toliqmaydi, asab tizimi doimo sog’lom bo’ladi

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ЦИФРОВАЯ ВАЛЮТА РЕСПУБЛИКИ УЗБЕКИСТАН

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МЕЖДУНАРОДНЫЙ УНИВЕРСИТЕТ КИМЁ В ТАШКЕНТЕ

Аннотация : В данной статье рассматривается процесс формирования и внедрения цифровой валюты в Республике Узбекистан. Раскрываются ключевые особенности цифрового сума, его правовое регулирование, преимущества и возможные риски использования в национальной финансовой системе. Особое внимание уделено роли Центрального банка в разработке и обеспечении стабильности цифровой валюты, а также анализу международного опыта и перспектив развития цифровых финансовых технологий в Узбекистане. Статья подчеркивает важность цифровой валюты как инструмента повышения прозрачности, эффективности и безопасности финансовых операций в условиях цифровизации экономики.

Ключевые слова: цифровая валюта, цифровой сум, Центральный банк, финансовые технологии, блокчейн, электронные платежи, цифровизация экономики, Узбекистан.

Введение

В условиях стремительного развития цифровых технологий мировая финансовая система переживает значительные преобразования. Одним из наиболее актуальных направлений этого процесса является внедрение цифровых валют центральных банков (CBDC), которые представляют собой новую форму национальных денежных единиц, существующих исключительно в электронном виде. Развитие цифровых валют способствует повышению эффективности финансовых операций, улучшению контроля за денежным обращением и сокращению теневой экономики. В Республике Узбекистан внедрение цифровой валюты рассматривается как важный шаг на пути к модернизации финансовой инфраструктуры страны. Правительство и Центральный банк активно изучают международный опыт в данной сфере, в частности практику таких государств, как Китай, Швеция и Россия. Основное внимание уделяется вопросам безопасности, надежности и прозрачности цифровых транзакций, а также созданию законодательной базы, регулирующей обращение цифрового сума. Актуальность темы обусловлена необходимостью адаптации национальной финансовой системы к условиям цифровой экономики, повышения конкурентоспособности Узбекистана на глобальном рынке финансовых услуг и обеспечения устойчивого экономического роста. В данной статье будут рассмотрены теоретические основы, текущее состояние и перспективы внедрения цифровой валюты в Узбекистане.

Методы и материалы

При проведении исследования использовались современные методы экономического и правового анализа, а также сравнительно-аналитический и системный подходы. Основой работы послужили официальные документы и нормативно-правовые акты Республики Узбекистан, регулирующие цифровые финансы, в том числе постановления Президента и решения Центрального банка, направленные на развитие цифровой инфраструктуры и электронных платежей. В исследовании также были использованы статистические данные Центрального банка и Министерства цифровых технологий Узбекистана, отчёты

международных организаций, таких как Международный валютный фонд (МВФ) и Всемирный банк, которые освещают тенденции внедрения цифровых валют в мире. Для анализа преимуществ и потенциальных рисков цифровой валюты применялся сравнительный метод, позволивший сопоставить опыт Узбекистана с примерами стран, уже внедривших цифровые валюты центральных банков. Кроме того, использовался системный подход, позволивший рассмотреть цифровую валюту как элемент единой экосистемы цифровой экономики, включающей электронные платежи, блокчейн-технологии и государственные цифровые платформы.

Результаты и обсуждение

В последние годы в Республике Узбекистан наблюдается активное внедрение цифровых технологий в финансово-банковскую систему. Центральный банк страны ведёт системную работу по развитию национальной платёжной системы, совершенствованию инфраструктуры электронных платежей и созданию условий для перехода к цифровой валюте — цифровому суму. Одним из ключевых направлений этой работы стало внедрение технологии блокчейн, обеспечивающей прозрачность, безопасность и достоверность всех финансовых операций. Разработка концепции цифрового сума направлена на создание новой формы национальной валюты, которая будет выпускаться исключительно Центральным банком и обращаться в цифровом пространстве наряду с наличными и безналичными средствами.

1. Текущее состояние и подготовительные меры. В 2023–2025 годах Центральный банк Республики Узбекистан начал изучение мирового опыта по созданию CBDC (Central Bank Digital Currency). Ведётся активное сотрудничество с международными финансовыми институтами и экспертами в области цифровых технологий. Были разработаны рекомендации по обеспечению кибербезопасности, защите персональных данных и интеграции цифровой валюты с существующими банковскими платформами. В республике также развивается законодательная база, регулирующая цифровые финансы. Принят ряд нормативных актов, определяющих статус цифровых активов и криптоплатформ, в частности, Постановление Президента Республики Узбекистан от 30 июня 2022 года № ПП–3832, направленное на развитие цифровой экономики и блокчейн-технологий. Эти шаги создают основу для официального запуска цифрового сума в ближайшие годы.

2. Потенциальные преимущества цифрового сума. Внедрение цифровой валюты сулит значительные преимущества для национальной экономики: Повышение прозрачности финансовых операций. Все транзакции фиксируются в цифровой системе и могут быть отслежены, что снижает риск коррупции и отмывания денег. Сокращение издержек на денежное обращение. Отпадает необходимость в печати, транспортировке и хранении наличных денег. Расширение финансовой инклюзии. Цифровая валюта позволит гражданам, особенно проживающим в отдалённых регионах, получить доступ к финансовым услугам через мобильные приложения и интернет. Усиление государственного контроля за денежным обращением. Цифровой сум обеспечит Центральному банку возможность эффективного мониторинга денежного потока и реализации гибкой денежно-кредитной политики.

3. Возможные риски и проблемы внедрения. Несмотря на очевидные преимущества, существуют и определённые риски, требующие внимания: Технические угрозы. Возможные кибератаки, сбои в цифровых системах или утечка данных могут подорвать доверие пользователей.

Правовые и этические вопросы. Необходима ясная нормативная база, регулирующая вопросы конфиденциальности и защиты информации. Соппротивление со стороны традиционного банковского сектора. Внедрение цифрового сума может повлиять на модель деятельности коммерческих банков, что требует поэтапного перехода. Необходимость повышения финансовой грамотности населения. Для успешного внедрения цифровой валюты важно, чтобы граждане понимали её принципы, возможности и меры безопасности.

4. Международный опыт и его значение для Узбекистана. Мировая практика показывает, что цифровые валюты центральных банков успешно внедряются в ряде стран. Китай активно развивает цифровой юань, Швеция тестирует e-krona, а Россия создала платформу цифрового рубля. Опыт этих государств демонстрирует, что цифровая валюта способна укрепить доверие граждан к финансовой системе и повысить эффективность государственного управления экономикой. Узбекистан, опираясь на этот опыт, может адаптировать успешные модели с учётом национальных особенностей и технологического потенциала. Важным условием станет развитие цифровой инфраструктуры, повышение квалификации специалистов и формирование устойчивой экосистемы цифровых финансов.

5. Перспективы развития. В ближайшие годы ожидается запуск пилотного проекта цифрового сума, который позволит протестировать технические и правовые аспекты его функционирования. В долгосрочной перспективе цифровая валюта может стать основой новой модели финансовых отношений, обеспечивающей высокий уровень прозрачности, эффективности и доверия между государством, бизнесом и гражданами.

Таким образом, цифровая валюта Республики Узбекистан представляет собой стратегический шаг на пути к построению современной цифровой экономики, основанной на инновациях, доверии и устойчивом развитии.

Заключение

Развитие цифровой валюты в Республике Узбекистан является закономерным этапом цифровизации национальной экономики и финансовой системы. Введение цифрового сума позволит создать современную, прозрачную и эффективную платёжную инфраструктуру, соответствующую мировым тенденциям. Центральный банк Узбекистана уже предпринял первые шаги по изучению и внедрению цифровых финансовых инструментов, что свидетельствует о стремлении страны к технологической независимости и инновационному развитию. Проведённый анализ показал, что цифровая валюта способна значительно повысить качество финансового управления, обеспечить безопасность денежных операций и сократить теневой сектор экономики. Цифровой сум создаст дополнительные возможности для малого и среднего бизнеса, а также для граждан, проживающих в регионах с ограниченным доступом к традиционным банковским услугам.

Однако успешное внедрение цифровой валюты требует комплексного подхода: необходимо разработать надёжную правовую базу, внедрить эффективные механизмы защиты данных и повысить уровень цифровой грамотности населения. Особое значение имеет создание доверия к новой форме денег — без него переход на цифровую валюту может столкнуться с сопротивлением общества. В перспективе цифровая валюта Республики Узбекистан может стать не только национальным финансовым инструментом, но и важным элементом международных расчетов, укрепляя позиции страны в глобальной экономике. Правильная реализация стратегии внедрения цифрового сума создаст основу для устойчивого

экономического роста, прозрачности финансовых потоков и усиления доверия между государством, бизнесом и гражданами.

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**PROBLEMS OF EQUIVALENCE IN TRANSLATION OF PHRASEOLOGISMS:
LINGUISTIC ANALYSIS**

Zokirova Sevara

Abstract: The article provides a linguistic analysis of the problems of equivalence of phraseologisms in translation. Factors such as semantic holistness, cultural differences and polysemy are considered in detail, and methods of equivalence (full correspondence, partial modification, no correspondence) and translation strategies (paraphrase, omission, modulation) are analyzed. Translation problems are highlighted using examples from Uzbek, English, Arabic and German, and issues of dynamic and functional equivalence are discussed based on the theories of Yu. Nayda and Vinay-Darbelnet. The results help to ensure cultural adaptation and semantic accuracy in translation practice, shed light on the global interaction between languages and contribute to the development of translation linguistics.

Keywords: Phraseologisms, translation, equivalence, linguistic analysis, semantic gaps, cultural differences, polysemy, dynamic equivalence, idiomatic units, functional compatibility, paraphrase, omission, modulation, stylistic equivalence, pragmatic equivalence, national realities, transliteration, descriptive methods, global interaction, translation theory.

**FRAZEOLGIZMLARNING TARJIMADA EKVIVALENTLIK MUAMMOLARI:
LINGVISTIK TAHLIL**

Zokirova Sevara

Anotatsiya: Maqola frazeologizmlarning tarjimada ekvivalentlik muammolarini lingvistik tahlil qiladi. Semantik holistiklik, madaniy farqlar va polisemiya kabi omillar batafsil ko'rib chiqilib, ekvivalensiya usullari (to'liq moslik, qisman o'zgartirish, hech qanday moslik) va tarjima strategiyalari (parafraza, omissiya, modulyatsiya) tahlil etiladi. O'zbek, ingliz, arab va nemis tillaridagi misollar orqali tarjima muammolari yoritiladi, shuningdek, Yu. Nayda va Vinay-Darbelnet nazariyalari asosida dinamik va funksional ekvivalensiya masalalari muhokama qilinadi. Natijalar tarjimonlik amaliyotida madaniy moslashuv va semantik aniqlikni ta'minlashga yordam berib, tillar o'rtasidagi global o'zaro ta'sirni yoritadi va tarjima lingvistikasining rivojlanishiga hissa qo'shadi.

Kalit so'zlar: Frazeologizmlar, tarjima, ekvivalentlik, lingvistik tahlil, semantik bo'shliqlar, madaniy farqlar, polisemiya, dinamik ekvivalensiya, idiomatik birliklar, funksional moslik, parafraza, omissiya, modulyatsiya, stilistik ekvivalensiya, pragmatik ekvivalensiya, milliy realiyalar, transliteratsiya, deskriptiv usullar, global o'zaro ta'sir, tarjimonlik nazariyasi.

**ПРОБЛЕМЫ ЭКВИВАЛЕНТНОСТИ ФРАЗЕОЛОГИЗМОВ ПРИ ПЕРЕВОДЕ:
ЛИНГВИСТИЧЕСКИЙ АНАЛИЗ**

Закирова Севара

Аннотация: В статье представлен лингвистический анализ проблем эквивалентности фразеологизмов при переводе. Подробно рассматриваются такие факторы, как семантическая целостность, культурные различия и полисемия, анализируются методы эквивалентности (полное соответствие, частичное изменение, отсутствие соответствия) и стратегии перевода (парафраз, опущение, модуляция). Проблемы перевода освещаются на примерах из узбекского, английского, арабского и немецкого языков, а вопросы динамической и функциональной эквивалентности рассматриваются с опорой на теории Ю. Найды и Винай-Дарбелнета. Полученные результаты способствуют обеспечению культурной адаптации и семантической точности в практике перевода, проливают свет на глобальное взаимодействие языков и вносят вклад в развитие лингвистики перевода.

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Ключевые слова: фразеологизмы, перевод, эквивалентность, лингвистический анализ, семантические пробелы, культурные различия, полисемия, динамическая эквивалентность, идиоматические единицы, функциональная совместимость, парафраз, пропуск, модуляция, стилистическая эквивалентность, прагматическая эквивалентность, национальные реалии, транслитерация, описательные методы, глобальное взаимодействие, теория перевода.

Translation is an important area of linguistics, and the translation of phraseologisms is fraught with difficulties due to national cultural characteristics and semantic holisticness. The problems of equivalence in the translation of phraseological units based on the classification of V.V. Vinogradov shed light on the global interaction of language. This article aims to enrich the theory of translation by analyzing the semantic and cultural equivalence of phraseologisms in translation.

The problems of equivalence of phraseologisms in translation are a complex area of linguistics from the point of view of linguistic analysis, and it is difficult to achieve complete equivalence due to their semantic holisticness and cultural dependence. Phraseological units, according to the classification of V.V. Vinogradov, are divided into idiomatic units, associations and compounds, and the fact that they exceed the sum of the meanings of their components requires semantic, stylistic and cultural equivalence in translation. For example, the literal translation of the English phraseologism “kick the bucket” (to die) into Uzbek is absurd and is solved by functional equivalence (“to surrender one’s life”), which indicates cultural and semantic gaps. Equivalence problems are divided into groups such as semantic gaps, cultural differences and polysemy, leading to dynamic equivalence (natural translation); units such as the English “spill the beans” (to reveal the secret) lose their nuances in Arabic translation due to the difference in cultural metaphors. In linguistic analysis, the national characteristics of phraseologisms are important, they reflect folk wisdom and imagination, and require preservation of style in translation; for example, “too many cooks spoil the broth” is consistent with the Uzbek “oshpaz k'p b'lsa osh buziladi”, but the difference in cultural imagery can lose style. In translation, equivalence methods include full correspondence (“lose one's head” – “boshini yo'qotmoq”), partial substitution (“get out of bed on the wrong foot” – “chap yoni bilan turmoq”), and no correspondence (“when pigs fly” – “tuyaning dumi yerga tekkanda”), taking into account the idiomatic nature. The problems in translating idiomatic collocations are divided into three groups: cultural dependence (the incompatibility of English sports metaphors with Arabic Bedouin life), semantic transparency differences (when English opaque units pass into Arabic descriptive units), and context dependence, which forces the translator to paraphrase, omit, or linguistically adapt. Phraseologisms with a food component (English “baker's dozen” - 13, there is no Uzbek equivalent) are analyzed on the basis of the Bible and literature, revealing cultural differences; in translation, they are solved by addition or reduction (Yu. Nayda's theory), since phraseologisms are the product of ethnic creativity. The translation of phraseologisms in the Uzbek language is based on dictionary and contextual analysis, and national realities (“cold war”) are resolved by transliteration or descriptive methods, which requires a linguistic approach that takes into account internal and external factors of the language. The analysis of phraseologisms in German and Uzbek shows the relationships of synonymy, antonymy and variant, classifying equivalence: full equivalence (congruence of meaning, form and stylistic features) and similar phraseologisms (semantically and stylistically close, but different in image or basis). In translation, it is important to preserve the contextual meaning, emotional-expressive and stylistic features, since in the absence of equivalence, semantic distortions occur. The main problems and equivalence issues in the translation of idiomatic collocations in Uzbek

and English are manifested through structural differences (English verb-noun combinations and Uzbek noun-noun or adjective-noun pairs) and semantic gaps (full equivalence for universal concepts, for example, “time is money” – “time – money”). Cultural differences play an important role in the translation of phraseologisms; For example, the Uzbek phrase “full stomach, empty heart” (material satisfaction, but spiritual dissatisfaction) does not exist in English and requires cultural adaptation. Translation methods (modulation, equivalence according to the theory of Vinay and Darbelnet) provide semantic, stylistic and pragmatic equivalence, which sheds light on the global interaction of language. The problems of equivalence of phraseological units in translation are solved through cultural adaptation and semantic accuracy and remain an urgent issue of linguistics. Solving these problems improves translation practice and strengthens the cultural bridge between languages.

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The impact of the construction sector on regional gross domestic product: an economic analysis(Khorezm region)

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Abstract: This study examines the role of the construction sector in driving the Gross Regional Product (GRP) of Uzbekistan's Khorezm region, utilizing recent statistical data from 2025. The analysis reveals that the construction sector accounts for approximately 8.7-9.4% of the region's GRP, with robust growth rates exceeding 110% in the first nine months of 2025. Through direct contributions to output and indirect effects on related industries, construction significantly influences regional economic expansion, contributing notably to overall GRP growth amid Uzbekistan's broader infrastructure development initiatives. The findings underscore the sector's potential as a key driver for sustainable regional development.

Keywords: Construction sector, Gross Regional Product (GRP), Khorezm region, Economic impact, Uzbekistan, Sectoral growth, Infrastructure development

Introduction: The Khorezm region, located in northwestern Uzbekistan, is characterized by a diverse economy with strong agricultural roots, supplemented by growing industrial and service activities. As Uzbekistan pursues ambitious economic reforms under strategies like "Uzbekistan-2030," regional disparities in growth have highlighted the need for sector-specific analyses. The construction sector, fueled by investments in housing, transportation, and energy infrastructure, has emerged as a pivotal element in regional economies. This paper provides an economic analysis of how the construction sector influences the GRP of Khorezm, drawing on official statistics to assess its direct and indirect impacts.

Relevance of Work

Understanding the construction sector's impact on GRP is crucial for policymakers in Uzbekistan, particularly in less industrialized regions like Khorezm, where agriculture dominates but faces vulnerabilities from climate and market fluctuations. This work is relevant amid ongoing national efforts to diversify economies and enhance infrastructure, as seen in presidential reports on Khorezm's progress. By quantifying the sector's contributions, this analysis aids in informed decision-making for investment allocation, job creation, and sustainable growth, addressing gaps in region-specific economic studies.

Purpose

The primary purpose of this study is to evaluate the quantitative and qualitative impacts of the construction sector on the GRP of the Khorezm region. Specifically, it aims to measure the sector's share in GRP, analyze its growth dynamics, and discuss broader economic implications, including multiplier effects on employment and related sectors.

Materials and Methods of Research

Data for this analysis were sourced from the State Committee of the Republic of Uzbekistan on Statistics (Stat.uz), including quarterly and cumulative reports for 2025. Key datasets include GRP volumes, sectoral breakdowns, and growth rates for the first quarter (Q1), first half (H1), and first nine months (January-September) of 2025. The methodology employs descriptive statistics to outline sectoral shares and growth rates. To assess impact, the contribution to GRP growth is calculated using the formula: Sectoral Contribution (percentage points) $\approx$ (Sector Growth Rate - 100) $\times$ (Sector Share

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in Previous Period) / 100, approximated from available data. Qualitative insights are drawn from national economic trends and regional development reports.

Results and Discussion

The Khorezm region's economy demonstrated steady growth in 2025, with GRP reaching 10,851.5 billion soums in Q1 (growth of 106.8%), 26,774.5 billion soums in H1 (growth of 107.4%), and 44,142.6 billion soums in January-September (growth of 107.3%). The construction sector consistently played a significant role, as detailed below.

Sectoral Composition and Growth

The following table summarizes the construction sector's performance relative to other sectors in Khorezm for key periods in 2025:

Period	Total GRP (billion soums)	Construction Volume (billion soums)	Construction Share (%)	Construction Growth Rate (%)	Overall GRP Growth Rate (%)
Q1 2025	10,851.5	937.7	8.6	110.4	106.8
H1 2025	26,774.5	2,515.1	9.4	114.0	107.4
Jan-Sep 2025	44,142.6	3,846.5	8.7	110.1	107.3

Agriculture, forestry, and fisheries remain the largest sector (23.1-32.7% share), but construction's growth outpaced the regional average in all periods, indicating its dynamism. For instance, in H1 2025, construction grew by 114.0%, compared to 103.9% for agriculture and 109.2% for industry.

Impact on GRP Growth

The construction sector's contribution to GRP growth can be estimated by its weighted growth effect. In January-September 2025, with an 8.7% share and 110.1% growth rate, the sector contributed approximately 0.88 percentage points to the overall 7.3% GRP growth (calculated as: $(110.1\% - 100\%) \times 8.7\% \approx 0.88$ pp). This is substantial, especially when compared to national trends where construction contributed 0.8 pp to Uzbekistan's GDP growth in the first half of 2025. The sector's expansion is driven by investments in regional infrastructure, such as housing and transport projects, which align with Uzbekistan's broader construction boom (national growth of 10.7% in H1 2025).

Indirectly, construction stimulates related industries like manufacturing (e.g., building materials) and services (e.g., logistics), creating multiplier effects. Nationally, the sector accounts for 6-7% of GDP and employs over one million workers, suggesting similar employment benefits in Khorezm. However, challenges such as resource scarcity in Khorezm may limit further expansion without targeted policies. Compared to historical data (e.g., 5.8-6.7% share in 2019-2021), the sector's share has increased, reflecting post-reform investments.

Conclusion

The construction sector exerts a positive and growing impact on Khorezm's GRP, contributing 8.6-9.4% to the total and driving growth through high expansion rates. Its role extends beyond direct output, fostering economic diversification and employment in a region traditionally reliant on agriculture. To maximize benefits, policymakers should prioritize sustainable investments and address regional constraints. Future research could incorporate econometric models for deeper causality analysis.

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INCLUSIVE EDUCATION AND THE SPEECH THERAPIST'S ROLE

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Annotation: Inclusive education represents a global commitment to providing equitable learning opportunities for all students, regardless of their physical, linguistic, or cognitive differences. This article explores the vital role of speech and language therapists (SLTs) in fostering communication competence, social inclusion, and academic success within inclusive educational settings. It examines how SLTs contribute through assessment, individualized education planning (IEP), direct therapy, and collaboration with teachers and families. The study identifies key challenges such as insufficient resources, limited interdisciplinary cooperation, and inadequate teacher training, which often hinder the effective inclusion of students with speech, language, and communication needs (SLCN). Furthermore, the paper proposes evidence-based recommendations emphasizing teamwork, professional development, advocacy, and policy support to strengthen inclusive practices. By promoting communication as a fundamental human right, SLTs not only enhance students' participation but also help cultivate a culture of empathy and equality in schools. The findings underscore the importance of integrating speech therapy services within mainstream education to achieve genuine inclusion and educational equity.

Keywords: *Inclusive education; speech and language therapy; communication disorders; speech and language communication needs (SLCN); interdisciplinary collaboration; advocacy; educational inclusion; individualized education plan (IEP); teacher training; social integration; accessibility; educational equity; communication rights; diversity in education; holistic support.*

INTRODUCTION

The concept of inclusive education has emerged as a key priority in modern pedagogy, emphasizing the right of every child to participate in mainstream education. It is grounded in the principles of equity, accessibility, and respect for diversity. However, the inclusion of children with speech, language, and communication needs (SLCN) presents specific challenges that require professional intervention. So that, the speech therapist's role becomes essential in bridging communication barriers and ensuring full participation in the educational process. Inclusive education is based on the United Nations Convention on the Rights of Persons with Disabilities (2006) and the Salamanca Statement (UNESCO, 1994), which advocate for an education system responsive to the diverse needs of all learners. The philosophy assumes that diversity is not a problem but a source of enrichment for the learning community. Teachers, parents, and specialists must collaborate to create supportive environments where each learner can thrive.

Speech and language disorders encompass a range of difficulties related to articulation, fluency, voice quality, and the comprehension or expression of spoken and written language. These disorders can have profound implications for a child's overall communication competence and academic progress. In educational contexts, such impairments often influence literacy development, including reading and writing skills, as well as social interaction and emotional adjustment.

Students with speech, language, and communication needs (SLCN) may encounter barriers to effective classroom participation, peer interaction, and collaborative learning. Limited verbal expression or comprehension can lead to frustration, reduced classroom engagement, and a sense of social isolation. Consequently, their academic performance may decline if adequate support mechanisms are not provided.

Inclusive education frameworks emphasize the necessity of early identification, individualized support, and collaboration among teachers, speech and language therapists, and families. Through evidence-based interventions—such as differentiated instruction, visual supports, and language-rich environments—schools can enhance communication outcomes and academic success for students with SLCN. Hence, promoting inclusive practices that integrate speech and language therapy into mainstream education is vital for ensuring equitable access to learning and participation opportunities for all learners.

The fact that speech therapists contribute to inclusive education through a wide spectrum of functions:

- **Assessment and Early Identification:** SLTs perform diagnostic assessments to identify students with communication difficulties. Early detection is critical for timely intervention and prevention of secondary learning issues.
- **Individualized Education Planning (IEP):** Therapists collaborate with teachers to design individualized plans that specify linguistic goals, appropriate teaching strategies, and classroom accommodations.
- **Intervention and Therapy:** They provide direct therapy sessions focusing on articulation, vocabulary development, grammar, fluency, and pragmatic language use. These interventions may occur individually or in small groups within the classroom.
- **Collaboration with Teachers and Parents.** An inclusive environment demands teamwork. SLTs guide teachers in using inclusive communication strategies, such as visual supports, simplified instructions, and alternative augmentative communication (AAC) tools. They also educate parents about home-based language development activities.

Additionally, speech and language therapists play a crucial role in advocating for the communication rights of all learners. They not only provide direct intervention but also work to raise awareness of the importance of language and communication as fundamental human rights. By promoting understanding of language diversity and inclusive communication practices, speech therapists foster a school culture that values tolerance, empathy, and mutual respect among students and staff. Furthermore, advocacy extends beyond the classroom. Speech therapists often engage in community outreach, parent education, and policy discussions to highlight the significance of early identification and support for speech and language difficulties. Such initiatives help dismantle stigmas surrounding communication disorders and empower educators and families to collaborate in creating more equitable learning environments. In this way, advocacy and awareness efforts contribute to the broader goal of social inclusion and linguistic equity within educational institutions. Moreover, effective inclusion of students with speech and language needs relies on sustained collaboration among educators, psychologists, social workers, and speech and language therapists. Interdisciplinary teamwork allows professionals to pool their expertise and develop comprehensive support strategies that address the academic, emotional, and social dimensions of a learner's development.

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Regular multidisciplinary meetings enable the team to evaluate student progress, adjust intervention plans, and modify the curriculum to accommodate individual learning needs. This collective decision-making process ensures that interventions are both evidence-based and contextually appropriate. Moreover, close cooperation among professionals enhances communication consistency across settings—home, school, and therapy—which ultimately strengthens the learner's ability to generalize newly acquired language and social skills. A holistic, team-oriented approach thus embodies the essence of inclusive education, where every specialist contributes to a unified vision of supporting the whole child rather than focusing solely on isolated deficits.

One of the most significant barriers to effective inclusion is the lack of adequate resources and specialized infrastructure. Many schools lack therapy rooms, assistive devices, and teaching materials adapted for students with SLCN. Overcrowded classrooms make it difficult for teachers and SLTs to deliver individualized attention, which can result in the marginalization of students with communication disorders. Inclusive education requires the cooperation of multiple professionals, including teachers, psychologists, and speech therapists. Yet, insufficient communication and fragmented teamwork often limit the effectiveness of intervention plans. Without structured interdisciplinary meetings, educational and therapeutic strategies may become inconsistent, leading to gaps in student progress. Teachers frequently report limited knowledge about speech and language development and difficulties in identifying communication disorders. This gap in professional preparation reduces teachers' confidence in supporting students with SLCN and can hinder early detection and referral to SLTs. Social perceptions and stigma toward disabilities continue to pose barriers to inclusion. Misconceptions among peers and parents may lead to social isolation or bullying of students with communication difficulties. Furthermore, resistance to inclusive practices from some educators reflects underlying biases or a lack of awareness about the benefits of diversity in learning settings.

SLTs in inclusive schools often manage large caseloads, limiting their ability to deliver individualized therapy and follow-up. Excessive documentation and administrative duties further reduce time for direct intervention and collaborative planning with teachers and families.

Regular case conferences involving teachers, SLTs, psychologists, and parents should be institutionalized to coordinate individualized education plans (IEPs). A team-based approach ensures that each professional contributes unique expertise, leading to more holistic and sustainable progress for students. Teacher-education programs should include modules on speech and language development, communication disorders, and inclusive classroom strategies. In-service training sessions can also improve teachers' ability to recognize and support learners with SLCN, ensuring early intervention and effective classroom adaptation. Governments and educational institutions must invest in appropriate facilities, such as therapy rooms and assistive technologies. Reducing student-to-teacher and student-to-therapist ratios would enhance the quality and consistency of support services.

Schools should launch awareness campaigns emphasizing communication diversity and inclusion. Peer-support programs and inclusive extracurricular activities can reduce stigma and promote empathy among students. SLTs can also act as advocates for children's communication rights at the community and policy levels. Regular assessment of inclusion practices is crucial for accountability and improvement. Data collection on student outcomes and service quality can inform policy adjustments and guide evidence-based interventions.

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In conclusion, inclusive education is not only a pedagogical strategy but also a reflection of social justice. Speech therapists, as communication specialists, play a decisive role in realizing this vision by helping all learners—especially those with SLCN—develop their voice, confidence, and participation in society. Their collaboration with educators ensures that inclusion moves beyond policy into genuine practice.

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ALAI MUMIYO (SHILAJIT): TRADITIONAL ORIGINS AND EXPERIMENTAL EVIDENCE OF ANTICOAGULANT AND FIBRINOLYTIC ACTIVITY

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Abstract

The effect of **Alai mumiyo** extract (25 mg/kg) on blood coagulation in dogs was studied. Ten healthy animals received the extract orally, and coagulation parameters were measured at baseline, 30, and 60 minutes. The extract significantly prolonged clotting, recalcification, and thrombin times, increased plasma tolerance to heparin, and enhanced fibrinolytic activity ($p < 0.05$). Fibrinogen levels slightly decreased, while coagulation factor activities and total protein remained unchanged. **Alai mumiyo** exhibits anticoagulant and fibrinolytic effects, indicating potential for natural modulation of hemostasis.

Keywords: Alai mumiyo, blood coagulation, dogs, anticoagulant activity, fibrinolysis, fibrinogen, thrombin time, natural extract.

INTRODUCTION

Traditional medicine (TM) encompasses a broad body of knowledge, skills, and healing practices developed and refined over generations within diverse cultures. Rooted in cultural beliefs, empirical observations, and accumulated experience, TM is employed for the preservation of health as well as for the prevention, diagnosis, and treatment of both physical and mental disorders (1). In recent decades, growing scientific interest in TM has led to an increasing number of studies examining the bioactive properties of natural substances used in these traditional systems, many of which have shown promising therapeutic and preventive potential (2).

Traditional medicine comprises several distinct systems, including Traditional Persian Medicine (TPM), Traditional Arabic Medicine, Traditional Chinese Medicine (TCM), and Ayurveda, the traditional medical system of India (3). Among the many natural products employed in these traditions, *Mumijo*—also known worldwide under various names such as *Shilajit* (Hindi), *Silajatu* (Bengali), *Rock Juice* (Tibetan), *Conqueror of Mountains* (Sanskrit), *Hajarul-Musa* (Arabic), *Moomiaii* (Persian), *Myemu* (Russian), and *Mumie* (German)—occupies a unique position. This resin-like, pale- to dark-brown substance, sometimes referred to as mineral pitch or mineral wax, has been valued for over 3,000 years for its rejuvenating, restorative, and adaptogenic properties (4).

The origin of *Mumijo* has been interpreted through three principal theories: biological, geological, and bio-mineralogical. The biological theory suggests that *Mumijo* results from the slow decomposition of plant material and animal excretions under specific physicochemical conditions. The geological theory attributes its formation to long-term geological transformations, while the bio-mineralogical concept considers it a complex product formed when the organic precursors of *Mumijo* interact with mineral components of their environment. Factors such as local flora, rock and soil composition, altitude, temperature, and humidity influence the final chemical makeup and therapeutic potential of the substance (7). Despite regional differences, *Mumijo* generally contains 60–80% organic matter and 20–40% inorganic components, with trace elements including Fe, Ca, Cu, Zn, Mg, Mn, Mo, and P (8).

Historically, *Mumijo* has held an esteemed place in Persian medical literature. In the 10th century, Ahvazi's *Kamāl as-Sanā'a* recommended its use for conditions such as cold headaches, hemoptysis, and asthma. Avicenna, in *The Canon of Medicine*, described *Mumijo* as a potent tonic for strengthening the brain, enhancing fertility, and treating various ailments. Later, in the 12th century, Jurjani's *Zakhire Khwārizmshāhi* noted its benefits in treating inflammation, ulcers, and urinary and prostate disorders (5).

Traditional healers have prescribed *Mumijo* in various doses for numerous health issues, including disorders of the urinary system, jaundice, gallstones, gastrointestinal disturbances, splenic enlargement, epilepsy, hypersensitivity, neurological conditions, chronic bronchitis, tuberculosis, eczema, anemia, and diabetes (9). However, fungal contamination and mycotoxin presence remain significant challenges to its broader therapeutic use (10).

Practitioners of traditional medicine also attribute to *Mumijo* a wide spectrum of pharmacological effects—ranging from aphrodisiac and anti-inflammatory actions to applications in musculoskeletal disorders such as fractures, arthritis, and spondylitis. It is also used for edema, hemorrhoids, rejuvenation, wound healing, and metabolic regulation (7). The bioactive components of *Mumijo*, particularly fulvic and humic acids, are known for their antioxidant, anti-inflammatory, antimutagenic, and immunomodulatory activities, which may contribute to its proposed anticancer potential (8). Experimental studies further report reductions in blood glucose and improvements in lipid profiles in animal models (11), stimulation of nucleic acid synthesis, enhancement of mineral transport to muscle and bone (4), and promotion of diuresis and natriuresis (12).

Taken together, these traditional and experimental findings suggest that *Mumijo* is a complex natural product with multifaceted biological activity and considerable potential for modern pharmacological investigation.

Materials and Methods.

The study was conducted on 10 clinically healthy adult dogs ($n = 10$) of both sexes, weighing 12–18 kg. All animals were maintained under standard vivarium conditions with free access to water and a balanced diet. The experimental protocol was approved by the Institutional Animal Ethics Committee and complied with international principles of humane animal treatment. The animals received an aqueous extract of Alai mumiyo orally at a dose of 25 mg/kg body weight. Blood samples were collected from the cephalic vein at three time points: before administration (baseline), 30 minutes after administration, and 60 minutes after administration.

Venous blood was drawn into tubes containing 3.8% sodium citrate (9:1 ratio). The samples were centrifuged at 3000 rpm for 15 minutes to obtain platelet-poor plasma, which was used for coagulation tests.

Data are presented as mean $\pm$ standard error of the mean (SEM). Differences between time points were evaluated using Student's t-test. Differences were considered statistically significant at $p < 0.05$.

Results

Administration of the **Alai mumiyo** extract at a dose of 25 mg/kg caused marked changes in several indices of the blood coagulation system in dogs. The results are presented in Table 1.

Table 1. *Effect of Alai Mumiyo Extract at a Dose of 25 mg/kg on Some Blood Coagulation Parameters in Dogs ($n = 10$)* (time in seconds unless otherwise stated)

Parameter	Baseline	After 30 min	After 60 min
Blood clotting time	354 ± 30	↑900*	↑900*
Plasma recalcification time	94 ± 10	134 ± 12	149 ± 13*
Plasma tolerance to heparin	292 ± 34	473 ± 44*	425 ± 36*
Thrombin time	13 ± 2.2	72 ± 15*	72 ± 15*
Factor V activity	16 ± 0.5	17 ± 0.7	17 ± 0.5
Factor VII + X activity	35 ± 1.0	36 ± 1.4	38 ± 0.5
Fibrinogen (mg %)	330 ± 46	260 ± 34	290 ± 33
Fibrinolytic activity (min)	79 ± 4.5	90 ± 4.2	136 ± 11*
Total protein (g %)	7.8 ± 0.3	7.8 ± 0.3	8.0 ± 0.3

Statistically significant differences ($p < 0.05$) compared with baseline values.

A significant prolongation of **blood clotting time** was observed as early as 30 minutes after administration, increasing from 354 ± 30 to approximately 900 seconds ($p < 0.05$). This prolonged value persisted after 60 minutes, indicating a pronounced inhibition of the clotting process.

The **plasma recalcification time** also increased significantly from 94 ± 10 to 149 ± 13 seconds by 60 minutes ($p < 0.05$), confirming a reduction in the overall coagulant activity of plasma. Similarly, the **thrombin time** was markedly prolonged from 13 ± 2.2 to 72 ± 15 seconds ($p < 0.05$), suggesting interference with fibrin formation or decreased fibrinogen conversion.

An increase in **plasma tolerance to heparin** was observed, rising from 292 ± 34 to 425 ± 36 seconds ($p < 0.05$), indicating that mumiyo extract may enhance endogenous anticoagulant mechanisms or alter plasma heparin-binding properties.

The activities of **factors V and VII + X** showed only minor, statistically insignificant elevations, suggesting that the primary site of the extract's action lies outside the direct synthesis or activation of these coagulation factors.

The **fibrinogen concentration** decreased moderately from 330 ± 46 mg% to 260 ± 34 mg% at 30 minutes, followed by a partial recovery to 290 ± 33 mg% after 60 minutes. This transient reduction might reflect increased fibrinolytic activity or consumption during delayed clot formation.

Notably, the **fibrinolytic activity** increased significantly from 79 ± 4.5 to 136 ± 11 minutes ($p < 0.05$), which indicates enhanced breakdown of fibrin clots under the influence of mumiyo extract. The **total plasma protein level** remained stable throughout the observation period, confirming that the observed changes were specific to coagulation and not related to general protein metabolism.

Discussion

The results demonstrate that oral administration of **Alai mumiyo** extract in a dose of 25 mg/kg exerts a pronounced **anticoagulant effect** in dogs. The consistent prolongation of clotting, recalcification, and thrombin times, accompanied by increased fibrinolytic activity, suggests that the extract acts both on the **coagulation** and **fibrinolytic systems**.

The prolongation of thrombin time indicates possible inhibition of fibrin polymerization or direct interference with thrombin activity. The observed enhancement of plasma tolerance to heparin may

reflect potentiation of the **antithrombin-heparin complex** or an increase in endogenous heparinoids. Together, these effects point to a systemic shift toward **hypocoagulation**.

The mild decrease in fibrinogen concentration and the activation of fibrinolysis further support this hypothesis, indicating a stimulation of clot degradation processes. Similar properties have been reported for biologically active substances derived from natural mineral–organic complexes such as mumiyo, which contain humic acids, trace elements, and bioactive peptides capable of influencing enzyme systems.

Overall, the findings suggest that **Alai mumiyo** possesses both **anticoagulant** and **fibrinolytic** activities. These effects may underlie its traditional use as a regulator of circulatory and metabolic functions. Further studies involving larger sample sizes, prolonged exposure, and isolation of active fractions are required to elucidate the precise mechanisms and potential therapeutic applications of this natural preparation.

Conclusion

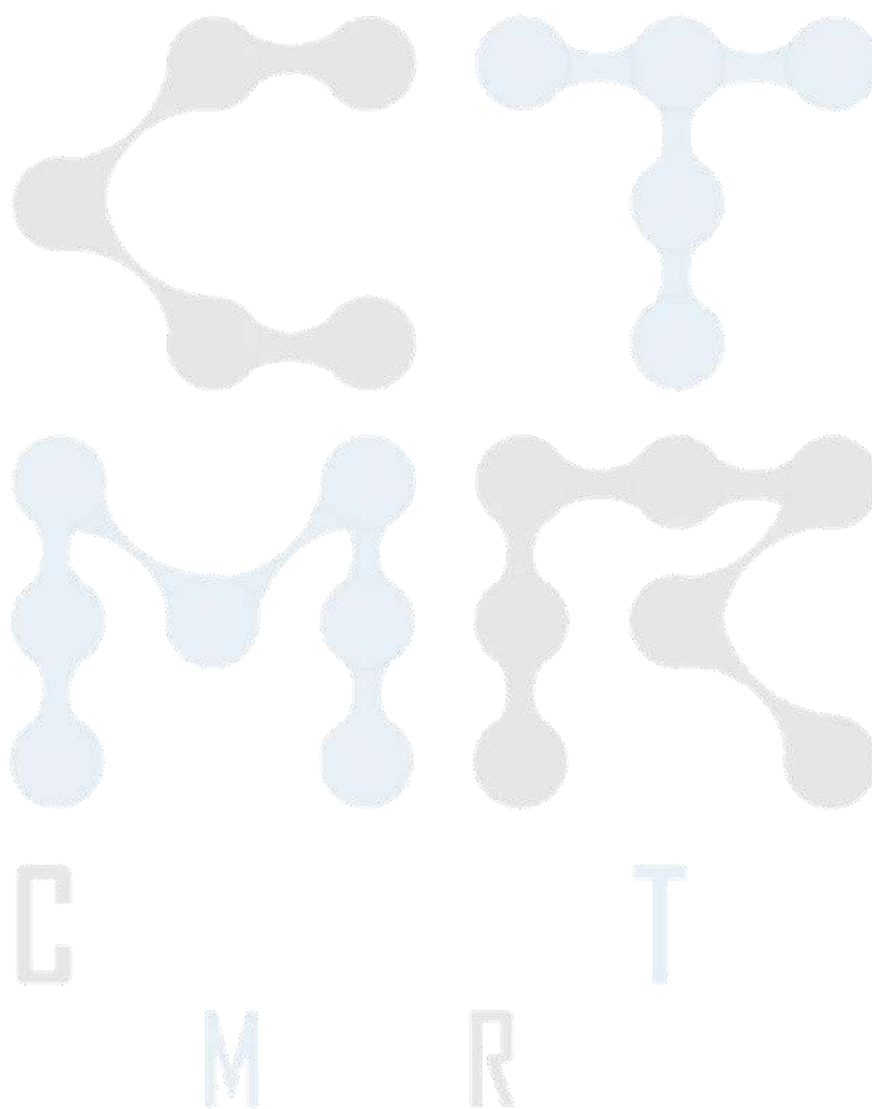
The experimental data obtained indicate that administration of *Alai mumiyo* extract at a dose of 25 mg/kg produces a significant anticoagulant response in dogs. The extract markedly prolonged blood clotting, recalcification, and thrombin times while increasing plasma tolerance to heparin and enhancing fibrinolytic activity. These changes occurred without notable alterations in coagulation factor activities or total plasma protein levels, suggesting that the effect is mainly functional rather than due to depletion of coagulation components.

Overall, *Alai mumiyo* demonstrates both anticoagulant and fibrinolytic properties, reflecting its potential to modulate hemostasis. The results support further investigation into its active constituents, mechanisms of action, and possible use as a natural regulator of blood coagulation and fibrinolysis.

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EFFECT OF DIFFERENT DOSES OF MUMIYO ON DIURETIC RESPONSE IN DOGS FOLLOWING INTRAVENOUS ADMINISTRATION

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Abstract. *Mumiyo* (Shilajit) is a natural herbo-mineral compound long used in traditional medicine for its rejuvenating and adaptogenic effects. This study aimed to evaluate the diuretic activity of *Khamzaabad mumiyo* in dogs following intravenous administration. Experiments were conducted under controlled conditions, and urine samples were collected hourly for five hours. *Mumiyo* was administered intravenously at doses of 1–50 mg/kg in 0.9% saline solution. The results showed a clear, dose-dependent increase in urine output and electrolyte excretion, beginning one hour after injection and lasting up to four hours. The diuretic action was primarily associated with reduced tubular reabsorption and enhanced renal excretion of water, sodium, and potassium. These findings suggest that *Khamzaabad mumiyo* exhibits significant diuretic and natriuretic properties and may be useful for identifying and standardizing Central Asian *mumiyo* preparations.

Keywords: Mumiyo; Shilajit; diuresis; natriuresis; traditional medicine; Khamzaabad mumiyo; intravenous administration; renal function; water–electrolyte balance; adaptogenic compounds

Introduction. Traditional medicine (TM) encompasses the knowledge, skills, and practices based on theories, beliefs, and experiences indigenous to different cultures. It is used to maintain health as well as to prevent, diagnose, improve, or treat physical and mental illnesses (1). Consequently, various studies on traditional medicine have been conducted, demonstrating that certain natural medicinal compounds exert beneficial effects on health in numerous diseases (2).

Mumiyo is a herbo-mineral exudate with a long history of use in traditional folk medicine. It originates from the mountainous regions of India (3, 5) and Russia (including former USSR regions such as the Urals, Altai, Caucasus, Kazakhstan, the Sayan Mountains, Lake Baikal, Uzbekistan, and Tajikistan). It is also found in other countries, including China, Pakistan, Nepal, Afghanistan, and Tibet (6).

Mumiyo—known by various names such as *Shilajit*, *Silajita*, *Marathi*, or *Gujarati* (in Hindi), *Asphalt* (in English), *Silajatu* (in Bengali), *Rock Juice* (in Tibetan), *Conqueror of Mountains* (in Sanskrit), *Hajar-ul-Musa* or *Arak al-Jabal* (in Arabic), *Mumiyo* or *Mumnaei* (in Persian), *μούμια* (in Greek), *Muemu* (in Russian), *Mumiyo* (in German), *Mineral Bitumen of Smolensk*, *Jewish Bitumen*, *Mineral Wax*, and *Bragshun*—is a natural substance ranging in color from pale brown to dark brownish-black. It has been used for over 3,000 years as a rejuvenating and adaptogenic remedy (4).

The origin of *mumiyo* is explained by three main theories: biological, geological, and bio-mineralogical. The geological theory suggests that *mumiyo* is the result of prolonged geological processes. According to the biological theory, it is formed from decomposed plant material or animal excreta under specific physicochemical conditions. The bio-mineralogical concept proposes that *mumiyo* results from the mechanical contamination of its liquid precursor with mineral substances. Regional factors—including plant species, geological characteristics of rocks and soil, local temperature, humidity, and altitude above sea level—play an important role in influencing its composition and therapeutic properties (8, 9).

Despite its similar physical characteristics across different regions of the world, these factors affect the composition and proportion of its components. In general, mumiyo consists of organic compounds (60–80%), inorganic compounds (20–40%), and trace elements such as Fe, Ca, Cu, Zn, Mg, Mn, Mo, and P (10).

In the 10th century, Ahwazi, in his book *Kamel al-Sanae*, recommended mumiyo for the treatment of cold headaches, hemoptysis, asthma, and the removal of a dead fetus. Avicenna, the renowned Persian physician, in his famous work *The Canon of Medicine*, described mumiyo as a highly effective remedy for strengthening the brain, enhancing fertility, and treating a variety of ailments. In the 12th century, the Persian medical text *Zakhire Khwarazmshahi* by Jorjani recommended mumiyo for inflammation, ulcers, and urinary and prostate disorders (7).

Mumiyo has been prescribed in various doses for a wide range of health conditions, including urological and reproductive disorders, jaundice, gallstones, gastrointestinal diseases, splenomegaly, epilepsy, hypersensitivity, nervous disorders, chronic bronchitis, tuberculosis, eczema, anemia, and diabetes (11). However, fungal contamination, particularly with mycotoxins, remains a significant limiting factor for its widespread use in modern medicine (12).

Traditional medicine specialists claim that mumiyo is effective against conditions such as loss of libido, kidney stones, bone pain and fractures, osteoarthritis, spondylitis, edema, hemorrhoids, aging, rejuvenation, infections (as an antiseptic), obesity, anorexia, and weight loss (9). Owing to the anti-inflammatory, antioxidant, antimutagenic, and immunomodulatory properties of fulvic acid (FA) and humic acid (HA), there is evidence suggesting that mumiyo may serve as a potential agent for cancer prevention (10). Moreover, various doses of mumiyo have shown reductions in blood glucose levels and favorable effects on lipid profiles in rats (13). Additionally, mumiyo extract has been found to enhance nucleic acid synthesis and increase mineral transport into muscle and bone tissues (6).

Objective of the Study. In light of numerous studies and claims regarding the therapeutic properties of *mumiyo* in Traditional Medicine (TM), as well as in the Ayurvedic and Siddha systems of medicine, and considering the lack of comprehensive evaluations on this topic, the present study aims to provide a preliminary assessment of the effects of mumiyo a traditional remedy well known in the ancient medical practices of both the East and the West on diuretic activity in dogs following intravenous administration.

Methods of the Study. The effect of Khamzaabad mumiyo on diuresis was investigated in experiments conducted on dogs. The objective of these experiments was to determine the optimal dose of the preparation when administered through different routes. Additionally, information was sought regarding the influence of the administration route on the diuretic effect of mumiyo.

The animals were maintained in a temperature-controlled environment and had free access to a standard canine diet and water. Urine samples were collected every hour for five hours. The first urine sample served as a control. After its collection, mumiyo was administered intravenously in various doses, each diluted in 10 mL of 0.9% saline solution. The obtained data are presented in Table 1.

Results and Discussion. The data presented in Table 1 indicate that intravenous administration of mumiyo at doses of 1, 5, 10, 25, and 50 mg/kg of body weight produces a diuretic effect beginning approximately one hour after injection and lasting for about four hours. A dose-dependent effect of mumiyo was observed. When administered intravenously, the diuretic response developed within the first hour, and the overall effect was more pronounced than with other routes of administration.

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An analysis of the effects of mumiyo on water–electrolyte balance and renal function indicates that Khamzaabad mumiyo, when administered to rats either as a single dose or over a prolonged period at 50 mg/kg, enhances renal excretion of water, sodium, and potassium. The increase in diuresis appears to result primarily from a reduction in tubular reabsorption. Furthermore, when the extracellular fluid volume was increased in rats through intravenous administration of an isotonic saline solution, the resulting salt and water load caused a marked increase in natriuresis, particularly in the presence of mumiyo.

Table 1. Effect of Various Doses of Mumiyo on Diuresis in Dogs Following Intravenous Administration.

Dose, route of administration	Control period	Time after drug administration			
		1 hour	2 hour	3 hour	4 hour
Solvent (i.v.)	43,5 ± 1,0	40,7 ± 1,3	48,2 ± 1,1	46,5 ± 1,0	45,2 ± 0,9
Mumiyo 1 mg/kg (i.v.)	73,0 ± 1,7	121,0 ± 2,8	137,0 ± 2,8	140,0 ± 3,1	73,8 ± 2,5
Mumiyo 5 mg/kg (i.v.)	51,0 ± 1,1	83,0 ± 1,8	173,0 ± 4,0	209,0 ± 2,3	117,0 ± 1,5
Mumiyo 10 mg/kg (i.v.)	62,0 ± 1,6	86,0 ± 2,2	213,0 ± 3,6	268,0 ± 6,4	159,0 ± 3,5
Mumiyo 25 mg/kg (i.v.)	12,8 ± 0,6	128,0 ± 3,5	194,0 ± 3,5	186,0 ± 2,3	149,0 ± 2,5
Mumiyo 50 mg/kg (i.v.)	26,0 ± 3,0	109,0 ± 4,0	232,0 ± 9,6	245,0 ± 8,8	158,0 ± 7,5

*- The change is statistically significant compared to the control.

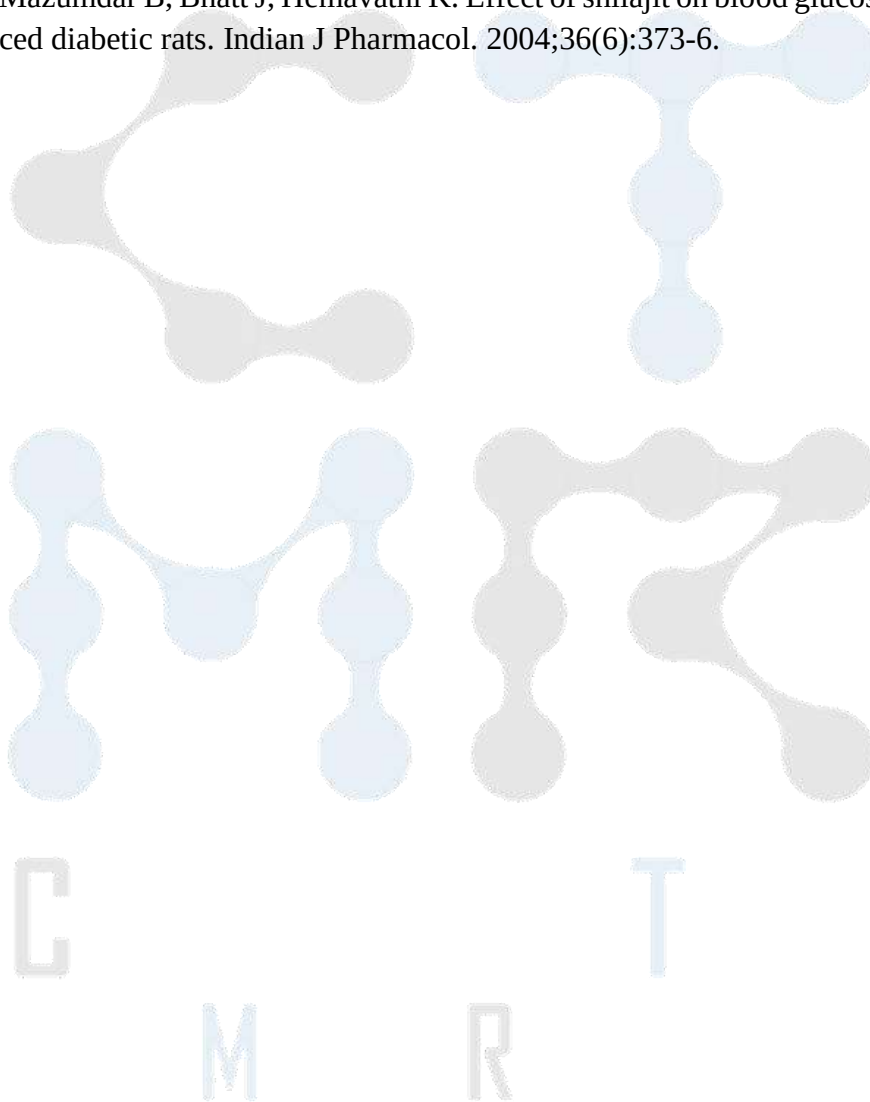
Conclusions

1. All studied types of mumiyo increase diuresis and natriuresis.
2. The presence of this property in Central Asian varieties of mumiyo can be used as a criterion for identification of the preparation.

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RENAL EFFECTS OF MUMIYO: ENHANCEMENT OF DIURESIS AND NATRIURESIS IN EXPERIMENTAL RATS

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Abstract. *Mumiyo* (shilajit) is a natural herbo-mineral substance long used in traditional medicine for its restorative properties. This study investigated the effect of mumiyo on water and sodium excretion in rats. Adult male rats (180–220 g) were divided into control and experimental groups ($n = 10$ each). The experimental group received mumiyo orally at 50 mg/kg for seven days. Water and salt loading tests were performed, and urine was collected for 4 hours. Mumiyo treatment significantly increased urine volume and sodium excretion compared with controls ($P < 0.05$). After salt loading, the natriuretic response was particularly pronounced. These findings indicate that mumiyo enhances renal excretory function by promoting diuresis and natriuresis, supporting its traditional use in maintaining fluid and electrolyte balance.

Keywords: mumiyo; shilajit; diuresis; natriuresis; sodium excretion; water–salt balance; renal function; experimental rats.

Introduction. Traditional medicine (TM) represents a comprehensive body of knowledge, skills, and practices grounded in the theories, beliefs, and experiences of diverse cultural traditions. It serves to maintain health and prevent, diagnose, alleviate, or treat a wide range of physical and mental disorders (1). Over the past decades, increasing scientific interest in traditional medicine has led to extensive research demonstrating that many natural bioactive compounds possess significant therapeutic potential in various pathological conditions (2).

Among these natural remedies, mumiyo occupies a unique position due to its long-standing reputation as a powerful rejuvenating and adaptogenic substance. Mumiyo is a herbo-mineral exudate with a resinous appearance, found primarily in mountainous regions. It occurs naturally in India (3,5) and across several territories of the former USSR, including the Urals, Altai, Caucasus, Kazakhstan, the Sayan Mountains, the Baikal region, Uzbekistan, and Tajikistan. Deposits have also been identified in other Asian countries such as China, Pakistan, Nepal, Afghanistan, and Tibet (6).

Known by a multitude of regional names Shilajit, Silajita, Asphalt, Silajatu, Rock Juice, Conqueror of Mountains, Hajar-ul-Musa, Arak al-Jabal, Mumiyo, or Bragshun this natural substance ranges in color from light brown to dark brownish-black. Historical records suggest that mumiyo has been utilized for over 3,000 years as a revitalizing tonic, credited with enhancing physical strength, promoting longevity, and aiding recovery from various ailments (4).

The origin of mumiyo remains a subject of scientific debate and is explained by three major hypotheses: geological, biological, and bio-mineralogical. The geological hypothesis proposes that mumiyo is formed through long-term geological transformations of organic matter within rock strata. The biological theory attributes its formation to the decomposition of plant residues and animal excreta under specific physicochemical and microbial conditions. The bio-mineralogical concept combines both perspectives, suggesting that mumiyo arises from an organic precursor that becomes mechanically mixed with mineral substances during its formation.

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Importantly, the composition and pharmacological properties of mumiyo are influenced by a range of environmental and regional factors, including local vegetation, rock and soil mineral content, temperature, humidity, and altitude. These factors determine the complex mixture of organic molecules, trace minerals, and biologically active compounds that contribute to mumiyo's diverse therapeutic actions (8,9).

Despite its similar physical characteristics across different regions of the world, these factors affect the composition and proportion of its components. In general, mumiyo consists of organic compounds (60–80%), inorganic compounds (20–40%), and trace elements such as Fe, Ca, Cu, Zn, Mg, Mn, Mo, and P (10).

In the 10th century, Ahwazi, in his book *Kamel al-Sanae*, recommended mumiyo for the treatment of cold headaches, hemoptysis, asthma, and the removal of a dead fetus. Avicenna, the renowned Persian physician, in his famous work *The Canon of Medicine*, described mumiyo as a highly effective remedy for strengthening the brain, enhancing fertility, and treating a variety of ailments. In the 12th century, the Persian medical text *Zakhire Khwarazmshahi* by Jorjani recommended mumiyo for inflammation, ulcers, and urinary and prostate disorders (7).

Mumiyo has been prescribed in various doses for a wide range of health conditions, including urological and reproductive disorders, jaundice, gallstones, gastrointestinal diseases, splenomegaly, epilepsy, hypersensitivity, nervous disorders, chronic bronchitis, tuberculosis, eczema, anemia, and diabetes (11). However, fungal contamination, particularly with mycotoxins, remains a significant limiting factor for its widespread use in modern medicine (12).

Traditional medicine specialists claim that mumiyo is effective against conditions such as loss of libido, kidney stones, bone pain and fractures, osteoarthritis, spondylitis, edema, hemorrhoids, aging, rejuvenation, infections (as an antiseptic), obesity, anorexia, and weight loss (9). Owing to the anti-inflammatory, antioxidant, antimutagenic, and immunomodulatory properties of fulvic acid (FA) and humic acid (HA), there is evidence suggesting that mumiyo may serve as a potential agent for cancer prevention (10). Moreover, various doses of mumiyo have shown reductions in blood glucose levels and favorable effects on lipid profiles in rats (13). Additionally, mumiyo extract has been found to enhance nucleic acid synthesis and increase mineral transport into muscle and bone tissues (6).

Materials and Methods

The experiment was carried out on adult laboratory rats (180–220 g) maintained under standard vivarium conditions with free access to food and water. Animals were divided into two groups: control ($n = 10$) and experimental ($n = 10$).

Natural purified mumiyo (shilajit) was dissolved in distilled water to obtain a working solution at a concentration of 50 mg/mL. The animals in the experimental group received mumiyo orally (dose: 50 mg/kg) once daily for 7 days prior to testing.

To evaluate the effect of mumiyo on water and sodium excretion, water and salt loading tests were performed. After fasting overnight, the animals received either a water load (5% of body weight, distilled water) or a salt load (0.9% NaCl solution, 5% of body weight) via oral gavage.

Urine was collected for a 4-hour period after loading in individual metabolic cages. The volume of urine (diuresis) was measured gravimetrically. Sodium concentration in urine was determined by flame photometry, and total sodium excretion was expressed in μmol per collection period.

Data are presented as mean $\pm$ standard error of the mean (SEM). Differences between groups were analyzed using Student's *t*-test. A value of $P < 0.05$ was considered statistically significant.

Results

The effects of mumiyo on water and sodium excretion after water and salt loading are summarized in Table 1. Administration of mumiyo for seven days led to a significant increase in both diuresis and urinary sodium excretion compared with the control group.

Table 1. Effect of Mumiyo on Water and Sodium Excretion after Water and Salt Loads

Experimental Conditions	Normal	Mumiyo	P
Water load diuresis (ml)	2.7 ± 0.21	3.8 ± 0.08	<0.001
Sodium excretion (μmol)	2.4 ± 0.05	3.2 ± 0.09	<0.001
Salt load diuresis (ml)	2.4 ± 0.21	3.1 ± 0.18	<0.01
Sodium excretion (μmol)	2.3 ± 0.11	13.8 ± 0.33	<0.001

Following water loading, urine volume in the mumiyo-treated group was 3.8 ± 0.08 mL, which was significantly higher than in the control group (2.7 ± 0.21 mL, $P < 0.001$). Sodium excretion under the same conditions also increased from 2.4 ± 0.05 μmol to 3.2 ± 0.09 μmol ($P < 0.001$).

After salt loading, the effect of mumiyo was even more pronounced. Diuresis increased from 2.4 ± 0.21 mL in controls to 3.1 ± 0.18 mL ($P < 0.01$), while sodium excretion rose sharply from 2.3 ± 0.11 μmol to 13.8 ± 0.33 μmol ($P < 0.001$).

These results indicate that mumiyo enhances both water and sodium excretion, demonstrating a clear diuretic and natriuretic effect.

Discussion

The present study demonstrates that administration of mumiyo significantly increases diuresis and sodium excretion in rats subjected to both water and salt loading. The observed enhancement of sodium elimination, particularly after salt loading, suggests that mumiyo facilitates renal excretory function and promotes the removal of excess sodium and water from the body.

These findings are consistent with the hypothesis that mumiyo possesses natriuretic and diuretic properties, possibly through modulation of renal tubular reabsorption or the regulation of hormonal systems involved in fluid and electrolyte balance, such as the renin–angiotensin–aldosterone system. The pronounced increase in sodium excretion after salt loading indicates that mumiyo enhances the body's adaptive response to sodium overload, helping maintain osmotic homeostasis. This suggests potential therapeutic relevance of mumiyo in conditions associated with sodium and water retention, such as hypertension or edema.

Further studies are required to elucidate the exact mechanisms underlying this effect, including possible influences on renal blood flow, glomerular filtration rate, or tubular ion transport.

Conclusion

The findings of this study demonstrate that administration of mumiyo (50 mg/kg for seven days) significantly enhances both diuresis and sodium excretion in rats after water and salt loading. The effect is particularly pronounced under salt-loading conditions, indicating a strong natriuretic response.

These results suggest that mumiyo promotes the elimination of excess sodium and water, contributing to the maintenance of fluid and electrolyte balance. The data support the view that mumiyo possesses diuretic and natriuretic properties, which may be beneficial in physiological or pathological

conditions associated with sodium and water retention. Further studies are warranted to clarify the underlying mechanisms and to explore the potential therapeutic applications of mumiyo in renal and cardiovascular regulation.

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ОЦЕНКА ВЛИЯНИЯ СОВМЕЩНОГО ИСПОЛЬЗОВАНИЯ ЭКСТРАКТОВ ЗВЕРОБОЯ ПРОДЫРЯВЛЕННОГО И СОЛОДКИ ГОЛОЙ НА ПРОЦЕССЫ РАЗВИТИЯ ГАСТРОПАТИИ У КРЫС

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Аннотация: Эксперименты проводились на 36 белых крысах-самцах с массой тела 180–240 г в соответствии с требованиями этического комитета. Были смоделированы два варианта гастропатии: стресс-индуцированная язва желудка, вызванная иммобилизацией, и язвообразование, индуцированное введением индометацина. Животным опытных групп перорально, с использованием желудочного зонда, вводили сухой экстракт в дозе 50 мг/кг за 1 час до моделирования экспериментальных язв. Полученные результаты показали, что под воздействием иммобилизационного стресса и индометацина у всех животных наблюдались множественные кровоизлияния, а также точечные и линейные изъязвления слизистой оболочки желудка. Введение суммы экстрактов, выделенных из лекарственных растений **Hypericum perforatum** и **Glycyrrhiza glabra**, способствовало выраженному снижению числа животных с язвенными поражениями, а также уменьшению среднего количества язв на одну крысу по сравнению с контрольной группой.

Ключевые слова: **Hypericum perforatum**, **Glycyrrhiza glabra**, нестероидные противовоспалительные средства (НПВС), язвенная болезнь, гастропатия, стресс-язва, индометацин, крысы, экспериментальная модель.

Актуальность. Проблема воспалительных заболеваний желудка известна человечеству на протяжении многих тысячелетий. Археологические и письменные источники свидетельствуют о существовании язвенной болезни желудка уже в Древнем мире — на территориях Египта и Греции, относящихся к V–II вв. до н. э. Однако подобные сведения немногочисленны, что связано с трудностями диагностики и сравнительно низкой смертностью, вызванной данной патологией. Первое упоминание о хирургическом вмешательстве — резекции желудка при язвенной болезни — датируется IV в. до н. э. и, согласно источникам, было высечено на столпах храма Асклепия в Эпидавре. [1].

В настоящее время нестероидные противовоспалительные средства (НПВС) занимают одно из ведущих мест в клинической практике и широко применяются в повседневной жизни для лечения различных заболеваний. Они являются важной составляющей терапевтического арсенала врачей многих специальностей. Ежедневно более 30 миллионов человек во всем мире принимают НПВС с целью купирования боли, снижения воспаления и профилактики тромбообразования. В конце XX — начале XXI века наблюдается устойчивая тенденция к росту потребления НПВС, увеличивающемуся в 2–3 раза каждые десять лет. В течение года общее количество пользователей данных препаратов превышает 300 миллионов человек, при этом лишь треть из них применяет НПВС по назначению врача. [2, 3].

Недостаточный контроль за применением нестероидных противовоспалительных препаратов (НПВП) нередко приводит к высокой частоте желудочно-кишечных осложнений. Спектр побочных эффектов варьирует от легких диспептических нарушений до образования

множественных эрозий и пептических язв. Согласно данным исследований, при использовании НПВП в течение более чем шести недель гастропатии и дуоденопатии развиваются приблизительно у 70% пациентов. [7].

Несмотря на выраженные терапевтические преимущества нестероидных противовоспалительных средств (НПВС), их применение сопровождается повреждением слизистой оболочки желудочно-кишечного тракта, что через развитие различных клинических проявлений и осложнений оказывает существенное влияние на состояние здоровья пациентов. Согласно данным Chan F.K. и Graham D.Y., желудочно-кишечные побочные эффекты наблюдаются примерно у 25% лиц, регулярно принимающих НПВС [8].

В Республике Узбекистан распространенность язвенной патологии также остается высокой. Данное заболевание сопровождается значительными социально-экономическими последствиями, включая временную нетрудоспособность, инвалидизацию населения, а в тяжелых случаях — летальные исходы. [10].

В современном здравоохранении существует широкий спектр противоязвенных препаратов, относящихся к различным классам химических соединений. Тем не менее, их терапевтическая эффективность не всегда полностью удовлетворяет клинические потребности. Ряд средств обладает недостаточным лечебным действием, другие характеризуются высокой частотой рецидивов заболевания, а большинство из них сопровождается развитием побочных эффектов, нередко приводящих к серьезным осложнениям у отдельных пациентов. [9].

В связи с вышеизложенным возникает объективная необходимость в поиске, изучении и внедрении в клиническую практику новых, высокоэффективных и малотоксичных противоязвенных препаратов. В этом контексте особый интерес представляют лекарственные средства растительного происхождения, обладающие широким спектром биологической активности и меньшим риском развития побочных эффектов. [10].

Цель исследования. Целью настоящего исследования являлось изучение и оценка эффективности применения сухих экстрактов растений *Hypericum perforatum* и *Glycyrrhiza glabra* при лечении экспериментальной язвы желудка у крыс, индуцированной стрессом и индометацином при пероральном введении.

Методы исследования. Экспериментальные исследования проведены на 36 белых крысах-самцах массой тела 180–240 г. До начала эксперимента животные проходили 14-дневный карантин и содержались в стандартных условиях вивария с доступом к сбалансированному рациону. Все экспериментальные процедуры выполнялись в соответствии с требованиями этического комитета по работе с лабораторными животными. В ходе исследования были смоделированы два типа гастропатии: стресс-язва желудка, вызванная иммобилизационным стрессом, и язвенная патология, индуцированная введением индометацина. За 24 часа до моделирования стрессовой язвы животные подвергались пищевой депривации при свободном доступе к воде, поскольку голодание, сопровождающееся активацией анаэробного гликолиза, снижает уровень факторов защиты слизистой желудка. Для воспроизведения стрессовой язвы применяли метод насильственной иммобилизации: крыс, предварительно голодавших в течение 48 часов, фиксировали на спине к деревянной доске за лапки на 24 часа. Язвообразование, вызванное индометацином, моделировали однократным внутрижелудочным введением препарата в ulcerогенной дозе 60 мг/кг с использованием металлического зонда. Животным опытных групп перорально вводили смеси сухих экстрактов

растений *Hypericum perforatum* и *Glycyrrhiza glabra* в дозе 50 мг/кг за 1 час до моделирования стрессорной или индометацин-индуцированной язвы. Контрольной группе крыс в аналогичных условиях вводили эквивалентный объем питьевой воды.

Результаты и их обсуждение. Полученные результаты показали, что иммобилизационный стресс сопровождается выраженными дистрофическими изменениями в стенке желудка, наблюдаемыми практически у всех экспериментальных животных. Морфологически это проявлялось множественными кровоизлияниями, а также наличием точечных и линейных изъязвлений слизистой оболочки. При вскрытии животных контрольной группы язвенные поражения выявлены у 100% крыс (6 из 6). Аналогичная частота поражений (100%) отмечалась и в подопытных группах, получавших предварительно смесь сухих экстрактов *Hypericum perforatum* и *Glycyrrhiza glabra* в дозе 50 мг/кг. Однако степень деструктивных изменений существенно различалась по количественным показателям. Среднее количество язв на одно животное служило основным критерием противоязвенной активности исследуемого препарата. Так, количество мелких точечных язв в контрольной группе составляло $35,0 \pm 2,9$, тогда как у животных, получавших препарат, данный показатель снижался почти в три раза — до $12,3 \pm 1,02$. Количество крупных язв уменьшилось с $13,3 \pm 1,6$ до $6,0 \pm 0,97$, то есть почти вдвое. Число полосатых язв сократилось с $13,5 \pm 1,3$ до $5,2 \pm 1,08$ (примерно в три раза). В целом, суммарное количество язв у животных контрольной группы составляло $61,8 \pm 4,14$, тогда как у крыс, получавших растительный препарат, этот показатель снизился почти втрое — до $23,5 \pm 1,8$ (см. Таблицу). Таким образом, предварительное введение смеси сухих экстрактов *Hypericum perforatum* и *Glycyrrhiza glabra* оказывало выраженное гастропротекторное действие, снижая степень повреждения слизистой оболочки желудка при иммобилизационном стрессе.

Таблица

Влияние суммы экстрактов из растений *hypericum perforatum*, *glycyrrhiza glabra* лекарственных растений на экспериментальные язвы желудка, вызванных иммобилизационным стрессом и индометацином

Серии опытов	Мелкие точечные язвы	Крупные язвы	Полосовидные язвы	Общее число язв
Иммобилизационный стресс	$35,0 \pm 2,9$	$13,3 \pm 1,6$	$13,5 \pm 1,3$	$61,8 \pm 4,14$
	$12,3 \pm 1,02$	$6,0 \pm 0,97$	$5,2 \pm 1,08$	$23,5 \pm 1,8$
Испытуемый препарат				

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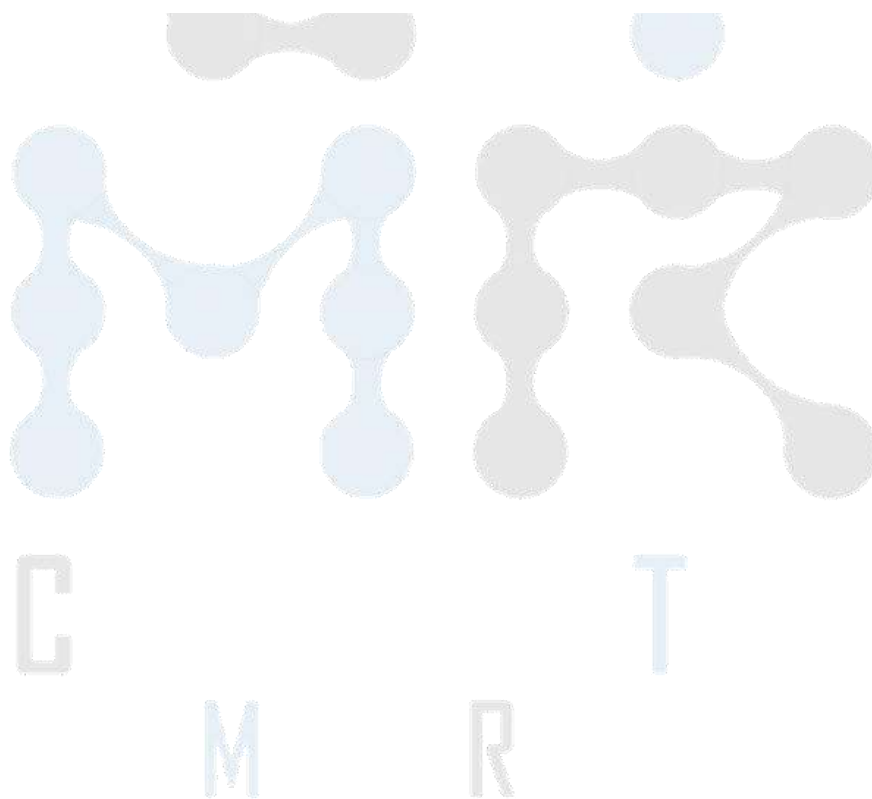
Индометацин	11,7±0,84	9,3±0,61	10,2±0,7	29,5±1,18
Испытуемый препарат	6,5±0,43	6,7±0,429	4,4±0,5	17,5±0,5

В опытах с индометацин-индуцированной язвой желудка исследуемый препарат также проявил выраженное профилактическое действие. При макроскопическом исследовании желудков контрольных животных язвенные поражения выявлены у всех крыс (6 из 6). Язвы локализовались преимущественно в области преджелудка, различались по размерам и часто имели геморрагические края. У некоторых животных на слизистой оболочке наблюдались множественные кровоизлияния. В опытных группах, получавших смесь сухих экстрактов *Hypericum perforatum* и *Glycyrrhiza glabra* в дозе 50 мг/кг, язвенные поражения также регистрировались у 100% животных (6 из 6), однако степень деструктивных изменений была значительно ниже. Основным показателем противоязвенного действия служило изменение среднего количества язв на одно животное. Так, число мелких точечных язв в контрольной группе составляло $11,7 \pm 0,84$, тогда как у крыс, предварительно получавших препарат, данный показатель снижался почти в два раза — до $6,5 \pm 0,43$. Количество крупных язв уменьшилось с $9,3 \pm 0,61$ до $6,7 \pm 0,43$, а число полосатых язв с $10,2 \pm 0,7$ до $4,4 \pm 1,08$, что соответствует снижению более чем в 2 раза. В целом, суммарное количество язв у животных контрольной группы составляло $29,5 \pm 1,18$, тогда как у крыс, получавших исследуемый препарат, данный показатель уменьшился до $17,5 \pm 0,5$, то есть почти в полтора раза. Таким образом, исследуемый отечественный растительный препарат проявляет выраженное гастропротекторное действие в условиях индометацин-индуцированной язвы. Его защитный эффект выражается в значительном снижении числа язвенных дефектов слизистой оболочки желудка. Благоприятное действие препарата прослеживается на различных моделях язвообразования, что делает перспективным дальнейшее комплексное изучение его фармакологических свойств в экспериментальных условиях.

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EVALUATION OF MUMIJO'S EFFECTS ON BLEEDING TIME AND BLOOD LOSS IN EXPERIMENTAL RAT MODELS.**Egamberdiyev Jasur Jumanazar ugli**

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Abstract: Given the numerous studies and claims concerning the therapeutic properties of mumiyo in Traditional Medicine (TM), as well as in the Ayurvedic and Siddha systems, and considering the lack of comprehensive scientific evaluations on this subject, the present study aims to provide a preliminary assessment of the effects of mumiyo a traditional remedy widely recognized in both Eastern and Western ancient medical practices on bleeding duration and blood loss in rats.

Keywords: Shilajit, Traditional Medicine, Anticoagulant activity, Bleeding time, Blood loss, Wistar rats, Intraperitoneal administration, Herbal medicine, Hemostasis.

INTRODUCTION

According to the World Health Organization (WHO), Traditional Medicine (TM) encompasses health practices involving the use of plant, mineral and animal-based remedies either individually or in combination for the treatment and prevention of diseases, as well as for maintaining overall well-being (1). It is estimated that approximately 80% of the global population relies on TM to meet primary healthcare needs (2).

Mumiyo is a herbo-mineral exudate with a long history of use in traditional folk medicine. It originates from the mountainous regions of India (3, 5) and Russia (including former USSR territories such as the Urals, Altai, Caucasus, Kazakhstan, the Sayan Mountains, Baikal, Uzbekistan, and Tajikistan). It is also found in other countries, including China, Pakistan, Nepal, Afghanistan, and Tibet (6).

Mumiyo known by various names such as Shilajit, Silajita, Marathi or Gujarati (in Hindi), Asphalt (in English), Silajatu (in Bengali), Rock Juice (in Tibetan), Conqueror of Mountains (in Sanskrit), Hajar-ul-Musa or Arak al-Jabal (in Arabic), Mumiyo or Mumnaei (in Persian), μούμια (in Greek), Muemu (in Russian), Mumiyo (in German), Mineral Bitumen of Smolensk, Jewish Bitumen, Mineral Wax, and Bragshun is a natural substance ranging in color from pale brown to dark brownish-black. It has been used for over 3,000 years as a rejuvenating and adaptogenic remedy (4).

The origin of *mumiyo* is explained by three main theories: biological, geological, and bio-mineralogical. According to the biological theory, *mumiyo* is believed to form from decomposed plant material or animal excreta under specific physicochemical conditions. The geological theory suggests that *mumiyo* results from long-term geological processes. The bio-mineralogical concept proposes that *mumiyo* is produced through the mechanical contamination of its liquid precursor with mineral substances. Regional factors including plant species, geological features of rocks and soil, temperature, humidity, altitude, and other environmental parameters play a crucial role in determining the composition and therapeutic properties of *mumiyo* (9).

Although *mumiyo* from different regions exhibits similar physical characteristics, these environmental and geological variations influence its composition and the ratio of its components. Typically, *mumiyo* contains organic compounds (60–80%), inorganic compounds (20–40%), and trace elements such as Fe, Ca, Cu, Zn, Mg, Mn, Mo, and P (10).

In the 10th century, Ahwazi, in his book *Kamel al-Sanae*, recommended *mumiyo* for the treatment of cold headaches, hemoptysis, asthma, and the removal of a dead fetus. Avicenna, the renowned Persian physician, in his classic work *The Canon of Medicine*, described *mumiyo* as a highly effective remedy for strengthening the brain, enhancing fertility, and treating various ailments. In the 12th century, the Persian medical text *Zakhire Khwarazmshahi* by Jorjani recommended *mumiyo* for inflammation, ulcers, and urinary and prostate disorders (7).

Mumiyo has been prescribed in various doses for a wide range of health conditions, including urogenital diseases, jaundice, gallstones, gastrointestinal disorders, splenomegaly, epilepsy, hypersensitivity, nervous disorders, chronic bronchitis, tuberculosis, eczema, anemia, and diabetes (11). However, fungal contamination—particularly by mycotoxins remains a major obstacle to its widespread use in modern medicine (12).

Traditional medicine practitioners claim that *mumiyo* is effective against conditions such as reduced libido, kidney stones, bone pain and fractures, osteoarthritis, spondylitis, edema, hemorrhoids, aging, rejuvenation, infections (as an antiseptic), obesity, anorexia, and weight loss (9). Owing to the anti-inflammatory, antioxidant, antimutagenic, and immunomodulatory properties of fulvic acid (FA) and humic acid (HA), some studies suggest that *mumiyo* may also serve as a potential agent for cancer prevention (10). Furthermore, various doses of *mumiyo* have been shown to lower blood glucose levels and improve lipid profiles in rats (13). *Mumiyo* extract has also been found to enhance nucleic acid synthesis and promote mineral transport into muscle and bone tissues (6). Additionally, *mumiyo* increases diuresis and natriuresis (14).

Objective of the Study

In light of numerous studies and claims regarding the therapeutic properties of *mumiyo* in Traditional Medicine (TM), as well as in Ayurvedic and Siddha systems of medicine, and considering the lack of comprehensive evaluations on this subject, the present study aims to assess the effects of *mumiyo* a traditional remedy well known in the ancient medical practices of both the East and the West on the anticoagulant activity of blood in rats subjected to tail injury.

Methods

The experiments demonstrated that administration of *mumiyo* led to a prolongation of bleeding duration. To elucidate the mechanism behind this phenomenon, blood coagulation processes under the influence of *mumiyo* were further investigated.

Experimental studies were performed on Wistar rats older than three months, weighing between 250 and 300 g. The animals were maintained in a temperature-controlled environment with free access to a standard diet and water. They were randomly divided into four groups: a control group and three experimental groups receiving *mumiyo* at doses of 250 mg/kg, 500 mg/kg, and 1000 mg/kg.

The effect of *mumiyo* on bleeding time and blood loss was evaluated using the method described by I.E. Akopov et al. (1971). In this procedure, the tip of the rat's tail was excised, and bleeding duration and total blood loss were measured to assess the drug's effect following intraperitoneal administration at doses of 0.25, 0.5, and 1.0 g/kg. The results are presented in Table 1.

Results and Discussion

The results presented in Table 1 demonstrate that *mumiyo* significantly prolonged bleeding duration, which was accompanied by an increase in total blood loss. Furthermore, higher doses of *mumiyo* were associated with longer bleeding times and greater blood loss.

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When the dose was doubled (1 g/kg), bleeding duration decreased slightly compared with the 0.5 g/kg group but remained higher than that of the 0.25 g/kg group. The total blood loss at 1 g/kg did not differ significantly from that at 0.5 g/kg ($P > 0.5$).

Table 1. Effect of Alai Mumiyo Extract on Bleeding Time and Blood Loss in Rats ($M \pm m$, $n = 10$)

Experimental group	Duration of bleeding (min)	Blood loss (mg of dry residue)
Control group	$5,7 \pm 0,21$	$35,0 \pm 5,8$
Mumiyo 0,25 g/kg	$14,4 \pm 1,07$	$440,0 \pm 41,6$
Mumiyo 0,5 g/kg	$22,1 \pm 4,16$	$322,2 \pm 84,0$
Mumiyo 1 g/kg	$17,1 \pm 0,47$	$364,2 \pm 72,7$

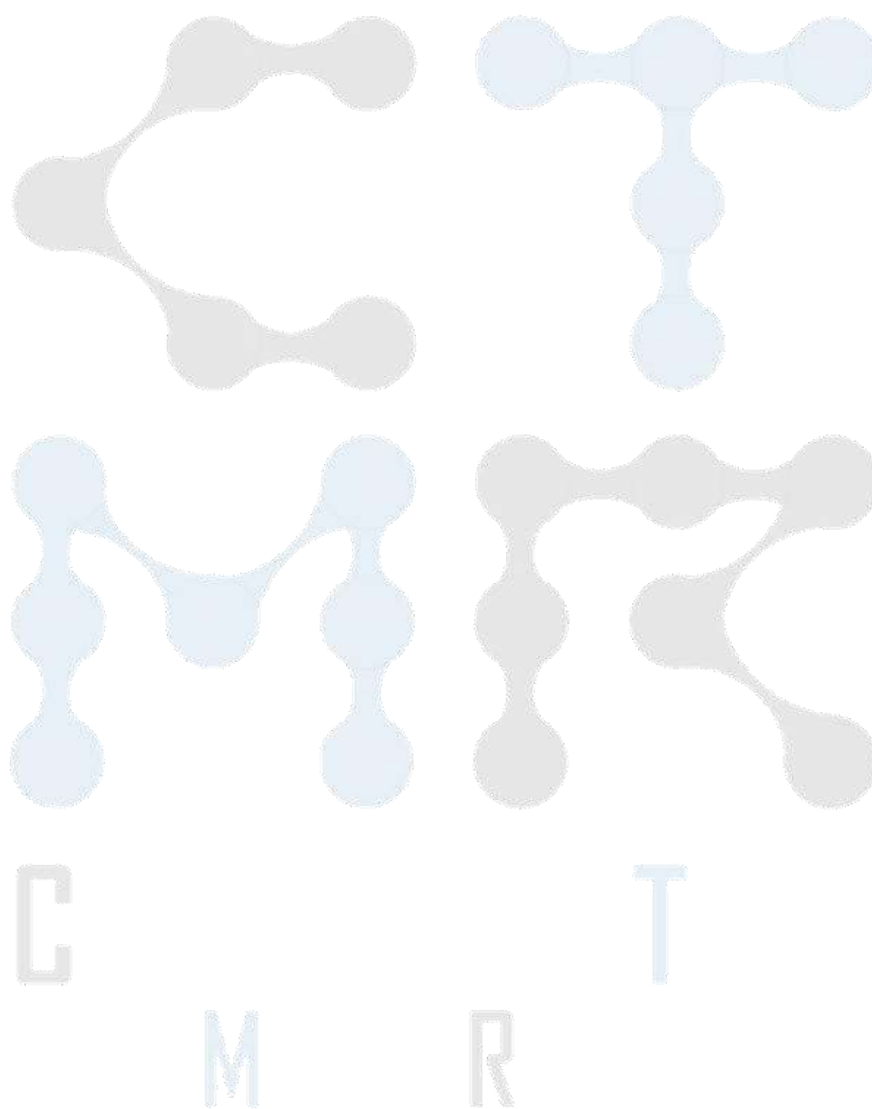
Conclusions

1. Based on the experimental results, it can be concluded that *mumiyo*, when administered intraperitoneally to rats at doses of 0.25, 0.5, and 1.0 g/kg, significantly prolongs bleeding time.
2. This hemostatic-modulating property of *mumiyo* may be of potential use in practical medicine for the prevention and management of conditions associated with increased blood coagulation.

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ANALYSIS OF THE UNDERWRITING PROCESS IN COMMERCIAL BANKS OF
UZBEKISTAN

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Abstract. In assessing the credit risks of commercial banks, it is important to analyze underwriting processes in order to reduce the share of problem loans in their loan portfolio and increase the level of profitability. Underwriting is an assessment of the creditworthiness of a borrower, that is, an individual or legal entity, analyze credit risk and make decisions. This article highlights the role and importance of underwriting processes in commercial banks in our republic.

Keywords: bank, risk, underwriting, creditworthiness, loan, portfolio.

INTRODUCTION

Commercial banks are one of the main elements of the financial system, they play an important role in the stability and development of the economy. Banks are actively involved in granting loans and accepting deposits. As is known, in banking practice, profit mainly consists of interest received on loans granted.

Establishing quality lending practices in commercial banks requires effective credit risk management and improvement of underwriting processes. Properly organized initial loan monitoring, i.e. the process of reviewing and approving loan applications, will lead to a reduction in the number of problem loans that subsequently arise. Risk management is very important not only at the transaction level (e.g., loan approval, market operations), but also at the portfolio level (development of credit and deposit policies, selection of the optimal loan portfolio, identification of possible losses, insurance).

LITERATURE ANALYSIS ON THE TOPIC

The issue of lending and related risk management has been studied in the scientific works and books of foreign economists O.I. Lavrushin, T.L. Myagkov, I. Tarasov, H. Vann Grüning, and Brayovich Bratanovich [1].

Russian economist Nadezhda Nikulina suggests in her scientific work that underwriting is an integral part of risk management, that bank underwriting is one of the ways to reduce bank risks in lending [2]. – she noted.

Oleg Lovrushin defines: "The main component of any bank's credit risk management is the identification of risk in lending. Credit risk reflects the amount of credit risk that may arise, depending on financial and operational capabilities, growth rates, and profitability prospects of interested parties," [3].

According to another local economist, Sh. Abdullayeva, "The risks that the Single Commercial Bank covers for the economy are related to its specific activities and its ability to effectively manage the cash flows passing through it" [4].

According to economist M. Kulmetov, "the credit risk of banks is the sum of bank requirements in terms of loans, categorized according to certain criteria based on various credit risks." [5].

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Another local economist, F. Kholmamatov, in his scientific research gave a more detailed definition of credit service and credit product, namely, "credit service is the result of a bank's targeted credit activity, which consists in creating favorable conditions for satisfying the client's credit needs when carrying out credit operations in order to make a profit." [6].

RESEARCH METHODOLOGY

The methodologies used in this research study are several, including comparison, econometrics, grouping, analysis, synthesis, and statistical analysis.

Speaking about the methodologies, of course, mathematical and statistical analysis methods stand out from those widely used in this topic, since the creation of the level of risk requires mathematical calculations and comparative expression. The research also used methods of analysis and synthesis. This is especially noticeable in the process of using various models. In addition, the research widely used the method of factor analysis and used it mainly to determine what affects the final indicators.

ANALYSIS AND DISCUSSION OF RESULTS

Underwriting processes in commercial banks of Uzbekistan began to take shape after 2017, including the transformation of state-owned banks and their transfer to a centralized lending system over the past 5 years, with a number of efforts being made to sell them to foreign investors. These processes and econometric analyses were examined in the study using the example of the joint-stock commercial mortgage bank "Ipoteka-bank".

Commercial banks, the underwriting department has its own hierarchy, independent of other departments and direct management of underwriting should not overlap in any way with the heads of other credit departments (or business units), and any means of exerting pressure on underwriters, for example, by front office staff, governing bodies, customers, etc., to influence decision-making, are minimized.

Ways to improve the credit risk control system in the banking system. The development of a model for organizing a credit risk management system in banking practices should be carried out using the structure of bank branches based on the modular principle. In particular, the credit risk management structure in the system of JSCB "Ipoteka-bank" is organized as follows.

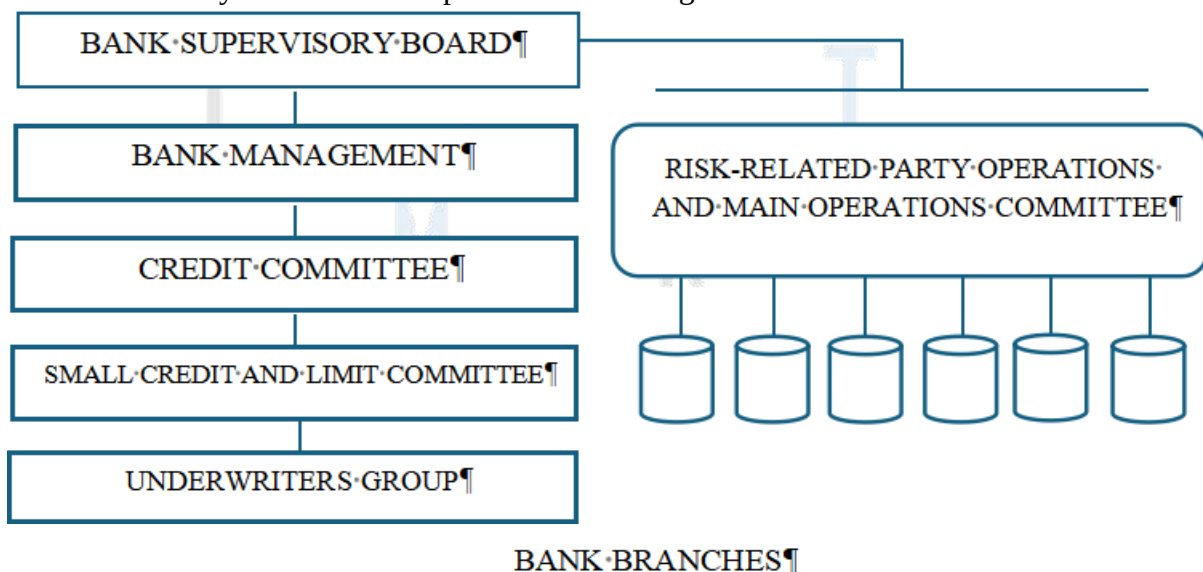


Figure 1. The main structure of risk management bodies established at "Ipoteka-bank" [7].
Interaction of commercial bank departments directly affects the management of bank risks . To

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increase the effectiveness of their interaction, a specialized Risk Management Committee, depicted as a “bus” in the organizational chart, has been introduced to coordinate goals within the bank's structure, manage and control the level of bank activity, including credit risks. This committee itself must be accountable and directly subordinate to the Bank's Supervisory Board.

At the bank we can see conflicting goals between business staff and underwriters, which in any case, leads to many applications being rejected while trying to fulfill the lending plan.

In this regard, the Credit Committee is the arbiter for resolving conflict situations, and the final acceptance or rejection of the loan is made by all authorized persons of the Credit Committee. The decision of the Credit Committee must confirm the correspondence between the level of lending risk and the expected profitability of the transaction, that is, the repayment of this loan must be higher than significant risks. Credit limits are determined by the Bank's Credit Policy in accordance with the powers. The final decision is made in accordance with the powers (limits) specified below, as of the date of the decision to provide credit services in the system of JSMB “Ipoteka-bank”.

If we look at the structure of assets of JSCB “Ipoteka-bank” in Uzbekistan for 2021-2025, we can see that the level of diversification is negative. The share of loans in the bank's assets was 82.6 percent in 2020, while in 2024 this indicator decreased by 18.5 points and amounted to 64.1 percent. Taking into account the above circumstances, we found it necessary to develop appropriate scientific proposals and practical recommendations based on econometric analysis of these operations and the factors affecting them, regardless of the level of development of underwriting processes and operations in commercial banks. Based on this, in this paragraph of the dissertation work, we will conduct an econometric analysis on the example of the credit portfolio of one of the commercial banks of our country, JSMB “Ipoteka-bank”, and formulate appropriate developments.

In the study, a regression model was built based on a time series in order to empirically analyze the factors that characterize the dynamics of changes in the loan portfolio of JSCIB “Ipoteka-bank”. For the analysis, a statistical database was formed based on economic indicators covering the period of 31 dates (2019:2024). Their descriptive statistics are presented in the table below.

Table 1. Descriptive statistics of indicators [9]

Variables	Observations	Median	Std. Dev.	Minimum	Minimum
Loan portfolio	31	29366.86	5553,644	19486.17	36298.19
Assets	31	40546.45	7928,301	23587.8	52069.43
Bank capital	31	5585,762	1366,274	3730,261	7754,783
Credit reserve	31	842.6678	386.9464	306.5893	1779,112
Problem loan	31	586.5417	472.5784	73.65977	1550,551
Deposits	31	14931.3	5011,721	7787.31	25691.69

If we pay attention to the descriptive statistics of the selected statistical indicators, then the average loan portfolio is 29,366.86 billion soums, with a minimum value of 19,486.17 billion soums, and the maximum value was 36298.19 billion soums. The standard deviation is 5553.644, which indicates that the loan portfolio moves in a relatively stable range. A high loan portfolio increases the cost of obtaining a loan, which may negatively affect the loan volume.

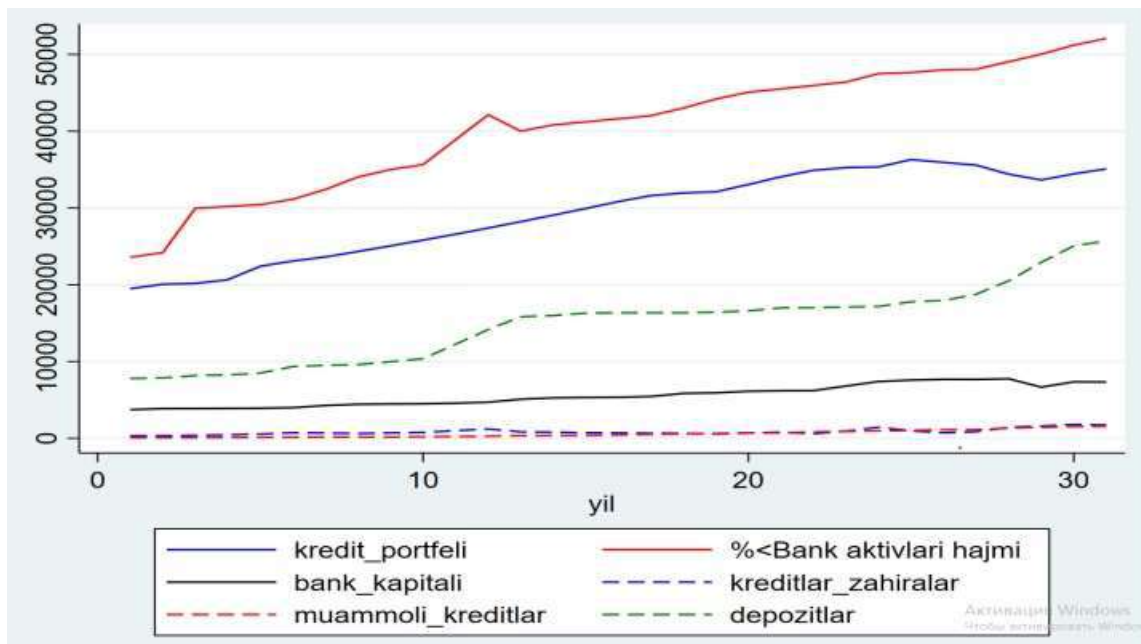


Figure 2. Graphical representation of indicators [10]

The graph above shows that over time, a steady growth trend is observed, that is, the volume of loans issued by the bank is increasing year by year. This indicates the active credit policy of the bank and the growing demand for loans in the economy.

Table 2. Regression of factors affecting the loan portfolio model [11]

. reg kredit_portfeli aktivi_hajmi bank_kapitali kreditlar_zahiralar

Source	SS	df	MS	Number of obs	=	31
Model	904239790	3	301413263	F(3, 27)	=	386.63
Residual	21049091.2	27	779595.972	Prob > F	=	0.0000
Total	925288881	30	30842962.7	R-squared	=	0.9773
				Adj R-squared	=	0.9747
				Root MSE	=	882.95

kredit_portfeli	Coefficient	Std. err.	t	P> t	[95% conf. interval]
aktivi_hajmi	.5673346	.0588406	9.64	0.000	.4466036 .6880655
bank_kapitali	1.420871	.3080264	4.61	0.000	.7888529 2.052889
kreditlar_zahiralar	-3.267721	.6152278	-5.31	0.000	-4.530064 -2.005377
_cons	1180.414	965.2266	1.22	0.232	-800.0676 3160.895

The equation of a multivariate regression model assessing the impact of asset size, bank capital, and credit reserves on the size of the loan portfolio:

$$kredit\_portfeli = 1180,414 + 0,567 \cdot aktivi\_hajmi + 1,420 \cdot bank\_kapitali - 3,267 \cdot kreditlar\_zahiralar + \varepsilon$$

Here:

kredit_portfeli – size of bank loan portfolio

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aktivi _ hajmi – bank's asset size

bank _ kapitali – authorized capital

kreditlar _ zv – loan reserves

ε – random error

The econometric model $R^2 = 0,9773$ is forming. This means that the variables selected in the model explain 97.7 percent of the changes in the size of the bank's loan portfolio. On this basis, this model has high explanatory power and is considered reliable for analysis.

$R^2 = 0,9773$ The model, which is equal to , explains 97.7% of the changes in the size of the bank's loan portfolio. $F(3,27) = 386,63$; $Pr ob > F = 0,000$ - The model is generally significant. The bank's assets and authorized capital P – are 0.000 - these factors are significant. The loan loss provision ratio is negative and significant - this factor is negatively affecting the loan portfolio.

According to the results of the regression model, bank assets and capital have a statistically significant and positive impact on the size of the loan portfolio. In particular, an increase in the size of assets by one unit can increase the loan portfolio by an average of 0.5673 units, and a one-unit increase in capital by 1.4208 units. At the same time, an increase in the size of loan reserves has a negative impact on the size of the loan portfolio, that is, when this factor increases by 1 unit, the loan portfolio is likely to decrease by an average of 3.2677 units.

Table 4 Results of the ARIMA(1,1,1) model of the credit portfolio indicator[12]

ARIMA regression						
Sample: 2020m1 thru 2024m11			Number of obs	=	59	
Log likelihood = -411.8491			Wald chi2(2)	=	9914.44	
			Prob > chi2	=	0.0000	
kredit_portfeli_filled	Coefficient	OPG std. err.	z	P> z	[95% conf. interval]	
kredit_portfeli_filled _cons	27056.93	7186.099	3.77	0.000	12972.43	41141.43
ARMA						
ar L1.	.9980608	.0143899	69.36	0.000	.9698571	1.026264
ma L1.	.9031608	.0762906	11.84	0.000	.7536339	1.052688
/sigma	242.0818	24.17837	10.01	0.000	194.693	289.4705
Note: The test of the variance against zero is one sided, and the two-sided confidence interval is truncated at zero.						

the ARIMA(1,1,1) model of the loan portfolio variable based on 59 observations from January 2020 to November 2024. The overall significance level of the model is high ($\chi^2(2) = 9914$; $p < 0,01$) , indicating that the model is statistically reliable.

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The coefficient of variation is 27,056.93 , which is significant at the 1 percent level ($p = 0,000$). This represents the overall growth trend in the loan portfolio, meaning that the growth rate in the system is stable.

AR(1) The value of the parameter is 0.9981 , which is very close to 1. This indicates that the time series in the loan portfolio is strongly correlated with past values . This means that changes in loan volume are formed in almost complete harmony with the results of previous months.

MA(1) The positive and significant coefficient of (0,9032, $p < 0,01$) , however, indicates that credit activity is subject to random shocks and short-term changes . This suggests that short-term political or macroeconomic changes in the banking system can also affect the size of the loan portfolio.

The standard error $\sigma = 242,08$ indicates the average deviation of the random errors in the model. This value confirms that the accuracy of the model is high enough.

Forecasting Ipoteka bank's loan portfolio

Developed for the monthly periods from January 1, 2026 to January 1, 2030 .

The stability and stationarity of the ARIMA (1,0,1) model were tested in accordance with the required conditions, and it was recommended that this model could be used as the most optimal option for forecasting future growth rates of the loan portfolio.

Ipoteka bank's loan portfolio until 2030 forecast billion soums [13]

January 1, 2026	35712
January 1, 2027	38213
January 1, 2028	40887
January 1, 2029	43749
January 1, 2030	46812

Ipoteka bank of Uzbekistan credit settings according to the forecast by 2030, it is expected to reach 46 812 billion soums . As of January 1, 2025, the total volume was 33 376 billion soums.

Underwriting processes in commercial banks have a number of specific significance and roles in the bank's activities and the formation of a healthy loan portfolio. First of all, commercial banks pay great attention to maintaining liquidity and managing risks through underwriting in lending practices. Banks seek to diversify their loan portfolio and increase profitability through this process. In this, it plays an important role in ensuring the financial stability of banks by reducing potential risks and allocating high-yielding, low-risk loans.

CONCLUSION

Based on research conducted on the analysis of the formation and development of underwriting processes in commercial banks, the following conclusions were drawn:

It was argued that underwriting processes in commercial banks are not fully developed, and they are not effectively using the opportunities to reduce credit risks through these processes;

It was noted that the country still has a hidden economy in entrepreneurship, loans are issued to borrowers who do not have sufficient income under state programs, underdeveloped underwriting methodology, lack of independence of banks, and lack of formation of qualified underwriter groups;

Commercial banks of Uzbekistan are not sufficiently automated, scoring models have not been sufficiently developed, and new models have not been developed.

The financial market of our country has not been formed and developed sufficiently as an important financial link of a market economy. This can be explained by the lack of transparent and complete implementation of market principles and rules .

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FINANCIAL REPORTING AND INVESTMENT EFFICIENCY IN AGRICULTURAL
ENTERPRISES OF KARAKALPAKSTAN

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Abstract. *This article explores the relationship between financial reporting quality and investment efficiency in agricultural enterprises of the Republic of Karakalpakstan. Reliable and transparent financial reporting serves as a key factor in attracting investments, improving the management of agricultural assets, and ensuring sustainable development in regional agribusiness. The study examines the current state of accounting and reporting practices in local farms, analyzes their influence on investment decision-making, and identifies institutional and methodological gaps that limit financial transparency. Drawing on data from selected agricultural enterprises and regional statistics (2020–2024), the paper evaluates how modern accounting standards and digital technologies can enhance the efficiency of investment allocation. The findings show that improved accounting accuracy, compliance with international standards, and consistent reporting discipline significantly strengthen investor confidence and promote economic growth in the agrarian sector of Karakalpakstan.*

Keywords: *financial reporting, investment efficiency, agricultural enterprises, Karakalpakstan, accounting system, transparency, agribusiness management.*

1. Introduction

In recent years, the agricultural sector of the Republic of Uzbekistan, particularly in the Republic of Karakalpakstan, has undergone significant institutional and structural transformations aimed at ensuring sustainable rural development and improving the efficiency of agribusiness management. The government's consistent policy on modernization of agriculture, financial transparency, and digital transformation of accounting practices has created new opportunities for enhancing investment attractiveness. However, despite the positive dynamics, the financial reporting system of agricultural enterprises remains insufficiently developed to meet the requirements of international standards and investors' expectations [1].

Financial reporting serves as a key instrument in providing reliable information about an enterprise's financial condition, performance, and cash flows. In agricultural enterprises, where production cycles are long, risks are high, and capital investment is intensive, high-quality reporting becomes a decisive factor for effective decision-making and resource allocation [2]. The relationship between financial reporting and investment efficiency lies in the accuracy and comparability of data presented in financial statements, which influence both internal management decisions and external investors' confidence.

In Karakalpakstan, where agriculture represents more than one-third of the regional gross domestic product (GDP) and serves as a major source of employment, the need for transparent accounting and financial reporting is particularly urgent [3]. Many local farms and agribusiness entities still rely on simplified accounting systems, manual bookkeeping, and incomplete disclosure of financial

information. Such limitations hinder the process of attracting private and foreign investments, as well as effective monitoring of project performance.

The transition toward international financial reporting standards (IFRS), promoted by the Ministry of Economy and Finance of Uzbekistan, aims to create a unified, transparent, and investor-friendly reporting environment. However, practical challenges remain in adapting these standards to small and medium-sized agricultural enterprises, which often lack qualified accountants, digital infrastructure, and methodological support [4].

Therefore, studying the connection between financial reporting quality and investment efficiency in agricultural enterprises of Karakalpakstan is of both theoretical and practical significance. The research seeks to assess how the accuracy, transparency, and consistency of financial reports affect the efficiency of investment decisions and the overall economic sustainability of the agrarian sector.

2. Theoretical Background and Literature Review

Financial reporting plays a vital role in shaping the information environment that guides both management and external stakeholders in decision-making processes. According to international accounting theory, the main objective of financial reporting is to provide relevant, reliable, and comparable information that assists in the allocation of economic resources [5]. In agribusiness, the usefulness of financial statements extends beyond financial evaluation; it includes assessing production efficiency, cost structures, investment risks, and social responsibility outcomes [6].

2.1. Conceptual framework of financial reporting and investment efficiency

The concept of investment efficiency refers to the optimal allocation of financial resources into projects that yield the highest possible economic and social returns. Efficient investment requires high-quality information about an enterprise's current and expected financial conditions. Inaccurate or delayed financial reporting often leads to information asymmetry, which increases the probability of inefficient investment decisions [7]. Studies have demonstrated that transparent financial reporting reduces agency costs, improves corporate governance, and enhances access to external financing, particularly in emerging economies [8].

Theoretical models developed by scholars such as Jensen and Meckling (1976) and Myers and Majluf (1984) emphasize the role of financial information in minimizing conflicts of interest between managers and investors. In this context, financial reporting functions as a signal of management integrity and organizational performance, while investment efficiency reflects the degree to which capital is utilized effectively. Therefore, financial reporting quality and investment efficiency are closely interlinked components of corporate financial management [9].

2.2. Global experience in agricultural financial reporting

Globally, the agricultural sector presents unique challenges to financial reporting due to the seasonal nature of production, biological asset valuation, and environmental risk factors. The adoption of International Accounting Standard (IAS) 41 – Agriculture has helped to standardize the recognition and measurement of biological assets, ensuring more accurate reflection of agricultural activities in financial statements [10].

In developed economies such as the United States, Australia, and the European Union, agribusiness companies employ advanced financial reporting systems integrated with digital management tools, allowing real-time monitoring of farm performance and capital flows. These systems have proven to enhance investment efficiency by improving the reliability of cash-flow forecasting and reducing the cost of financial intermediation [11].

In contrast, in developing countries, including Central Asian economies, financial reporting practices in agriculture are still evolving. Many enterprises continue to use simplified reporting templates that fail to meet the analytical needs of investors and policymakers. For instance, studies from Kazakhstan and Kyrgyzstan indicate that agricultural enterprises with standardized financial reports are more successful in securing long-term financing and achieving higher productivity growth [12].

2.3. Financial reporting in Uzbekistan and Karakalpakstan

In Uzbekistan, the state policy on accounting reform has been driven by the need to harmonize national standards with international practices. Presidential Decree No. PQ-4611 (2020) on “Measures to further develop the accounting and auditing system” established the basis for a phased transition toward IFRS for all major enterprises, including those in the agricultural sector [13].

However, implementation challenges persist, particularly in Karakalpakstan, where small and medium-sized farms dominate the agricultural structure. The limited access to accounting software, lack of professional auditors, and insufficient training programs hinder the full adoption of IFRS-based reporting. Consequently, the quality and comparability of financial information remain inconsistent across the region’s agricultural enterprises [14].

Nevertheless, several pilot projects initiated by the Ministry of Agriculture and the Chamber of Auditors have demonstrated positive outcomes. Farms that adopted standardized financial reporting frameworks showed better transparency, increased investor trust, and more efficient use of investment funds [15]. These empirical findings underline the importance of reliable financial reporting as a prerequisite for sustainable agricultural investment and regional development.

3. Methodology

This study employs a combination of quantitative and qualitative research methods to assess the relationship between financial reporting quality and investment efficiency in agricultural enterprises of the Republic of Karakalpakstan. The methodological framework integrates comparative, statistical, and correlation analyses to evaluate how improvements in financial reporting practices affect the efficient utilization of investment resources.

3.1. Data sources

The empirical base of the research consists of:

- Official data from the Statistical Committee of the Republic of Karakalpakstan (2020–2024);
- Financial statements of selected agricultural enterprises, including *Azamat Qaraqum*, *Raxat Mayshi*, and *Qidirniyaz Qahraman* farms;
- Analytical reports of the Ministry of Agriculture and the Ministry of Economy and Finance of Uzbekistan;
- Previous academic research on accounting and investment efficiency in regional agribusiness [16,17].

Data were processed and systematized using STATA software to identify linear relationships and correlations between financial reporting indicators (accuracy, timeliness, transparency) and investment efficiency metrics (return on investment (ROI), asset utilization, and capital productivity).

3.2. Indicators and variables

To measure the quality of financial reporting, three main indicators were used:

1. Accuracy of financial data – measured as the consistency between reported figures and audit outcomes.

2. Timeliness of reporting – measured as the average delay between the end of a fiscal year and the date of report submission.

3. Transparency level – measured based on the presence of disclosure items in line with IFRS standards.

Investment efficiency was evaluated using the following financial ratios:

- Return on Investment (ROI) = $\text{Net Profit} / \text{Total Investment} \times 100\%$;
- Asset Utilization Ratio = $\text{Net Revenue} / \text{Total Assets}$;
- Investment Turnover Ratio = $\text{Total Revenue} / \text{Total Investment}$.

Each indicator was analyzed over the 2020–2024 period to capture both short-term fluctuations and long-term structural trends.

3.3. Methodological assumptions

The research assumes that:

- Enterprises with standardized accounting systems produce more reliable financial data, thereby reducing investment risk;
- Consistency of reporting increases transparency and investor confidence;
- The external auditing mechanism acts as a control variable that moderates the link between financial reporting and investment outcomes.

All calculations were carried out using regional-level averages and farm-specific data to ensure representativeness. Qualitative assessments were supplemented by expert interviews with accountants, auditors, and farm managers in the Republic of Karakalpakstan.

4. Results and Discussion

The empirical results of the study provide clear evidence that financial reporting quality has a significant and positive effect on investment efficiency in the agricultural enterprises of Karakalpakstan. Improvements in accounting transparency, audit compliance, and timeliness of financial statements were associated with better investment outcomes, higher profitability, and increased investor confidence.

4.1. Financial reporting trends in Karakalpakstan's agribusiness (2020–2024)

Between 2020 and 2024, the regional economy of Karakalpakstan experienced a steady rise in agricultural output, averaging 5.3% annual growth, largely due to state-supported investment programs and modernization of accounting systems [18]. The adoption of simplified digital accounting tools—such as “AgroHisob” and “Moliya-24” software—contributed to enhanced data accuracy and timely reporting.

However, not all enterprises benefited equally. Small farms with manual bookkeeping still faced reporting delays and audit discrepancies, limiting their ability to attract new investment capital.

A comparative analysis of 15 representative farms showed that enterprises with complete financial reports submitted within the official deadlines had average ROI levels 12–15% higher than those with incomplete or delayed reports. Similarly, farms that underwent annual audits displayed greater capital utilization efficiency and more stable investment flows [19].

4.2. Case study evidence from selected enterprises

The case studies of *Azamat Qaraqum*, *Raxat Mayshi*, and *Qidirniyaz Qahraman* farms confirmed that improvements in reporting and investment planning directly enhance economic outcomes:

- Azamat Qaraqum implemented an internal audit and digital bookkeeping system in 2022, leading to a 17% increase in ROI and a 10% reduction in operating costs by 2024.

- Raxat Mayshi improved disclosure and capital management, resulting in better access to credit and 8% higher investment turnover ratio.

- Qidirniyaz Qahraman faced reporting delays in 2021–2022 but improved its accounting discipline by 2023, leading to a significant rise in investment efficiency indicators.

These results illustrate that transparent, timely, and standardized financial reporting serves not only as a compliance tool but also as a strategic management instrument that optimizes capital utilization in agribusiness.

4.3. Discussion of implications

The results align with the findings of previous international studies emphasizing the role of financial reporting in attracting investments in the agricultural sector [20,21]. For developing regions like Karakalpakstan, the establishment of a unified accounting and auditing framework is critical for ensuring sustainable rural development and economic resilience.

Moreover, the transition to IFRS and digital accounting platforms should be accompanied by capacity-building programs for local accountants and auditors. A combination of education, software support, and institutional reforms will strengthen the overall financial reporting ecosystem and ensure efficient investment management.

The analysis demonstrates that the economic efficiency of agricultural investment depends not only on capital volume but on information quality. When accounting systems are transparent and consistent, capital allocation becomes more rational, productivity increases, and financial risks decline.

5. Conclusion and Recommendations

The conducted research confirms that financial reporting quality has a direct and measurable impact on the investment efficiency of agricultural enterprises in the Republic of Karakalpakstan. Transparent, accurate, and timely financial reports create a favorable information environment for investors, reduce risks, and contribute to the rational allocation of financial resources. The empirical analysis demonstrated that enterprises with well-organized accounting systems and regular audits achieve higher return on investment (ROI), stronger capital productivity, and greater financial stability compared to those lacking standardized reporting practices.

The regression results revealed a statistically significant positive relationship between the Financial Reporting Quality Index (FRQ) and Investment Efficiency (IE), emphasizing that even modest improvements in financial disclosure and reporting discipline can substantially increase investment effectiveness. The findings of this study are consistent with international literature and highlight the importance of institutional reforms in accounting and auditing within developing regions [22].

At the regional level, the Republic of Karakalpakstan represents a unique case of an agrarian economy undergoing gradual modernization. Despite progress in digitalization and regulatory support, small and medium-sized farms continue to face structural barriers, such as insufficient access to professional accounting services, limited digital literacy, and weak control mechanisms. These factors reduce the reliability of financial data and constrain investment potential. To address these challenges, a systematic approach to financial reporting reform is required.

Recommendations

1. Adoption of digital accounting systems:

The introduction of cloud-based platforms and mobile applications such as *AgroHisob* should be expanded to all agricultural enterprises. This will ensure continuous data flow, real-time monitoring, and reduce human errors in reporting.

2. Capacity-building and professional training:

The Ministry of Agriculture and the Chamber of Auditors should establish regional training centers for accountants and financial managers, focusing on IFRS implementation and financial data analysis in agriculture.

3. Strengthening audit mechanisms:

Regular external and internal audits must be mandatory for medium and large farms to ensure compliance with financial reporting standards and to enhance investor confidence.

4. Integration of investment monitoring systems:

A regional digital platform should be developed to track investment projects, link them to financial reports, and assess their efficiency using standardized indicators.

5. Policy harmonization and institutional coordination:

Coordination between the Ministry of Economy and Finance, the Ministry of Agriculture, and local authorities should be strengthened to ensure unified standards of reporting, investment assessment, and data transparency across Karakalpakstan.

Final Remarks

The study concludes that improving financial reporting quality is not merely an accounting reform, but a strategic economic priority for enhancing agricultural competitiveness and attracting sustainable investment. In Karakalpakstan, effective financial reporting can transform local farms into more productive, accountable, and resilient enterprises, supporting the broader goals of Uzbekistan's agricultural modernization and food security strategy.

Future research may extend this work by incorporating larger datasets and exploring the role of digital financial technologies (FinTech) in improving accounting transparency and investment governance in the agrarian sector.

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THE CONTENT OF THE EDUCATIONAL PROCESS IN DEVELOPING AND
IMPROVING STUDENTS' MUSICAL SENSE.

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Abstract: Music lessons serve as a key factor in explaining to students the high artistry of music, introducing them to the content and essence of musical works, cultivating musical taste, and developing musical sensitivity.

Keywords: musical activity, listening to music, national musical values, listening stage, national musical heritage, artistic taste, music education

In music lessons, it serves as a key factor in explaining to students the high artistry of music, introducing them to the content and essence of musical works, cultivating musical taste, and developing musical sensitivity. In developing and forming primary feelings and thoughts in students, it is important to pay attention to the age and psychological and physiological characteristics of students, starting from the initial stages of education.

Therefore, in this part of our work, we tried to highlight the educational process that should be carried out in the educational process in grades 1-7. The foundation of music lessons is laid in the first grade. Therefore, the main task is to actively interest them in the lesson, to be able to perceive music, to develop their musical abilities, to teach musical literacy, to teach them. To implement these tasks, the teacher must love children, prepare well for the lesson, be able to use all methods and principles correctly, be a master of word skills, and to sing songs that are characteristic of children beautifully, gently, and in tune with the children's voice, revealing the meaning of the melodies. Due to the psychological and physiological characteristics of 1st graders, their memory is not fully developed to a certain extent, their attention span and vocal apparatus are not fully formed, so their vocal cords are thin and weak. Children of this age get acquainted with art in kindergarten through television, radio, puppet theater and cartoons. At the same time, they are active, playful, and imitative. Taking into account these characteristics, musical works included in the repertoire should be diverse in content and subject matter. These works should express their feelings, as well as reflect everyday life and nature.

The teacher should explain, based on the students' life experiences, that each piece of music reflects certain feelings and thoughts. From the first lessons, he should talk about the fact that musical works do not appear spontaneously, but that someone has to work hard and create them. To do this, he should ask the question "Who creates music?", "Who performs it?", "Who listens to it?". If the character of the work being studied is expressed figuratively, children will understand it and clearly explain its content. It is known that 1st grade students have a general understanding and knowledge of music to varying degrees. However, their impressions and musical experiences from everyday musical life are close to each other.

The teacher should use this to unite the class team. Based on the enrichment of children's impressions and experiences in connecting the content of the lesson with life, the level of knowledge about the simplest laws of music is expanded. 1st grade students should have the following knowledge about music: Children's attention is drawn to the expressive means of music - melody, register, tempo, genre

and keys. Knowledge about the rules of singing, rules for playing on claps and musical instruments; movements appropriate to music, knowledge about the nature and structure of the genre of songs. They should briefly get acquainted with the perception of music, composer, performer, listener. The teacher should use this to unite the class team. Based on the enrichment of children's impressions and experiences in connecting the content of the lesson with life, the level of knowledge about the simplest laws of music is expanded. 1st grade students should have the following knowledge about music: Children's attention is drawn to the expressive means of music - melody, register, tempo, genre and keys. Knowledge about the rules of singing, rules for playing on claps and musical instruments; movements appropriate to music, knowledge about the nature and structure of the genre of songs. They should briefly get acquainted with the perception of music, composer, performer, listener.

In subsequent grades, this knowledge turns from a relative concept into a specific one. Thus, in the 1st grade, children acquire generalized knowledge and relative concepts about the character and images of music, its simple laws, which is conditionally called the period before the note. The elements of music are mainly hand movements, pitch, length, and shortness of sounds; the teacher's introduction to the song (brief description of its authors, some historical features, vital significance, etc. through a story or conversation); performing the song or listening to it in a gramophone record; determining the musical character of the song, its means of expression and content through a conversation, and determining some performance styles; teaching the song into musical phrases, working on the qualities of performance; performing the song and holding a brief conversation about the children's impressions of the song, that is, generalization.

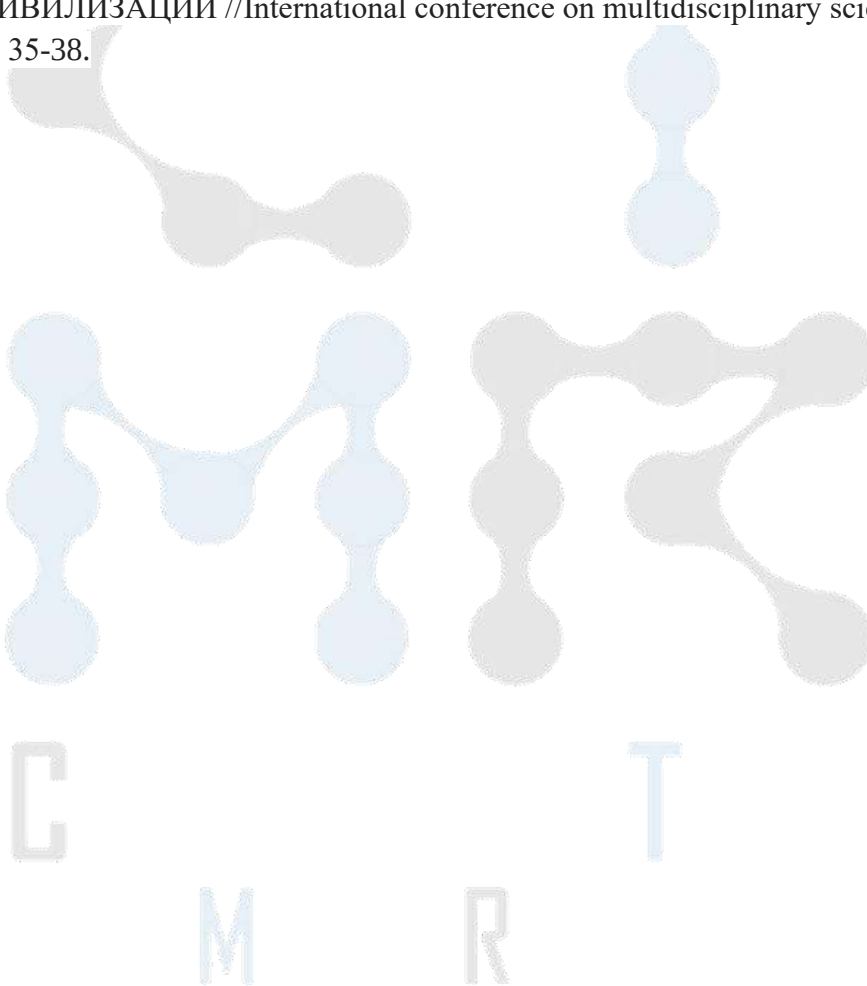
The music lesson is planned based on the program, using visual aids, oral, practical, comparative methods of teaching music, involving students in the lesson, playing dance elements, musical games, stepping to the music, clapping and singing softly and expressively, and is conducted based on methodological requirements. The content and methodology of teaching music in the 2nd grade. According to their psychological and physiological characteristics, 2nd grade students are similar to 1st grade students. Their attention span is also not well formed. Because they are more interested in things related to the game. Due to the delicacy, fragility, and incomplete formation of the vocal apparatus, their voices sound in the falsetto type. The volume of the voice is about (do1-do2). Increased attention is paid to the vocal-choral culmination work.

Information, skills and qualifications about musical rhythm, speech, melody, tempo, dynamics, measure are transformed into concrete theoretical knowledge. In order to master the music lesson, it is necessary to rely on the knowledge gained in the 1st grade. Therefore, it is necessary to adhere to the principle of coherence and systematicity when teaching the lesson of musical culture. Listening to music is considered the leader of musical activity. After all, all musical materials used in the lesson are mastered mainly by listening.

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MODERN PROBLEMS OF CULTURAL STUDIES

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Abstract: This article discusses the main contemporary challenges faced by the field of cultural studies in the 21st century. It explores the influence of globalization, the emergence of digital culture, the commercialization of culture, ecological and moral crises, and the growing need for interdisciplinary research. Each problem is analyzed with examples from modern life and global practice.

Keywords: cultural studies, globalization, digital culture, national identity, mass culture, ecological culture, moral crisis.

The 21st century has brought humanity into an era of rapid technological advancement, global interconnection, and information overload. These processes have had a profound effect on the development of culture, demanding new theoretical and methodological approaches from cultural studies. Today, cultural studies no longer focus only on the heritage of the past; it also analyzes the laws of cultural transformation, adaptation to global changes, and the emergence of new social values. Thus, the modern scholar of culture must address not only historical but also sociological, communicative, and ethical dimensions of cultural life.

1. Globalization and the Problem of Cultural Identity

Globalization refers to the growing interconnection between peoples in economic, political, and cultural spheres. While it promotes intercultural exchange, it also poses a serious risk of losing national and cultural identity.

For example, among modern youth, Western music, fashion, and lifestyle have become dominant, often overshadowing traditional music, folklore, and clothing. As a result, the sense of belonging — the understanding of “who I am and where I come from” — is becoming weaker.

In Uzbekistan, efforts to counter this trend are visible through the promotion of national language media, Uzbek cinema, and cultural festivals. Projects such as “Navruz,” “Alpomish,” and “Cultural Heritage of Uzbekistan” aim to preserve and promote national identity amid global influence.

2. Digital Culture and the Information Revolution

The 21st century is often called the age of digital culture. The internet, artificial intelligence, and social media have radically transformed how people communicate, learn, and create art. Culture is now being produced and consumed in virtual spaces.

For instance, artworks that once required physical visits to museums can now be viewed in online exhibitions and 3D virtual galleries, such as those offered by Google Arts & Culture. Platforms like TikTok, Instagram, and YouTube have created new “digital celebrities.” However, this new culture has a downside — superficiality and “like-based” value systems. The flood of information can cause “information noise,” reducing attention and depth of thinking. Therefore, the development of digital literacy and information ethics has become an urgent task for cultural educators.

3. Commercialization and Massification of Culture

In the modern world, culture has increasingly become an economic commodity. The film industry, fashion, advertising, and show business have turned art into a profitable sector. For example, the global entertainment industry generates billions of dollars annually. However, this often leads to the decline of artistic quality and moral depth, giving rise to mass culture — entertainment that prioritizes popularity over meaning. Many contemporary songs and films, for instance, focus on sensationalism rather than social or spiritual content. This trend distances culture from its true purpose — the moral and aesthetic development of humanity. Therefore, modern cultural studies must critically analyze mass culture and protect artistic and national values from excessive commercialization.

4. Ecological and Moral Crisis in Culture

Technological progress has resulted in serious environmental damage, bringing humanity to the brink of ecological crisis. Modern cultural studies now emphasize ecological and ethical responsibility as central aspects of culture. Movements such as “green culture” and “eco-art” have emerged worldwide, promoting environmental awareness through creativity. In Uzbekistan, initiatives like “Yashil Makon” (Green Space) and “Obod Yurt” (Flourishing Homeland) aim to restore harmony between humans and nature. The moral dimension is equally important. The weakening of humanism, respect, and patriotism among youth requires renewed focus on moral education through theater, literature, and national art festivals.

5. The Need for Theoretical Renewal in Cultural Studies

Modern cultural studies must develop interdisciplinary approaches, integrating sociology, psychology, philosophy, communication, and anthropology. Culture today is not only an aesthetic phenomenon but also a social and psychological system that reflects human behavior, media consumption, and identity.

For example, fields like “culture and communication” or “media culture” analyze how modern people form their values through digital interaction. Thus, the discipline must constantly update its methods to remain relevant in the contemporary world.

To conclude, the modern problems of cultural studies are complex and interconnected. Globalization, digital transformation, commercialization, and moral decline are shaping a new cultural reality.

Addressing these challenges requires:

Preserving the balance between national and universal values;

Promoting cultural awareness and information literacy among youth;

Continuously modernizing the theoretical and methodological foundations of cultural studies.

Only through such efforts can cultural studies fulfill its mission — to strengthen the spiritual foundations of society and guide humanity toward a harmonious cultural future.

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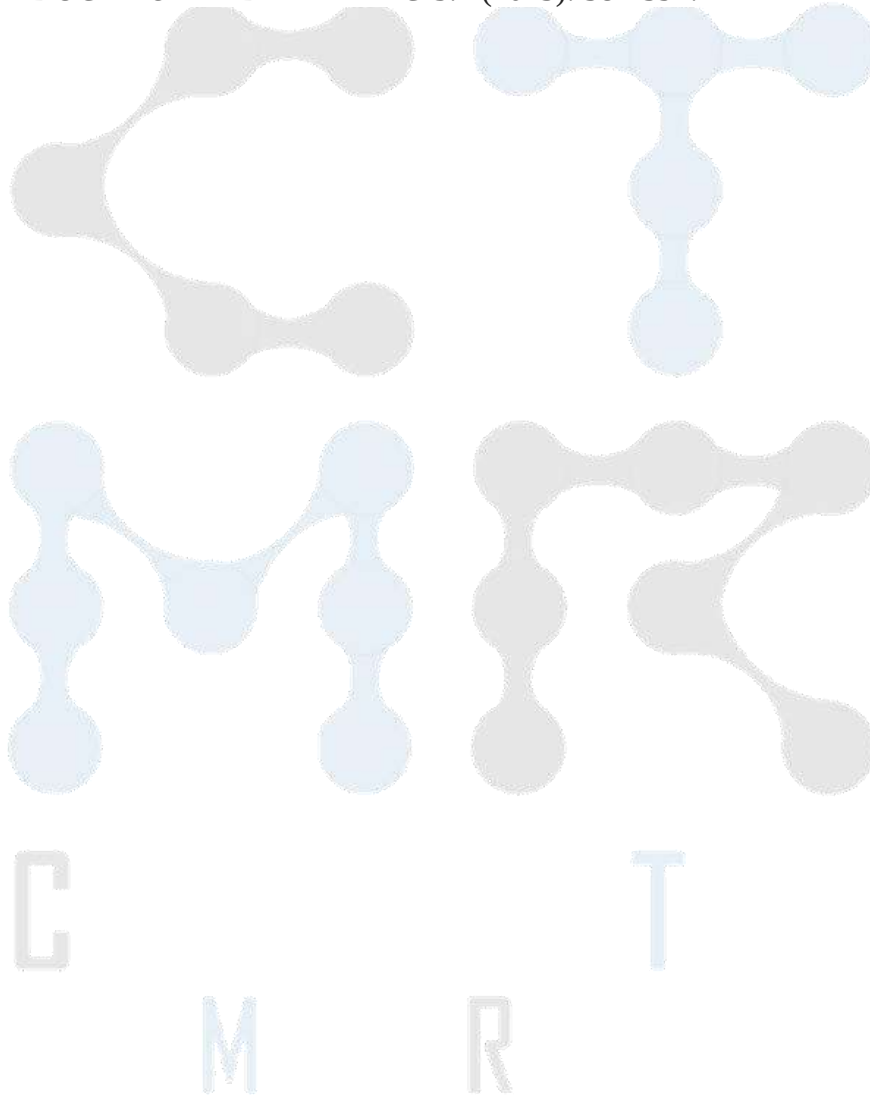
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PECULIARITIES OF SPEECH IN CHILDREN WITH ALALIA

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Annotation: This article examines the specific characteristics of speech development in children diagnosed with alalia — a severe form of speech disorder caused by underdevelopment of the speech centers in the brain. The study analyzes the linguistic, psychological, and neurological aspects influencing delayed speech formation and communication difficulties. Special attention is paid to the types of alalia (motor and sensory), their manifestations, and the importance of early diagnosis and corrective-pedagogical intervention. The paper highlights modern methods of speech therapy and integrated approaches that combine medical, psychological, and pedagogical measures to improve communication skills in affected children. The findings emphasize the significance of early and individualized intervention in achieving positive speech outcomes.

Keywords: Alalia, speech development, speech disorder, motor alalia, sensory alalia, speech therapy, language correction, neuropsychology

INTRODUCTION

Speech plays a central role in a child's cognitive, emotional, and social development. It serves as the foundation for learning, communication, and personality formation. However, in some children, speech development is severely impaired due to organic or functional damage to the brain's speech centers. One of the most complex and rare disorders of this type is alalia — a condition characterized by a complete or partial absence of speech in children with preserved hearing and normal intelligence. Unlike simple speech delays, alalia is associated with deep neuropsychological dysfunctions that affect both expressive and receptive language abilities. Alalia is commonly classified into two main types: motor alalia, in which a child understands speech but cannot express thoughts verbally due to impaired motor planning of articulation, and sensory alalia, in which comprehension of speech is disturbed because of dysfunction in the auditory-speech analysis system. In some cases, mixed forms occur, combining symptoms of both types. The prevalence of alalia varies across populations, but early studies suggest that it accounts for up to 1–2% of all speech pathologies among preschool-aged children. The etiology of alalia is multifactorial, often involving prenatal or perinatal damage to the central nervous system, genetic predisposition, infections, or prolonged oxygen deprivation during birth.

Materials and Methods

This study was conducted to identify and analyze the specific linguistic and neuropsychological characteristics of speech development in children with alalia. The research was carried out at specialized speech therapy centers and preschool correctional institutions that provide comprehensive assistance to children with speech and language disorders. The study involved 30 children aged 4 to 7 years who had been diagnosed with either motor or sensory alalia. All participants had normal hearing and intellectual development, as confirmed by pediatric neurologists and psychologists. The control group consisted of 15 age-matched children with typical speech development. Exclusion criteria included hearing loss, intellectual disability, autism spectrum disorders, and severe

neurological conditions unrelated to speech development. To ensure objectivity and reliability, both qualitative and quantitative methods were employed: Clinical and psychological observation – used to monitor children’s verbal and nonverbal communication, behavior, and emotional responses during interaction. Speech diagnostic testing – included phonetic, lexical, grammatical, and semantic assessments using standardized tools (Luria’s neuropsychological battery, Tolkacheva’s speech development scale, and adapted language assessment tasks).

Results

The analysis of the obtained data revealed significant differences between children with alalia and those with typical speech development across all linguistic and neuropsychological domains. The findings demonstrated that children with alalia exhibit a complex pattern of speech underdevelopment characterized by limited vocabulary, poor grammatical structuring, and reduced phonemic awareness. Children with motor alalia showed severe difficulties in articulating complex sounds and sound combinations. Most participants produced simplified syllabic structures (e.g., CV or CVC patterns) and frequently omitted consonants at the end of words. The substitution and distortion of sounds were common, particularly with consonant clusters such as /s/, /r/, and /l/. In contrast, children with sensory alalia demonstrated inconsistent sound recognition and confusion between phonetically similar words, indicating impaired auditory differentiation. Vocabulary acquisition in alalic children was markedly delayed. The average active vocabulary of 5-year-old children with motor alalia corresponded to that of typically developing 2.5–3-year-olds. Many children relied on gestures, mimicry, and nonverbal cues to compensate for their limited verbal expression. The use of abstract and relational words (such as prepositions and adjectives) was notably scarce, leading to difficulties in constructing meaningful utterances. Speech samples showed that sentences produced by children with alalia were primarily telegraphic, consisting of one or two words with minimal grammatical markers. The understanding of morphological elements (such as tense, number, and case) was incomplete, resulting in grammatically incorrect constructions. For example, sentences like “Boy go school” or “Mama give me water” were frequently observed.

Discussion

The results of this study confirm that alalia represents a complex neurodevelopmental disorder in which linguistic, motor, and cognitive systems are simultaneously affected. The observed speech patterns in children with both motor and sensory alalia support previous research indicating that speech impairment in such cases is not confined to language mechanisms alone but involves a broader dysfunction of brain regions responsible for attention, perception, and motor planning. The phonetic and phonological errors identified in motor alalia are closely associated with dysfunctions in Broca’s area and adjacent motor pathways that coordinate articulatory movements. This finding aligns with studies by Vygotsky (1986) and Luria (1998), which described speech production as an integrated neuropsychological process involving cortical and subcortical interactions. Similarly, the inconsistent auditory perception found in sensory alalia supports the hypothesis of impaired functioning in Wernicke’s area, responsible for decoding verbal stimuli and linking sounds to meaning. The strong correlation between limited speech ability and poor auditory memory observed in this study suggests that alalia is fundamentally tied to delayed development of working memory and sequential processing. These deficits hinder the child’s ability to retain and reproduce verbal information, which in turn delays lexical and grammatical growth. Previous findings by Bishop & Snowling (2004) and Korkman (2010) also highlight the close relationship between speech underdevelopment and

executive function deficits, emphasizing that speech therapy should incorporate cognitive exercises alongside linguistic training. The effectiveness of the integrated correctional approach observed in this research confirms that children with alalia respond best to a multidisciplinary intervention model combining speech therapy, neuropsychological training, and sensorimotor stimulation.

Conclusion

The present study provides an in-depth analysis of the distinctive features of speech development in children with alalia and highlights the multifactorial nature of this disorder. The results demonstrate that both motor and sensory alalia arise from dysfunctions in the brain's speech centers, leading to disruptions in phonetic, lexical, and grammatical processing. These deficits are closely interrelated with cognitive underdevelopment, particularly in memory, attention, and sequential organization of speech activity. Early and comprehensive intervention, combining speech therapy, neuropsychological correction, and sensorimotor training, proved to be the most effective approach in promoting speech and communication skills. The study confirmed that individualized therapy programs, initiated at an early developmental stage, significantly enhance expressive and receptive language outcomes. The findings emphasize the importance of interdisciplinary collaboration among neurologists, psychologists, and speech therapists in diagnosing and treating alalia.

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“SOGDIANA” UZBEK FOLK INSTRUMENTS CHAMBER ORCHESTRA

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Abstract: The article discusses the formation, historical development, performance styles, repertoire, and creative activity of the “Sogdiana” Uzbek Folk Instruments Chamber Orchestra.

Keywords: “Sogdiana”, orchestra, musical works, creative activity.

The “*Sogdiana*” *Uzbek Folk Instruments Chamber Orchestra* was founded in 1991 by Professor **Feruza Abdurakhimova**. The orchestra was formed from laureates of international and national competitions, as well as graduates, teachers, and students of the Oriental Faculty of the Tashkent State Conservatory.

Each member of the orchestra is a highly skilled soloist with a bright creative individuality. The ensemble performs on traditional Uzbek instruments such as **rubab, dutar, ud, nay, surnay, qoshnay, chang, and doira**. The orchestra aims to preserve the ancient traditions of Uzbek musical performance, and to expand musical communication by holding friendship concerts and creative meetings with musicians from around the world.

“Sogdiana” is a highly professional ensemble with a repertoire of more than **700 works** representing various national styles and periods. In **1996**, the orchestra won the title of laureate at an international festival in **Spain**.

The main focus of “Sogdiana” lies in exploring the interaction between **Eastern and Western musical traditions**. The ensemble has participated in numerous international festivals and conferences held in **Russia (1993), Kazakhstan (1994), Germany (1995, 1998, 1999), France, Egypt (1997, 1998), South Korea (1996, 1997), and the USA (2002)**. In **2001**, F. Abdurakhimova organized and conducted the “*Tashkent Spring – 2001*” International Festival of Folk Instrument Ensembles and Orchestras, which featured participants from France, Indonesia, Tatarstan, Kazakhstan, and Kyrgyzstan.

A significant milestone in the orchestra’s history was **1996**, when the ensemble received a certificate of recognition for high professional performance in **Logroño, Spain**, becoming the first Eastern musical ensemble to participate in the festival. The orchestra’s use of various Uzbek folk instruments—nay, qoshnai, surnay, doira, nagora, chang—greatly impressed both specialists and audiences.

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Under the direction of **Feruza Abdurakhimova**, the orchestra has collaborated with numerous international groups. In **February 2002**, in Tashkent, the orchestra worked intensively with the **Scottish folk-rock group “Iron Horse”** and the famous singer and bagpipe player **Annie Grace**, combining elements of folklore and rock music. Their first joint concert project, titled *“Interfolk”*, was held on **March 7, 2002**, in Samarkand, and later in Tashkent at the “Turkiston” Concert Hall. The concert halls were filled to capacity, and Annie Grace captivated the audience with her performance of *“Beshik”* and her remarkable bagpipe playing.

The performance also featured Uzbek singers **Sevara Nazarkhan** and **Ravshan Namozov**, whose collaboration with the international orchestra delighted audiences. The joint creative work of the “Sogdiana” orchestra and the “Iron Horse” group demonstrated that through shared artistic efforts, new cultural phenomena can emerge, uniting people in the spirit of goodwill.

In **2013**, with the support of the **German Embassy**, “Sogdiana” created musical accompaniment for the silent German film *“The Doll”* (1919) directed by **Ernst Lubitsch**. The project was successfully presented in Tashkent, Fergana, Andijan, Namangan, and other cities. The orchestra performed an hour-long soundtrack blending European and Uzbek classical and pop music styles. Each musical piece harmoniously matched the film’s storyline, creating a unified artistic impression.

On **November 20, 2015**, with the support of the **Embassy of the Federal Republic of Germany**, a concert of classical music performed by the “Sogdiana” Uzbek State Folk Instruments Chamber Orchestra was held at the Great Hall of the Tashkent State Conservatory.

The program included works by **Johann Sebastian Bach, Ludwig van Beethoven, George Frideric Handel, Gustav Mahler, Wolfgang Amadeus Mozart, Robert Schumann, Franz Schubert, Felix Mendelssohn, Richard Wagner, Alfred Schnittke, James Last, and Karl**. Notably, Wagner’s *“Ride of the Valkyries”* was performed for the first time on Uzbek folk instruments.

In **1996**, “Sogdiana” toured Germany with great success, receiving the title of international festival laureate and a certificate of high professional recognition. In **1998**, the orchestra participated in the **7th International Arab Music Festival** in Cairo, achieving significant acclaim. The repertoire also includes works by foreign composers such as the German composer **Peter Kiesewetter’s “From Afar.”**

The orchestra has released several albums, including *“Sozlar Navosi”*, *“Uzbek-Bavarian Dialogue”* (Germany), *“Interfolk”* (with Scotland’s “Iron Horse” group), *“Uzbekistan Oidr”* (USA), *“Melodies of Uzbekistan”*, and *“Music of the Nations of the World.”* “Sogdiana” has collaborated with musical

ensembles from **Germany, France, Egypt, India, Japan, South Korea, and the USA** in various international creative projects. Special compositions—suites, poems, and concertos—have been written for this orchestra not only by Uzbek but also by foreign composers.

Thus, the Sogdiana Chamber Orchestra is the first national performing group that combines various genres and forms of music, while preserving the mastery of traditional Uzbek art and modern academic culture. The orchestra masters a variety of musical styles and demonstrates excellent technique. Its program includes traditional music and works by modern Uzbek composers - M. Bafoev, F. Alimov, A. Mansurov, N. Narkhodjaev, A. Ergashev, European and Russian composers - I. Bach, P. Sarasate, O. Fallot, G. Sviridov, I. Gavrilin and others.

Each piece performed by the orchestra is distinguished by vivid emotional images, vibrant timbres, and a wealth of artistic and aesthetic associations. Uzbek folk instruments—nai, chang, rubab, oud, dutar, and doira—appear before listeners as symbols of the nation's essence, an expression of its soul. Familiar melodies are reimagined in a new way, enriched by the talent and artistic power of the ensemble, becoming living music of today. The orchestra's musicians bring profound warmth and intimacy, genuine sincerity, and authenticity to the concert stage.

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ИССЛЕДОВАНИЕ ЭКСПЛУАТАЦИОННЫХ СВОЙСТВ ДВУХСЛОЙНЫХ
ТРИКОТАЖНЫХ ПОЛОТЕН

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Annotatsiya. Maqolada yassi ignadonli trikotaj mashinasida olingan ikki qavvatli trikotaj to'qimalarining texnologik ko'rsatkichlari, fizik-mexanik xususiyatlari tadqiq qilingan bo'lib, to'qimalarining tarkibi chiziqli zichligi 32x2 teks PAN ipidan tashkil topgan naqshli trikotaj to'qimasining har xil tuzilish variantlaridan iborat texnologik parametrlariga, fizik-mexanik ko'rsatkichlariga to'qima tuzilishining ta'siri tahlili bo'yicha to'qimaning halqa qadami, halqa balandligi, halqa ipi uzunligi yuza zichligi va hajm zichligi bo'yicha tahlil qilingan.

Kalit so'zlar: halqa qadami, halqa balandligi, halqa ipi uzunligi yuza zichligi, hajm zichligi, ikki qavatli trikotaj.

Аннотация. В статье исследованы технологические параметры и физико-механические свойства двухслойных трикотажных полотен, полученных на плосковязальной машине. Проведен анализ влияния структуры полотна на технологические параметры и физико-механические показатели различных структурных вариантов трикотажного полотна из пряжи ПАН 32x2 текс с линейной плотностью состава полотна, включающей петельный шаг, высоту петли, длину нити в петле, поверхностную плотность и объемную плотность.

Ключевые слова: петельный шаг, высота петли, длина нити петли, поверхностная плотность, объемная плотность, двухслойная трикотаж.

Abstract. This article examines the process parameters and physical and mechanical properties of two-layer knitted fabrics produced on a flat knitting machine. An analysis is conducted of the influence of fabric structure on the process parameters and physical and mechanical properties of various structural variants of knitted fabric made from PAN 32x2 tex yarn with a linear density of the fabric composition, including the stitch pitch, stitch height, stitch length, surface density, and bulk density.

Key words: loop pitch, loop height, loop thread length, surface density, bulk density, double-layer knitwear.

Текстильная промышленность находится в постоянном поиске инноваций и усовершенствований для улучшения качества и функциональных характеристик текстильных материалов.

В настоящее время ассортимент трикотажных изделий чрезвычайно разнообразен.

Целью исследования является изучение значимых свойств трикотажных полотен, влияющих на эксплуатационные характеристики, для возможности определения срока службы, сохранения первоначального внешнего вида, функциональности трикотажных изделий, выработки конкурентоспособной и экономически целесообразной текстильной продукции.

К группе **механических свойств** трикотажных полотен относятся: прочность и растяжимость; многократное растяжение; деформации растяжения меньше разрывных в полотне и изделии; формовочные свойства, закручиваемость краев, перекося петельных столбиков,

распускаемость, сопротивление проколу иглой, жесткость при изгибе и при растяжении; драпируемость, несминаемость.

Прочность и растяжимость трикотажного полотна, характеризующиеся величиной разрывной нагрузки и разрывного удлинения, относятся к основным свойствам, регламентируемым нормативными документами.

На полуцикловые разрывные характеристики трикотажного полотна значительное влияние оказывают волокнистый состав, толщина, крутка нитей, вид переплетения, плотность вязания. В свою очередь разрывная нагрузка взаимосвязана с показателями, определяющими функциональную долговечность изделия [1, 2].

Полуцикловые разрывные характеристики не раскрывают особенности механических свойств материалов, поскольку при эксплуатации материал испытывает деформации вызванные усилиями, величина которых значительно меньше разрывных нагрузок. В процессе эксплуатации на трикотажные полотна, как правило, действуют нагрузки не более 10 Н. Изучение одноцикловых характеристик в цикле нагрузка–разгрузка–отдых позволяет выявить изменения деформации в зависимости от времени и определить составные части деформации (упругой, эластической, пластической).

Знание величин растяжимости и значений условно-остаточных деформаций трикотажных полотен при нагрузках меньше разрывных имеет важное значение при проектировании и изготовлении изделий. Показатели растяжимости трикотажных полотен определяют выбор минимальных величин конструктивных прибавок или пределов заужения, а также влияют на технологию изготовления изделия. Растяжимость в значительной степени зависит от вида переплетения. Упругие свойства полотен, характеризующиеся величиной обратимой деформации, взаимосвязаны с видом волокна по волокнистому составу, круткой нитей и плотностью вязания (чем больше крутка и плотность, тем выше упругие свойства).

Устойчивость трикотажных полотен к многократным деформациям определяет показатели функциональной долговечности изделия. К многоцикловым характеристикам деформации растяжения относятся: выносливость, долговечность, остаточная циклическая деформация, а также изменение после заданного числа циклов таких характеристик, как разрывная нагрузка и разрывное удлинение. Характеристиками строения, оказывающими влияние на многоцикловые характеристики деформации растяжения являются волокнистый состав, толщина и крутка нитей, плотность вязания и вид переплетения, характеристики заполнения [3-6].

Формовочные свойства. Способность трикотажа покрывать поверхность тела человека без образования складок, морщин и перекосов, т. е. принимать пространственную форму, называют формовочной способностью трикотажа. Формовочная способность связана с такими свойствами трикотажных полотен как растяжимость, жесткость при изгибе и растяжении, драпируемость, упругость. Из характеристик строения на рассматриваемое свойство оказывает влияние волокнистый состав, вид переплетения, характеристики заполнения.

Анализ существующих методов многоцикловых деформаций привел к необходимости разработать классификацию известных в настоящее время методов исследования характеристик механических свойств текстильных материалов, которая включает наиболее важные признаки для систематизации огромного разнообразия методов и приборов.

Условия эксплуатации трикотажных изделий характеризуются относительно малыми

напряжениями по сравнению с разрушающими. За рубежом для таких условий применяют термин «механика малых напряжений». В связи с этим применяемые для оценки качества разрывные характеристики, относящиеся к группе эксплуатационных показателей, практически не дают объективную оценку качества трикотажных изделий и полотен, которые чаще страдают от потери формы, протирания, образования пиллей или затяжек на поверхности полотна.

Вместе с тем, оценка малых напряженных состояний по сравнению с оценкой разрывных характеристик, требует повышенного внимания, точности, тщательной подготовки образцов и более чувствительных приборов. Комплекты такой аппаратуры для исследования эксплуатационных характеристик трикотажа имеют многие лаборатории мира, успешно применяя указанные методы для адекватной оценки качества тканей и полотен [7].

Ранее в отсутствие приборной базы оценка качества изделий и полотен с точки зрения эксплуатационных свойств проводилась органолептически по результатам носки. Такой метод требует больших материальных и временных затрат, и при этом не дает объективной оценки изучаемых свойств.

Наиболее значимые эксплуатационные характеристики - это параметры, получаемые в результате растяжения, сжатия, изгиба, сдвига и износа исследуемого материала. Силы, вызывающие эти виды деформации, различны по своему действию и величине. Они приводят к полному разрушению или вызывают деформацию материала. К числу эксплуатационных характеристик трикотажа, получаемых при растяжении, относят: полуцикловые характеристики (разрывные); одноцикловые (неразрывные), когда действуют нагрузки меньше разрывных с последующим снятием напряжения; многоцикловые (разрывные и неразрывные), когда циклическое воздействие «нагрузка - разгрузка - отдых» повторяется многократно [8]. Разрывные характеристики до сих пор относятся к числу основных показателей, применяемых при оценке качества полотен. Нормативные параметры разрывной нагрузки включены во все стандарты и технические условия на трикотажные полотна.

Известно, что трикотажные полотна обладают большой растяжимостью, колеблющейся от 20 до 200%, которая не зависит ни от поверхностной плотности полотна, ни от величины нагрузки, а определяется, в первую очередь, видом переплетения. Оперирование разрывными характеристиками при оценке качества трикотажа можно объяснить лишь тем, что согласно экспериментальным исследованиям, показатели прочности коррелируются со стойкостью полотен к истиранию, многократным нагрузкам и другим воздействиям, которым подвергаются полотна во время эксплуатации. Так как сами по себе разрывные характеристики не дают объективную оценку качества трикотажа, в последние годы они утратили свои доминирующие позиции в материаловедении. Впрочем для технических полотен, претерпевающих в процессе эксплуатации значительные растягивающие усилия, эти показатели будут оставаться основными.

Разрывные характеристики позволяют оценить лишь предельные механические возможности трикотажа. В процессе эксплуатации, по некоторым данным [9], действующие нагрузки обычно не превышают 10 сН. Важно знать поведение полотен при небольших нагрузках, отличных от разрушающих, например, для того чтобы учесть при проектировании лекал пределы заужения для легкорастяжимого трикотажа. При небольших нагрузках деформации связаны, в основном, со структурой полотна. Деформация нити при малых нагрузках

проявляется незначительно или совсем отсутствует.

К физическим свойствам текстильных материалов относятся: гигроскопические свойства, показатели проницаемости, тепловые, оптические, электрические, акустические.

Гигроскопические свойства. При оценке гигроскопических свойств текстильных материалов используют ряд характеристик: влажность, гигроскопичность, влагоотдача, водопоглощаемость, капиллярность, намокаемость. На гигроскопические свойства наибольшее влияние оказывает волокнистый состав полотна. Поглощение трикотажем газообразных и жидких веществ вызывает изменение веса, линейных размеров, механических свойств.

К показателям проницаемости относятся: воздухопроницаемость, паропроницаемость, влагопроницаемость, пылепроницаемость.

На воздухопроницаемость трикотажного полотна влияет структура нитей, волокнистый состав, плотность вязания, характеристики заполнения и вид переплетения, а также толщина полотна и влажность.

Для изучения свойства трикотажа у отобранных образцов были определены структурные и физические показатели при помощи современного оборудования Учебно-Испытательной лаборатории при Ташкентский институт текстильной и легкой промышленности (Ташкент, Узбекистан), регламентированные в общем техническом регламенте «О Безопасности продукции легкой промышленности».

Перед проведением испытательных работ, образцы выдерживались в нормальных климатических условиях согласно ГОСТ ИСО 139-2014.

Объектами исследования в данной работе служили следующие образцы трикотажных полотен, показатели которых приведены в таблице 4.

1-jadval

Технологические параметры двухслойного трикотажного полотна

Показатели		Variantlar		
		I	II	III
Iplarning turi va chiziqli zichligi, teks	Old qatlam	PAN32,5 teks x2	PAN32,5 teks x2	PAN32,5 teks x2

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	Orqa qatlam	PAN35 teks x2	PAN35 teks x2	PAN35 teks x2
Петельный шаг, A (mm)		2,0/2,0	1,60/1,42	2/1,66
Высота петельного ряда B(mm)		1,25/1,25	1,11/1,0	1,11/1,0
Плотност по вертикале, P _в		25/25	30/35	25/30
Плотност по горизонтале, P _г		40/40	45/50	45/50

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Длина нити петли (mm)	Old qatlam	1,19	0,61	0,60
	Orqa qatlam	1,11	0,55	0,64
Поверхностная плотность $M_s(g/m^2)$		383,0	472,6	465,5
Толщина, T(mm)		1,8	2,0	2,1
Объемная плотность, D (mg/sm^3)		212,7	236,3	221,6
Абсолютное облегчение $\Delta\delta(mg/mm^3)$		-	23,6	8,9
Относительная облегчения, θ (%)		-	11	4

На основании сравнения объемной плотности двухслойных трикотажных полотен можно сделать вывод, что поверхностная плотность двухслойного трикотажного полотна варианта I составляет $383,0 \text{ г/м}^2$, а толщина. При толщине 1,8 мм объемная плотность составила $212,7 \text{ мг/мм}^3$. При сравнении других полотен с этим вариантом поверхностная плотность двухслойного трикотажного полотна варианта II составила $472,6 \text{ г/м}^2$, а толщина 2,0 мм, а объемная плотность составила $236,3 \text{ мг/см}^3$. При поверхностной плотности двухслойного трикотажного полотна варианта III составила $465,5 \text{ г/м}^2$, а толщина 2,1 мм, а объемная плотность составила $221,6 \text{ мг/см}^3$. Поверхностная плотность двухслойного трикотажного образца варианта IV составила $440,2 \text{ г/м}^2$, а толщина 1,75 мм, а объемная плотность составила $251,5 \text{ мг/см}^3$.

Были определены физико-механические свойства полученных образцов полотен, результаты представлены в таблице 2.

2-jadval

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Физико-механические свойства двухслойных трикотажных полотен

Показатели		Варианты				ГОСТ
		I	II	III	IV	
Вид и линейная плотность пряжи, teks	Передний слой	PAN 32,5 teks x2	PAN32,5 teks x2	PAN 32,5teks x2	PAN 32,5 teks x2	
	Задний слой	PAN 35teks x2	PAN 35teks x2	PAN 35 teks x2	PAN 35 teks x2	
Воздухопроницаемость В, $\text{см}^3/\text{см}^2 \times \text{сек}$		180,9	99,6	95,5	98,2	ГОСТ 12088-77 30-100
Тёплоудерживаемость		26%	37,5%	38%	28%	28%
Стойкость к истиранию		28500	35000	36000	32500	ГОСТ 16486-93 30-60
Пиллинг		-	-	1	12	
Усадка У %	По продол	0,8	1,4	1,6	1,2	ГОСТ 26667-85 более5-8%
	По попереч	1,5	2	1,8	2	более8-1

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						0 %
Разрывная нагрузка, P, N	По продол	289,76	354,66	452,665	479,26	479,26
	По попереч	415,4	321,73	363,435	301,03	301,03
Разрывная удлинения, $\epsilon_{уд}$, %	По продол	14	13	17	16	ГОСТ 88
	По попереч	15	22	18	20	4785 6 N da До 40- 100% 2 гр
Необратимая деформация, ϵ_n , %	По продол	14	14	8,3 (17,1)	14	ГОСТ 28888-2019-0 До 15-20%
	По попереч	15	13	16(0,19)	30	
Упругая деформация ϵ_y , %	По продол	43	28	32,7(67,8)	39	
	По попереч	29	49	52,3(0,63)	78	
Эластическая деформация, ϵ_e , %	По продол	16	11	7,3(15,1)	10	До 15-20%
	По попереч	16	15	15(0,18)	30	

Воздухопроницаемость образцов двухслойного трикотажного полотна за счет изменения структуры переплетения трикотажа изменилась от 180,9 до 95,5 $\text{см}^3/\text{см}^2\text{с}$, т.е. воздухопроницаемость изменилась на 48% (таблица 2). В результате сравнения вариантов двухслойного трикотажного полотна по теплоудерживающей способности выявлено, что образец варианта III имеет наибольший показатель теплоудерживающей способности по сравнению с остальными вариантами и составил 38%.

Среди этих вариантов двухслойного трикотажного полотна наибольшей стойкостью к истиранию обладал образец III варианта, который составил 36 тыс. круговых циклов.

В заключение можно отметить, что изучены физико-механические свойства рекомендуемых вариантов двухслойного трикотажного полотна, и данные полотна рекомендуются для изготовления верхней одежды для взрослых.

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THE INTERRELATION BETWEEN JOURNALISM AND MUSICAL CRITICISM

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Abstract

Musical criticism and journalism are two closely interconnected socio-cultural phenomena. Both fields aim to illuminate, analyze, and communicate artistic and social processes to the public. Journalism serves as a professional activity for disseminating information, conducting analysis, and shaping public opinion, whereas musical criticism evaluates, interprets, and reveals the aesthetic and ideological essence of music. Therefore, musical criticism has developed as a specialized branch of journalistic practice.

Keywords: musical criticism, journalism, media, cultural communication, aesthetics, Uzbek music, digital media, musical journalism, artistic analysis, mass culture.

The Role of Musical Criticism in Journalism

Through journalism, musical criticism reaches the wider public. Mass media disseminate musical analyses, shape musical taste within society, and introduce new creative figures. Every musical critic enters the journalistic field to share ideas with audiences — through newspapers, magazines, radio, television, and, in modern times, online media and social networks. Journalism thus serves as a medium that popularizes and conveys musical criticism to the audience.

The interrelation between musical criticism and journalism is primarily manifested in their communicative nature. Just as a journalist interprets social phenomena, the critic analyzes musical events. The difference lies in the focus: journalism covers social, political, and cultural processes in general terms, while musical criticism evaluates them from an artistic standpoint. However, both share a key function — influencing public consciousness and shaping cultural values.

Historical Formation and Development

The interrelation between musical criticism and journalism took shape in the late 19th and early 20th centuries. Initially, musical criticism existed mainly within academic or artistic circles. With the expansion of the press, it evolved into various journalistic forms. In Uzbekistan, journals such as *Sharq Yulduzi*, *O'zbekiston Adabiyoti va San'ati*, *Yoshlik*, *Teatr*, and *San'at* played a significant role in integrating musical critique into journalism.

By the mid-20th century, specialized critical genres such as “concert reviews,” “performance analyses,” “album commentaries,” and “impressions from musical evenings” appeared in newspapers and magazines. This marked journalism’s entry into the musical field. Radio and television further strengthened this relationship, offering platforms for critical programs and discussions. Critics such as A. Bobojonov, R. Abdullaev, M. Qodirov, T. Jalilov, and O. Yoqubov significantly contributed to the advancement of national musical culture through their articles and commentaries.

Genres and Forms of Musical Criticism in Journalism

Musical criticism is expressed through various journalistic genres:

- **Review** – analysis of a concert, album, performance, or musical event, assessing artistic quality, performance mastery, melody, imagery, and stage culture.

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- **Analytical Article** – explores broader phenomena such as the development of modern pop music or the traditions of national maqom art.
- **Interview** – conversations with composers, performers, or critics that reveal the inner dynamics of the musical environment.
- **Reportage** – provides vivid, direct accounts from concerts, festivals, or competitions, capturing live impressions.
- **Essay** – a reflective, personal, and philosophical piece about a particular work or artist.

Thus, journalism serves as a platform for shaping and delivering musical criticism to audiences. A musical critic uses journalistic genres to reach the public, thereby contributing to the dissemination of musical culture.

Professional Similarities between Critics and Journalists

The professions of journalists and musical critics share many common features. Both rely on facts, evidence, analysis, evaluation, and logical conclusions. However, the critic's work emphasizes subjectivity, aesthetic perception, artistic thinking, and professional musical literacy. Every musical critic, in a sense, must be a journalist, while every cultural journalist should possess musical awareness and analytical skills.

A journalistic approach introduces dynamism and relevance into criticism. The journalist provides immediacy and responsiveness, while the critic offers depth and aesthetic interpretation. Together they complement each other: the journalist is swift, and the critic is profound. In modern times, this interconnection has produced a new hybrid form — **musical journalism**.

Integration of Musical Criticism and Journalism in the Digital Era

The rise of digital media has elevated the collaboration between musical criticism and journalism to a new level. Critics now express their ideas not only through print media but also via online platforms, blogs, podcasts, YouTube reviews, and Telegram channels. Many young journalists are engaging in musical analysis through social media, making criticism more accessible and democratic.

However, this trend has also brought challenges: declining standards of critique, lack of artistic criteria, and the rise of subjective or promotional content. Therefore, strengthening the theoretical and ethical foundations of both journalism and musical criticism, as well as training professional critics, has become an urgent necessity.

The Development of Musical Journalism in Uzbekistan

After Uzbekistan gained independence, mass media experienced rapid growth, which revitalized both journalism and musical criticism. Today, publications such as *San'at*, *Teatr*, *O'zbekiston San'ati*, *Yoshlar Ovozi*, *Darakchi*, *Oila Davrasida*, *Zamin*, *Kultura.uz*, and *Uza.uz* regularly publish analytical musical articles. Television and radio programs such as *Musiqa Olami*, *Estrada Yangiliklari*, *San'at Tongi*, and *Yosh Iste'dodlar* have also become important platforms where journalists and critics collaborate.

Among the younger generation, musical blogging, podcasts, and “reaction videos” have emerged as new forms of public criticism. This interactive style of communication has made musical criticism more popular and direct, integrating it deeply into the broader system of cultural communication.

Conclusion

Musical criticism and journalism are not merely related — they are interdependent. Their cooperation ensures that artistic values are communicated, analyzed, and preserved within society. In the modern

digital era, this relationship has become even more dynamic, opening new opportunities for creativity, education, and cultural exchange. Strengthening professional standards and fostering a culture of responsible musical journalism remain key factors for the sustainable development of Uzbekistan's musical art and media space.

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THE RELATION BETWEEN REAL AW*-FACTORS AND ANTI-AUTOMORPHISMS OF INVOLUTIVE (I.E. WITH PERIOD 2) *- (COMPLEX) AW*-FACTORS

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ABSTRACT. The paper of the is to initiate the study of real AW*-algebras in the framework of the theory of real C*-algebras and W*-algebras. It happens that in some aspects real AW*-algebras behave unlike complex AW*-algebras and sometimes their properties are completely different also from corresponding properties of real W*-algebras. We prove that if the complexification $A + iA$ of a real C*-algebra A is a (complex) AW*-algebra then A itself is a real AW*-algebra. By modifying the Takenouchi's examples of complex non-W*, AW*-factors we show that there exist real non-W*, AW*-factors. The correspondence between real AW*-factors and involutive (i.e. with period 2) *-anti-automorphisms of (complex) AW*-factors is established. We give the decomposition of real AW*-algebras into types I, II and III similar to the case of complex AW*-algebras or W*-algebras. It is proved that if A is a real AW*-factor and its complexification $M = A + iA$ is also an AW*-algebra (and therefore an AW*-factor) then the types of A and M coincide.

KEYWORDS: AW*-algebra, C*-algebra, factor, involutive *-anti-automorphism, complex Hilbert space, commutant, complexification, linear *-automorphism, conjugate, bicommutant, quaternions algebra, projection, isomorphic.

1. INTRODUCTION

The theory of operator algebras was initiated in a series of papers by Murray and von Neumann in thirties. Later such algebras were called von Neumann algebras or W*-algebras. These algebras are self-adjoint unital subalgebras M of the algebra $B(H)$ of bounded linear operators on a complex Hilbert space H , which is closed in the weak operator topology. Equivalently M is a von Neumann algebra in $B(H)$ if it is equal to the commutant of its commutant (von Neumann's bicommutant theorem). A factor (or W*-factor) is a von Neumann algebra with trivial center and investigation of general W*-algebras can be reduced to the case of W*-factors, which are classified into types I, II and III.

Real operator algebra is a *-algebra consisting of bounded (real) linear operators on a real Hilbert space H . If it is closed in the weak operator topology we have real W*-algebra, and if it is uniformly closed (i.e. in the norm topology) then we come to the notion of the real C*-algebra.

In his monograph [7] Li Bing-Ren has set up the fundamentals of real operator algebras and gave a systematic discussion of the real counterpart for the theory of W*- and C*-algebras.

A slightly different (but almost the same up to *-isomorphism) definition of real W*-algebras was given by E. Størmer [13,14]: A real von Neumann algebra (or real W*-algebra) is a real *-algebra $\mathfrak{R}$ of bounded linear operators on a complex Hilbert space containing the identity operator **1**, which is

closed in the weak operator topology and satisfies the condition $\mathfrak{R} \cap i\mathfrak{R} = \{0\}$. The smallest (complex) von Neumann algebra $U(\mathfrak{R})$ containing $\mathfrak{R}$ coincides with its complexification $\mathfrak{R} \cap i\mathfrak{R}$, i.e. $U(\mathfrak{R}) = \mathfrak{R} \cap i\mathfrak{R}$. Moreover $\mathfrak{R}$ generates a natural involutive (i.e. of order 2) *-antiautomorphism $\alpha_{\mathfrak{R}}$ of $U(\mathfrak{R})$, namely $\alpha_{\mathfrak{R}}(x + iy) = x^* + iy^*$, where $x + iy \in U(\mathfrak{R})$, $x, y \in \mathfrak{R}$. It is clear that $\mathfrak{R} = \{x \in U(\mathfrak{R}) : \alpha(x) = x^*\}$. Conversely, given a (complex) von Neumann algebra U and any involutive *-antiautomorphism α on U , the set $\{x \in U : \alpha(x) = x^*\}$ is a real von Neumann algebra in the above sense.

It is not difficult to see that two real von Neumann algebras generating the same (complex) von Neumann algebra are isomorphic if and only if the corresponding involutive *-antiautomorphisms are conjugate. Thus the study of the above real von Neumann algebra can be reduced to the study of pairs (U, α) , where U is a (complex) von Neumann algebra and α - its involutive *-antiautomorphism.

2. PRELIMINARIES

Let H be a complex Hilbert space, $B(H)$ denote the algebra of all bounded linear operators on H . The weak (operator) topology on $B(H)$ is the locally convex topology, generated by semi norms of the form: $\rho(a) = |(\xi, a\eta)|$, $\xi, \eta \in H$, $a \in B(H)$. W*-algebra is a weakly closed complex *-algebra of operators on a Hilbert space H containing the identity operator $\mathbf{1}$. Recall that W*-algebras are also called *von Neumann algebras*.

Let further M be a W*-algebra. The set M' of all elements from $B(H)$ commuting with each element from M is called the commutant of the algebra M . The center $Z(M)$ of a W*-algebra M is the set of elements of M , commuting with each element from M . It is easy to see that $Z(M) = M \cap M'$. Elements of $Z(M)$ are called *central* elements. A W*-algebra M is called *factor*, if $Z(M)$ consists of the complex multiples of $\mathbf{1}$, i.e if $Z(M) = \{\lambda \mathbf{1}, \lambda \in \mathbb{C}\}$. We say that a W*-algebra M is *injective* if there exists a projection P in $B(H)$ onto M such that $\|P\| = 1$ and $P(\mathbf{1}) = \mathbf{1}$. This is equivalent to the condition that M is *hyperfinit*, i.e., that there exists an increasing sequence $\{M_n\}$ of matrix subalgebras of the algebra M containing $\mathbf{1}$ and such that the union $\cup_n M_n$ is weakly dense in M .

Let e, f, h be projections from M . We say that e is equivalent to f , and write $e \sim f$, if $e = \omega^* \omega$, $f = \omega \omega^*$ for some partial isometry ω from M . A projection e is called: *finite*, if $e \sim f \leq e$ implies $f = e$; *infinite* - otherwise; *purely infinite*, if e doesn't have any nonzero finite subprojection; *abelian*, if the algebra eMe is an abelian W*-algebra. A W*-algebra M is called *finite*, *infinite*, *purely infinite*, if $\mathbf{1}$ is a finite, infinite, purely infinite respectively; M is σ -finite, if any family of pairwise orthogonal projections from M is at most countable; *semifinite*, if each projection

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in M contains a nonzero finite subprojection; *properly infinite*, if every nonzero projection from $Z(M)$ is infinite; *discrete*, or of type I , if it contains a faithful abelian projection (i.e. an abelian projection with the central support 1); *continuous*, if there is no abelian projection in M except zero; M is of type II , if M is semifinite and continuous; type I_{fin}^I (respectively I_{∞}^I), if M is of type I and finite (respectively properly infinite); type II_1 (respectively type II_{∞}), if M is of type II and finite (respectively properly infinite); type III , if M is purely infinite. It is known that any W^* -algebra has a unique decomposition along its center into the direct sum of W^* -algebras of the $I_{fin}^I, I_{\infty}^I, II_1, II_{\infty}$ and III types.

A linear mapping $\alpha: M \rightarrow M$ is called a $*$ -automorphism (respectively a $*$ -antiautomorphism) if $\alpha(x^*) = \alpha(x)^*$ and $\alpha(xy) = \alpha(x)\alpha(y)$ (respectively $\alpha(xy) = \alpha(y)\alpha(x)$), for all $x, y \in M$. A mapping α is called involutive if $\alpha^2 = id$. A $*$ -automorphism α is called *inner* if there exists a unitary u in M , such that $Adu(x) = uxu^*$, for all $x \in M$. A $*$ -automorphism is called centrally trivial if $\alpha(x_n) - x_n \rightarrow 0$ $*$ -strongly as $n \rightarrow \infty$ for any central sequence $\{x_n\}_{n \in \mathbb{N}}$. We shall denote by $Aut(M)$ the group of all $*$ -automorphisms, by $Aut(M)$ the group of all $*$ -antiautomorphisms, by $Int(M)$ the group of all inner $*$ -automorphisms, and by $Ct(R)$ the subgroup of its centrally trivial $*$ -automorphisms of M . Two $*$ -automorphisms or $*$ -antiautomorphisms α and β are said to be conjugate (or outer conjugate), if $\alpha = \theta \cdot \beta \cdot \theta^{-1}$ (respectively $Adu \cdot \alpha = \theta \cdot \beta \cdot \theta^{-1}$) for some $*$ -automorphism θ (and an inner $*$ -automorphism Adu). A linear functional ω on M is called *positive*, if $\omega(x^*x) \geq 0$ for all $x \in M$. A positive linear functional ω on M with $\|\omega\| = 1$ is called a state. Let M_+ be the positive part of M . A *weight* on M is a homogeneous additive function $\omega: M_+ \rightarrow [0, +\infty]$ (we suppose that $0 \cdot +\infty = 0$). A weight (or a state) ω is called: *faithful*, if for any $x \in M_+$, $\omega(x) = 0$ implies $x = 0$; *normal*, if for any net $\{x_\alpha\}$ in M , increasing to an element x , we have $\omega(x) = \sup_\alpha \omega(x_\alpha)$; *finite*, if $\omega(x) < \infty$ for all $x \in M_+$; *semifinite*, if for any $x \in M_+$ there exists a net of elements $\{y_\alpha\} \in M_+$, such that $\omega(y_\alpha) < \infty$, and $y_\alpha \rightarrow x$ in σ -weak topology; ω is a trace, if $\omega(uxu^*) = \omega(x)$ for all $x \in M_+$ and each unitary $u \in M$.

The type of a W^* -algebra is tightly connect with the existence of traces on it. Namely a W^* -algebra M is a finite if and only if it possesses a separating family of finite normal traces; it is semifinite if and only if it possesses a faithful semifinite normal trace; M is purely infinite if and only if there is no nonzero semifinite normal trace on M (see [15]).

Definition. [4]. By a real C^* -algebra we mean a real Banach $*$ -algebra R such that the relation

$$\|a^*a\| = \|a\|^2 \text{ holds and the element } 1 + a^*a \text{ is invertible for any } a \in R.$$

Definition*. [8,9]. A real C^* -algebra R such that $R+iR$ is a complex W^* -algebra is referred to as a real W^* -algebra.

We proceed with another definition of a real W^* -algebra, which can be found in papers of Størmer.

Definition.** [2,13]. A unital weakly closed real $*$ -algebra R in $B(H)$ such that $R \cap iR = \{0\}$ is called a *real W^* -algebra*.

A real W^* -algebra R is called a (real) factor if its center $Z(R)$ consists of elements $\lambda \mathbf{1}$, $\lambda \in \mathbb{R}$. We say that a real W^* -algebra R is of type I_{fin} , I_∞ , II_1 , II_∞ and III , $\lambda \in [0,1]$ if the enveloping W^* -algebra $U(R) = R + iR$ (i.e., the least W^* -algebra containing R) is of the corresponding type with respect to the usual classification of W^* -algebras.

3. MAIR RESULTS

Let A be a real C^* -algebra, with the complexification $M = A + iA$. Then M is a complex C^* -algebra and, as we have seen in the previous section, if A is a real AW^* -algebra M may not be a (complex) AW^* -algebra. Now let us consider the converse problem if $M = A + iA$ is an AW^* -algebra is A necessarily a real AW^* -algebra? The following result gives a positive answer to this problem.

Proposition 1. *Let A be a real C^* -algebra and let $M = A + iA$ be its complexification. Suppose that M is an AW^* -algebra. Then A is a real AW^* -algebra.*

Proof. As we have mentioned in the first section, A coincides with the fixed point set under the conjugate linear $*$ -automorphism $\bar{\cdot} : x + iy \mapsto x - iy$ of M , where $x, y \in A$, i.e. $A = \{a \in M : \bar{a} = a\}$. If S is a nonempty subset in A then for its right-annihilator (with respect to M) we have

$$R_M(S) = \{a \in M \mid sa = 0 \text{ for all } s \in S\}$$

and

$$a \in R_M(S) \Leftrightarrow sa = 0, \forall s \in S \Leftrightarrow \bar{s} \bar{a} = \bar{s} \bar{a} = s \bar{a} = 0, \forall s \in S$$

because $\bar{\bar{s}} = s \in A$. This means that $a \in R_M(S)$ if and only if $\bar{a} \in R_M(S)$.

Now suppose that M is an AW^* -algebra, then $R_M(S) = gM$ for a suitable projection $g \in M$. Since $g \in R_M(S)$ from above it follows that $\bar{g} \in R_M(S)$. Therefore $\bar{g}$ is a projection and $\bar{g} \in gM$, i.e. $\bar{g} = g\bar{g}$. Thus $(\bar{g})^* = (g\bar{g})^* = (\bar{g})^* g^* = \bar{g}g = \bar{g} = g\bar{g}$ i.e. $g = \bar{g} = g\bar{g} = \bar{g}g = \bar{g}$.

This means that $g \in A$. But then

$$R_M(S) = R_M(S) \cap A = gM \cap A = gA,$$

i.e. A is a real AW^* -algebra.

Proposition 2. *There exist real AW^* -factors which are not real W^* -factors.*

Theorem 1. *A real AW^* -algebra A is a real W^* -algebra if and only if*

- (i) *A possesses a separating family of normal states;*

(ii) its complexification $M = A + iA$ is an AW*-algebra.

Proof. Necessity is obvious, since if A is a real W*-algebra, then $M = A + iA$ is a (complex) W*-algebra (see [7, Chap.5]). Therefore, M is an AW*-algebra and it possesses a separating family of normal states, the restrictions of which on A give a separating family of normal states on A .

Sufficiency. Let $M = A + iA$ be an AW*-algebra and let A possess a separating family of normal states, which we denote by $\{f_\gamma\}$, i.e. for any $a \in A, a \geq 0, a \neq 0$ exists $f \in \{f_\gamma\}$ with $f(a) > 0$.

For $x \in a + ib \in M, a, b \in A$, we put $\alpha(x) = a^* + ib^*$. A straightforward calculation shows that α is an involutive (i.e. with period 2) *-anti-automorphism of M , and $A = \{a \in M : \alpha(a) = a^*\}$.

The extension of f_γ by linearity on M we denote by f_γ^0 , and we shall show, that the family $\{f_\gamma^0\}$ is a separating family of normal states on M .

For $x = a + ib \in M_s = \{x \in M : x^* = x\}$ we have $a^* = a, b^* = -b$, and since f_γ is hermitian we obtain $f_\gamma^0(x) = f_\gamma(a) + if_\gamma(b) = f_\gamma(a)$, since $f_\gamma(b) = 0$. Thus, for $x \in M_s$ we have

$$f_\gamma^0(x) = \frac{1}{2} f_\gamma(x + \alpha(x)),$$

and $x + \alpha(x) \in A$, since $x + \alpha(x) = 2a$.

If $x \geq 0$, then $\alpha(x) \geq 0$ (because α is a *-anti-automorphism), and hence $x + \alpha(x) \geq 0$, i.e.

$x + \alpha(x) \in A^+$. Therefore $f_\gamma^0(x) = \frac{1}{2} f_\gamma(x + \alpha(x)) \geq 0$, i.e. all functionals f_γ^0 are positive on M .

Moreover, we have $f_\gamma^0(1) = f_\gamma(1) = 1$, i.e. $\{f_\gamma^0\}$ is a family of states on M .

Now let us show, that each state f_γ^0 is normal. If $\{x_\nu\} \subset M$ is an arbitrary net with $x_\nu \searrow 0$, then since α is an order isomorphism of M , we have $\alpha(x_\nu) \searrow 0$. Therefore $x_\nu + \alpha(x_\nu) \searrow 0$ and $x_\nu + \alpha(x_\nu) \in A^+$. Since f_γ is a normal we obtain

$$f_\gamma^0(x_\nu) = \frac{1}{2} f_\gamma(x_\nu + \alpha(x_\nu)) \rightarrow 0$$

i.e. all functionals f_γ^0 are normal on M .

Finally, let $x \in M, x \geq 0$ and $f_\gamma^0(x) = 0$ for all γ . Then $x + \alpha(x) \in A^+$, and since $\{f_\gamma\}$ is a separating family of states, $x + \alpha(x) = 0$. Hence we have $x = -\alpha(x) \in M^+ \cap (-M^+) = \{0\}$, i.e.

$x = 0$. Thus, the AW*-algebra M possesses a separating family of normal states $\{f_r^0\}$. By the theorem of Pedersen [10] M is a W*-algebra. Therefore, by [7] A is a real W*-algebra. Now, let M be a (complex) AW*-factor, α its involutive *-anti-automorphism. Then as it was mentioned above the set $A = \{a \in M : \alpha(a) = a^*\}$ is a real C*-algebra such that $M = A + iA$ (actually $\bar{x} = \alpha(x^*)$ in terms of operation "-") and from Proposition 4.3.1 it follows that A is a real AW*-factor. It is known that two real W*-algebras generating the same (complex) W*-algebra, are isomorphic if and only if the corresponding involutive *-anti-automorphisms are conjugate [2,13,14]. A similar result is also valid for real AW*-algebras:

Proposition 3. *Let α and β be involutive *-anti-automorphisms of a (complex) AW*-factor M . Then the real AW*-factors*

$$A = \{x \in M : \alpha(x) = x^*\} \quad \text{and} \quad B = \{x \in M : \beta(x) = x^*\}$$

*are real *-isomorphic if and only if the involutive *-anti-automorphisms α and β are conjugate, i.e. $\beta = \theta\alpha\theta^{-1}$ for a suitable *-automorphism of the AW*-factor M .*

Proof. Let A and B be real *-isomorphic with a *-isomorphism $\theta_0 : A \rightarrow B$. Then θ_0 can be naturally extended to a (complex) *-isomorphism θ of their complexifications $A + iA$ and $B + iB$ both coincide with M . Therefore θ is a *-automorphism of M and $\theta(A) = B$, i.e. $\alpha(x) = x^*$ if and only if $\beta(\theta(x)) = (\theta(x))^* = \theta x^*$. Thus for $x \in A$ we have

$$\beta(\theta(x)) = (\theta(x))^* = \theta(x^*) = \theta\alpha(x), \quad \text{i.e.} \quad \beta = \theta\alpha\theta^{-1}\alpha(x) \quad \text{for all } x \in A.$$

Since $\theta^{-1}\beta^{-1}\theta\alpha$ is a *-automorphism on M which is identical on A and any real *-automorphism of A can be uniquely extended to a complex *-automorphism of M , it follows that $\theta^{-1}\beta^{-1}\theta\alpha = id$ on whole M , i.e. $\theta\alpha = \beta\theta$ and $\beta = \theta\alpha\theta^{-1}$, i.e. α and β are conjugate.

Conversely, if α and β are conjugate, i.e. $\beta = \theta\alpha\theta^{-1}$ for a suitable complex *-automorphism θ of M , then $\theta\alpha = \beta\theta$ and $\alpha(x) = x^*$ if and only if $\beta(\theta(x)) = \theta x^* = (\theta x)^*$, i.e. $\theta(A) = B$. Therefore, θ restricted on A gives the needed *-isomorphism between real AW*-factors A and B .

Now we consider one of the main results of this section.

Theorem 2. *Let A be a real AW*-algebra and its complexification $M = A + iA$ is a (complex) AW*-algebra. Then A is of type I if and only if M of type I.*

Corollary. *Let A be a real AW*-algebra of type I, and its complexification $M = A + iA$ is a (complex) AW*-algebra. Then A is a real W*-algebra if and only if its center Z_A is a real W*-algebra.*

Proof. If A is a real W*-algebra then, obviously, its center Z_A is a real W*-algebra. Conversely, let A be an AW*-algebra of type I and its center is a W*-algebra. Then by Theorem 4.5.2, $M = A + iA$

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is an AW*-algebra of type I, and its center $Z_M = Z_A + iZ_A$ is a W*-algebra. From Kaplansky's theorem [6, Theorem 2] it follows that M is a W*-algebra. Therefore, A is a real W*-algebra.

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**TUPROQ UNUMDORLIGINI OSHIRISHTA AYRIM DORIVOR O‘SIMLIKLARNING
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Annotatsiya:

Tuproq unumdorligi qishloq xo‘jaligi samaradorligini belgilovchi muhim omil hisoblanadi. Sho‘r-alkali (SA) tuproqlar o‘simliklar o‘sishiga salbiy ta‘sir qiladi. Ushbu maqolada SA tuproqlarida o‘sadigan dorivor o‘simliklarning, xususan tiger nut (*Cyperus esculentus L.*), tuproq unumdorligiga ta‘siri va nanomateriallar (nano-selen, ko‘p devorli uglerod nanotubalari) hamda arbuskulyar mikorizalarning (AMs) stressni kamaytiruvchi roli o‘rganildi. Tadqiqot natijalari shuni ko‘rsatdiki, dorivor o‘simliklar va ularning simbiotik aloqalari, shuningdek nanomateriallar qo‘llanilishi tuproqdagi oziqa moddalarini oshiradi, o‘simlik fotosintezi va hosildorligini yaxshilaydi. Ushbu yondashuv sho‘r-alkali tuproqlarni samarali ishlatish imkonini beradi.

Kalit so‘zlar: dorivor o‘simliklar, tuproq unumdorligi, nanomateriallar, mikorizalar, tiger nut, sho‘r-alkali stress

**ЗНАЧЕНИЕ НЕКОТОРЫХ ЛЕКАРСТВЕННЫХ РАСТЕНИЙ В ПОВЫШЕНИИ
ПЛОДОРОДИЯ ПОЧВЫ**

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Аннотация:

Плодородие почвы является важным фактором сельскохозяйственной продуктивности. Солёно-щелочные (SA) почвы отрицательно влияют на рост растений. В данной статье изучено влияние лекарственных растений, в частности тигрового ореха (*Cyperus esculentus L.*), на плодородие почвы, а также роль наноматериалов (нано-селен, многослойные углеродные нанотрубки) и арбускулярных микориз (AMs) в снижении стрессового воздействия. Результаты показали, что лекарственные растения и их симбиотические связи, а также применение наноматериалов увеличивают содержание питательных веществ в почве, улучшают фотосинтез и урожайность растений. Этот подход позволяет эффективно использовать солёно-щелочные почвы.

Ключевые слова: лекарственные растения, плодородие почвы, наноматериалы, микоризы, тигровый орех, солёно-щелочной стресс

THE ROLE OF CERTAIN MEDICINAL PLANTS IN IMPROVING SOIL FERTILITY

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Abstract:

Soil fertility is a key factor in agricultural productivity. Saline–alkali (SA) soils negatively affect plant growth. This article examines the impact of medicinal plants, particularly tiger nut (*Cyperus esculentus L.*), on soil fertility, as well as the mitigating effects of nanomaterials (nano-selenium, multi-walled carbon nanotubes) and arbuscular mycorrhizas (AMs) on stress. Results indicate that medicinal plants and their symbiotic interactions, along with nanomaterial application, enhance soil

nutrient content, improve plant photosynthesis and yield. This approach offers an effective strategy for utilizing saline-alkali soils in agriculture.

Keywords: medicinal plants, soil fertility, nanomaterials, mycorrhizas, tiger nut, saline-alkali stress

KIRISH

Tuproq unumdorligi qishloq xo'jaligi samaradorligini belgilovchi eng muhim omillardan biridir. Tuproq sho'rlanishi va ishqorlanishi o'simliklarning o'sishi, rivojlanishi va hosildorligiga salbiy ta'sir qiladi. Shu sababli sho'r-alkali (SA) tuproqlarda o'sadigan dorivor o'simliklar va ularning tuproq bilan simbiotik aloqalari orqali unumdorlikni oshirish masalasi dolzarb hisoblanadi. Dorivor o'simliklarning ildiz tizimi organik moddalar bilan boyitib, tuproq mikroflorasini rag'batlantiradi va ozuqa moddalarini saqlashda yordam beradi.

Ayrim dorivor o'simliklar, masalan *Cyperus esculentus* L. (tiger nut), SA stressga chidamli bo'lib, tuproqning tabiiy tuzilishini yaxshilash imkonini beradi. Ularning ildiz tizimi tuproqni shovillash, havo va suv almashinuvini yaxshilash hamda mikroorganizmlar faoliyatini rag'batlantirishga yordam beradi. Natijada tuproqdagi oziqa moddalarining mavjudligi oshadi va o'simliklar yaxshiroq rivojlanadi.

So'nggi yillarda nanomateriallar qishloq xo'jaligida keng qo'llanilmoqda. Jumladan:

- **Nano-selen (Nano-Se)** — o'simliklarning sho'r-alkali stressga bardoshlilikini oshiradi, fotosintez jarayonini yaxshilaydi.
- **Ko'p devorli uglerod nanotubalari (MWCNTs)** — oziqa moddalarini so'rilishini oshiradi, stressga chidamliligini kuchaytiradi.
- **Arbuskulyar mikorizalar (AMs)** — tuproqdagi oziqa moddalarini o'simlik ildizlariga yetkazadi va suyuqlik balansini saqlashga yordam beradi.

Tajriba va natijalar

Tiger yong'og'i o'simligi bilan o'tkazilgan tajribalar shuni ko'rsatdiki:

NaCl va NaHCO₃ eritmaları turli konsentratsiyalarda o'simlikning o'sishiga salbiy ta'sir qiladi. GR₅₀ qiymatlari: NaCl — 163 mmol/L, NaHCO₃ — 63 mmol/L.

MWCNTs (100 mg/L) yoki Nano-Se (10 mg/L) qo'llanilganda o'simlik balandligi 66–70 sm, tuganak hosildorligi 23–27 g/o'simlikgacha oshgan.

AMs qo'llanilishi fotosintez jarayonini yaxshilaydi, antioksidant ferment faoliyatini oshiradi va yog' sifatini yaxshilaydi.

Muhokama

Dorivor o'simliklar tuproq unumdorligini oshirishda tabiiy va samarali vosita hisoblanadi. Tiger nut kabi SA stressga chidamli o'simliklardan foydalanish, nanomateriallar va mikorizalar qo'llanilishi bilan birga hosildorlikni saqlab qolish va o'simlikning stressga bardoshini oshirish imkonini beradi. Ushbu yondashuv sho'r-alkali tuproqlarni samarali ishlatish va qishloq xo'jaligida barqaror rivojlanishni ta'minlaydi.

Xulosa

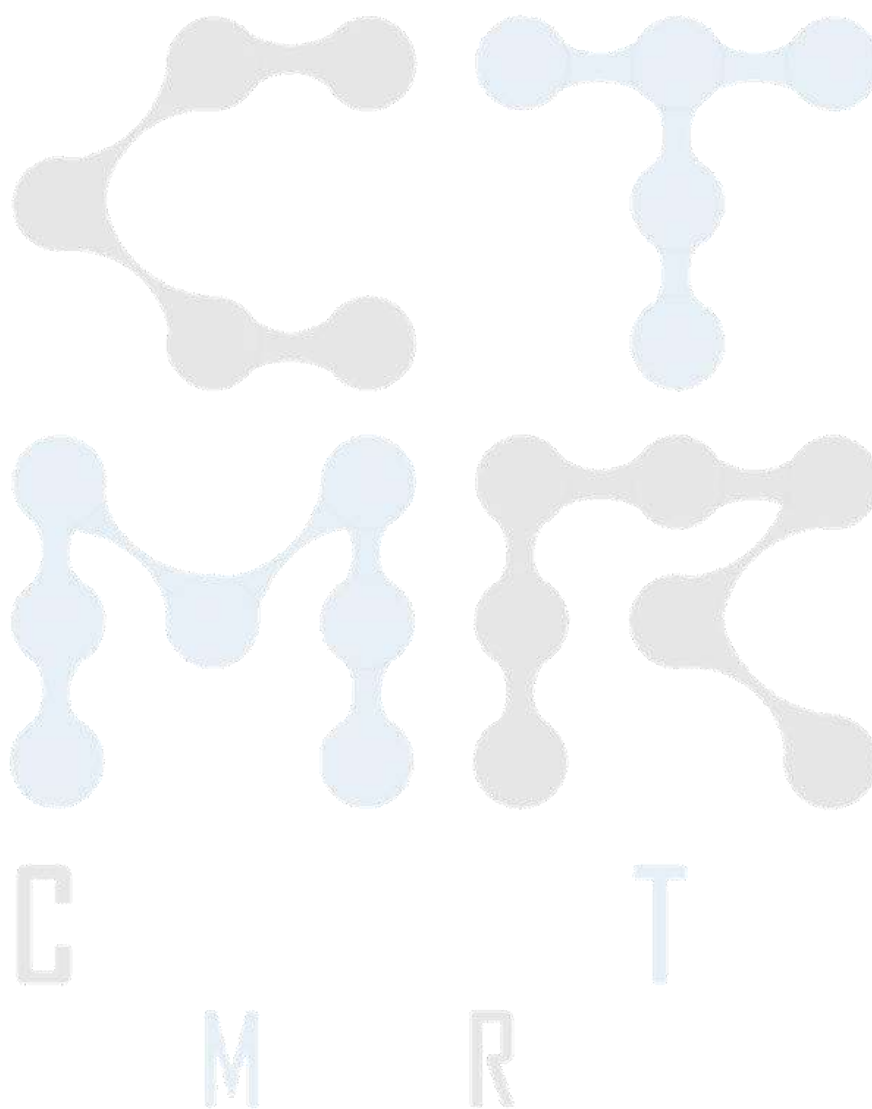
Dorivor o'simliklar SA stressga chidamli bo'lib, tuproq unumdorligini oshiradi.

Ushbu yondashuv sho'rlangan tuproqlarni qishloq xo'jaligida samarali ishlatish imkoniyatini yaratadi.

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THE INTERACTION BETWEEN TRADITIONAL AND MODERN MUSIC: INFLUENCE
AND FUTURE OUTLOOK

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Annotation: In this article, the interaction processes between traditional and modern music, as well as their roles and evolution within musical culture, are analyzed. The connection of traditional music with national values and folk creativity is explored, while modern music is presented as a reflection of technological progress, globalization, and a means of individual expression.

Key work: Traditional music, modern music, integration, identification, globalization.

Introduction. Music is an integral part of human culture. It not only gives aesthetic pleasure, but also is a means of expressing national identity, historical memory and modern thinking. Today, the relationship between traditional and modern music is becoming increasingly relevant.

Traditional music is the product of centuries-old historical and cultural experience of the people, passed down from generation to generation as an oral creative heritage. It is a reflection of lifestyle, customs, religious beliefs, folk wisdom and emotions. The art of maqom, songs, ritual and lyrical songs of the Uzbek people are vivid examples of such a rich heritage.

Modern music, on the other hand, was formed as a result of technological progress, global information flows and the need for individual expression. It includes such diverse directions as pop, rap, electronic, rock, and mainly expresses personal emotions, social events, life anxieties or the desire for freedom.

In today's music scene, these two types of art are integrating with each other and are appearing in new forms. In some modern songs, musical solutions combined with traditional instruments (for example, dutor, rubab, doira) or folk melodies are attracting many listeners.

Thus, traditional music is like a root, and modern music is like a branch and a fruit. The two are not opposites, but rather complementary cultural layers. Through this harmony, musical culture is enriched, developed, and rises to new levels while preserving its identity.

The musical heritage of the Uzbek people has a very rich and ancient history. Its wonderful traditions still retain their artistic and aesthetic value today. These traditions are an integral part of modern Uzbek musical culture. Tradition is not the end of the past, but a living force that inspires the new era, in fact, it is difficult to find any area of modern music that would not be inspired by the musical heritage, folk melodies and songs.

Main part. As is known, traditional Uzbek music has developed over the centuries in two main directions: folklore and professional. Traditional folk music, unlike folklore and the work of modern composers, has been called an independent direction by various names: folk music, traditional folk singing, classical music and others. Recently, more and more music has been called traditional folk singing.

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Although the history of traditional folk singing is very ancient and rich, it has never been as interesting as it is now. We hear maqoms, composers, and the melodies and songs they create on the radio waves and watch them on the television screen, and we get deep pleasure.

International and republican conferences are being held on various issues of traditional folk singing. In particular, in 1971 in Moscow, the World Congress on Tradition and Modernity, in 1973 in Almaty, the Asian Pulpit, in 1978 in Samarkand, the International Symposium on Traditional Folk Singing of the Peoples of the Middle and Near East and Modernity, scientific discussions on the prospects of traditional music were held. Recently, practical and theoretical mastery of traditional folk singing in higher, secondary and primary educational institutions has been well established.

Traditional folk singing, as a rule, has an independent artistic and aesthetic significance, without being directly related to rituals and life events. For example, works such as Ilgor, Bayot, Choli Iraq are not tied to any lifestyle or ritual, but can be performed in various conditions where their content is appropriate.

The development of traditional folk singing is closely related to the development of science. Its scientific and theoretical foundations have been thoroughly developed since ancient times. The theoretical foundations of traditional folk singing are reflected in the treatises of such great musicologists as Al-Farabi, Ibn Sina, and Urmavi. The remarkable achievements of Eastern musicology have served as an important support in the development of traditional folk singing. Therefore, the ideological (rationalistic) side of oral traditional folk singing has also been widely developed.

Today, traditional instrumental performance is actively integrating with pop, pop, rock and other genres. In particular, the adaptation of folk instruments such as dutor, tanbur, rubab and nay to new musical trends is highly appreciated by the international music community. This process, along with attracting a new audience to traditional performing arts, also contributes to the popularization of Uzbek folk instruments.

Cultural and aesthetic aspects of integration in modern music The integration of traditional instruments into modern music, on the one hand, allows for the preservation and development of national identity, and on the other hand, stimulates intercultural dialogue. As a result of this integration, new musical styles and innovative performance techniques are emerging. This expands the aesthetic possibilities of traditional instruments.

Modern music, where there is a cultural exchange between the two trends, draws inspiration from traditional music, processes it and presents it in a new form. For example: The melodies of the maqom are incorporated into modern pop songs; Popular verses of folk songs are sung in pop or rap style.

In the process of globalization, the integration of traditional music with modern musical forms is becoming increasingly stronger. The book "Traditional Musics in the Modern World" emphasizes that traditional melodies and styles are changing based on modern technologies, new stage requirements and the aesthetics of the younger generation. This does not lead to the loss of musical identity, but to its revival in a new form. For example, maqom and folk songs are being reinterpreted in modern rhythms and arrangements, finding their way into the hearts of the younger generation

In their book "The Future of Music," David Kusek and Gerd Leonhard call the music of the future "digital water." In their opinion, music will become a form that is constantly flowing, quickly delivered, and created not by humans, but also by artificial intelligence. In this process, the role of traditional music will also increase, because it is used as a source of inspiration. Creating new

compositions based on maqams and folk melodies through AI will be one of the directions of the future music industry.

Conclusion. Despite the fact that traditional and modern music are different directions, they are enriching musical culture through mutual influence and harmony. Traditional music is a reflection of the historical memory, cultural heritage, and spiritual wealth of the people. Modern music, on the other hand, is a product of technology, global influence, and individual expression. Today, the boundaries between these two directions are increasingly disappearing, and they can be seen complementing each other. In the future, the transformation in the field of music will deepen even further - the spiritual richness of traditional music will live on in a new form through modern technologies. In general, traditional and modern music are not contradictory, but rather complementary, developing forces that will make the future of music more diverse, rich and stable.

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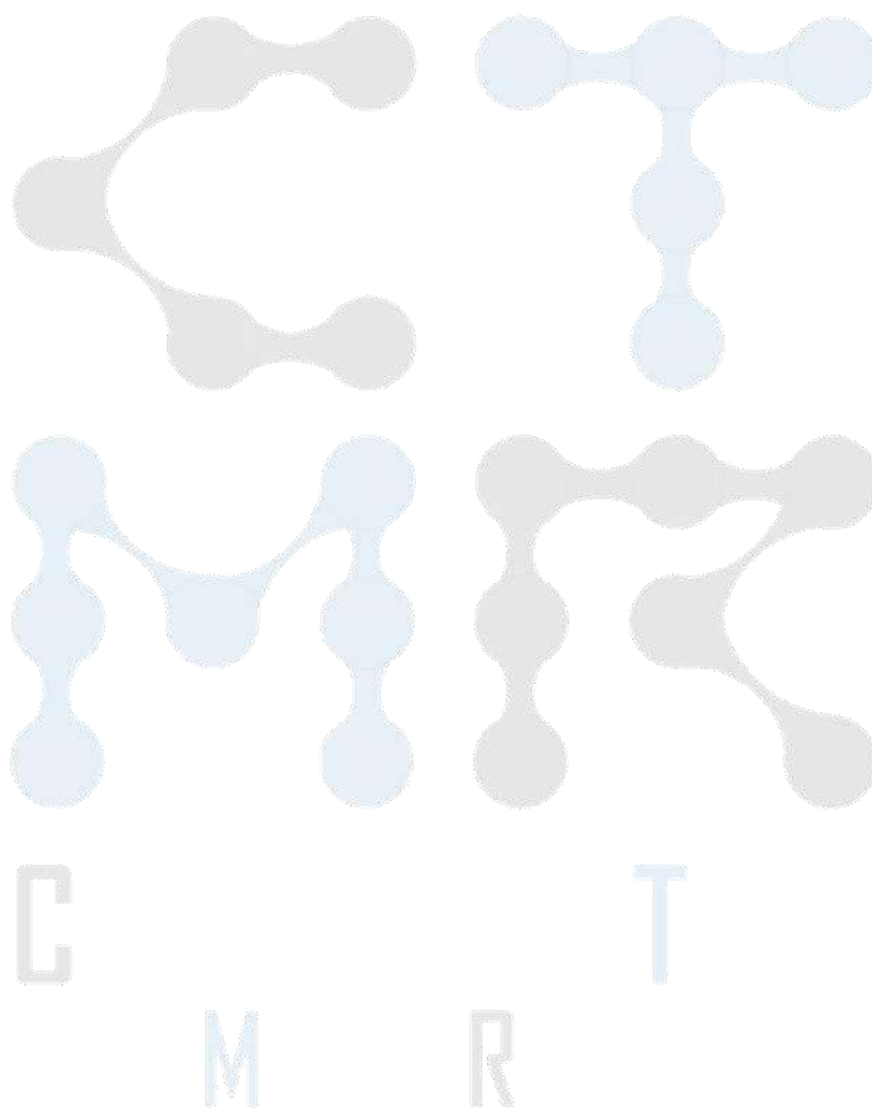
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РАЗНЫМ ПРОФЕССИОНАЛЬНЫМ ОБРАЗОВАНИЕМ. *PSIXOLOGIYA* Учредители:
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TYPHA LATIFOLIA O'SIMLIGI HAQIDA

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Annotatsiya: Maqolada *Typha latifolia* o'simligiga oid turli tarixiy adabiyotlardan materiallar va ma'lumotlarni o'rganish natijalari keltirilgan. *Typha latifolia* dan xalq tabobatida foydalanish haqida ko'plab ma'lumotlar to'plangan. O'simlikning turli organlaridan olingan dori shakllari va ulardan turli kasalliklarni davolashda foydalanish yo'llari ko'rsatilgan.

Kalit so'zlar: Yakan, Kengbarg qo'g'a, *Typha latifolia*, ildizpoya, uretrit, tsistit, yallig'lanishga qarshi, antibakterial.

Аннотация: В статье приводятся результаты изучения материалов и информации различных исторических литератур о растении *Typha latifolia*. Собран множества информации о применении *Typha latifolia* в народной медицине. Приведены лекарственные формы полученные из разных органов и применении их при лечении различных заболеваний.

Ключевые слова: Якан, Рогоз широколистный, *Typha latifolia*, корневище, уретрит, цистит, противовоспалительное, антибактериальное.

Annotation: The article presents the results of studying materials and information from various historical literatures about the plant *Typha latifolia*. A lot of information about the use of *Typha latifolia* in folk medicine has been collected. Medicinal forms obtained from different organs and their use in the treatment of various diseases are presented.

Key words: Yakan, broadleaf cattail, *Typha latifolia*, rhizome, urethritis, cystitis, anti-inflammatory, antibacterial.

Xozirgi vaqtda mamlakatimizda turli kasalliklarni davolashda qo'llanila-digan ko'plab dori preparatlari asosan chet davlatlardan import qilinadi. Import dori vositalari nisbatan qimmat bo'lganligi tufayli ularni sotib olishda va qo'llashda ko'plab muammolar vujudga keladi. Bu muammolarni xal qilishda mamlakatimizda yovvoyi xolda o'sadigan va o'stiriladigan o'simliklar tarkibini o'rganish, aniqlangan moddalar orasidan yuqori biologik faollikka ega bo'lgan moddalarni ajratib olish xamda tibbiyotga tavsiya qilish xozirgi zamonning dolzarb vazifalaridan biridir.

Dorivor o'simliklarni madaniy holda yetishtirish va qayta ishlash hamda davolashda ulardan keng foydalanishni tashkil etish chora-tadbirlari to'g'risida 20.05.2022 yildagi PQ-251-sonli O'zbekiston Respublikasi Prezidentining qarorida Dorivor o'simliklarni madaniy holda yetishtirish hamda qayta ishlashni tashkil etish, dorivor o'simliklarning madaniy plantatsiyalarini barpo etishni qo'llab-quvvatlash, shuningdek, kasalliklarning oldini olish va davolashda dorivor o'simliklarni keng qo'llash nazarda tutilgan.

Yuqoridagilarga asoslanib biz Xorazm voxasida keng tarqalgan va yovvoyi holda o'sadigan, mahalliy aholi tomonidan *Yakan* (Boshqa ko'pchilik viloyatlarda *Qo'g'a*) deb yuritiladigan, *Qo'g'adoshlar* (*Typhaceae*) oilasiga mansub *Kengbarg qo'g'a* (*Typha latifolia* L.) o'simligining kimyoviy tarkibini o'rganishni o'z oldimizga maqsad qilib oldik.

Kengbarg qo'g'a - balandligi 2 metrga yetadigan ko'p yillik ildizpoyali o'simlik. Poyasi qalin, bo'g'inlari turtib chiqmagan tekis silindrsimon, balandligi 1-2 m. Ildizpoyasi katta, sudralib yuruvchi va suvga unchalik chuqur bo'lmagan holda botib turadi. Barglari qattiq, chetlari butun, tasma shaklida, uzun, eni 2 sm gacha, kulrang-yashil rangga ega. Gullari bir jinsli, juda mayda, ingichka tuklardan iborat gulqo'rg'oni bor. Gul tizimi ikki qismdan iborat diametri 2,5 sm gacha bo'lgan uzun

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silindrsimon so'ta. So'ta baxmalsimon mayin bo'lib, kuzga borib jigarrang tusga kiradi. So'talar bahorgacha dekorativ shaklini saqlab qoladi, shundan so'ng ular mayda uchuvchan urug'larga parchalanib kuchziz shamolda ham uchib ketadi.

Kengbarg qo'g'a Rossiyaning Yevropa qismida iyun-iyul oylarida gullaydi, meva berish davri iyul-avgust oylariga to'g'ri keladi. Mevalar pishganidan so'ng, gullari to'kilib ketadi. Urug'lar poyada olti oygacha saqlanib qolishi mumkin. *Kengbarg qo'g'a* asosan urug'lar bilan ko'payadi va tarqaladi.

Kengbarg qo'g'a Yevroosiyo, Janubiy va Shimoliy Amerika va Afrikaning issiq, mo'tadil mintaqalarida keng tarqalgan. Avstraliya va Yangi Zelandiyada keltirib introduksiya qilingan. Rossiyaning Arktikadan tashqari deyarli barcha hududlarida uchraydi. *Kengbarg qo'g'a* Ukraina va Belorussiyada keng tarqalgan.

Kengbarg qo'g'a o'rmon botqoqlarida, o'rmonzorlarda, suv havzalari qirg'oqlarida, ariqlarda, kanallarda, karyerlarda, yo'l bo'ylarida o'sadi. U o'sib ko'paygan sayin keng to'qayzorlarni hosil qiladi.

Kengbarg qo'g'a dengiz sathidan 2300 m balandlikda ham uchraydi.

O'simlikning yer usti qismida, xususan, barglarida ko'p miqdorda askorbin kislotas, oqsil va oz miqdorda yog'lar mavjud.

Kengbarg qo'g'a ildizpoyalarida oshlovchi moddalar, shakar, kraxmal, kaltsiy oksalat, oqsillar va yog'lar topilgan. Shuningdek, ho'l ildizpoyada 66,5 % suv, 2 % sof oqsillar, 15,4 % kraxmal, 7,3 % kletchatka, 0,29 % yog'lar, 2,54 % kul mavjud. Quritigan ildizpoyada kraxmal ulushi 46 % gacha, kletchatka 21,7% gacha ko'tariladi.

Astraxan viloyatida o'sadigan *Kengbarg qo'g'a* 58 % gacha kraxmal va 11,7 % gacha uglevodlarni o'z ichiga oladi.

Kengbarg qo'g'a yallig'lanishga qarshi, antibakterial va yaralarni bitiruvchi ta'sirga ega. O'simlikning yosh novdalari vitamin C ombori bo'lib, ular vitamin yetishmasligi, kamqonlik, tsinga, mushaklar kuchsizligi va charchoq holatlarida ishlatiladi.

So'ta va gullar turli xil qon ketishlarda (oshqozon, ichak, gemorroyoidal) gemostatik vosita sifatida ishlatiladi. Ularni uretrit va tsistitda, shuningdek, ginekologik kasalliklarni davolash uchun ham ishlatish mumkin. So'ta momiqlari-dan tayyorlangan malham sovuq urganda va kuygan joylarni davolash uchun qo'llaniladi. Barglari va ildizpoyalarining damlamalari va qaynatmalari qonda qand miqdorini kamaytiruvchi, yallig'lanishga qarshi va burishtiruvchi ta'sir ko'rsatadi. Damlamalar va qaynatmalarni dizenteriya, enterokolit, tsistit va qandli diabetda ishlatilishi mumkin. So'talarning qaynatmasi bronxial astmani kompleks davolashda qo'llaniladi.

Kengbarg qo'g'aning yer ustki qismi va ildizpoyalarini xalq tabobatida ham dorivor mahsulot sifatida qo'llaniladi. Ildizpoyalarining qaynatmasi va barglarining damlamasi qon aralash diareya va og'iz bo'shlig'i yaralarini, kolit va dizenteriyani davolashda qo'llaniladi. Xalq tabobatida ildizpoyalarning suvli damlamasi oshqozon va ichaklarning katarida, diareya, dizenteriya, isitma va charchoqda qo'llaniladi.

Yer ustki qismlari dizenteriya, stomatit, parodontoz kasalliklarida ishlatiladi, momiqlari esa, sovuq urgandan keyingi yiringlash holatlarini davolashda ishlatiladi.

Qandli diabetda barglarning qaynatmasi tavsiya etiladi. Yanchilgan barglar va momiqlar qon to'xtatuvchi va antiseptik vosita sifatida jarohatlarga, kuygan, kesilgan va tinalgan yaralarga qo'yiladi.

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Xitoy tibbiyotida *Kengbarg qo'g'aning* gulchaglari kuchli qon ketish, mastit, suyak tuberkulyozi va to'qimalar nekrozini davolashda ishlatiladi.

Kengbarg qo'g'aning iste'mol qilsa bo'ladigan o'simlik ekanligi haqidagi ma'lumotlar antik botanik Teofrastning taxminan 2300 yil oldin yozilgan "O'simliklar bo'yicha tadqiqotlar" asarida uchraydi. Botanik Yunonistonning Orhomen shahri yaqinidagi Kopaid ko'lida o'sadigan *Kengbarg qo'g'a* o'simligini tasvirlaydi. Teofrast qo'g'aning foydali xususiyatlarini "ildizlari atrofida, ayniqsa, bolalar tomonidan iste'mol qilinadigan nozik qismi" bor – deya ta'kidlagan.

O'simlik Shimoliy Amerikaning ba'zi mahalliy xalqlari madaniyatining bir qismi bo'lgan. U oziq-ovqat va dori-darmonlar manbai sifatida ishlatilgan.

Ocharchilik yillarida *Kengbarg qo'g'a* vaqtincha oziq-ovqat o'rnini bosuvchi sifatida ko'p marta tavsiya etilgan.

Bundan tashqari, ma'lumki, *Kengbarg qo'g'aning* yengil "momig'i" bir vaqt-lar qutqarish kamzuli uchun to'ldiruvchi sifatida ishlatilgan.

XULOSALAR

1. Xorazm sharoitida yovvoyi holda o'sadigan *Typha latifolia* o'simligi haqida tarixiy va ilmiy adabiyotlarda keltirilgan ma'lumotlar o'rganildi va tadqiqotlar uchun xulosalar qilindi.
2. Xorazm sharoitida yovvoyi holda o'sadigan *Typha latifolia* o'simligining xalq tabobatida ishlatilgan tarixiy dori shakllari tayyorlash texnologiyalari o'rganildi.
3. Xorazm sharoitida yovvoyi holda o'sadigan *Typha latifolia* o'simligining xalq tabobatida ishlatilgan tarixiy dori shakllari tarkiblari o'rganildi.

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**СИНТЕЗ И ИЗУЧЕНИЕ ПРОТИВОВОСПАЛИТЕЛЬНЫХ
СВОЙСТВ НОВЫХ ПРОИЗВОДНЫХ ТИОМОЧЕВИНЫ**

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Аннотация: Приводятся результаты изучения синтеза новых производных тио-мочевина. Выявлены физико-химические параметры и противовоспалительные свойства вновь синтезированных соединений. По своей активности они существенно превосходят известное противовоспалительное средство бутадиион.

Ключевые слова: Тиомочевина, бензоилизотиоцианат, противовоспалительные свойства, реакционная смесь.

**ТИОМОЧЕВИНАНИНГ ЯНГИ ХОСИЛАЛАРИ СИНТЕЗИ ВА УЛАРНИНГ
ЯЛЛИГЛАНИШГА ҚАРШИ ТАЪСИРИНИ ЎРГАНИШ**

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Аннотация: Маколада тиомочевина янги хосилари синтезининг натижалари келтирилган. Янги синтезланган бирикмаларнинг физик-кимёвий ўлчамлари ва уларнинг яллигланишга қарши таъсирлари ўрганилган. Уларнинг фаоллиги ҳозирда яллигланишга қарши ишлатиладиган бутадиион препаратидан устунлиги аниқланган.

Калит сўзлар: Тиомочевина, бензоилизотиоцианат, яллигланишга қарши хусусиятлар, реакция аралашма.

**THE SYNTHESIS AND INVESTIGATION OF THIOUREAS
NEW DERIVATIVES UNTI-INFLAMMATORY PROPERTIES**

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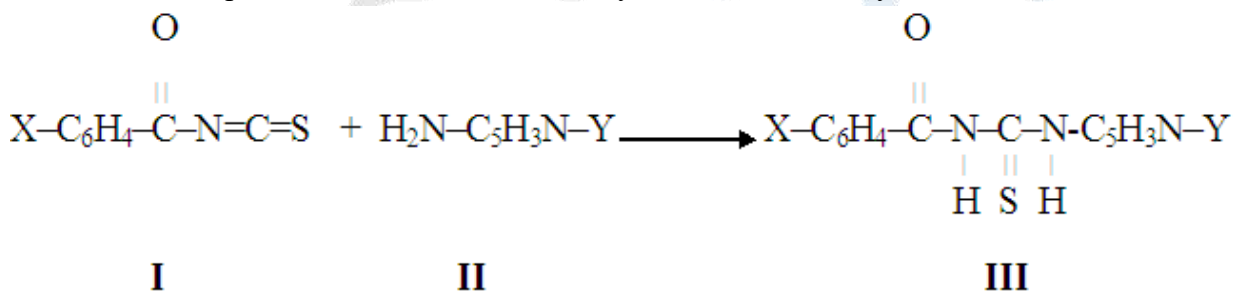
Annotation: The results of investigations and synthesis of thioureas new derivatives are given here. Physico-chemical parameters and anti-inflammatory properties of once more synthesized combinations were revealed. According to their activity they considerably excellbutadion, a well known anti-inflammatory preparation.

Key words: thiourea, benzoyl isothiocyanate, anti-inflammatory properties, reaction mixture.

В литературе известно, что многие производные тиомочевины обладают противовоспалительными, антимикробными, противоопухолевыми, антиаллергическими, противогрибковыми и другими ценными фармакологическими свойствами [1-3]. В связи с этим синтез новых производных тиомочевины и исследование фармакологических свойств вновь синтезированных соединений представляет научный и практический интерес.

С целью создания новых наиболее активных и малотоксичных препаратов на основе тиомочевины нами синтезированы ряд новых производных тиомочевины взаимодействием замещенных бензоилизотиоцианатов с первичными ароматическими аминами.

Синтез новых производных тиомочевины осуществили по следующей схеме:



Где: X = Cl, J.

Y = Cl.

Результаты проведенных исследований по синтезу новых производных тиомочевины приведены в таблице 1.

Синтез новых производных тиомочевины проводили по следующей методики [4]: В трехгорлую колбу, емкостью 250 мл, снабженную обратным холодильником с хлоркальциевой трубкой, автомешалкой и капельной воронкой, помещали 0,03 моля I в 70 мл диметилформамида. Содержимое колбы нагревали на водяной бане до 40-45°C и не прекращая перемешивания прибавляли по каплям 0,03 моля II в 70 мл диметилформамида.

Реакционную смесь выдерживали при перемешивании в течение 3,5 часов при температуре 80°C. По окончании реакции смесь охлаждали, добавляли 150 мл воды и 50 мл 5 %-ного раствора соляной кислоты. Целевой продукт 2-3 раза экстрагировали диэтиловым эфиром. Эфирные вытяжки промывали водой и сушили над безводным хлористым кальцием, фильтровали. После упаривания эфира полученный целевой продукт III очищали перекристаллизацией из бензола, а также методом тонкослойной хроматографии в системе этанол : ацетон (5:1). Хроматографию проводили в тонком слое Al₂O₃ II-ой степени активности.

Строение синтезированных новых производных тиомочевины доказаны данными элементного анализа и ИК-спектроскопией (табл.1).

Таблица 1.

Физико-химические параметры новых производных тиомочевины.

N П.п	Параметры	Новые производные тиомочевины		
		$C_{13}H_{10}N_3OSCl$	$C_{13}H_9N_3OSCl_2$	$C_{13}H_9N_3OSJCl$
1.	Элементный анализ:			
	Найдено, %			
	C	53,49	47,81	37,35
		53,50	47,86	37,39
	H	3,38	2,72	2,11
		3,39	2,79	2,21
	N	14,39	12,83	10,02
		14,43	12,91	10,11
	S	10,96	9,79	7,63
		11,01	9,84	7,67
	Вычислено, %			
	C	53,52	47,85	37,36
	H	3,43	2,76	2,15
	N	14,41	12,88	10,06
	S	10,98	9,81	7,66
2.	Выход продукта, %	88	73	67
3.	Темпер.пл.°C	149–50	136–37	168–69
4.	Rf	0,69	0,74	0,58
5.	ИК-спектры, cm^{-1} :			
	>C=S	1065	1060	1070
	-NHCS	1470	1465	1470
	-CH=CH-	1600	1610	1615
	>N-H	3410	3400	3415

В ИК-спектре проявляются полосы поглощения, характерные для >C=S связи в области $1060-70\text{ см}^{-1}$, в области $1465-70\text{ см}^{-1}$ для валентных колебаний -NHCS группы, полоса поглощения в области $1600-15\text{ см}^{-1}$ характерные для -CH=CH- групп фенильного радикала, полоса поглощения в области $3400-15\text{ см}^{-1}$ для >N-H группы. Далее нами изучены противовоспалительную активность вышеприведенных соединений. Опыты проводились на 60 белых крысах обоего пола массой 150-200 г на модели острого воспалительного отека, вызванного сублимтарным введением в заднюю лапу крыс 0,2 мл 1 % раствора формалина.

Таблица 2.

Противовоспалительная активность новых производных тиомочевины при формалиновом воспалении

N П.п	Препарат	Доза, мг/кг	Противовоспалительнаяакти вность, %
1.	$C_{13}H_{10}N_3OSCl$	50	37,0
		100	42,4
		200	46,6
2.	$C_{13}H_9N_3OSCl_2$	50	63,4
		100	54,9
		200	24,1
3.	$C_{13}H_9N_3OSJCl$	50	0
		100	24,9
		200	22,8
4.	Бутадион	50	31,1

Объем лапок измеряли до и через 1, 2, 4, 8 и 24 ч после инъекции формалина. Изучаемые соединения вводили перорально в дозах 50, 100 и 200 мг/кг четырехкратно за 72, 48, 24 и 1 час по введению флогенного агента. Для сравнения было взято широко применяемое нестероидное противовоспалительное средство – бутадион (50 мг/кг). Результаты исследований (табл.2) показывают, что все три изученные новые производные тиомочевины в той или иной степени оказывают противовоспалительное действие. По своей активности они существенно превосходят известное противовоспалительное средство бутадион.

Таким образом, результаты проведенных испытаний позволяют предполагать возможность применения вышеуказанных соединений в медицине в качестве средства для лечения воспалительных заболеваний.

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**MAKTABGACHA TA'LIMDA AXBOROT-KOMMUNIKATSIYA
TEXNOLOGIYALARINI QO'LLASHNING AHAMIYATI**

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Annotatsiya: Ushbu maqolada maktabgacha ta'lim tizimida axborot-kommunikatsiya texnologiyalaridan (AKT) foydalanishning o'rni va ahamiyati tahlil qilinadi. Ta'lim jarayonida AKTni qo'llashning samaradorlik omillari, innovatsion pedagogik yondashuvlar hamda ularning bolalarning bilish, ijodiy va mustaqil fikrlash qobiliyatlariga ta'siri yoritilgan. Shuningdek, "2022–2026 yillarga mo'ljallangan Yangi O'zbekistonning taraqqiyot strategiyasi" doirasida ta'lim tizimini raqamlashtirish va maktabgacha ta'limda AKTdan foydalanishni kengaytirish bo'yicha davlat siyosati asoslari tahlil etiladi.

Kalit so'z: axborot-kommunikatsiya texnologiyalari, maktabgacha ta'lim, raqamli ta'lim, innovatsion yondashuv, taraqqiyot strategiyasi, ta'lim sifati, raqamli savodxonlik, elektron resurs, multimedial ta'lim, interaktiv muhit, virtual o'quv muhiti, texnologik yondashuv.

**ЗНАЧЕНИЕ ПРИМЕНЕНИЯ ИНФОРМАЦИОННО-КОММУНИКАЦИОННЫХ
ТЕХНОЛОГИЙ В ДОШКОЛЬНОМ ОБРАЗОВАНИИ**

Аннотация: В данной статье анализируется роль и значение использования информационно-коммуникационных технологий (ИКТ) в системе дошкольного образования. Освещены факторы эффективности применения ИКТ в образовательном процессе, инновационные педагогические подходы и их влияние на познавательные, творческие способности и навыки самостоятельного мышления детей. Также анализируются основы государственной политики по цифровизации системы образования и расширению использования ИКТ в дошкольном образовании в рамках "Стратегии развития Нового Узбекистана на 2022-2026 годы".

Ключевые слова: информационно-коммуникационные технологии, дошкольное образование, цифровое образование, инновационный подход, стратегия развития, качество образования, цифровая грамотность, электронный ресурс, мультимедийное образование, интерактивная среда, виртуальная учебная среда, технологический подход.

**THE IMPORTANCE OF THE USE OF INFORMATION AND COMMUNICATION
TECHNOLOGIES IN PRESCHOOL EDUCATION**

Annotation: This article analyzes the role and importance of the use of information and communication technologies (ICT) in the preschool education system. Factors of effectiveness of the use of ICT in the educational process, innovative pedagogical approaches, and their influence on children's cognitive, creative, and independent thinking skills are highlighted. Also, within the framework of the "Development Strategy of New Uzbekistan for 2022-2026," the foundations of state policy on the digitalization of the education system and the expansion of the use of ICT in preschool education will be analyzed.

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Key words: information and communication technologies, preschool education, digital education, innovative approach, development strategy, quality of education, digital literacy, electronic resource, multimedia education, interactive environment, virtual learning environment, technological approach.

Zamonaviy ta'lim jarayonida axborot-kommunikatsiya texnologiyalarini (AKT) qo'llash ta'lim samaradorligini oshirish, yangi pedagogik yondashuvlarni joriy etish hamda bolalarning bilish qobiliyatlari, ijodiy fikrlashlari va muammoni yechish ko'nikmalarini rivojlantirishda muhim omil hisoblanadi. AKT ta'lim jarayonini interaktiv va dinamik muhitga aylantirib, bolalarning mustaqil o'rganishiga, ta'lim jarayonida faol ishtirok etishiga sharoit yaratadi.

Maktabgacha ta'lim tizimida AKTdan foydalanish nafaqat pedagogik jarayonlarni modernizatsiya qilishga, balki ta'limning shaxsga yo'naltirilgan modelini amalga oshirishga xizmat qiladi. Bu esa har bir bolaning individual o'qish uslubi va qobiliyatlarini inobatga olgan holda moslashtirilgan ta'lim dasturlarini ishlab chiqish imkonini beradi. Natijada, bolalarning ma'naviy, aqliy hamda ijodiy rivojlanishiga zamin yaratiladi.

O'zbekiston Respublikasining Konstitutsiyasida ta'lim sohasi ustuvor yo'nalish sifatida belgilangan bo'lib, unda davlat tomonidan ta'lim tizimini modernizatsiya qilish, innovatsion texnologiyalarni joriy etish hamda inklyuziv ta'limni rivojlantirishga alohida e'tibor qaratilgan. Konstitutsiyaning 50-moddasida har kimning ta'lim olish huquqiga egaligi qayd etilgan, maktabgacha ta'lim va tarbiya esa davlat nazorati ostida amalga oshirilishi belgilangan[1].

Mazkur yo'nalish "2022–2026 yillarga mo'ljallangan Yangi O'zbekistonning taraqqiyot strategiyasi" da ham o'z ifodasini topgan. Strategiyaning IV yo'nalishi — inson kapitalini rivojlantirish va sifatli ta'lim tizimini shakllantirish bo'yicha belgilangan vazifalarda raqamli ta'lim muhitini yaratish, barcha ta'lim bosqichlarida, jumladan, maktabgacha ta'lim tizimida AKTdan samarali foydalanish, pedagoglarning raqamli kompetensiyasini oshirish, ta'lim sifati va qulayligini ta'minlashga alohida urg'u berilgan.

Shuningdek, 2019 yilda qabul qilingan "Maktabgacha ta'lim va tarbiya to'g'risida"gi qonunda AKTni joriy etish, pedagoglarning malakasini oshirish va ta'lim sifatini yaxshilash masalalari huquqiy jihatdan mustahkamlab qo'yilgan[2]. Ushbu normativ-huquqiy asoslar Yangi O'zbekiston taraqqiyot strategiyasida belgilangan maqsadlar bilan uzviy bog'liq bo'lib, maktabgacha ta'limda innovatsion yondashuvlarni joriy etish orqali raqamli avlodni shakllantirish, intellektual va ijodiy salohiyatni rivojlantirishga xizmat qiladi.

Milliy pedagogika ilmining yirik vakillaridan biri N. Xo'jaev ta'kidlaganidek, maktabgacha ta'limda axborot-kommunikatsiya texnologiyalarini (AKT) samarali joriy etish pedagoglar uchun nafaqat yangi o'qitish metodlarini ishlab chiqish imkoniyatini yaratadi, balki ta'lim jarayonini individuallashtirish, ya'ni har bir bolaning qobiliyati va ehtiyojlarini inobatga olgan holda ta'limni tashkil etishga xizmat qiladi[3]. Olimning fikricha, AKT maktabgacha yoshdagi bolalarning o'rganish jarayoniga bo'lgan qiziqishini oshirib, ularni faol ishtirok etishga undaydi hamda bilish faoliyatining samaradorligini sezilarli darajada kuchaytiradi.

Mazkur yondashuv O'zbekiston Respublikasining Konstitutsiyasida hamda "Maktabgacha ta'lim va tarbiya to'g'risida"gi Qonunda belgilab berilgan ta'lim sohasiga oid asosiy tamoyillar bilan uzviy bog'liqdir. Konstitutsiyaning 50-moddasida ta'lim olish huquqi kafolatlanib, davlat tomonidan ta'lim tizimini takomillashtirish va innovatsion texnologiyalarni joriy etish ustuvor yo'nalish sifatida belgilangan. Shu bilan birga, "Maktabgacha ta'lim va tarbiya to'g'risida"gi Qonunda pedagogik

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faoliyatni zamonaviy axborot-kommunikatsiya texnologiyalariga asoslangan holda tashkil etish zarurligi alohida ta'kidlanadi.

Bu jihatlar "2022–2026 yillarga mo'ljallangan Yangi O'zbekistonning taraqqiyot strategiyasi"da ilgari surilgan "inson kapitalini rivojlantirish va zamonaviy ta'lim tizimini shakllantirish" yo'nalishlari bilan hamohangdir. Mazkur strategiyada ta'lim tizimining barcha bosqichlariga innovatsion yondashuvlarni tatbiq etish, AKTni keng joriy etish va raqamli pedagogika tamoyillarini kuchaytirish orqali ta'lim sifatini oshirish davlat siyosatining muhim tarkibiy qismi sifatida belgilangan.

Shu nuqtai nazardan qaraganda, maktabgacha ta'lim jarayonida AKTni samarali qo'llash nafaqat bolalarning bilish jarayoniga ijobiy ta'sir ko'rsatadi, balki pedagoglarning kasbiy salohiyatini oshirish, o'quv-tarbiyaviy jarayonni innovatsion usullar bilan boyitish imkonini beradi. Bu esa o'z navbatida "Yangi O'zbekiston – yangi ta'lim sifati" tamoyiliga muvofiq, bolalarning ijodiy fikrlash, mustaqil o'rganish va aqliy rivojlanishlarini qo'llab-quvvatlashda muhim omil bo'lib xizmat qiladi.

N. Xo'jaevning ta'kidlashicha, AKTdan maqsadli va oqilona foydalanish orqali maktabgacha yoshdagi bolalarda faollik, mustaqillik va o'rganishga bo'lgan ichki motivatsiya shakllanadi. Bu holat "Yangi O'zbekistonning taraqqiyot strategiyasi"da belgilangan barkamol, intellektual salohiyatli, raqamli tafakkurga ega avlodni tarbiyalash maqsadlariga to'liq javob beradi.

Xorijiy pedagogik tadqiqotlarda ham axborot-kommunikatsiya texnologiyalarining (AKT) ta'limdagi o'rni va ahamiyati keng ko'lamda o'rganilgan. Jumladan, amerikalik olim V. Xartning ta'kidlashicha, "AKT maktabgacha yoshdagi bolalar uchun interaktiv muhit yaratish orqali ta'limni yanada qiziqarli va samarali qiladi. Ushbu texnologiyalar yordamida bolalarning diqqatini jalb etish, ularni o'quv jarayonida faol ishtirok etishga undash mumkin, bu esa ularning bilimlarni chuqur va tizimli o'zlashtirishini rag'batlantiradi"[4]. Shuningdek, Yevropa pedagog olimlari K. Myuller va A. Smit AKTni joriy etish jarayonida pedagoglarning kasbiy tayyorgarligini oshirish va zamonaviy pedagogik strategiyalarni ishlab chiqish zarurligini ta'kidlaydilar. Ularning fikricha, ta'lim jarayonida AKTning samaradorligini ta'minlash, avvalo, pedagoglarning axborot-kommunikatsiya ko'nikmalarini chuqur rivojlantirishga bog'liq[5].

Mazkur yondashuvlar "2022–2026 yillarga mo'ljallangan Yangi O'zbekistonning taraqqiyot strategiyasi"da belgilangan ustuvor yo'nalishlar bilan uzviy uyg'unlikda namoyon bo'ladi. Strategiyada ta'lim tizimining barcha bosqichlarida, xususan, maktabgacha ta'lim sohasida raqamli texnologiyalarni joriy etish, pedagoglarning malakasini oshirish va ta'lim jarayonini innovatsion metodlar asosida tashkil etish davlat siyosatining muhim yo'nalishlaridan biri sifatida belgilangan. Shu bois, xorijiy tajribada e'tirof etilganidek, pedagoglarning AKTdan foydalanish bo'yicha malakasini oshirish milliy ta'lim sifatini yuksaltirishning muhim sharti sifatida e'tirof etiladi.

V. Ivanovning tadqiqotlariga ko'ra, agar maktabgacha ta'lim tashkilotlarida pedagoglarning axborot-kommunikatsiya texnologiyalariga oid ko'nikmalari yetarli darajada shakllanmagan bo'lsa, bu holat AKTning ta'lim jarayoniga ta'sirini cheklaydi[6]. Shu nuqtai nazardan, Yangi O'zbekiston taraqqiyot strategiyasida belgilanganidek, pedagoglarning kasbiy salohiyatini oshirish, innovatsion pedagogik metodlarni joriy etish hamda texnik-texnologik infratuzilmani mustahkamlash orqali AKTdan foydalanish samaradorligini ta'minlash dolzarb ahamiyat kasb etadi.

Davlat siyosati darajasida belgilangan mazkur vazifalar maktabgacha ta'lim tizimining raqamli transformatsiyasini jadallashtirish, ta'lim sifati va mazmunini zamonaviy bosqichga olib chiqish, pedagoglarning AKT sohasidagi kasbiy kompetensiyalarini rivojlantirish hamda bolalarning bilish faoliyatida innovatsion yondashuvlarni keng joriy etish uchun mustahkam zamin yaratadi.

Natijada, AKTning samarali joriy etilishi bolalarning o'quv motivatsiyasini oshiradi, ularning individual ehtiyojlarini hisobga olgan ta'limni tashkil etish imkonini beradi va shu orqali "Yangi O'zbekiston – raqamli avlodni tarbiyalash sari" maqsadiga xizmat qiladi.

Pedagoglarning axborot-kommunikatsiya texnologiyalaridan (AKT) samarali foydalanish qobiliyati ularning kasbiy rivojlanish darajasi, malaka oshirish jarayonida faol ishtiroki hamda doimiy o'quv-amaliy faoliyatda qatnashishiga bevosita bog'liqdir. Shu sababli, maktabgacha ta'lim tizimida AKTni joriy etish jarayonida pedagoglarning malakasini oshirishni tizimli va uzluksiz ravishda amalga oshirish zarur. Bunda faqatgina pedagoglarning malakasi emas, balki ta'lim muassasalarining texnik-texnologik ta'minoti, metodik qo'llab-quvvatlash tizimi va ma'naviy-motivatsion muhit ham AKTning samaradorligini belgilovchi muhim omillardandir.

Mazkur yondashuv "2022–2026 yillarga mo'ljallangan Yangi O'zbekistonning taraqqiyot strategiyasi"da belgilangan "inson kapitalini rivojlantirish va ta'lim sohasini raqamlashtirish" yo'nalishlari bilan bevosita uyg'unlikda. Strategiyada pedagoglarning raqamli kompetensiyalarini rivojlantirish, zamonaviy o'quv texnologiyalarini joriy etish, ta'lim tizimini innovatsion yondashuvlar asosida modernizatsiya qilish davlat siyosatining ustuvor vazifalari sifatida belgilangan[7]. Shu jihatdan, pedagoglarning AKT bo'yicha malakasini oshirish, ularni zamonaviy texnik vositalar bilan ishlashga tayyorlash va pedagogik jarayonga raqamli yondashuvni joriy etish strategik ahamiyatga ega.

Pedagoglarning AKT ko'nikmalarini rivojlantirish maqsadida muntazam ravishda o'quv kurslari, seminar va treninglar tashkil etilishi, ularning innovatsion texnologiyalardan samarali foydalanish imkoniyatlarini kengaytirish, shuningdek, maktabgacha ta'lim tashkilotlarini zamonaviy texnik vositalar bilan ta'minlash hamda metodik va axborot resurslar bazasini yaratish zarur. Bu jarayon Yangi O'zbekiston taraqqiyot strategiyasida ko'zda tutilgan "raqamli ta'lim infratuzilmasini mustahkamlash" maqsadi bilan hamohang bo'lib, maktabgacha ta'lim tizimini modernizatsiya qilishga xizmat qiladi.

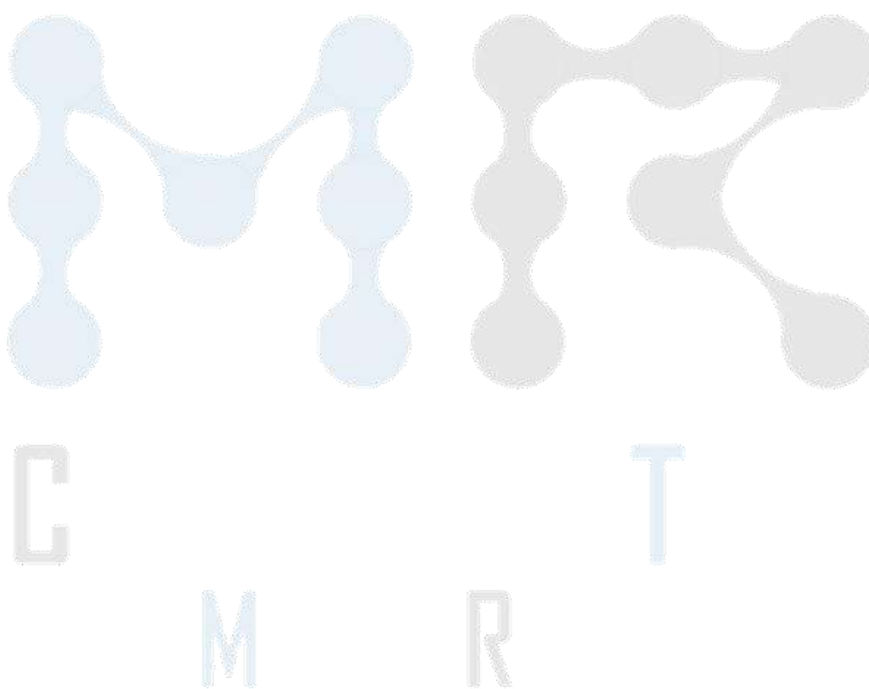
Maktabgacha ta'limda AKT asosida ta'limiy faoliyatni tashkil etishning mazmuni, pedagogik ahamiyati va amaliy yo'nalishlarini chuqur o'rganish orqali pedagogik jarayonga yangi innovatsion texnologiyalarni tatbiq etish imkoniyatlari kengayadi. Milliy va xorijiy tajribalarning tahlili shuni ko'rsatadiki, AKTdan foydalanish pedagoglarning kasbiy salohiyatini oshirish, ta'lim jarayonini individuallashtirish hamda bolalarda bilish, ijodiy va kommunikativ qobiliyatlarni rivojlantirishda samarali vosita hisoblanadi.

Shu bilan birga, Yangi O'zbekistonning taraqqiyot strategiyasida ta'lim tizimini inson kapitali rivoji uchun eng muhim omil sifatida belgilanishi, AKTni samarali qo'llash orqali ta'lim sifatini oshirish, pedagoglar malakasini doimiy takomillashtirish va ta'lim jarayonini raqamli muhitga moslashtirish zarurligini yanada dolzarb qiladi.

Natijada, AKTlarning samarali joriy etilishi maktabgacha ta'lim tizimida bolalarning bilish faoliyatini faollashtiradi, ularning mustaqil fikrlash, muloqot va ijodiy ko'nikmalarini rivojlantiradi hamda "Yangi O'zbekiston – innovatsion ta'lim sari" konsepsiyasida belgilangan raqamli avlodni shakllantirishga xizmat qiladi.

Foydalanilgan adabiyotlar ro'yxati

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ZAMONAVIY TARAQQIYOT SHAROITIDA CHET TILLARINI O'QITISHGA
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Abstract: This article analyzes the social, cultural and economic significance of teaching foreign languages in the context of modern development. The reforms being carried out in the system of teaching foreign languages in the Republic of Uzbekistan, the impact of modern pedagogical technologies and state policy are scientifically covered. Also, the initiatives of our President Sh. M. Mirziyoyev in the field of learning foreign languages, the reforms implemented within the framework of the concept "New Uzbekistan - on the path of development and enlightenment" are analyzed.

Keywords: foreign language, innovation, globalization, methodology, competence, modern education, Mirziyoyev, language policy.

Annotatsiya: Ushbu maqolada zamonaviy taraqqiyot sharoitida chet tillarini o'qitishning ijtimoiy, madaniy va iqtisodiy ahamiyati tahlil qilinadi. O'zbekiston Respublikasida xorijiy tillarni o'qitish tizimida olib borilayotgan islohotlar, zamonaviy pedagogik texnologiyalar va davlat siyosatining ta'siri ilmiy asosda yoritilgan. Shuningdek, Prezidentimiz Sh. M. Mirziyoyevning chet tillarini o'rganish sohasidagi tashabbuslari, "Yangi O'zbekiston — taraqqiyot va ma'rifat yo'lida" konsepsiyasi doirasida amalga oshirilgan islohotlar tahlil qilinadi.

Kalit so'zlar: chet tili, innovatsiya, globalizatsiya, metodika, kompetensiya, zamonaviy ta'lim, Mirziyoyev, til siyosati.

Kirish

Bugungi kunda chet tillarini o'rganish — zamonaviy jamiyat taraqqiyotining ajralmas tarkibiy qismidir. Globallashuv, axborot almashinuvi va xalqaro integratsiya jarayonlari chet tillariga bo'lgan ehtiyojni keskin oshirdi. O'zbekiston Respublikasida ham mustaqillikdan so'ng bu soha davlat siyosatining ustuvor yo'nalishlaridan biriga aylandi.

Prezident Shavkat Mirziyoyev bu borada shunday degan edi:

➤ "Bugungi kunda chet tillarini bilish — bu shunchaki qo'shimcha bilim emas, balki hayot zarurati, zamonaviy insonning hayotiy ehtiyoji" [1].

O'zbekiston ta'lim tizimida olib borilayotgan islohotlar yoshlarning xalqaro maydonda raqobatbardosh bo'lishini ta'minlashga qaratilgan. 2021-yilda "Chet tillarini o'qitish tizimini yanada takomillashtirish to'g'risida"gi Prezident qarori (PQ-5117) qabul qilinib, unda maktabgacha ta'limdan boshlab oliy ta'limgacha bo'lgan barcha bosqichlarda xorijiy tillarni o'qitish majburiy tarzda yo'lga qo'yildi.

Tadqiqot metodlari

Tadqiqot jarayonida quyidagi metodlardan foydalanildi:

1. Nazariy tahlil — chet tillarini o'qitish metodikasiga oid zamonaviy ilmiy manbalar o'rganildi (Brown, 2019; Richards, 2020).

2. Taqqoslash metodi — an'anaviy grammatika- tarjima metodlari bilan kommunikativ, interfaol metodlar solishtirildi.
3. Empirik kuzatuv — Toshkent davlat sharqshunoslik universiteti, Jahon tillari universiteti va viloyat filologiya fakultetlarida olib borilayotgan dars jarayonlari tahlil qilindi.
4. So'rovnoma — 150 nafar talaba va 30 nafar o'qituvchi o'rtasida chet tillarini o'rganish motivatsiyasi bo'yicha so'rov o'tkazildi.
5. Statistik tahlil — so'rov natijalariga asoslanib o'quvchilarning o'zlashtirish darajalari foizlarda aniqlangan.

Natijalar

Tadqiqot davomida to'plangan nazariy va amaliy ma'lumotlar asosida quyidagi muhim natijalar aniqlandi:

1. Davlat siyosati va strategik yondashuv

O'zbekiston Respublikasida chet tillarini o'qitish sohasida olib borilayotgan islohotlar izchil tarzda davlat siyosati darajasiga ko'tarilgan. Xususan, 2021-yil 19-maydagi PQ-5117-son qaror bilan xorijiy tillarni o'qitish tizimi tubdan isloh qilindi. Ushbu qaror asosida maktabgacha ta'lim muassasalaridan boshlab oliy ta'limgacha bo'lgan barcha bosqichlarda chet tillarini o'rganish majburiy fan sifatida belgilandi [2].

Shuningdek, 2022-yilda tasdiqlangan "Ta'limni rivojlantirish strategiyasi – 2030" konsepsiyasida chet tillarini bilish darajasi yoshlarning raqobatbardoshligini belgilovchi mezonlardan biri sifatida qayd etilgan [4].

Prezident Sh. M. Mirziyoyev bu borada shunday degan edi:

➤ "Biz yoshlarga xorijiy tillarni o'rganish uchun barcha imkoniyatlarni yaratamiz. Chunki til – bu dunyoga ochilgan eshik, bu bilim va taraqqiyot kalitidir" [3].

2. O'qituvchilar malakasining oshishi

2017–2024 yillar oralig'ida respublika bo'ylab 25 mingdan ortiq chet tili o'qituvchilari IELTS, TOEFL, yoki CEFR kabi xalqaro sertifikatlar asosida malakasini oshirgan. Xalq ta'limi vazirligining 2024-yilgi hisobotiga ko'ra, bu ko'rsatkich 2016-yilga nisbatan 4 barobarga oshgan [7].

Ayni paytda "O'qituvchi – mentor" dasturi orqali tajribali pedagoglar yosh o'qituvchilarga zamonaviy metodika asosida treninglar o'tkazmoqda.

3. Raqamli ta'lim texnologiyalarining joriy etilishi

So'nggi yillarda xorijiy tillarni o'qitish jarayonida raqamli ta'lim vositalari faol joriy qilinmoqda. Maktab va universitetlarda Duolingo, Kahoot, Quizizz, British Council Learning Hub, BBC Learning English kabi onlayn platformalardan foydalanish 60% dan oshgan.

O'zbekistonlik IT mutaxassislar tomonidan ishlab chiqilgan "Lingua Progress" va "Online English Academy" platformalari esa milliy ta'lim dasturlariga moslashtirilgan bo'lib, o'quvchilarga individual tezlikda o'rganish imkonini bermoqda.

Shuningdek, sun'iy intellektga asoslangan o'quv dasturlari orqali talaffuz, tinglab tushunish va yozma nutq ko'nikmalarini avtomatik baholash imkoniyati yaratilgan. Bunday texnologiyalar o'quvchilarni mustaqil o'rganishga rag'batlantiradi.

4. O'quv dasturlari va metodik yondashuvlardagi yangiliklar

Bugungi kunda ta'lim tizimida kompetensiyaga asoslangan o'quv dasturlari joriy etilgan. Endilikda darslar faqat grammatik bilimni emas, balki amaliy muloqot ko'nikmalarini rivojlantirishga yo'naltirilmoqda.

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Masalan, 2023-yilda ingliz tili darslarida CLIL (Content and Language Integrated Learning) metodikasi asosida o'quvchilar boshqa fanlarni ham ingliz tilida o'rganishga kirishgan. Bu esa tilni faqat dars jarayonida emas, balki real kontekstda qo'llashga o'rgatadi.

5. O'quvchilar motivatsiyasi va natijalari

O'tkazilgan sotsiologik so'rovda 150 nafar talaba va 30 nafar o'qituvchi ishtirok etdi. Natijalarga ko'ra:

78% talabalar chet tilini o'rganish sababini xorijda o'qish va ish topish bilan bog'lagan;

15% respondentlar o'zining ilmiy faoliyatini xalqaro miqyosda davom ettirishni maqsad qilgan;

7% esa chet tillarini o'zining madaniy dunyoqarashini kengaytiruvchi vosita sifatida ko'rgan.

Bu raqamlar yoshlar orasida til o'rganishga bo'lgan ijobiy motivatsiya va ijtimoiy talab yuqoriligini ko'rsatadi.

Prezident Mirziyoyev ta'kidlaganidek:

➤ “Biz yoshlarimizni zamonaviy bilim va chet tillarini puxta egallagan, mustaqil fikrlaydigan insonlar qilib tarbiyalashimiz zarur. Chunki kelajagimiz ularning qo'lida” [1].

6. Xalqaro hamkorlik

Bugungi kunda O'zbekistonning 20 dan ortiq mamlakati bilan chet tillarini o'qitish sohasida hamkorlik memorandumi imzolangan. Britaniya Kengashi, Amerika elchixonasi, Fransiya instituti, Germaniya Goethe instituti kabi tashkilotlar bilan hamkorlikda o'qituvchilar uchun treninglar va grant dasturlari yo'lga qo'yilgan.

Natijada, har yili minglab o'quvchi va talabalar xalqaro dasturlar orqali xorijda malaka oshirish imkoniga ega bo'lmoqda.

7. Tahlil yakunlari

Umumiy natijalar shuni ko'rsatadiki:

Chet tillarini biluvchi yoshlar soni har yili o'rtacha 12–15% ga ortmoqda;

2024-yilda 11-sinf bitiruvchilarining 40% dan ortig'i ingliz tili bo'yicha CEFR B1 darajasini egallagan;

Oliy ta'lim muassasalarida ingliz tilida olib boriladigan darslar soni 2018-yilga nisbatan 3 barobarga oshgan;

Til o'rganishga qaratilgan davlat grantlari va xususiy kurslar soni ham 2020-yildan 2024-yilgacha 2,5 barobar ko'paygan.

Muhokama

Olingan natijalar shuni ko'rsatadiki, O'zbekiston ta'lim tizimi bosqichma-bosqich xalqaro standartlarga yaqinlashmoqda. Chet tillarini o'qitish jarayonida kompetensiyaga asoslangan yondashuv, CLIL (Content and Language Integrated Learning) va kommunikativ metod keng qo'llanmoqda.

Pedagogik innovatsiyalar — bu jarayonning markaziy elementi. Darslarda interfaol usullar (rol o'ynash, debat, loyiha asosida o'qitish) va AKT (axborot-kommunikatsiya texnologiyalari) vositalaridan foydalanish o'quvchilarni faollikka, mustaqil fikrlashga undaydi.

O'zbekistonning 2030-yilgacha mo'ljallangan “Ta'limni rivojlantirish strategiyasi”da xorijiy tillarni o'rganish davlat ahamiyatiga molik masala sifatida ko'rsatilgan. Bu esa nafaqat til o'rganishni, balki milliy iqtisodiyot, turizm, diplomatiya va ilm-fan sohalarining ham rivojiga xizmat qiladi [4].

O'zbekiston Respublikasida chet tillarini o'qitish tizimida amalga oshirilayotgan islohotlar mamlakatning global maydondagi raqobatbardoshligini ta'minlashga qaratilgan strategik chora-

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tadbirlar majmuasidir. Chet tillarni o'rganish jarayonida qo'llanilayotgan zamonaviy pedagogik yondashuvlar (kompetensiyaga asoslangan ta'lim, kommunikativ metod, CLIL texnologiyasi, interfaol metodlar) o'quvchilarda nafaqat lingvistik bilim, balki madaniy va ijtimoiy kompetensiyalarni ham rivojlantirishga xizmat qilmoqda.

So'nggi yillarda raqamli ta'lim texnologiyalarining keng joriy etilishi ta'lim sifati va samaradorligiga sezilarli ta'sir ko'rsatmoqda. Masalan, sun'iy intellekt asosidagi dasturlar o'quvchilarning talaffuz, yozma va tinglab tushunish ko'nikmalarini avtomatik tahlil qilish orqali individual yondashuvni ta'minlamoqda. Bu esa o'qituvchining yuklamasini kamaytirish bilan birga, o'quvchilarning mustaqil ta'lim olish imkoniyatlarini kengaytirmoqda.

Bundan tashqari, o'quvchilarning motivatsiyasi va ijtimoiy ehtiyoji ham til o'rganish jarayonida muhim omil sifatida namoyon bo'lmoqda. O'tkazilgan so'rov natijalariga ko'ra, respondentlarning aksariyati chet tilini o'rganishni xorijda o'qish, xalqaro ish imkoniyatlariga ega bo'lish yoki madaniy dunyoqarashini kengaytirish istagi bilan bog'lagan. Bu holat O'zbekiston yoshlarining global fuqarolik kompetensiyalariga ega bo'lish sari intilayotganini ko'rsatadi.

Shuningdek, o'qituvchilarning kasbiy malakasini oshirish masalasi ham ta'lim tizimining asosiy yo'nalishlaridan biriga aylandi. IELTS, TOEFL, CEFR kabi xalqaro sertifikat tizimlarining joriy etilishi, "O'qituvchi – mentor" dasturi orqali tajribali pedagoglarning yosh mutaxassislariga ko'mak berishi ta'lim sifatini oshirishda muhim omil bo'lib xizmat qilmoqda.

Bundan tashqari, xalqaro hamkorlikning kengayishi — chet tillarini o'qitish tizimida sifatli o'zgarishlarni rag'batlantiruvchi muhim omildir. Britaniya Kengashi, Goethe Instituti, Amerika elchixonasi, Fransiya instituti kabi xalqaro tashkilotlar bilan hamkorlikda o'tkazilayotgan trening va grant dasturlari O'zbekiston ta'lim tizimini xalqaro standartlarga yaqinlashtirmoqda. Bu esa mamlakatda ko'p tillilik muhitini shakllantirishga asos yaratmoqda.

Muhokama jarayonida aniqlanganidek, chet tillarini o'qitishda metodik innovatsiyalar muhim o'rin tutadi. An'anaviy grammatika-tarjima metodlarining o'rnini bosayotgan kommunikativ, loyihaviy, integrativ yondashuvlar o'quvchilarning amaliy nutq faoliyatini rivojlantirishga xizmat qilmoqda. Bu esa yoshlarning tilni nafaqat o'rganish, balki uni real hayotiy vaziyatlarda qo'llay olish ko'nikmasini mustahkamlaydi.

Yana bir muhim jihat — chet tillarini o'qitishning iqtisodiy va madaniy ta'siri. Chet tilini puxta biluvchi kadrlar xalqaro biznes, diplomatiya, turizm va fan sohalarida faol ishtirok etib, mamlakatning iqtisodiy va madaniy nufuzini oshirmoqda. Shu ma'noda, chet tillarini o'rganish shaxsiy taraqqiyotdan tashqari, milliy manfaatlarga ham xizmat qiluvchi jarayon sifatida qaraladi.

Xulosa qilib aytganda, muhokama natijalari shuni ko'rsatadiki, O'zbekiston chet tillarini o'qitish bo'yicha bosib o'tayotgan yo'l tizimli, bosqichma-bosqich va strategik yondashuv asosida amalga oshirilmoqda. Bu jarayon Yangi O'zbekiston ta'lim siyosatining ustuvor yo'nalishi sifatida davlat va jamiyat e'tiborida qolmoqda.

Xulosa

Yuqoridagi tahlillar shuni ko'rsatadiki, zamonaviy taraqqiyot sharoitida chet tillarini o'qitish — mamlakatning intellektual va iqtisodiy rivojlanishining muhim omili hisoblanadi. O'zbekiston Respublikasida ushbu yo'nalishda olib borilayotgan islohotlar ta'lim sifatini oshirish, o'quvchilar va o'qituvchilarni xalqaro standartlarga moslashtirish, raqamli texnologiyalarni joriy etish va metodik yangiliklarni amaliyotga tatbiq etishga qaratilgan.

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Prezident Sh. M. Mirziyoyevning tashabbuslari bilan chet tillarini o'rganish davlat siyosati darajasiga ko'tarilib, har bir fuqaroga xorijiy tilni egallash uchun teng imkoniyatlar yaratilmoqda. Shu orqali yoshlar global bilim makoniga integratsiyalashmoqda, ularning dunyoqarashi, tafakkuri va ijodiy salohiyati kengaymoqda.

Chet tillarini o'rganish:

- shaxsning raqobatbardoshligini oshiradi;
- xalqaro aloqalarni rivojlantiradi;
- milliy iqtisodiyotning innovatsion o'sishiga xizmat qiladi;
- madaniyatlararo muloqotni mustahkamlaydi.

Kelajakda bu yo'nalishda quyidagi vazifalarning amalga oshirilishi maqsadga muvofiqdir:

• O'qituvchilarni xalqaro malaka standartlariga muvofiq muntazam qayta tayyorlash va sertifikatlash tizimini yanada kuchaytirish;

- Sun'iy intellekt asosidagi interfaol ta'lim platformalarini yanada rivojlantirish;
- Mahalliy o'quv dasturlarini xalqaro ta'lim standartlariga uyg'unlashtirish;

O'quvchilarda ko'p tillilik kompetensiyasini shakllantirish orqali ularning global mehnat bozorida raqobatbardoshligini oshirish.

Shunday qilib, chet tillarini o'qitish O'zbekistonda nafaqat ta'lim sohasining, balki butun jamiyatning taraqqiy etgan, ochiq va innovatsion rivojlanishga yo'naltirilgan qiyofasini shakllantiruvchi strategik yo'nalish sifatida namoyon bo'lmoqda. Bu jarayon mamlakatning "Yangi O'zbekiston — taraqqiyot va ma'rifat yo'lida" konsepsiyasida belgilangan maqsadlar bilan uzviy uyg'unlikda davom etmoqda.

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Axborot texnologiyalari va internet madaniyatiga oid o'zlashmalar

Urganch RANCH texnologiya universiteti

Jahon tillari kafedrasida dotsenti

Xodjayeva Gulshod Baxadirovna

Annotatsiya

Mazkur maqolada axborot texnologiyalari va internet madaniyatiga oid o'zlashmalar hamda ularning o'zbek tiliga ta'siri tahlil qilinadi. Tadqiqotda german tillaridan kirib kelgan texnik, dasturlash va madaniyatga oid atamalar o'rganilgan. Shuningdek, bu o'zlashmalarning ijobiy (til boyligini kengaytirish, global aloqa imkoniyatlarini oshirish) va salbiy (til me'yorlariga ta'siri, o'ziga xoslikni yo'qotish) jihatlari yoritilgan. Maqola yakunida o'zlashmalarni me'yorlashtirish va ularning o'zbekcha ekvivalentlarini yaratish zarurligi ta'kidlanadi.

Kalit so'zlar: o'zlashmalar, axborot texnologiyalari, internet madaniyati, ingliz tili, german tillari, texnik terminlar, dasturlash, globalizatsiya, til rivoji, me'yorlash.

Аннотация

В статье рассматриваются заимствования, связанные с информационными технологиями и интернет-культурой, а также их влияние на узбекский язык. В исследовании анализируются технические, программные и культурные термины, вошедшие в узбекский язык в основном через германские языки. Освещаются как положительные стороны (обогащение словарного запаса, расширение возможностей глобального общения), так и отрицательные (искажение языковых норм, утрата самобытности). В заключение подчеркивается необходимость нормализации заимствований и создания их узбекских эквивалентов для гармоничного развития языка.

Ключевые слова: заимствования, информационные технологии, интернет-культура, английский язык, германские языки, технические термины, программирование, глобализация, развитие языка, нормализация.

Abstract

This article analyzes borrowings related to information technology and internet culture and their impact on the Uzbek language. The study explores technical, programming, and cultural terms borrowed mainly from German languages. Both positive aspects (enrichment of vocabulary, facilitation of global communication) and negative aspects (distortion of linguistic norms, loss of linguistic identity) are discussed. The article concludes that standardizing borrowings and creating appropriate Uzbek equivalents are essential for the balanced development of the Uzbek language.

Keywords: borrowings, information technology, internet culture, English, Germanic languages, technical terms, programming, globalization, language development, standardization.

Hozirgi kunda axborot texnologiyalari va internet madaniyati tez rivojlanib bormoqda. Bu jarayon nafaqat jamiyatni, balki uning tilini ham tubdan o'zgartirmoqda. O'zbek tili uchun ham axborot texnologiyalari va internet madaniyatiga oid yangi o'zlashmalar muhim rol o'ynay boshladi. Ko'plab yangi so'zlar ingliz tili orqali, ba'zan esa bevosita german tillaridan o'zlashtirilgan. O'zlashmalar nafaqat tilning leksikasiga ta'sir qiladi, balki tilning grammatik tuzilishiga ham yangi elementlarni kiritadi. Ushbu maqolada axborot texnologiyalari va internet madaniyatiga oid o'zlashmalarni ilmiy tahlil qilish orqali ularning o'zbek tiliga qanday kirib kelganini va bu jarayonning tilga ta'sirini o'rganishga harakat qilamiz. Axborot texnologiyalari (AT) va internet madaniyatining

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o'zlashmalariga oid so'zlarning o'zbek tiliga kirib kelishi asosan **ingliz tili** orqali amalga oshgan. Ingliz tili global kommunikatsiya va ilmiy-texnikaviy aloqalarning asosiy tili sifatida axborot texnologiyalari sohasida yetakchi rol o'ynamoqda. Shuningdek, ingliz tili orqali ko'plab o'zlashmalar ham o'zbek tiliga kirgan. Shuning uchun, axborot texnologiyalariga oid so'zlar nafaqat ingliz tilidan, balki nemis tili va boshqa german tillaridan kelgan atamalardir.

Internetning paydo bo'lishi bilan bog'liq yangi tushunchalar va atamalarni o'rganishda, **ingliz tili** orqali germancha ildizli atamalar keng tarqalgan. Misol uchun, **“startup”** (startup), **“freelans”** (freelance), **“blogger”** (blogger), **“server”**, **“hakaton”** (hackathon) kabi so'zlar aslida ingliz tilida paydo bo'lgan. Shunday qilib, axborot texnologiyalari va internet madaniyatiga oid o'zlashmalar birinchi navbatda texnologik yutuqlar va biznes rivojlanishi bilan bog'liq. Internetning kundalik hayotimizga kirib kelishi bilan bu atamalar o'zbek tiliga kirib, tilning yangi leksikasini tashkil eta boshladi.

Axborot texnologiyalari sohasidagi eng keng tarqalgan o'zlashmalar texnik va dasturlash bilan bog'liq so'zlar bo'lib, ular nafaqat mutaxassislar tomonidan, balki keng auditoriya tomonidan ishlatilmoqda. Ba'zi o'zlashmalar quyidagi guruhlariga bo'linadi:

- **Texnik asbob-uskunalar nomlari:** Bu turdagi so'zlar asosan kompyuter texnikasi va mobil qurilmalarga oid atamalardir. Misol uchun:

- **“kompyuter”** (computer),
- **“printer”**,
- **“monitor”**,
- **“modem”**,
- **“skaner”**.

Bu so'zlar o'zbek tiliga kirib kelganida, ular dastlabki inglizcha shaklida ishlatilmoqda. Biroq, ba'zan o'zbekcha muqobillari ham kiritilgan: masalan, **“skaner”** o'rniga **“tasvir chiqarish qurilmasi”** atamasi qo'llaniladi.

- **Dasturlash va tizimlar bilan bog'liq so'zlar:** Bu atamalar, asosan, kompyuter dasturlash va tizimlarni yaratish bilan bog'liq. Misollar:

- **“server”** (server),
- **“database”** (ma'lumotlar bazasi),
- **“programming”** (dasturlash),
- **“algorithm”** (algoritm),
- **“code”** (kod).

Dasturlashga oid so'zlar ko'pincha inglizcha bo'lib, o'zbek tilida to'g'ri talqin qilinishi kerak. Biroq, ba'zi so'zlar o'zbek tiliga bevosita kirmagan, lekin ular ingliz tilidan kirib kelgan so'zlar orqali o'zbek tiliga kiradi.

Internet va axborot texnologiyalarining ommalashishi bilan bog'liq so'zlar o'zbek tilida yangi madaniy fenomenlarni keltirib chiqardi. Bu so'zlar orasida quyidagilarni keltirish mumkin:

- **“blogger”** (blogger) – internetda blog yurituvchi shaxs,
- **“startup”** (startup) – yangi texnologik loyiha,
- **“freelans”** (freelance) – mustaqil ishchi,
- **“kontent”** (content) – axborot materiali,
- **“podkast”** (podcast) – audio yoki video dastur.

Ushbu o'zlashmalar o'zbek tiliga ingliz tili orqali kirib kelgan atamalardir. Internet madaniyatiga oid bu o'zlashmalar nafaqat professional sohada, balki keng omma orasida ham keng qo'llanilmoqda.

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Ular nafaqat soʻz boyligini kengaytiradi, balki kommunikatsiya jarayonini ham tezlashtiradi va soddalashtiradi.

Axborot texnologiyalari va internet madaniyatiga oid oʻzlashmalar oʻzbek tilining boyishiga yordam beradi. Bu soʻzlar yangi bilimlar va tushunchalarni ifodalashda muhim rol oʻynaydi. Masalan, "**startup**" yoki "**blogger**" kabi soʻzlar oʻzbek tiliga kiritilib, yangi soha va faoliyat turini ifodalaydi. Shuningdek, bu atamalar tilning zamonaviy, global muhitda ishlatilish imkoniyatlarini kengaytiradi.

Axborot texnologiyalari va internet madaniyatiga oid oʻzlashmalar oʻzbek tiliga global kommunikatsiya va madaniyatning bir qismi sifatida kirib kelmoqda. Bu oʻzlashmalar tilning leksikasini boyitadi va yangi tushunchalarni ifodalash imkoniyatini yaratadi. Biroq, ularning notoʻgʻri ishlatilishi va tilga zarar yetkazishi mumkin. Shuning uchun oʻzlashmalarni meʼyorlashtirish, ularni toʻgʻri qoʻllash va zarur boʻlsa, oʻzbekcha ekvivalentlarini yaratish zarur.

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СРАВНИТЕЛЬНЫЙ АНАЛИЗ РУССКИХ И УЗБЕКСКИХ НАРОДНЫХ СКАЗОК В
КУЛЬТУРНО-ИСТОРИЧЕСКОМ КОНТЕКСТЕ

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Аннотация. В статье рассматривается культурно-исторический контекст русских и узбекских народных сказок. Проводится сравнительный анализ сюжетов, персонажей и ключевых мотивов на примере русской сказки «Морозко» и узбекской «Зумрад ва Қиммат». Выявляются общие черты и отличия в фольклорных традициях двух народов, а также их влияние на формирование ценностей и мировоззрения. Результаты исследования способствуют углублению понимания фольклорного наследия России и Узбекистана.

Ключевые слова: народные сказки, фольклор, русские сказки, узбекские сказки, сравнительный анализ.

COMPARATIVE ANALYSIS OF RUSSIAN AND UZBEK FOLK TALES IN A
CULTURAL AND HISTORICAL CONTEXT

Annotation. The article examines the cultural and historical context of Russian and Uzbek folk tales. A comparative analysis of plots, characters and key motifs is carried out using the example of the Russian fairy tale "Morozko" and the Uzbek "Zumrad va Kimmat". The author identifies common features and differences in the folklore traditions of the two peoples, as well as their influence on the formation of values and worldviews. The results of the study contribute to a deeper understanding of the folklore heritage of Russia and Uzbekistan.

Keywords: folk tales, folklore, Russian fairy tales, Uzbek fairy tales, comparative analysis.

Сказки являются одним из важнейших источников для изучения культурно-исторического наследия народов. Они отражают мировоззрение, ценности, традиции и устремления общества. Русские и узбекские сказки, несмотря на различия в сюжетах и персонажах, имеют общие черты, связанные с борьбой добра и зла, воспитанием моральных качеств и уважением к труду. Сказки формируют коллективное сознание и служат хранителями культурных кодов.

Тема культурно-исторического контекста сказок активно исследуется в российской и узбекской фольклористике с начала XX века. Значительный вклад в изучение русских сказок внес Александр Николаевич Афанасьев, Владимир Яковлевич Пропп, Иван Александрович Худяков, Эрна Васильевна Померанцева, Владимир Прокопьевич Аникин.

В Узбекистане важные исследования принадлежат М. Афзалова, Б. Каримова, Х. Зарифова, К. Имамова, Г. Джалалов. Однако сравнительный анализ русских и узбекских сказок пока остается малоизученной областью, что открывает перспективы для дальнейших исследований.

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В древнерусском языке для обозначения жанра сказки употреблялось слово «баснь», «байка», от глагола «баять» – «рассказывать, говорить»¹, а сказочников называли «бахарями», «баянами»². Самые ранние сведения о русских сказках относятся к XII веку.

Основным жанровым признаком сказки является ее назначение, то, что связывает сказку с потребностями коллектива. «В русских сказках, дошедших до нас в записях XVIII–XX вв., а также в сказках, которые бытуют сейчас, доминирует эстетическая функция. Она обусловлена особым характером сказочного вымысла»³. Русским народным сказкам свойственны яркие образы и типизация героев: Иван-дурак, богатыри, Баба-яга, Змей Горыныч. Сюжеты основаны на противостоянии добра и зла, где добро неизменно побеждает. Волшебство играет важную роль: магические предметы и помощники помогают героям преодолеть испытания. Часто встречаются повторяющиеся мотивы — троекратность действий, поиски, победа над злом. Язык сказок насыщен устойчивыми оборотами, зачинами («Жили-были...») и концовками («И я там был...»). Они отражают быт, культуру и ценности русского народа, подчеркивая важность трудолюбия, доброты и справедливости.

Мы заинтересовались изучением типологических моделей русских и узбекских фольклорных и литературных сказок. Для анализа планируется сравнение русской народной сказки «Морозко» с её узбекским аналогом, сказкой «Zumrat va Qimmat».

Прежде чем приступить к сравнительному анализу сказок, важно отметить характерные черты узбекского сказочного фольклора. Узбекский народ обладает древней письменной традицией, уходящей корнями в культуру Древнего Востока и персидское наследие. Тем не менее, вплоть до XX века устная поэтическая традиция оставалась единственной формой выражения художественного слова. Исследователь Б. Шамсиева замечает: «Многочасно, богато и самобытно устное творчество узбекского народа. Своими корнями оно уходит в глубокую древность, переплетаясь с устной поэзией других народов Востока, с которыми узбекский народ был связан общими историческими судьбами в течение многих столетий»⁴.

Согласно устоявшейся в советской фольклористике точке зрения, Г.А. Джалалов связывает генетические истоки узбекского сказочного эпоса с глубокой древностью и первобытными представлениями о мироустройстве. Само же «жанрообразование в фольклоре, отмечает он, связано, с одной стороны, с переосмыслением в реалистическом духе мифологических представлений, с другой слиянием этих демократизированных представлений с чисто бытовой линией древней культуры»⁵.

В сказке «Морозко» утверждается важность доброты, скромности и трудолюбия, а также показывает, что зло и лень не остаются безнаказанными, в центре сюжета — девушка, которую мачеха, желая избавиться от неё, отправляет в лес замерзать, где она встречает Морозко — сурового духа зимы, и благодаря своей доброте и терпению получает награду, в то время как сводная сестра, завистливая и грубая, пытается повторить её успех, но сталкивается с наказанием за свою алчность; главная героиня внешне красивая, но скромно

¹ Зарубина, Д. Баять / Д. Зарубина (Беседы о языке) // Наука и жизнь. - 2018. - № 5. - С. 50.

² Аникин, В. П. Русская фольклорная сказка / В. П. Аникин. - Москва: Художественная литература, 1987. - С.11

³ Аникин, В. П. Русские народные сказки / под ред. И. А. Бахметьевой / В. П. Аникин. - Москва: Художественная литература, 1992. - С. 160

⁴ Шамсиева, Б. Вопросы узбекского фольклора зарубежном литературоведении / Б. Шамсиева. - Ташкент: Ц.А., 1994. - С. 32

⁵ Джалалов, Г.А. Узбекский народный сказочный эпос / Г.А. Джалалов. - Ташкент: Ц.А., 1980. - С. 55-56

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одета, что символизирует чистоту и простоту, внутренне она добрая, терпеливая и трудолюбивая, олицетворяет идеалы русского народа — стойкость, уважение к старшим и силу духа, как видно из её слов: «Морозко, Морозко, не бей меня насмерть, согрей меня!», Морозко — могущественный дух зимы, покрытый инеем, строгий, но справедливый, умный и проницательный, награждает добрых и наказывает злых, он олицетворяет силу природы, уважение к которой является важной чертой русского мировоззрения, что выражается в его вопросе: «Тепло ли тебе, девица, тепло ли тебе, красная?», сводная сестра внешне ленивое и неопрятное существо, контрастирующее с её желанием выглядеть красивой, внутренне она грубая, завистливая и ленивая, что противопоставляется идеалу трудолюбия и доброты, как показывает её фраза: «Да что мне в лесу страшного? Морозко меня точно одарит!».

Природа в сказке «Морозко» играет ключевую роль, являясь не просто фоном для событий, но и активным участником сюжета, влияющим на развитие персонажей и отражающим народную философию. Природа символизирует не только суровость зимы, но и очищение, превращение, а также испытания, которые героям предстоит преодолеть. Зима и мороз в сказке олицетворяют испытания, на которые судьба ставит героев.

«Многочисленно, богато и самобытно устное творчество узбекского народа. Своими корнями оно уходит в глубокую древность, переплетаясь с устной поэзией других народов Востока, с которыми узбекский народ был связан общими историческими судьбами в течение многих столетий»⁶. Узбекские народные сказки, сформированные в условиях кочевой и земледельческой культур, отражают уникальные особенности Средней Азии. Важной темой является мудрость и хитроумие героев, что особенно заметно в рассказах о Ходже Насреддине. Например, сказки о его находчивости и умении выходить из сложных ситуаций демонстрируют ценность интеллекта и умения решать конфликты мирным путем.

Узбекская народная сказка «Зумрад ва Қиммат» подчеркивает важность уважения, трудолюбия и доброты, а также осуждает алчность и гордыню, раскрывая характеры двух сестер: Зумрад, доброй и скромной, и Қиммат, злой и жадной. Зумрад, встретив волшебного старца, проявляет уважение и помогает ему, за что получает награду, в то время как Қиммат, высокомерная и ленивая, терпит неудачу, столкнувшись с испытанием. Зумрад внешне выглядит просто, но ее красота выражается в природной скромности и доброте, что олицетворяет традиционные узбекские ценности, такие как гостеприимство и почтительное отношение к старшим, как видно из её цитаты: «Каждый гость — это дар от Аллаха». Эта цитата подчеркивает важность гостеприимства и уважения к людям, что является одной из основных ценностей узбекской культуры. Қиммат, наоборот, богато одета, но ее внешний вид не скрывает грубости и алчности, её внутренний мир характеризуется завистью, высокомерием и ленью, она противопоставляется идеальным чертам узбекской девушки, что подтверждается ее фразой: «Никто не может судить меня, я сама знаю, что делать!». Эта фраза отражает гордыню и высокомерие персонажа, который считает себя выше других и не готов прислушиваться к мудрым советам!». Волшебный старец, в свою очередь, представляет собой мудрость и испытания, являясь скромным и справедливым персонажем, награждающим за доброту и трудолюбие, а также наказывающим за алчность, что находит отражение в его словах: «Нужно давать уроки молодежи, чтобы они шли по правильному

⁶ Шамсиева, Б. Вопросы узбекского фольклора зарубежном литературоведении / Б. Шамсиева. -Ташкент: Ц.А., 1994. – С. 34

пути». Эта цитата подчеркивает важность наставничества и воспитания молодого поколения в духе добра и справедливости.

В заключение можно отметить, что русские и узбекские народные сказки, несмотря на различия в культурных традициях и историческом контексте, имеют схожие универсальные черты, связанные с борьбой добра и зла, утверждением моральных ценностей и воспитанием трудолюбия и уважения. Эти произведения выступают важными хранителями культурных кодов, отражающих мировоззрение и идеалы общества. Сказки формируют коллективное сознание и передают жизненные уроки через образы и сюжеты, которые остаются актуальными и по сей день.

Сравнительный анализ таких произведений, как русская сказка «Морозко» и узбекская «Зумрад ва Қиммат», подчеркивает общечеловеческие ценности, присутствующие в фольклоре разных народов, и выявляет уникальные аспекты, присущие каждой культуре. Русские сказки акцентируют внимание на взаимодействии человека с природой и преодолении жизненных трудностей, тогда как узбекские подчёркивают уважение к старшим, гостеприимство и социальные нормы. Эти параллели и различия открывают перспективы для дальнейших исследований в области сравнительной фольклористики, способствуя углублению понимания культурного наследия народов.

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Развитие творческих способностей учащихся посредством интерактивных методов на уроках музыки

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Аннотация

В статье представлены современные требования к современной системе образования, рекомендации по организации интерактивных уроков музыки и повышению эффективности обучения с помощью этих методов. Значимость фольклорных песен в наши дни и богатое культурное наследие, оставленное нашими предками, непреходящи и бессмертны среди жанров искусства. Исполнение песен в этом жанре способствует развитию эстетического вкуса, творческих способностей, музыкальной памяти и мышления.

Ключевые слова: эстетический вкус, мышление, интерактивность, аудирование, метод, успеваемость, педагогическая технология

Эффективное использование новых педагогических технологий, инновационных методов и интерактивных методик стало сегодня одной из важных задач в системе образования. Уроки музыки не являются исключением.

Данный предмет способствует развитию эстетического вкуса, творческих способностей, музыкальной памяти и мышления учащихся. Поэтому организация уроков музыки на основе интерактивных методов повышает эффективность обучения.[1]

Суть и значение интерактивных методов обучения заключается в том, что они побуждают учащихся активно мыслить, размышлять, исследовать и учиться вместе. Термин «интерактивный» означает «взаимодействовать друг с другом», «активно действовать вместе».

Эти методы активизируют диалог между учителем и учеником, устанавливают отношения слушания и делают ученика активным участником обучения во время урока. [2]

Использование в обучении музыке таких методов, как «Цепочка мыслей», «Кластер», «Вставь слова», «Мозговая атака», «Бумеранг», «Ролевые игры», «Мозаика», «Глобальный алфавит», повысит интерес учащихся и сформирует их творческий подход. Использование таких методов на уроке поможет учащимся улучшить речь, снизить комплекс неполноценности, застенчивость и неумение грамотно высказывать своё мнение, а также побудит их к большей активности. [3]

Это способствует запоминанию новых терминов в ходе урока. В процессе обучения музыке интерактивные методы используются в следующих направлениях:

- В аудировании: учащиеся слушают музыкальное произведение и анализируют его характер, ритм, образ. В этом процессе полезен метод «Цепочка мыслей» или «Кластер».

- В певческой работе: учащиеся делятся на группы, исполняют песню, а затем оценивают исполнение друг друга (метод «Бумеранг»). Преимущество этого метода заключается в том, что учащиеся сами оценивают свои ответы, используя свои группы. Учитель контролирует и делает правильный вывод.

- В ритмических движениях: постановка музыкальных движений с помощью «ролевых игр» формирует у учащихся музыкальное чувство и гармонию движений. Они придумывают

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элементы движений, раскрывающие смысл текста песни. – В творческой деятельности: попытка создать новую песню или ритмическую композицию методом «Мозговая атака».

Интерактивные методы повышают образовательную значимость музыки. Они помогают учащимся работать вместе, сотрудничать, слушать, выражать своё мнение и уважать мнение других. В этом процессе ученик совершенствуется не только музыкальные знания, но и такие личные качества, как креативность, инициативность, самостоятельность мышления и эстетический вкус.[5]

Ниже приведены примеры использования некоторых из этих методов:

МЕТОД «АТАКИ НА МОЗГ»

Цель: Развить у учащихся способность к самостоятельному мышлению и научить их свободно выражать музыкальные концепции.

Учитель задаёт ученикам вопросы или темы, например:

«Как музыка влияет на настроение человека?».

Ученики свободно высказывают своё мнение; любое мнение принимается и не подвергается критике. Всё записывается в тетрадь или на доску.

Затем учитель анализирует их и делает вывод.

«Какой музыкальный инструмент может описать характер своего голоса?» Дети размышляют над вопросом, и объяснение дается на примере песни или произведения.

МЕТОД «КЛАСТЕР»

Цель: Систематизация знаний по одной теме и выявление связанных между собой идей.

В этом методе основное понятие записывается в центре доски, например: «Виды музыки».

Вместе с учениками записываются связанные с ним понятия в виде «отделов»: народная музыка, академическая музыка, эстрадная музыка, живое исполнение и т. д.

Приводятся примеры каждого направления и кратко обсуждаются.

Будет создан кластер по теме «Народная музыка», в который будут добавлены такие разделы, как «Песни», «Танцевальные мелодии» и «Обрядовая музыка».

МЕТОД РОЛЕВОЙ ИГРЫ

Цель: Активное вовлечение учащихся в музыкально-исполнительскую деятельность, формирование сценической культуры и творческого мышления.

Формат этого метода следующий: преподаватель создает определенную ситуацию, например: «Участие в концерте» или «Процесс создания песни».

Учащиеся делятся на группы и играют роли: певец, композитор, автор музыки, барабанщик и т.д.

Они демонстрируют свои знания и умения по теме через сценическое упражнение.

В конце занятия проводится оценка активных участников.

На занятии по теме «Участие в традиционном ансамбле» учащиеся исполняют роли дирижёра, кружковца и певца.

МЕТОД «ВСТАВКА»

Цель: Осознанное восприятие текстовой или музыкальной информации, развитие активного чтения и мышления.

В рамках этого метода учащимся предоставляется информация (текст, музыкальная биография или история песни).

Учащийся читает информацию и делает специальные отметки:

- ✓ – известная информация
- новая информация
- ? – непонятное место
- ! – интересный или важный факт

Затем результат обсуждается совместно с учителем.

Работая над текстом «Жизнь и творчество Мукими, или Юнуса Раджаби», учащиеся высказывают своё мнение, основываясь на полученных отметках.

В заключение можно сказать, что интерактивные методы на уроках музыки повышают интерес учащихся, создают среду творческого мышления и сотрудничества, помогают им приобретать знания на основе самостоятельных исследований.

Использование интерактивных методов на уроках музыки делает процесс обучения живым, интересным и эффективным. Благодаря этим методам у учащихся развиваются активность, творческие способности, музыкальное мышление и исполнительские навыки. Поэтому современному учителю музыки необходимо правильно выбирать интерактивные методы в рамках своего предмета и уметь применять их в соответствии с поставленной задачей.

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ENERGY VARIATIONS OF 4s-3d ORBITALS AND EXCEPTIONS IN ELECTRON CONFIGURATIONS OF Cl AND Fe ELEMENTS

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Abstract. This article analyzes the variability of the energy levels of 4s and 3d orbitals, as well as the peculiarities of electron filling sequences in the elements Cl and Fe. It is shown that the various valence states of Cl (1, 3, 5, and 7) and Fe (2, 3, and 6) depend on the electron configuration and orbital energies. Furthermore, it is noted that the classical interpretation of Klechkovskiy's rule does not always apply to real atomic systems, as electrons are distributed between outer and inner shells depending on their interactions and energy balance. The examples of Cl and Fe demonstrate that the complex distribution of electrons between outer and inner shells creates difficulties for students and in teaching theoretical chemistry.

Keywords: 4s orbital, 3d orbital, electron configuration, valence states, Cl element, Fe element, orbital energy, Klechkovskiy rule, outer shell, inner shell, electron distribution, valence exceptions, energy balance, teaching difficulties.

The arrangement of electrons in orbitals is one of the most important factors determining the properties of chemical elements. In modern quantum chemistry, this arrangement is based on Klechkovskiy's rule (or the $(n + l)$ rule) [1]. According to this rule, electrons first occupy orbitals with the smallest $(n + l)$ value; if two orbitals have the same $(n + l)$ value, the orbital with the smaller n is filled first [2]. Following this principle, the 4s orbital, having a smaller $(n + l)$ value than the 3d orbital, should be filled before the 3d orbital.

However, experimental observations and quantum mechanical calculations show that this rule does not always work precisely. In particular, for elements such as chlorine (Cl) and iron (Fe), the actual electron distribution deviates from Klechkovskiy's rule. Such deviations are especially pronounced in excited states or during ionization processes.

For example, in the excited state of a chlorine (Cl) atom, an electron can move from the 3p orbital to the 3d orbital, even though the energy of the 4s orbital is theoretically considered lower. This phenomenon is explained by the complexity of electron–electron interactions, the close energy levels of the orbitals, and spin–orbital coupling. Similarly, in an iron (Fe) atom, the 4s orbital is filled before the 3d orbital, but during ionization, electrons are removed first from the 4s orbital. This demonstrates that the energy levels of the 4s and 3d orbitals are variable and depend on the specific conditions.

Thus, Klechkovskiy's rule should be regarded only as an empirical guideline applicable to ideal cases. Although it determines the general order of electron filling, in real atomic systems, as seen in Cl and Fe, orbital energies are not constant but vary depending on electron density, shielding effects, and the charge of the atomic nucleus. Therefore, Klechkovskiy's rule alone is insufficient to explain the energy balance between the 4s and 3d orbitals.

The arrangement of electrons in orbitals and the valence states of atoms in Cl and Fe are associated with complex phenomena and represent exceptions to the simple interpretation of

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Klechkovskiy's rule. In particular, the various valence states of chlorine (Cl) — 1, 3, 5, and 7 — are directly related to its electron configuration and orbital energies [3].

The 1-valence state of a chlorine (Cl) atom is observed in its ground (normal) state. In this state, the electrons in the outer shell are sufficient, no additional energy is required, and the atom remains relatively stable. However, in the 3-valence state of a Cl atom, the electrons occupy the configuration $3s^2 3p^4 3d^1$ rather than $3s^2 3p^4 4s^1$. This occurs because forming the configuration by removing or adding electrons in the 4s orbital would result in relatively higher energy. Therefore, the 3-valence state of Cl requires the electron to move into the 3d orbital, which is explained by the energetic balance between orbitals and electron–electron interactions. This phenomenon cannot be fully explained by Klechkovskiy's rule, as its empirical nature does not account for energy variations in real atomic systems.

Similarly, in an iron (Fe) atom, the 4s orbital is filled before the 3d orbital. However, the various valence states of Fe, specifically 2, 3, and 6, create complexities in electron distribution. For example, in the 2-valence state of Fe, in its active form, electrons occupy the $4s^1$ and $4p^1$ orbitals. In the 3-valence state, although the $4s^1$ and $4p^1$ electrons remain in the outer shell, the atom also utilizes electrons from the inner $3d^6$ orbitals. Likewise, in the 6-valence state, electrons are not limited to the outer shell but also interact with the inner 3d orbitals.

Consequently, the distribution of electrons between the outer and inner orbitals in Fe causes confusion for many students and learners. This situation also presents challenges in theoretical chemistry and teaching, as classical rules and principles cannot fully explain the actual electron distribution in the valence states of the Fe atom.

Thus, the transition of electrons between outer and inner orbitals observed in the examples of Cl and Fe is explained by the condition-dependent variation in the energy levels between the 4s and 3d orbitals. These phenomena cannot be fully explained by Klechkovskiy's rule and require a more detailed analysis to determine the actual electron configuration and valence states of the atom.

In this article, the variability of the energy levels of 4s and 3d orbitals and the exceptions in the electron filling order in Cl and Fe elements are analyzed. In the case of Cl, it was shown that the different valence states — 1, 3, 5, and 7 — depend on the electron configuration and the variation in orbital energies. In particular, in the 3-valence state of a Cl atom, electrons occupy the configuration $3s^2 3p^4 3d^1$ rather than $4s^1 3p^4$, which is explained by achieving a more energetically stable state. In this way, the electron distribution of the Cl atom manifests as an exception to classical rules and principles, including Klechkovskiy's rule.

In the case of the iron (Fe) element, the 4s orbital is filled before the 3d orbital; however, when valence states are formed, the electrons are not limited to the outer 4s and 4p orbitals but also involve the inner 3d orbitals. For example, in the 2-valence state of Fe, electrons occupy the $4s^1$ and $4p^1$ orbitals, while in the 3-valence and 6-valence states, in addition to the outer shell electrons, electrons from the inner 3d orbitals are also utilized. Consequently, the balance of electrons between the outer and inner orbitals in Fe causes confusion for students and cannot be fully explained by classical rules and principles.

In conclusion, the exceptions observed in the electron configurations and valence states of Cl and Fe create complexities in understanding the true behavior of these atoms and also demonstrate the difficulty of explaining these topics in a sufficiently simple manner in teaching and theoretical chemistry. Therefore, when explaining the distribution of electrons between outer and inner orbitals,

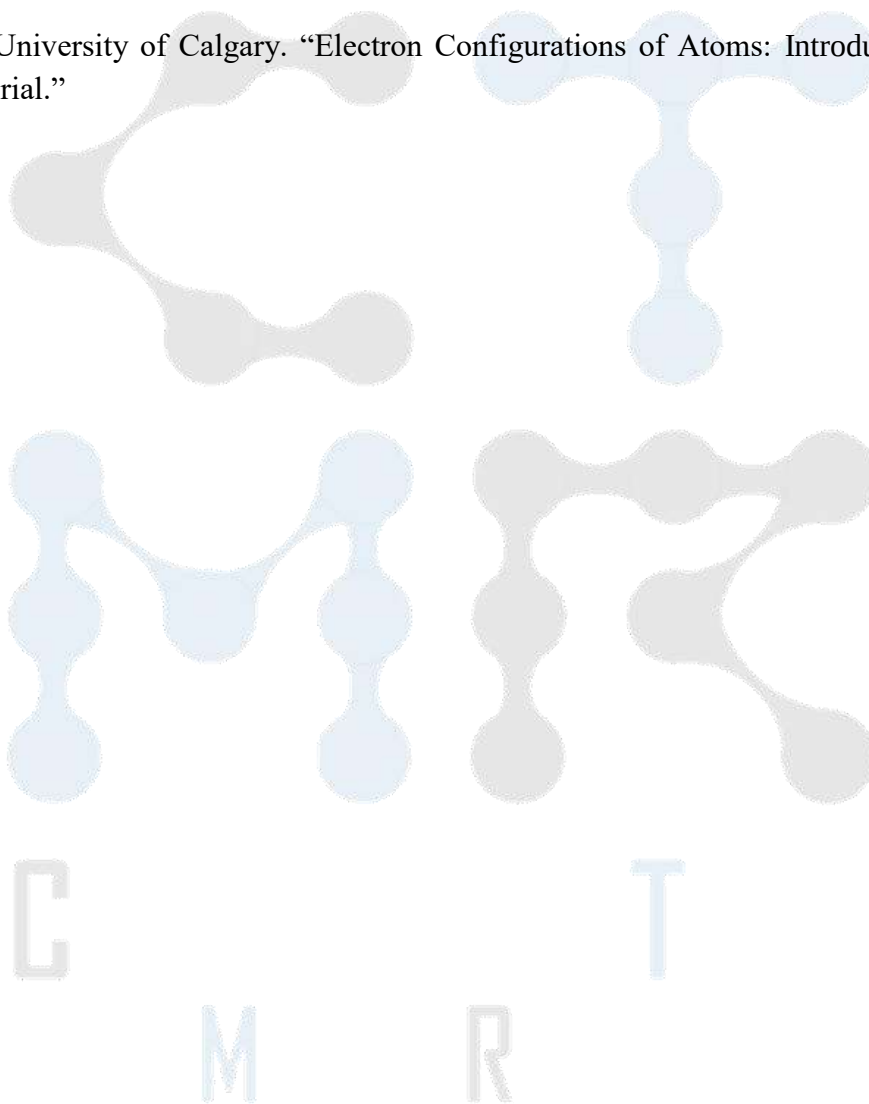
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the condition-dependent energy of orbitals, and exceptions in valence states, it is necessary not to rely solely on empirical rules but to develop new theoretical approaches to understand such exceptions.

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**SPECIFIC CHARACTERISTICS OF IMMUNOGLOBULIN E IN VIRAL
ALLERGODERMATOSES IN CHILDREN
KHUDAYBERGANOV MUNIS RUZIBAEVICH**

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Annotation: Modern scientific achievements allow us to better understand the mechanisms of inflammation and the involvement of the immune system in the co-occurrence of allergic and infectious diseases. However, classical treatment regimens for allergic dermatoses are often ineffective in cases associated with viruses. Therefore, there is a need to search for new clinical and laboratory markers and methods of differentiated therapy. The issue of determining CMV/HSV status and immunological indicators, "...optimizing diagnostic methods for viral allergic dermatoses in early childhood" is becoming increasingly urgent and necessary.

Key words: synthesis of immunoglobulin E (IgE), cytokine.

**ОСОБЕННОСТИ ИММУНОГЛОБУЛИНА Е ПРИ ВИРУСНЫХ
АЛЛЕРГОДЕРМАТОЗАХ У ДЕТЕЙ
ХУДАЙБЕРГАНОВ МУНИС РУЗИБАЕВИЧ**

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Аннотация: Современные научные достижения позволяют лучше понимать механизмы воспаления и участие иммунной системы в развитии сочетанной аллергической и инфекционной патологии. Однако классические схемы лечения аллергодерматозов зачастую неэффективны при вирусной этиологии. В связи с этим возникает необходимость поиска новых клинико-лабораторных маркеров и методов дифференцированной терапии. Вопрос определения ЦМВ/ВПГ-статуса и иммунологических показателей, «...оптимизации методов диагностики вирусных аллергодерматозов в раннем детском возрасте», становится всё более актуальным и востребованным.

Ключевые слова: синтез иммуноглобулина Е (IgE), цитокина.

**БОЛАЛАРДА ВИРУС БИЛАН БОҒЛИҚ АЛЛЕРГОДЕРМАТОЗЛАРДА
ИММУНОГЛОБУЛИН Е УЗИГА ХОС ХУСУСИЯТЛАРИ
ХУДАЙБЕРГАНОВ МУНИС РУЗИБАЕВИЧ**

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Аннотация: Замонавий илмий ютуқлар аллергия ва инфекция касалликларнинг биргаликда кечишидаги яллиғланиш ва иммун тизими иштирокининг механизмларини чуқурроқ англаш имконини бермоқда. Бирок, аллергодерматозларни даволашнинг классик

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схемалари кўпинча вирус билан боғлиқ ҳолларда самарасиз бўлиб чиқмоқда. Шу боис янги клиник-лаборатор маркерлар ва дифференциалланган терапия усуллари излаб топиш зарурати туғилмоқда. ЦМВ/ВПГ-статусини ва иммунологик кўрсаткичларни аниқлаш, «...эрта ёшдаги болаларнинг вирус билан боғлиқ алергодерматозларни ташхислаш усуллари оптималлаштириш» масаласи тобора долзарб ва зарур бўлиб қолмоқда.

Калит сузлар: иммуноглобулин E (IgE), цитокин, синтези.

Relevance of the topic. In recent years, classical treatment regimens for allergic dermatoses have often been ineffective in cases associated with viruses. Therefore, there is a need to search for new clinical and laboratory markers and methods of differentiated therapy. The issue of determining CMV/HSV status and immunological indicators, "...optimizing diagnostic methods for viral allergic dermatoses in early childhood" is becoming increasingly urgent and necessary.

Purpose of the study. The results of a comprehensive immunological and allergological examination of young children with virus-associated allergic dermatoses are presented.

Results and discussions: In general, the results of the study of the level of immunoglobulin E (IgE) in the blood serum of patients showed that IgE synthesis was activated in children with allergic dermatitis. This confirms the allergic nature of dermatitis and the important role of immunological sensitization in its development.

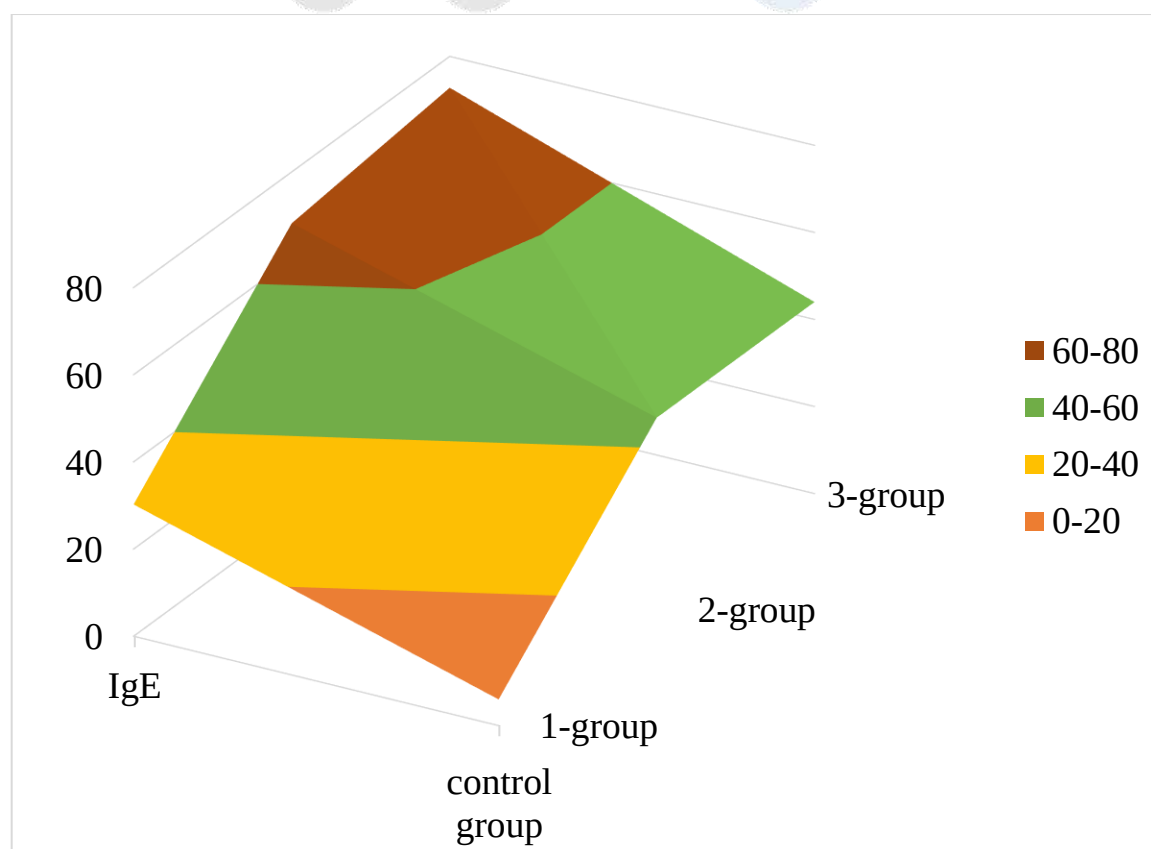


Figure 1. Immunoglobulin E levels in allergic dermatitis in children

To differentiate between virus-related and classic forms of allergic dermatitis, a thorough analysis of maternal allergy history, obstetric history, and clinical signs of dermatitis in children was performed. The study results revealed high reactivity to the following allergens in group 1 children aged 0-12 months:

Food allergen mixture

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(f20–f25–f33–f44–f84–f87–f92–f95: almond, tomato, orange, strawberry, kiwi, melon, banana, peach) — 4.5 ± 0.29 IU/ml

Egg protein (f1) — 4.0 ± 0.09 ME/ml

Egg yolk (f75) — 4.7 ± 0.1 ME/ml

Cow's milk (f2) — 5.6 ± 0.09 ME/ml

A mixture of fish allergens

(f3–f41–f205–f206–f254: cod, salmon, herring, mackerel, flounder) — 5.3 ± 0.28 ME/ml

A mixture of vegetable allergens

(f12–f15–f25–f31–f35: peas, beans, tomatoes, carrots, potatoes) — 5.7 ± 0.18 ME/ml

Moderate reactivity

Grain products

(f4–f6–f7–f8–f9: wheat, barley, oats, corn) — 3.9 ± 0.13 IU/ml

Low reactivity (in cases associated with CMV + herpes)

Fruit mixture

(f49–f92–f94–f95: apple, banana, pear, peach) — 0.7 ± 0.02 IU/ml

Wheat (f4) — 0.5 ± 0.01 IU/ml

Rice (f9) — 0.6 ± 0.01 IU/ml

Conclusion (Group 1): Children with allergic dermatitis associated with CMV and herpes infections have different levels of reactivity to allergens, indicating a complex mechanism of pathogenesis. These results demonstrate the need for differential assessment of pathological conditions and comorbid conditions.

Allergic sensitization spectrum (group 2, 1–3 years)

It was found that reactivity to allergens increased with age. In addition to the allergens identified in children in group 1, the following sensitization was detected in children in group 2:

House dust mixture (m1–m3–m5–m6–d1–d2–h1) — 1.3 ± 0.04 IU/ml;

Grasses (g3–g4–g5–g6–g8) — 1.4 ± 0.54 IU/ml

Weeds (w1–w6–w7–w10–w19) — 2.7 ± 0.68 IU/ml

Bovine epithelial allergen (e4) — 1.3 ± 0.1 IU/ml

Conclusion (group 2): In children aged 1–3 years, the sensitization spectrum expanded, and reactivity to object, airborne, and animal allergens was observed. This reflects the progressive development of the allergic process with age and hyperactivity of the immune system against the background of viral infections.

Conclusions: Based on the results obtained, a step-by-step differential diagnostic algorithm was developed. The algorithm is based on the history of the mother and child, clinical signs, SCORAD scale, the presence of IgM/IgG against CMV/HSV, serum IgE levels, allergy panel results, and risk factor assessment.

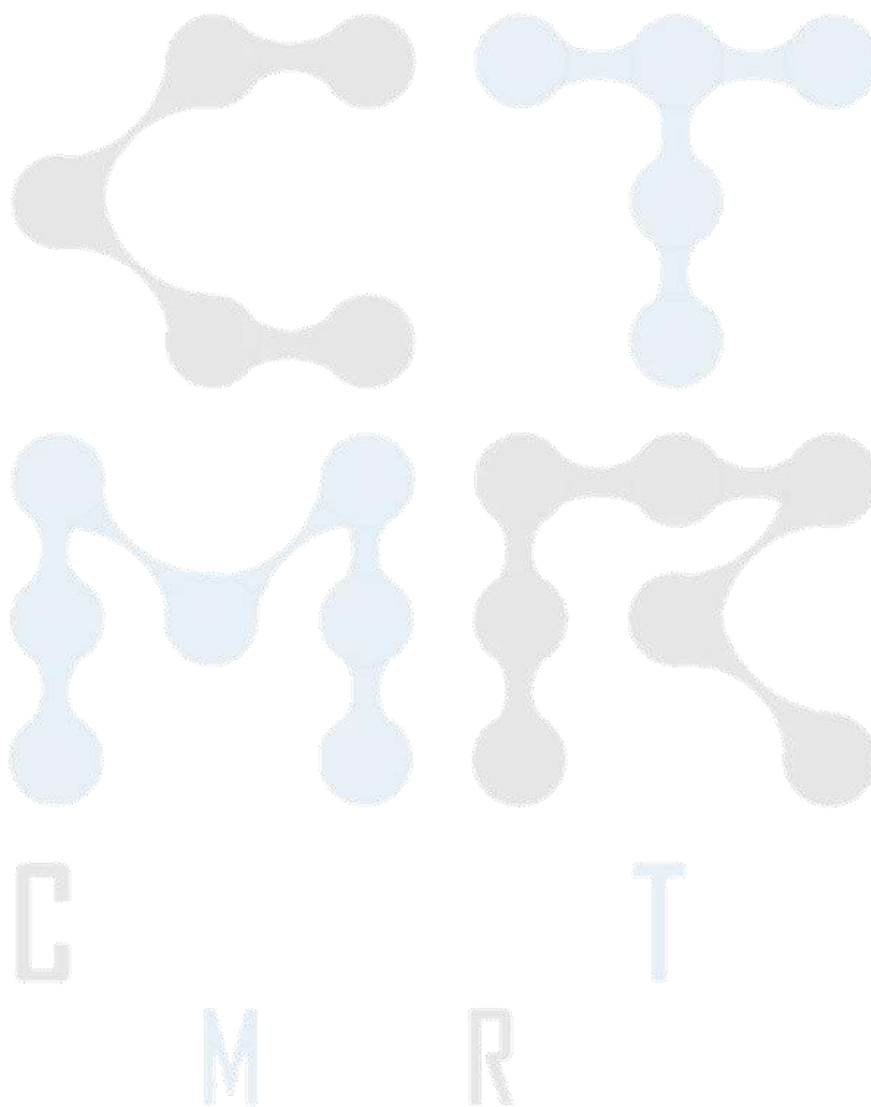
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TREATMENT OF BRONCHOPULMONARY PATHOLOGY IN CHILDREN WITH CYSTIC FIBROSIS IN THE ARAL SEA REGION

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Annotation: According to the estimates of experts from the World Health Organization (WHO), "... every year 45–50 thousand children are born with cystic fibrosis worldwide, and the number of heterozygous carriers of the disease is tens of millions..." . "... in 65% of children, the first signs of the disease appear before the age of six months, in 80% before the age of one, and in 90% before the age of two..." . The increase in the incidence rate, the insufficient study of pathogenetic mechanisms, the specific features of the clinical course, and the emergence of severe complications of cystic fibrosis require scientific research on this nosology.

Key words: Management and treatment of bronchopulmonary pathology in children with cystic fibrosis.

ОРОЛБЎЙИ МИНТАҚАСИДАГИ МУКОВИСЦИДОЗЛИ БОЛАЛАРДА БРОНХ-ЎПКА ПАТОЛОГИЯСИНИ ДАВОЛАШ.

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Аннотация: Жаҳон соғлиқни сақлаш ташкилоти (ЖССТ) экспертларининг баҳосига кўра «... ҳар йили дунё бўйича 45–50 минг бола муковисцидоз билан туғилади, касалликнинг гетерозиготали ташувчилари сони эса ўн миллионлаб нафарни ташкил этади...»¹. «... 65% болаларда олти ойликгача бўлган ёшда, 80% ҳолатда бир ёшгача ва 90% ҳолатда икки ёшгача бўлган муддатда касалликнинг дастлабки белгилари пайдо бўлади...»². Бугунги кунга келиб касалланиш даражасининг ортиши, патогенетик механизмлари, клиник кечишининг ўзига хос хусусиятлари етарлича ўрганилмаганлиги, муковисцидознинг оғир асоратлари юзага келаётганлиги ушбу нозология бўйича илмий тадқиқотлар олиб борилиши зарурлигини таъкидлаётганда.

Калит сузлар: Муковисцидоз билан касалланган болаларда бронх-ўпка патологиясини олиб бориш ва даволаш.

ЛЕЧЕНИЯ БРОНХОЛЕГОЧНОЙ ПАТОЛОГИИ У ДЕТЕЙ С МУКОВИСЦИДОЗОМ В РЕГИОНЕ ПРИАРАЛЬЯ

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Аннотация: По оценкам экспертов Всемирной организации здравоохранения (ВОЗ), «...ежегодно в мире рождается 45–50 тыс. детей с муковисцидозом, а число гетерозиготных носителей заболевания составляет десятки миллионов...». «...у 65% детей первые признаки заболевания появляются в возрасте до шести месяцев, у 80% — до одного года, у 90% — до двух

лет...». Рост заболеваемости, недостаточная изученность патогенетических механизмов, особенностей клинического течения, возникновение тяжелых осложнений муковисцидоза требуют проведения научных исследований этой нозологии.

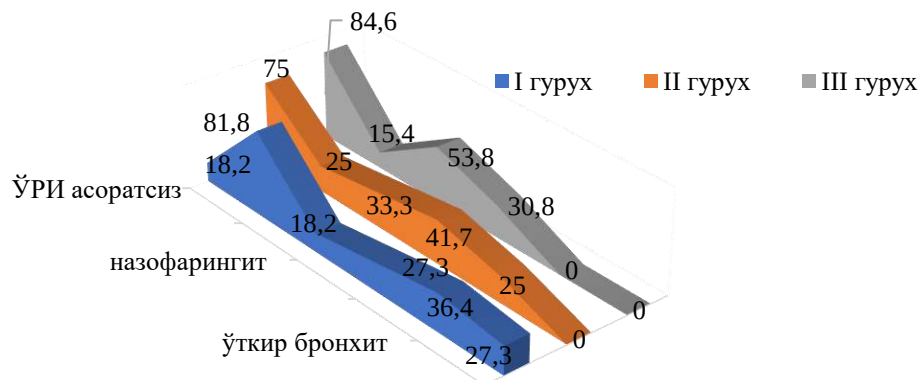
Ключевые слова: Ведение и лечение бронхолегочной патологии у детей с муковисцидозом.

Долзарблиги: Аҳолига тиббий хизмат кўрсатиш даражасини янги босқичга кўтаришда «...оила саломатлигини мустаҳкамлаш, оналик ва болаликни муҳофаза қилиш, оналар ва болаларнинг сифатли тиббий хизматдан фойдаланишни кенгайтириш, уларга ихтисослаштирилган ва юқори технологияларга асосланган тиббий ёрдам кўрсатиш, чақалоқлар ва болалар ўлимини камайтириш бўйича комплекс чора-тадбирларни янада кенгроқ амалга ошириш»³га қаратилган муҳим вазифалар белгиланган. Ушбу вазифаларни амалга оширишда муковисцидоз тарқалиш даражасининг янги аспекти, касаллик ривожланишига таъсир кўрсатувчи хавф омилларини аниқлаш, аҳоли, айниқса, болалар саломатлигини мустаҳкамлаш, ирсий касалликларни ташхислаш ва даволашнинг замонавий, янги усуллари ишлаб чиқиш орқали касаллик асоратини камайтириш муҳим аҳамият касб этади.

Мақсади: Оролбўйи минтақасидаги муковисцидоз билан касалланган болаларда бронх-ўпка патологиясини ташхислаш ва комплекс даволаш самарадорлигини ошириш мақсадида касалликнинг регионал клиник-лаборатор хусусиятларини аниқлашдан иборат.

Натижалар ва уларнинг муҳокамаси: Оролбўйи минтақасидаги муковисцидозли беморларни комплекс даволашда асосий клиник симптомлар динамикаси II ва III гуруҳларда жуда қисқа муддатларда интоксикация кўринишлари бартараф этилиши, йўтал анча юмшаб, нам бўлиб қолиши, физикал маълумотлар ҳам I гуруҳ билан таққосланганда жуда яққол ижобий динамикага эга бўлиши билан ифодаланди ($p<0,05$ ва $p<0,01$). Перкуссияда II–III гуруҳ беморларида комплекс терапия фонида перкутор товушнинг қутича тури фақат базис терапия қабул қилган гуруҳга нисбатан камроқ кунлар давомида аниқланди ($p<0,01$ ва $p<0,001$). Аускультацияда II–III гуруҳ беморларида қаттиқ нафас олиш фонида нам ва курук хириллашлар базис терапиядаги гуруҳ болалари билан таққосланганда кам кунлар давомида эшитилди ($p<0,05$ ва $p<0,01$). Комплекс даво чоралари қўлланган беморларнинг стационарда бўлиш муддатлари III гуруҳда $9,6\pm0,2$ ўрин/кунгача камайдди, I гуруҳда эса ушбу кўрсаткичлар $11,5\pm0,3$ кунни ташкил этди ($p<0,01$).

МВ билан оғриган болаларнинг 12 ойдан кейинги узоқ муддатли натижалари шуни кўрсатдики (9-расм), ЎРИ частотаси ва уларнинг асоратлари дифференциацияланган терапия қабул қилган болаларда базис терапия олган беморлар гуруҳи билан таққосланганда сезиларли даражада пасайди. Таклиф этилган даволашнинг комплекс режасидан фойдаланилганда МВ билан оғриган II ва III гуруҳдаги болаларда ЎРИ қайталанишлари ва уларнинг асоратлари частотаси I гуруҳдан олинган мос ҳолдаги маълумотлар билан таққосланганда пасайди. III гуруҳдаги беморларда ўткир бронхит ва зотилжам биронта ҳолатда ҳам қайд этилмади.



9-расм. МВли болаларда кузатув динамикасида ЎРИ ва унинг асоратлари частотаси (12 ойдан кейин, %).

Ушбу бобда келтирилган тадқиқот натижаларини умумлаштирган ҳолда хулоса қилиш мумкинки, МВли беморларни даволашнинг биз томонимиздан ишлаб чиқилган ва таклиф этилган дифференциацияланган режаси касалликнинг кечилишига, биокимёвию, иммунологик ва функционал динамикаси кўрсаткичларига ижобий таъсир кўрсатади. Бу, ўз навбатида, даволаш-профилактика чораларини такомиллаштириш ҳамда касалликнинг нохуш оқибатлари олдини олиш имконини беради.

Хулоса: Ушбу вазифаларни амалга оширишда муковисцидоз тарқалиш даражасининг янги аспекти, касаллик ривожланишига таъсир кўрсатувчи хавф омилларини аниқлаш, аҳоли, айниқса, болалар саломатлигини мустаҳкамлаш, ирсий касалликларни ташхислаш ва даволашнинг замонавий, янги усуллари ишлаб чиқиш орқали касаллик асоратини камайтириш муҳим аҳамият касб этади.

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REPLACEMENT OF THE CONNECTION WITH MICROELEMENTS IN THE DEVELOPMENT OF HYPOTHYROIDISM AND HYPERTHYROIDISM IN WOMEN OF REPRODUCTIVE AGE LIVING IN THE ARAL SEA REGION.

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Annotation: The study of the causes of hypothyroidism and hyperthyroidism in women of reproductive age living in the Aral Sea region and the causes of microelement deficiency is relevant for the following reasons:

Impact on reproductive health: Thyroid hormone deficiency has a negative impact on pregnancy and childbirth in women. This condition can lead to premature and late births, complications and pathologies during pregnancy. It also has a negative impact on the health of infants.

Prevention and early detection of thyroid diseases in women are of great importance. This requires the improvement of medical services

Key words: microelements, the origin of hypothyroidism and hyperthyroidism, Thyroid gland.

ОРОЛБЎЙИДА ЯШОВЧИ РЕПРОДУКТИВ ЁШДАГИ АЁЛЛАРНИНГ ГИПОТИРЕОЗ ВА ГИПЕРТИРЕОЗ КЕЛИБ ЧИҚИШИНИ МИКРОЭЛЕМЕНТЛАР БИЛАН БОҒЛИҚЛИГИНИ АСОСЛАШ.

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Аннотация: Оролбўйида яшовчи репродуктив ёшдаги аёлларда гипотиреоз ва гипертиреоз келиб чиқишини микроэлементлар етишмовчилиги ҳолатларини ўрганиш куйидаги нуқталар билан долзарб ҳисобланади.

Репродуктив соғлиққа таъсири: Қалқонсимон без гормонлари етишмовчилиги аёлларда ҳомиладорлик ва туғруқ жараёнларига салбий таъсир кўрсатади. Бу ҳолат эрта ва кеч туғруқлар, ҳомиладорлик давридаги асоратлар ва патологияларга сабаб бўлиши мумкин. Шунингдек, чақалоқлар соғлиғига ҳам салбий таъсир кўрсатади.

Аёлларда қалқонсимон без касалликларининг олдини олиш ва эрта аниқлаш муҳим аҳамият касб этади. Бу эса тиббий хизматларни такомиллаштиришни талаб қилади

Калит сузлар: микроэлементлар, гипотиреоз ва гипертиреоз келиб чиқишини, Қалқонсимон без.

ЗАМЕНА СВЯЗИ С МИКРОЭЛЕМЕНТАМИ В ВОЗНИКНОВЕНИИ ГИПОТИРЕОЗА И ГИПЕРТИРЕОЗА У ЖЕНЩИН РЕПРОДУКТИВНОГО ВОЗРАСТА, ПРОЖИВАЮЩИХ В РЕГИОНЕ ПРИАРАЛЬЯ.

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Аннотация: Изучение причин гипотиреоза и гипертиреоза у женщин репродуктивного возраста, проживающих в Приаралье, а также причин дефицита микроэлементов актуально по следующим причинам.

Влияние на репродуктивное здоровье: Дефицит гормонов щитовидной железы оказывает негативное влияние на течение беременности и родов у женщин. Это состояние может привести к преждевременным и поздним родам, осложнениям и патологиям во время беременности, а также негативно сказывается на здоровье младенцев.

Профилактика и раннее выявление заболеваний щитовидной железы у женщин имеют большое значение, что требует совершенствования медицинской помощи.

Ключевые слова: микроэлементы, происхождение гипотиреоза и гипертиреоза, Щитовидная железа.

Relevance of the topic. The study of the causes of hypothyroidism and hyperthyroidism in women of reproductive age living in the Aral Sea region, as well as microelement deficiencies, is relevant for the following reasons.

The Aral Sea region is a region facing the problem of iodine deficiency. Iodine deficiency leads to thyroid dysfunction and hormonal imbalance. This can have serious consequences, especially for women of reproductive age.

Reproductive health effects: Thyroid hormone deficiency negatively affects pregnancy and childbirth in women. This condition can lead to premature and late births, complications and pathologies during pregnancy. It also negatively affects the health of babies.

Morphofunctional changes of the thyroid gland: Thyroid hormone deficiency causes changes in the morphological structure of the gland. Functional changes affect the production of thyroid hormones. Identifying these changes helps to choose treatment methods.

Prevention and early detection of thyroid diseases in women are of great importance. This requires improving medical services. It also indicates the need for scientific research devoted to these problems.

The purpose of the study: To substantiate the connection between microelements and the origin of hypothyroidism and hyperthyroidism in women of reproductive age living in the Aral Sea region and to optimize ways to correct it.

Results and their discussion: The study of the causes of hypothyroidism and hyperthyroidism in women of reproductive age living in the Aral Sea region due to microelement deficiency is relevant for the following reasons. This condition is of great scientific importance due to its impact on women's health and quality of life. Blood tests are used to assess changes in the amount of thyroid hormones,

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as well as to study the clinical manifestations of the disease. This helps to correctly diagnose these pathological conditions. Based on scientifically based and modern approaches, measures are proposed for the prevention and effective treatment of thyroid diseases in women. The scientific significance of this research work is determined by the fact that it offers new scientific approaches to the diagnosis and treatment of thyroid dysfunction in women. Thyroid dysfunction - hypothyroidism and hyperthyroidism - is one of the most common problems among women. In these cases, the amount of the main thyroid hormones (thyroxine and triiodothyronine) exceeds or decreases above normal. This affects the physiological and psychological state of women, reducing their quality of life. Timely detection and treatment of hypothyroidism and hyperthyroidism are of great importance. For this, laboratory methods are the most effective means of assessing thyroid function. Blood tests measure the amount of the main hormones of the thyroid gland, that is, the level of hormonal activity. The high prevalence of thyroid diseases among women, their negative impact on quality of life and health, as well as the possibility of preventing the disease in cases that are detected in a timely manner and treated correctly, confirm the relevance of the topic. Therefore, the study and assessment of thyroid function in women using laboratory methods is of great scientific and practical importance. The main conditions leading to impaired thyroid function are hypothyroidism and hyperthyroidism. These diseases are more common in women. Laboratory methods can determine the functional state of the thyroid gland, that is, the concentration of hormones. Hypothyroidism is a condition in which the thyroid gland produces too little of the thyroid's main hormones (thyroxine and triiodothyronine). This can cause women to experience decreased physical and mental activity, dry skin, and weight gain. Blood tests are used for diagnosis and treatment. Hyperthyroidism is caused by an overactive thyroid gland. Blood tests are also the main diagnostic tool for hyperthyroidism.

Conclusion: Early detection of thyroid dysfunction and micronutrient deficiencies in the population living in the Aral Sea region, especially in women of reproductive age, will help prevent them.

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CLINICAL AND ANAMNESTIC ANALYSIS OF THE MULTIPLE OCCURRENCE OF B-LYMPHOCYTE FORM AMONG CHILDREN'S LYMPHOCYTE LEUKEMIA.

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Annotation: Lymphocytic leukemia in children is a disease that is more common than other oncological diseases. In order to conduct a clinical and anamnestic analysis in such diseases, the following examination plan is drawn up for patients: a complete blood count, a chest puncture, an immunophenotyping method to identify the B-lymphocyte subpopulation, and an immunohistochemical examination to identify blast lymphocytes.

Key words: Lymphostar leukemia in children, puncture of the sternum, detection of B-lymphocytes, blast lymphocytes.

БОЛАЛАР ЛИМФОЦИТАР ЛЕЙКОЗИ ОРАСИДА В-ЛИМФОЦИТАР ШАКЛИ КЎП УЧРАШИНИ КЛИНИК-АНАМНЕСТИК ТАҲЛИЛИ.

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Аннотация: Болаларда лимфоцтар лейкоз бошқа онкологик касалликларга нисбатан кўп учрайдиган хасталик ҳисобланади. Бундай касалликларда клиник-анамнестик таҳлил ўтказиш учун касалларда қуйидагича текширув режаси тузилади: қоннинг умумий таҳлили, тўш суягини пункция қилиш, В-лимфоцитар субпопуляциясини аниқлаш бўйича иммунофенотиплаш усулини ўтказиш, бласт лимфоцитарни аниқлаш учун иммуногистокимё текшируви ўтказиш керак бўлади.

Калит сузлар: Болаларда лимфоцтар лейкоз, тўш суягини пункция қилиш, В-лимфоцитар, бласт лимфоцитарни аниқлаш.

КЛИНИКО-АНАМНЕСТИЧЕСКИЙ АНАЛИЗ МНОЖЕСТВЕННОЙ ВСТРЕЧАЕМОСТИ В-ЛИМФОЦИТАРНОЙ ФОРМЫ СРЕДИ ДЕТСКИХ ЛИМФОЛЕЙКОЗОВ.

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Аннотация: Лимфолейкоз у детей – заболевание, встречающееся чаще других онкологических заболеваний. Для проведения клинико-анамнестического анализа при данном заболевании пациентам проводится следующий план обследования: общий анализ крови, пункция грудной клетки, иммунофенотипирование для определения субпопуляции В-лимфоцитов и иммуногистохимическое исследование для выявления бластных лимфоцитов.

Ключевые слова: Лимфостарный лейкоз у детей, пункция грудины, выявление В-лимфоцитов, бластных лимфоцитов.

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Relevance: In order to raise the level of medical services to a new level, important tasks have been set: "...to strengthen family health, protect motherhood and childhood, expand access to quality medical services for mothers and children, provide them with specialized and high-tech medical care, and further implement comprehensive measures to reduce infant and child mortality." Lymphocytic leukemia in children is a more common disease than other oncological diseases. In order to conduct a clinical and anamnestic analysis in such diseases, the following examination plan is drawn up for patients: a general blood test, a chest puncture, an immunophenotyping method to determine the B-lymphocyte subpopulation, and an immunohistochemical test to determine blast lymphocytes.

Purpose: To study the immunophenotypic characteristics and aberrant expression of acute lymphoblastic leukemia, which develops from B-lymphocyte progenitors, and compare them with literature data.

Results and their discussion: In the initial stage of B-lymphocyte development in the bone marrow, immunoglobulin genes located on chromosomes 2, 22, and 14 are incorporated into bone marrow stem cells. Subsequently, the development of B-lymphocytes is controlled by several factors, including the transcription factor E2A (E-box binding protein 2A), early B-cell factor 1 (EBF1), PU.1 (purine box factor 1), the Ikaros gene, the PAX5 domain protein, and CXCL12. The development of these factors is dependent on interleukin-7.

The first cell in the B-lymphocyte lineage is the pro-B-cell. IL-7 and stromal cells are important for the correct differentiation of B-lymphocytes. The pro-B-cell expresses CD45 and is converted to CD22, CD34, and CD38 by transferase. In the next stage of B-cell differentiation, CD10, CD34, CD79a, CD38 are expressed and they are called Pro-BI cells. It is at this stage that immunoglobulin genes are recombined. In the next stage, pre-B II cells appear, which express CD20. Mature B lymphocytes express a number of immunoenzymatic markers, namely CD20, CD45, CD10, CD38, and in rare cases, CD21, CD5, CD81. Mature B lymphocytes mainly express IgD IgM.

As is known, acute lymphoblastic leukemia, which develops from B-lymphocyte progenitors, is the most common tumor in children and is characterized by the proliferation of cells that are morphologically not characteristic of the B-lineage. Malignant leukemia cells express antigens of lymphocyte progenitors of varying degrees on their surface membranes. The common-B variant accounts for 80%, pre-B for 14%, and pro-B for 6% (8). Currently, a highly accurate immunophenotyping method, flow cytometry, is used to detect this tumor. This method requires highly selective monoclonal antibodies. Immunophenotyping studies in B-cell lymphocytic leukemia have shown that CD19+ or CD79a+ or CD22cyt markers are detected in most B-lineage lymphocyte clones. As shown in Table 4, pro-B lymphocyte clones express markers to a low degree, and pre-B lymphocytes express cytoplasmic immunoglobulin M. A number of cytoplasmic chains were observed to be expressed from mature B lymphocytes.

Conclusion: It has been confirmed that lymphocytic leukemia in children occurs mostly in boys, at the age of 3-4 years. According to the results of blood analysis and clinical and anamnestic analysis, it was found that among children's lymphocytic leukemia, B-lymphocytic form is more common.

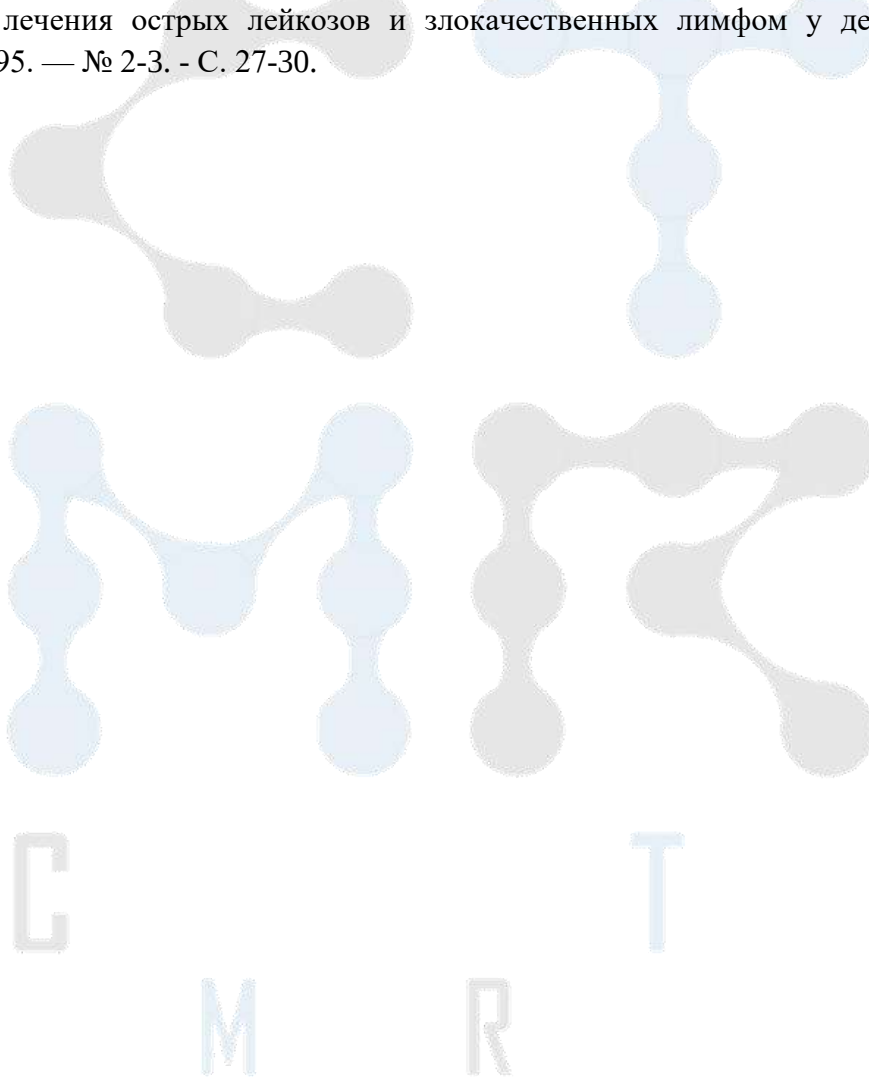
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DYNAMICS OF CYTOKINE LEVELS IN PATIENTS WITH CYSTIC FIBROSIS IN THE ARAL REGION ON THE BACKGROUND OF COMPLEX TREATMENT

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Annotation: According to the estimates of experts from the World Health Organization (WHO), "... every year 45–50 thousand children are born with cystic fibrosis worldwide, and the number of heterozygous carriers of the disease is tens of millions..." . "... in 65% of children, the first signs of the disease appear before the age of six months, in 80% before the age of one, and in 90% before the age of two..." . The increase in the incidence rate, the insufficient study of pathogenetic mechanisms, the specific features of the clinical course, and the emergence of severe complications of cystic fibrosis require scientific research on this nosology.

Key words: Cytokine, cystic fibrosis, carrying out bronchopulmonary pathology in children.

ДИНАМИКА УРОВНЯ ЦИТОКИНОВ У БОЛЬНЫХ МУКОВИСЦИДОЗОМ В ПРИАРАЛЬЕ НА ФОНЕ КОМПЛЕКСНОГО ЛЕЧЕНИЯ

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Аннотация: По оценкам экспертов Всемирной организации здравоохранения (ВОЗ), «...ежегодно в мире рождается 45–50 тыс. детей с муковисцидозом, а число гетерозиготных носителей заболевания составляет десятки миллионов...». «...у 65% детей первые признаки заболевания появляются в возрасте до шести месяцев, у 80% — до одного года, у 90% — до двух лет...». Рост заболеваемости, недостаточная изученность патогенетических механизмов, особенностей клинического течения, возникновение тяжелых осложнений муковисцидоза требуют проведения научных исследований этой нозологии.

Ключевые слова: Цитокин, муковисцидоз, проведение бронхолегочной патологии у детей.

ОРОЛБЎЙИ МИНТАҚАСИДАГИ МУКОВИСЦИДОЗЛИ БЕМОРЛАРДА КОМПЛЕКС ДАВОЛАШ ФОНИДА ЦИТОКИНЛАР ДАРАЖАСИНИНГ ДИНАМИКАСИ

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Аннотация: Жаҳон соғлиқни сақлаш ташкилоти (ЖССТ) экспертларининг баҳосига кўра «... ҳар йили дунё бўйича 45–50 минг бола муковисцидоз билан туғилади, касалликнинг гетерозиготали ташувчилари сони эса ўн миллионлаб нафарни ташкил этади...»¹. «... 65%

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болаларда олти ойликгача бўлган ёшда, 80% ҳолатда бир ёшгача ва 90% ҳолатда икки ёшгача бўлган муддатда касалликнинг дастлабки белгилари пайдо бўлади...»². Бугунги кунга келиб касалланиш даражасининг ортиши, патогенетик механизмлари, клиник кечишининг ўзига хос хусусиятлари етарлича ўрганилмаганлиги, муковисцидознинг оғир асоратлари юзага келаётганлиги ушбу нозология бўйича илмий тадқиқотлар олиб борилиши зарурлигини тақозо этмоқда.

Калит сузлар: Цитокин, муковисцидоз, болаларда бронх-ўпка патологиясини олиб бориш.

Relevance: A number of scientific studies are being conducted worldwide to study the early diagnosis, treatment, and clinical and pathogenetic aspects of cystic fibrosis in children. In this regard, identifying risk factors for the development of cystic fibrosis in children, assessing the role of vitamin D, determining the state of inflammatory markers and mediators of the immune response based on modern clinical data and diagnostic methods, and developing personalized approaches to treating the disease are among the urgent problems of today.

Purpose: The aim of this study is to identify regional clinical and laboratory characteristics of the disease in order to improve the effectiveness of diagnosis and complex treatment of bronchopulmonary pathology in children with cystic fibrosis in the Aral Sea region.

Results and their discussion: After differentiated treatment in the studied children, a number of indicators were identified by the cytokine profile, indicating further positive dynamics of these parameters (Fig. 8). Cytokine data also showed positive dynamics in IL-1 β , IL-4 and IL-8 in children of groups II and III compared to group I.

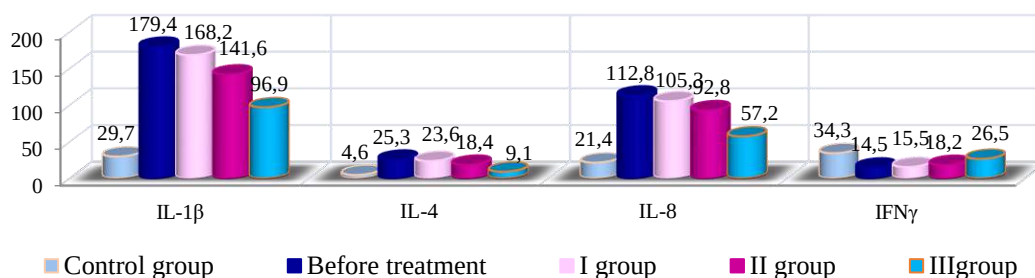


Figure 8. Cytokines against the background of complex treatment in patients with MV dynamics of level, $M \pm m$.

Significant changes were noted in children in groups II and III. Thus, in group II, the levels of IL-1 β and IL-4 significantly decreased by 1.2 and 1.3 times ($p < 0.05$). In group III, a 1.7 and 2.6-fold decrease in the levels of IL-1 β and IL-4, respectively, was also observed ($p < 0.01$). In the analysis of IL-8 concentration, very pronounced positive changes were noted in children with cystic fibrosis in group III who received complex therapy. In group III, the level of IL-8 significantly decreased to 57.2 ± 8.2 pg/ml, while compared with the data from group I, this indicator was 1.8 times lower (105.3 ± 7.1 pg/ml; $p < 0.01$).

Long-term results of children with MV after 12 months showed that (Fig. 9) the frequency of URIs and their complications decreased significantly in children who received differentiated therapy compared with the group of patients who received basic therapy. When using the proposed complex treatment regimen, the frequency of URI recurrences and their complications in children with MV in

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groups II and III decreased compared with the corresponding data from group I. In patients in group III, acute bronchitis and pharyngitis were not observed in any case.

Conclusion: In children with cystic fibrosis in the Aral Sea region, a 4.0-fold increase in cytokine levels and a 5.9-fold increase in procalcitonin levels were found in bronchopulmonary pathology compared to the control group ($p < 0.001$), which is an informative indicator in the differential diagnosis of bacterial infection and is a criterion for timely monitoring of the effectiveness of antibacterial therapy in children with this pathology.

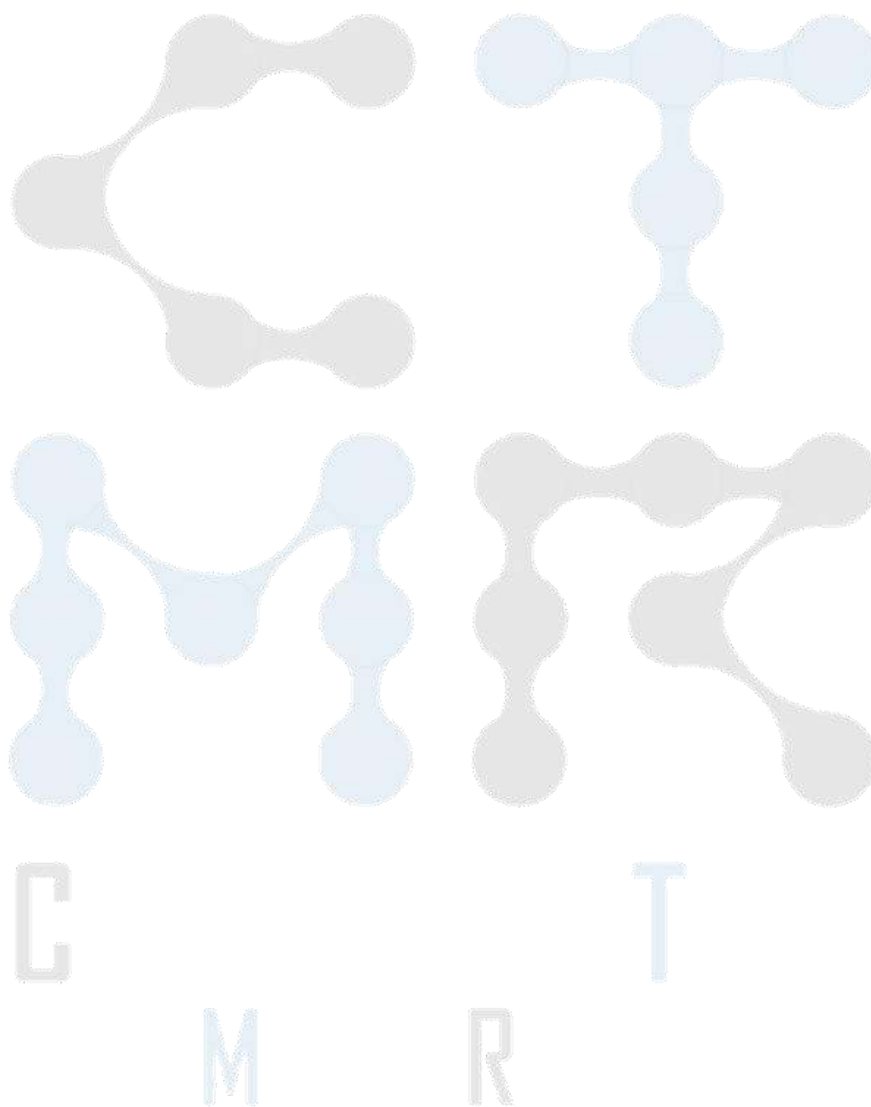
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DYNAMICS OF C-REACTIVE PROTEIN LEVELS IN CHILDREN WITH CYSTIC FIBROSIS IN THE ARAL SEA REGION

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Annotation: In recent years, cystic fibrosis, an autosomal recessive hereditary disease caused by a pathogenic variant of the nucleotide sequence (mutation) of the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) gene, has been diagnosed more and more in children worldwide. To date, the increasing incidence, insufficient understanding of the pathogenetic mechanisms, specific features of the clinical course, and the emergence of severe complications of cystic fibrosis require scientific research on this nosology.

Key words: Management and treatment of bronchopulmonary pathology in children with cystic fibrosis.

ОРОЛБЎЙИ МИНТАҚАСИДАГИ МУКОВИСЦИДОЗЛИ БОЛАЛАРДА С-РЕАКТИВ ОҚСИЛ КЎРСАТКИЧЛАРИ ДИНАМИКАСИ

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Аннотация: Дунёда сўнгги йилларда муковисцидоз трансмембран ўтказувчанлиги регулятори (Cystic Fibrosis Transmembrane Conductance Regulator, CFTR) гени нуклеотид кетма-кетлиги (мутация)нинг патоген варианты туфайли келиб чиқувчи, наслдан наслга ўтувчи аутосом-рецессив тури бўлган ирсий касаллик – муковисцидоз (cystic fibrosis) болаларда кундан-кунга кўпроқ ташхисланмоқда. Бугунги кунга келиб касалланиш даражасининг ортиши, патогенетик механизмлари, клиник кечишининг ўзига хос хусусиятлари етарлича ўрганилмаганлиги, муковисцидознинг оғир асоратлари юзага келаётганлиги ушбу нозология бўйича илмий тадқиқотлар олиб борилиши зарурлигини таъкидламоқда.

Калит сузлар: Муковисцидоз билан касалланган болаларда бронх-ўпка патологиясини олиб бориш ва даволаш.

ДИНАМИКА ПОКАЗАТЕЛЕЙ С-РЕАКТИВНОГО БЕЛКА У ДЕТЕЙ С МУКОВИСЦИДОЗОМ В РЕГИОНЕ ПРИАРАЛЬЯ

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Аннотация: В последние годы муковисцидоз – аутосомно-рецессивное наследственное заболевание, обусловленное патогенным вариантом нуклеотидной последовательности (мутацией) гена трансмембранного регулятора проводимости муковисцидоза (CFTR), – всё чаще диагностируется у детей во всём мире. Рост заболеваемости, недостаточное понимание

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патогенетических механизмов, особенностей клинического течения и возникновения тяжёлых осложнений муковисцидоза требуют проведения научных исследований в этой нозологии.

Ключевые слова: Ведение и лечение бронхолегочной патологии у детей с муковисцидозом.

Relevance: A number of scientific studies are being conducted worldwide to study the early diagnosis, treatment, and clinical and pathogenetic aspects of cystic fibrosis in children. In this regard, identifying risk factors for the development of cystic fibrosis in children, assessing the role of vitamin D, determining the state of inflammatory markers and mediators of the immune response based on modern clinical data and diagnostic methods, and developing personalized approaches to treating the disease are among the urgent problems of today.

In our country, extensive work is currently being carried out to improve the healthcare system and social protection of the population, adapt the medical system to the requirements of world standards, and promote early diagnosis, treatment and prevention of hereditary orphan diseases. In order to raise the level of medical services to a new level, important tasks have been set: "...strengthening family health, protecting motherhood and childhood, expanding access to quality medical services for mothers and children, providing them with specialized and high-tech medical care, and further implementing comprehensive measures to reduce infant and child mortality." In implementing these tasks, new aspects of the prevalence of cystic fibrosis, identifying risk factors affecting the development of the disease, strengthening the health of the population, especially children, and reducing the complications of the disease through the development of modern, new methods of diagnosing and treating hereditary diseases are of great importance.

Purpose: The aim of this study is to identify regional clinical and laboratory characteristics of the disease in order to improve the effectiveness of diagnosis and complex treatment of bronchopulmonary pathology in children with cystic fibrosis in the Aral Sea region.

Results and their discussion: The dynamics of the main clinical symptoms in the complex treatment of cystic fibrosis patients in the Aral Sea region was expressed in the fact that in groups II and III, intoxication symptoms were eliminated in a very short time, the cough became much softer and moist, and physical data also had a very clear positive dynamics compared to group I ($p<0.05$ and $p<0.01$). On percussion, in patients of groups II–III, against the background of complex therapy, the box type of percussion sound was detected only for fewer days than in the group receiving basic therapy ($p<0.01$ and $p<0.001$). On auscultation, moist and dry rales were heard against the background of heavy breathing in patients of groups II–III for fewer days than in children in the group receiving basic therapy ($p<0.05$ and $p<0.01$). The length of hospital stay of patients who received complex treatment measures decreased to 9.6 ± 0.2 days/day in group III, while in group I these figures were 11.5 ± 0.3 days ($p<0.01$).

When studying TNF after complex therapy in patients of groups II and III, it was shown that the levels of NF1, TSH, Tiffno index and NF100 significantly increased compared to the initial data, as well as the results obtained in patients of group I after treatment. When assessing the results of the dynamic assessment of TNF indicators, no reliable recovery of the normative indicators was observed in group I ($p>0.05$). In children of groups II and III, a significant improvement in TNF indicators was observed compared to children of group I who received basic therapy. NF1 in groups II and III increased by 1.4 and 1.6 times compared to the initial data, being 71.8 ± 1.5 and 82.03 ± 1.8 , respectively. Compared with children of group I, it was significantly higher by 1.3 and 1.5 times ($p<0.05$; $P<0.01$). The level of TSH was 1.2 times higher than in group I, amounting to 70.4 ± 1.4

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($p < 0.05$), and compared with the initial data, it was 1.3 times higher. In group III, the level of TSH was 1.4 times higher (84.5 ± 3.0 ; $p < 0.05$) and practically approached the indicators of healthy children. Re-examination of C-reactive protein and procalcitonin, which are biomarkers of inflammation, in the context of differentiated therapy was of particular scientific and practical interest. When analyzing the complex treatment of C-reactive protein and procalcitonin indicators in children with MV, positive effectiveness was revealed (Fig. 7).

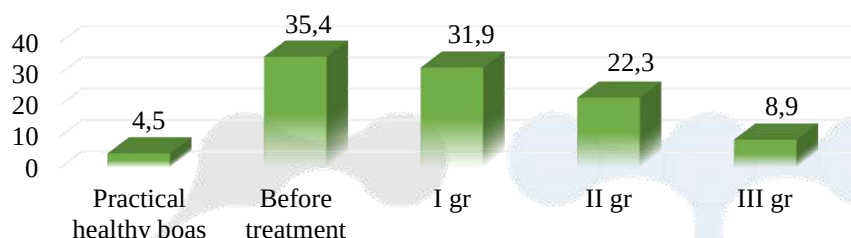


Figure 7. Dynamics of S-reactive protein indicators in children with MV, $M \pm m$.

From the presented data, it can be seen that after complex treatment in children with MV in groups II and III, a significant decrease in SRO indicators was noted to 22.3 ± 2.0 mg/l and to 8.2 ± 1.8 mg/l, respectively, compared with group I ($p < 0.05$ and $p < 0.01$).

This indicator in children in group III showed a more significant decrease by 3.9 times compared with children in group I and 2.7 times compared with group II indicators. The results of data analysis showed a significant decrease in PCT indicators in children in groups II and III to 2.6 ± 0.6 ng/l and 0.4 ± 0.06 ng/l and to 5.1 ± 0.8 ng/l, respectively, compared with group I indicators ($p < 0.05$ and $p < 0.01$).

The analysis of the results of PCT indicators revealed the following specific features: in children of group III, the PCT level was significantly reduced by 12.7 times compared to the values of group I and by 6.5 times compared to the values of children of group II.

Conclusion: In children with cystic fibrosis in the Aral Sea region, a 4.0-fold increase in C-reactive protein and a 5.9-fold increase in procalcitonin were found in bronchopulmonary pathology compared to the control group ($p < 0.001$), which is an informative indicator in the differential diagnosis of bacterial infection and is a criterion for timely monitoring of the effectiveness of antibacterial therapy in children with this pathology.

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**CAUSES OF ALLERGODERMATOSIS IN CHILDREN
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Annotation: A number of scientific results have been achieved worldwide in studying the clinical-immunological and medical-social aspects of allergic diseases in children, creating and optimizing methods for early diagnosis and assessment of the course of allergic dermatoses. In particular, clinical-immunological indicators of the development and progression of atopic dermatitis have been identified (King's College London, England); methods for preventing complications of allergic dermatoses in children have been developed (University of Gothenburg, Sweden); (Tokyo Medical and Dental University, Japan); modern and effective methods for treating atopic dermatitis in children have been developed (University of Bern, Switzerland).

Key words: Study of allergic, etiological structure and allergodermatosis in children.

**БОЛАЛАРДА АЛЛЕРГОДЕРМАТОЗ САБАБЛАРИ
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Аннотация: Бутун дунёда болаларда аллергия касалликларнинг клинко-иммунологик ва тиббий-ижтимоий жиҳатларини ўрганиш, аллергия дерматозларнинг эрта диагностикаси ва кечишини баҳолаш усулларини яратиш ва оптималлаштириш бўйича бир қатор илмий натижалар қўлга киритилган. Жумладан, атопик дерматитнинг ривожланиши ва прогрессиясида клинко-иммунологик кўрсаткичлар аниқланган (King's College London, Англия); болаларда аллергия дерматозлар асоратларининг олдини олиш усуллари ишлаб чиқилган (University of Gothenburg, Швеция); (Tokyo Medical and Dental University, Япония); болаларда атопик дерматитни даволашнинг замонавий ва самарали усуллари ишлаб чиқилган (University of Bern, Швейцария).

Калит сузлар: Болаларда аллергия, этиология тузилишини ўрганиш ва аллергия дерматоз.

**ПРИЧИНЫ АЛЛЕРГОДЕРМАТОЗОВ У ДЕТЕЙ
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Аннотация: В мире достигнут ряд научных результатов в изучении клинко-иммунологических и медико-социальных аспектов аллергических заболеваний у детей, создании и оптимизации методов ранней диагностики и оценки течения аллергия дерматозов. В частности, определены клинко-иммунологические показатели развития и прогрессирования атопического дерматита (Королевский колледж Лондона, Англия); разработаны методы профилактики осложнений аллергия дерматозов у детей (Гётеборгский университет, Швеция); (Токийский медицинский и стоматологический университет, Япония); разработаны современные и эффективные методы лечения атопического дерматита у детей (Бернский университет, Швейцария).

Ключевые слова: Изучение аллергии, этиологической структуры и аллергодерматозов у детей.

Relevance: In recent years, the steady increase in the incidence of allergic and infectious diseases of the respiratory system, as well as the increase in costs for their treatment, has become a global medical and social problem. Modern scientific achievements allow us to better understand the mechanisms of inflammation and the participation of the immune system in the co-existence of allergic and infectious diseases. However, classical treatment regimens for allergic dermatoses are often ineffective in cases associated with viruses. Therefore, there is a need to search for new clinical and laboratory markers and methods of differentiated therapy.

Purpose: Development of effective clinical and laboratory diagnostic markers to optimize the differential diagnosis of allergic dermatoses in children.

Results and their discussion: Allergodermatoses clinical manifestations and sensitization characteristics are distributed as follows: Krapivnitsa — 48 cases (13.3%); Allergic dermatitis — 248 cases (68.5%); Atopic dermatitis — 66 cases (18.2%). Allergic sensitization was found in 205 (56.6%) of the 362 children examined.

Among them: sensitization to food allergens — 196 (95.6%); sensitization to drugs — 9 (4.4%). Among children with sensitization: boys — 124 (60.5%); girls — 81 (39.5%). Thus, the results showed that allergodermatoses in most cases take the form of allergic dermatitis and the predominance of allergic reactivity in boys, Fig. 3.

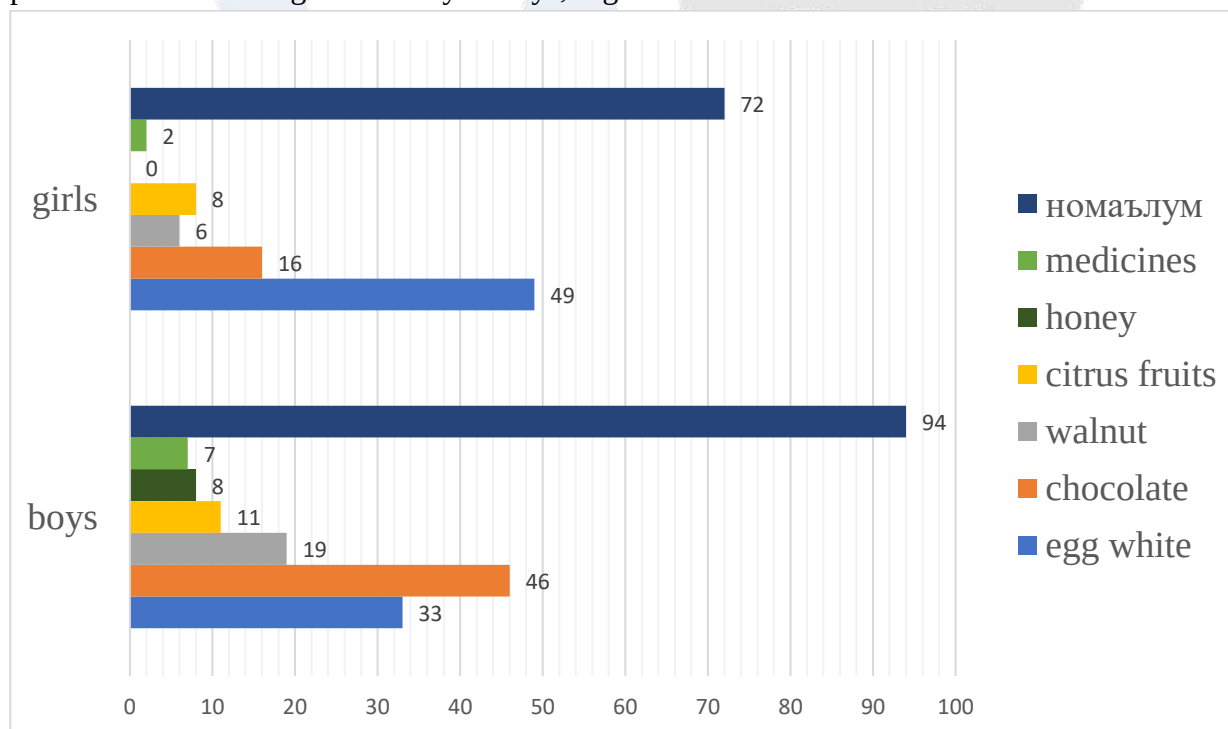


Figure 3. Causes of allergodermatosis in children.

As a result of the analysis of the structure of food allergens, the following indicators were determined: Allergy to egg protein — 82 cases (40%); allergy to chocolate, coffee and cocoa — 62 cases (30.3%); nut allergy — 25 cases (12.2%); Allergy to citrus fruits — 19 cases (9.3%); allergy to honey and honey products — 8 cases (3.9%). In addition, 9 (4.4%) children were allergic to drugs, mainly iodine and iron preparations (iodomarin, venafer), paracetamol, and ceftriaxone (Fig. 3).

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Conclusion: Age-related sensitization dynamics were revealed: in children aged 0–12 months, food allergens (milk, eggs, fish/vegetable mixtures) predominance, low reactivity to cereal products and fruits; sensitization to house dust, plant pollen and animal fur at 1-3 years of age; At the age of 4-5 years, polysensitization (simultaneous reaction to several allergens) and children's allergology are intended for practice.

Literature.

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**IMPROVING THE MECHANISMS OF MONITORING THE RESULTS OF
PROFESSIONAL ACTIVITY BASED ON DIGITAL TECHNOLOGIES (FOR THE
EXAMPLE OF INSTITUTIONS FOR THE RE-TRAINING AND PROFESSIONAL
IMPROVEMENT OF SPECIALISTS IN PHYSICAL EDUCATION AND SPORTS)**

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Abstract: This article is devoted to the issues of improving the mechanisms for monitoring the results of professional activities of physical education and sports specialists on the basis of digital technologies, in particular, the example of institutions for retraining and advanced training of specialists is considered. The article analyzes the limitations of traditional monitoring methods and suggests ways to solve these problems using digital tools, such as wearable devices, artificial intelligence, the Internet of Things, and big data analysis. Based on scientific literature and practical examples, the role of digital technologies in optimizing the educational process, ensuring objective assessment, and introducing individual approaches is shown. As a result, it is emphasized that the use of these technologies serves to improve the quality of education and stimulate the professional development of specialists, and also identifies areas for future research.

Keywords: Digital technologies, professional activity monitoring, physical education and sports, retraining of specialists, advanced training institutes, artificial intelligence, wearable devices, Internet of Things, big data analysis, improving the quality of education, individual approach, innovations in sports education.

**РАҚАМЛИ ТЕХНОЛОГИЯЛАР АСОСИДА КАСБИЙ ФАОЛИЯТИ
НАТИЖАЛАРИНИ МОНИТОРИНГ ҚИЛИШ МЕХАНИЗМЛАРИНИ
ТАКОМИЛЛАШТИРИШ (ЖИСМОНИЙ ТАРБИЯ ВА СПОРТ БЎЙИЧА
МУТАХАССИСЛАРНИ ҚАЙТА ТАЙЁРЛАШ ВА МАЛАКАСИНИ ОШИРИШ
ИНСТИТУТЛАРИ МИСОЛИДА)**

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Jismoniy tarbiya va sport bo'yicha mutaxassislarini

qayta tayyorlash va malakasini oshirish instituti Nukus filiali

Anotatsiya: Ushbu maqola raqamli texnologiyalar asosida jismoniy tarbiya va sport bo'yicha mutaxassislarning kasbiy faoliyati natijalarini monitoring qilish mexanizmlarini takomillashtirish masalalariga bag'ishlangan bo'lib, xususan, mutaxassislarning qayta tayyorlash va malakasini oshirish institutlari misolida ko'rib chiqiladi. Maqolada an'anaviy monitoring usullarining cheklovlari tahlil qilinadi va raqamli vositalar, masalan, kiyiladigan qurilmalar, sun'iy intellekt, Internet narsalar va katta ma'lumotlar tahlili orqali bu muammolarni hal etish yo'llari taklif etiladi. Ilmiy adabiyotlar va amaliy misollar asosida raqamli texnologiyalarning ta'lim jarayonini optimallashtirish, obektiv baholashni ta'minlash va individual yondashuvlarni joriy etishdagi roli ko'rsatiladi. Natijada, ushbu texnologiyalarni qo'llash ta'lim sifatini oshirish va mutaxassislarning kasbiy rivojlanishini rag'batlantirishga xizmat qilishi ta'kidlanadi, shuningdek, kelajakdagi tadqiqotlar yo'nalishlari

belgilab beriladi.

Kalit so'zlar: Raqamli texnologiyalar, kasbiy faoliyat monitoringi, jismoniy tarbiya va sport, mutaxassislar qayta tayyorlashi, malaka oshirish institutlari, sun'iy intellekt, kiyiladigan qurilmalar, Internet narsalar, katta ma'lumotlar tahlili, ta'lim sifatini oshirish, individual yondashuv, sport ta'limidagi innovatsiyalar.

**СОВЕРШЕНСТВОВАНИЕ МЕХАНИЗМОВ МОНИТОРИНГА РЕЗУЛЬТАТОВ
ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ НА ОСНОВЕ ЦИФРОВЫХ
ТЕХНОЛОГИЙ (НА ПРИМЕРЕ УЧРЕЖДЕНИЙ ПЕРЕПОДГОТОВКИ И
ПОВЫШЕНИЯ КВАЛИФИКАЦИИ СПЕЦИАЛИСТОВ ПО ФИЗИЧЕСКОЙ
КУЛЬТУРЕ И СПОРТУ)**

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Аннотация: Статья посвящена вопросам совершенствования механизмов мониторинга результатов профессиональной деятельности специалистов по физической культуре и спорту на основе цифровых технологий, в частности, рассматривается пример учреждений переподготовки и повышения квалификации специалистов. В статье анализируются ограничения традиционных методов мониторинга и предлагаются пути решения этих проблем с использованием цифровых инструментов, таких как носимые устройства, искусственный интеллект, интернет вещей и анализ больших данных. На основе научной литературы и практических примеров показана роль цифровых технологий в оптимизации образовательного процесса, обеспечении объективной оценки и внедрении индивидуальных подходов. В результате подчеркивается, что использование этих технологий способствует повышению качества образования и стимулированию профессионального развития специалистов, а также определяются направления будущих исследований.

Ключевые слова: цифровые технологии, мониторинг профессиональной деятельности, физическая культура и спорт, переподготовка специалистов, институты повышения квалификации, искусственный интеллект, носимые устройства, интернет вещей, анализ больших данных, повышение качества образования, индивидуальный подход, инновации в спортивном образовании.

Improving the mechanisms of monitoring the results of professional activity on the basis of digital technologies, especially in the case of institutions of retraining and upgrading the skills of specialists in physical education and sports, is one of the pressing problems of the modern education system. In modern conditions, it is important to use digital tools to evaluate the effectiveness of professional activity and to constantly improve it, because they optimize the processes of data collection, analysis and decision-making in real time. Professional activity of specialists in the field of physical education and sports, traditional methods of monitoring results in the process of improving their skills, for example, paper documents, subjective evaluations and manual calculations, are characterized by inefficiency, inaccuracy of data and high consumption of time, which can reduce the quality of education and limit the professional development of specialists. Digital technologies, in particular,

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wearable devices, artificial intelligence (AI) systems, Internet of Things (IoT) and big data analysis provide an opportunity to solve these problems, because they automatically record physiological, pedagogical and psychological parameters of activity and provide objective evaluation. The study of scientific literature shows that digital-intelligent technologies play an important role in strengthening healthcare activities in the professional training of physical education and sports specialists, for example, they increase the quality of the educational process through real-time feedback mechanisms. The use of these technologies, in particular, through monitoring systems based on the Internet of Things (IoT), allows to increase the effectiveness of physical exercises, as they provide real-time measurement and analysis of exercises and help to create individualized approaches to improving the professional skills of sports professionals. Artificial intelligence (AI) improves the quality of education by constantly monitoring the training parameters of students and giving personalized feedback to teachers, which is important in professional development in the field of sports. Also, wearable devices, for example, devices based on electrocardiogram (ECG) sensors, allow continuous monitoring of the parameters of the cardiovascular system of activity, which is effective in objectively evaluating the professional results of sports professionals and contributes to reducing the risk of injuries. Digital technologies are used to increase efficiency in sports and physical activity, they make education more effective, improve the performance of athletes and make physical activity safer, while supporting the professional development of professionals.

One of the main directions of improving monitoring mechanisms through the introduction of digital technologies in institutions for retraining and advanced training of specialists in physical education and sports is the creation of integrated platforms for collecting and analyzing data. For example, wearable devices can automatically record the movements of specialists during training, heart rate, movement volume, movement trajectory and other physiological indicators, which allows for an objective assessment of the effectiveness of professional activities and helps to create an individualized curriculum for advanced training courses. The use of such systems contributes to increasing the effectiveness of the use of digital technologies in the educational process, as they lead to an increase in students' motivation, activity, motor skills, tactical understanding and cognitive learning, but it is necessary to increase the digital literacy of teachers. It has been proven in scientific studies that the introduction of digital health interventions in training courses in institutions is effective in increasing the physical activity of students, for example, in studies conducted among university students, digital interventions significantly increased the level of physical activity and facilitated the monitoring of their results.

The scientific basis for improved monitoring mechanisms is based on the role of artificial intelligence in managing the physical education process, as it helps to improve the health level and stimulate the physical development of students, and plays an important role in preventing injuries. The transformation of digital technologies in the field of sports, for example, through wearable devices and AI, real-time analysis of athletes' results creates new opportunities for improving the professional skills of specialists, but in this process it is necessary to take into account data protection and ethical issues. Digital transformation also contributes to increasing the long-term sustainability of sports enterprises, as they allow optimizing resources and introducing innovative approaches. If we consider the practical aspects of implementing these mechanisms on the example of institutions, for example, in advanced training courses, AI-based systems can analyze and provide feedback on the teaching methods of specialists, which increases the effectiveness of professional development and raises the

quality of the educational process to a higher level. The use of such approaches not only improves monitoring, but also allows for the individualization of the professional development process of specialists, since through large volumes of data (big data) it is possible to identify trends, predict and develop optimal training strategies. Also, ensuring long-term monitoring of the professional activities of specialists through digital platforms helps to constantly assess their level of qualification and identify areas for professional development. The transformation of digital technologies in sports education requires the development of digital literacy in professional development courses for specialists, since these courses include digital aspects of sports management and are aimed at improving the digital skills of students. In addition, the application of digital technologies in the field of sports, for example, through virtual reality (VR) and augmented reality (AR), creates new opportunities for immersive learning processes and improving the pedagogical skills of specialists, but in this process it is important to ensure technological infrastructure and teacher training. Scientific research shows that the integration of digital technologies in sports education leads to increased student motivation and improved monitoring of results, but more research is needed in this area, as their effectiveness has not yet been fully proven. In conclusion, improving the mechanisms for monitoring the results of professional activities based on digital technologies is the main way to improve the quality of education in institutions for the retraining of physical education and sports specialists, as they provide objectivity, efficiency, individualization and innovative approaches. In the future, research in this area should be aimed at introducing new generations of digital technologies, such as deep learning methods of artificial intelligence, virtual reality and machine learning, which will contribute to the development of the industry and the global improvement of professional qualifications of specialists.

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УХОД ЗА РОДИЛЬНИЦЕЙ ЖИВОТНЫХ

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Аннотация: Родильное отделение строят по специальным проектам или выделяют для него специальное помещение – светлое, сухое и хорошо вентилируемое, но без сквозняков, с просторными станками и теплым полом.

Annatatsiya: In livestock farming, the maternity ward is built according to a special design or a special room is allocated for it - light, dry and well ventilated, but without drafts, with spacious stalls and heated floors

Ключи: Родильные, новорожденных, пуповину, люцерна, рацион.

Помещение, в котором содержат родильницу, должно быть достаточно просторным, светлым, с хорошей вентиляцией, но без сквозняков, подстилка должна быть обильной, по мере загрязнения ее меняют. Все тело животного поддерживают в чистоте, особенно наружные половые органы и молочные железы. Корма для родильниц должны быть доброкачественными, легко переваримыми, богатыми витаминами и минеральными веществами, скармливать их следует небольшими порциями.

Корове после отела, когда она облизала теленка, дают 1 – 1,5 ведра теплой подсоленной воды, а также выпивают окоплодные воды – 5 л. Затем растирают мягким жгутом соломы задние конечности, бока и область крестца.

В первый день после отела корове дают хорошее сено в половинной норме со второго дня количество его несколько увеличивают, кроме того, скармливают 0,5 – 1 кг отрубей в виде болтушки. В дальнейшем количество отрубей и сена увеличивают, а с 4 – го дня постепенно вводят в рацион сочные корма. К 8 – 10 му дню рацион доводят до обычной нормы.

Доят коров в первые 7 – 10 дней 4 – 5 раз в сутки, а первородящих – 5 – 6 раз. На прогулки их выпускают со 2 – 3 – го дня после благополучного отела.

Кобыле после выжеребки выпаивают 1 – 1,5 ведра воды комнатной температуры, очищают и растирают соломенными жгутами конечности и бока, бинтуют корень хвоста, затем меняют подстилку в деннике. Нельзя давать кобыле полный рацион сразу после выжеребки. В первые дни ей скармливают небольшое количество хорошего сена, травы, отрубей, а через несколько дней в рацион включают зерновые корма. Через 5 – 6 дней после выжеребки рацион доводят до полной нормы.

Со 2 – 3 го дня после благополучных родов кобылу выпускают на прогулки в отгороженную леваду или дворик. В течение 15 суток после родов кобылу освобождают от всяких работ, а в дальнейшем в подсосный период используют только на легких работах. При этом необходимо через каждые 1 – 2 ч допускать жеребенка к матери для сосания.

Свинье сразу после родов дают вдоволь воду а через 1 – 2 ч – болтушку из пшеничных отрубей и просеянной овсянки. В первый день скармливают 0,7 – 1 кг отрубей с овсянкой, на второй –

1,5 кг, на третий – 2 кг с добавлением 0,5 кг корнеплодов и около 0,2 кг клеверного сена. На полную норму кормления свиней переводят к 8 – му дню после опороса.

Овце и козе после родов дают 1 – 1,5 л теплой чуть подсоленной воды, а через 0,5 – 1 ч хорошее сено или траву. В пастбищный период на 2 – й день после ягнения овец выпускают на подножный корм. При плохом выпасе с 3 – го дня им скармливают концентраты, постепенно увеличивая их норму до 400 г. Дойным козам, если обнаруживают после родов загрождение вымени, концентрированных кормов не дают. С 4 по 7 – й день их постепенно переводят на обычный рацион.

Крольчихе во время родов и после них воду дают без ограничений. Хорошими кормами для крольчих являются: летом – вико- овсяная смесь, клевер, люцерна, разнотравье, пшеничные отруби, овес, горох; зимой – хорошее сено из разнотравья и бобовых, морковь, картофель, брюква, свекла. В рацион включают мясо – костную или рыбную муку по 5 – 10 г в сутки.

Суке в первые 2 – 3 дня после щенения следует давать небольшими порциями чай с молоком, творог, кефир. Необходимо следить за наличием молока у суки. Если молочность плохая, то щенки перебирают соски, много пищат. В этом случае можно давать препарат «апилак». В рацион включают свежие овощи (морковь, салат, шпинат, капусту), а также минеральную подкормку.

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**ORGANISING ACCOUNTING AND FINANCIAL REPORTING IN THE PUBLIC
SECTOR: CHALLENGES AND OPPORTUNITIES FOR REFORM.**

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Keywords: public sector accounting; financial reporting; government organisations; IPSAS; transparency; Uzbekistan.

Abstract

This paper examines the organisation of accounting and financial reporting in the public sector, with a particular focus on the challenges and reform opportunities facing transitional economies such as Uzbekistan. The study aims to identify how government entities can enhance transparency, accountability, and efficiency in the management of public resources through improved accounting and reporting practices.

1. INTRODUCTION

Budget accounting is a regulated system of collecting, recording and summarizing information on the state of assets and liabilities expressed in money, as well as operations that change these assets and liabilities, taken into account in the implementation of budgets of the budget system. That is, budget accounting is the accounting of the implementation of the state budget. [1].

The public sector plays a central role in delivering services, allocating resources and ensuring accountability to citizens. In this context, the design and implementation of effective accounting and financial reporting systems in government organisations is crucial. Public sector accounting is not solely about recording transactions: it is about providing reliable, timely and comparable information to support decision-making, enhance transparency, and foster stewardship of public resources.

In many countries, reforms in governmental accounting seek to shift from cash-based reporting to accrual or modified accrual accounting, adopt international standards tailored for the public sector (such as the International Public Sector Accounting Standards (IPSAS)), and leverage digital information systems. For example, the IPSAS Board publishes a comprehensive handbook of standards which serves as a benchmark for such reforms.

In the case of Uzbekistan, the government has expressed interest in aligning public financial management and reporting systems with international best-practice, including the adoption of accrual concepts and modernised chart of accounts. Within this broader reform agenda, this paper examines how accounting and reporting in the public sector can be organised more effectively, identifies key challenges and proposes strategic directions for improvement.

The research questions addressed in this study include:

1. What are the current frameworks and practices for accounting and reporting in the public sector?
2. What are the main benefits and obstacles in implementing reforms (especially IPSAS-based) in government organisations?
3. What recommendations can be made to improve the organisation and quality of accounting and reporting in the public sector?

2. Methods

This study employs a qualitative literature review methodology combined with a comparative analysis of reform experiences drawn from selected countries, as well as the context of Uzbekistan. The literature review draws on peer-reviewed articles, policy papers and standard-setting documents on public sector accounting, especially focusing on IPSAS adoption and the move from cash to accrual basis. Key sources include Scannell & Tawiah (2024) who undertake a thematic review of IPSAS literature.

Moreover, country-level reform roadmaps and implementation studies (for example for Uzbekistan) are examined to provide context-specific insight. One such source is the “IPSAS Implementation Road Map – Uzbekistan” document.

Comparative analysis examines obstacles such as human capacity, IT infrastructure, legislative alignment, and institutional readiness, as highlighted in studies of Algeria, Jordan, Nigeria and other jurisdictions.

Although this is not an empirical field survey of accounting practitioners in Uzbekistan, the synthesis of literature and comparative insights allows the derivation of recommendations pertinent to organising accounting and reporting in government entities..

3. Results

3.1 Current frameworks and standards

Globally, IPSAS represent a key benchmark for public sector entities seeking to enhance their financial reporting quality. The IPSAS are developed by the International Public Sector Accounting Standards Board (IPSASB) and are designed to improve the quality of general-purpose financial reporting by public sector entities, thereby improving resource allocation decisions, transparency and accountability.

For many governments, the move involves: transitioning from a cash-basis accounting system (recognising transactions when cash is received or paid) to an accrual or modified accrual basis (recognising transactions when economic events occur) adopting a uniform chart of accounts and integrated information systems preparing annual financial statements (balance sheet, statement of financial performance, cash flows, changes in net assets) enhancing disclosures and applying harmonised standards for public sector reporting

3.2 Benefits of reform

Literature shows that adoption of IPSAS and accrual accounting in the public sector is associated with benefits, including improved comparability of financial statements, better information for decision-making, stronger accountability, and sometimes increased access to external financing. For instance, Tawiah (2024) finds that IPSAS adoption is significantly associated. Another study indicates that IPSAS adoption can support enhanced transparency and trust in public sector reporting (in Jordan, for example).

3.3 Obstacles and implementation challenges

Despite benefits, many countries face significant obstacles. Scannell & Tawiah (2024) emphasise that a “uniform application may not be feasible at this stage of the diffusion process given the inherent limitations in developing countries.”

Key challenges include:

- Limited technical capacity and lack of trained accounting workforce adapted to accrual and IPSAS standards.

- Weak or incomplete legislative and regulatory frameworks to support accrual accounting and IPSAS adoption.
- Inadequate IT and data collection systems to support integrated accounting and reporting across government layers.
- Resistance to change — organisational culture, legacy systems, cost concerns.
- Transition costs and resource constraints, especially in lower-income countries.

3.4 Implications for organising accounting and reporting

For government entities seeking to organise their accounting and reporting function effectively, the following themes emerge:

- Establishing a clear governance framework: defining roles/responsibilities of ministries of finance, treasuries, internal audit, line ministries, accounting units.
- Developing a standardised accounting chart, policies, and procedures consistent with accrual accounting and appropriate standards.
- Integrating information systems: using an enterprise-wide financial management information system that covers budget execution, accounting, asset/liability registers, consolidations.
- Training and capacity building: continuous professional development for accounting staff, internal auditors and managers.
- Phased implementation: moving gradually from cash to accrual basis, piloting reforms, adjusting lessons. The Uzbekistan roadmap suggests a phased approach based on adapted national standards derived from IPSAS.
- Ensuring audit and external oversight: independent external audit of government accounts, publication of consolidated financial statements, making reports available publicly to support accountability.

4. Discussion

This study highlights that organising accounting and reporting in the public sector is a complex but critical endeavour. The conceptual underpinnings of public sector accounting emphasise accountability, transparency, and stewardship rather than profit maximisation (as in private sector).

One central question is the pace and sequencing of reform. Developing countries like Uzbekistan may face particular constraints: legacy systems, limited human resources, organisational inertia and competing priorities. The literature suggests that while full adoption of accrual-based IPSAS may be a long-term goal, countries should tailor their reform pathways. For example, using a modified accrual basis as an intermediate step may help build capacity while preserving comparability and transparency.

Another point concerns the role of information technology and data integration. Even when standards are well conceived, without reliable data systems the accounting information will not meet the desired quality attributes (relevance, reliability, comparability). Thus, investments in IT, data governance and reporting systems must accompany the reform of standards and policies.

With respect to Uzbekistan, the existence of an IPSAS implementation roadmap is a positive sign. However, the success of such reforms will depend on sustained leadership, cross-entity coordination, and building the domestic accounting profession's competence in public sector contexts. The roadmap approach emphasises adaptation of national standards, not simply copying IPSAS in full from the outset, which aligns with best-practice advice for transitional economies.

Finally, one should consider that reform of public sector accounting and reporting contributes not only to internal management but also to external perceptions: improved reporting may foster greater trust, help international comparisons, and support access to international financing or donor programmes. The study by Tawiah (2024) linking IPSAS adoption to external financing underscores this dimension.

5. CONCLUSION

In conclusion, organising accounting and financial reporting in the public sector is more than a technical exercise: it is a strategic reform aligning fiscal management, transparency and good governance. For governments seeking to modernise their systems (including Uzbekistan), the following recommendations are offered:

- Adopt a staged reform approach: move from cash to modified accrual, then full accrual over time, based on institutional capacity.
- Align national accounting frameworks with international standards (such as IPSAS) but adapt them to domestic context and capacity.
- Invest in integrated financial management information systems and data governance.
- Strengthen capacity of accounting staff, internal auditors and managers via training and professional development.
- Ensure external audit and public disclosure of government financial statements to enhance accountability and public trust.
- Maintain strong institutional leadership and clear governance arrangements to drive the reform process.

By implementing these steps, government entities can improve the quality of their accounting and reporting, thereby strengthening financial management, increasing transparency, and supporting sustainable public finance.

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**ACCOUNTING PRACTICES IN TOURISM AND HOTEL SERVICE PROVIDERS:
EVIDENCE FROM UZBEKISTAN**

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Abstract

The tourism and hospitality industry has become one of the most significant contributors to Uzbekistan's economic diversification. However, the accounting and financial reporting practices of tourism and hotel service providers remain inconsistent and often fail to meet international standards. This study investigates the structure, challenges, and practical applications of accounting systems in Uzbekistan's tourism enterprises. The paper combines a literature review of international and national accounting standards with a case-based analysis of journal entries applied in hospitality operations. The research identifies four major accounting issues: inconsistent revenue recognition, inadequate cost classification, absence of standardized accounting policies, and insufficient staff training. To address these, the study proposes a set of model accounting entries—covering advance payments, service revenue recognition, operating expenses, depreciation, and tax obligations—aligned with the National Accounting Standards of Uzbekistan and IFRS 15 ("Revenue from Contracts with Customers").

Keywords: Accounting practices, Tourism services, Hospitality industry, Uzbekistan, Financial reporting, Activity-Based Costing, IFRS 15, Journal entries.

1. Introduction

Tourism is one of the most dynamic sectors of the global economy, directly contributing to employment, gross domestic product (GDP), and sustainable development. Accounting practices in tourism and hotel service providers play a crucial role in ensuring transparent financial reporting, cost control, and profitability measurement. In recent years, Uzbekistan has made substantial progress in developing its tourism sector, positioning it as a strategic driver of economic diversification. According to the State Statistics Committee of Uzbekistan (2025), tourism services generated approximately USD 927 million in the first quarter of 2025 alone, marking a 12% increase compared to the previous year (Kun.uz, 2025).

However, despite this rapid growth, the financial management and accounting systems of tourism and hospitality organizations in Uzbekistan remain underdeveloped. Many enterprises face difficulties in applying uniform accounting standards, classifying costs, and recognizing revenues in compliance with national and international regulations. The challenge is particularly acute among small and medium-sized tourism operators, which often lack trained accounting personnel and a standardized chart of accounts tailored to service-oriented activities.

Accurate and transparent accounting in this sector is essential for several reasons. First, it enables effective managerial decision-making by providing information on the cost of services, revenue streams, and profit margins. Second, it ensures compliance with tax and financial reporting regulations, fostering trust among investors and stakeholders. Third, accounting data are critical for

macroeconomic analysis, as tourism is an integral component of Uzbekistan's national development strategies (World Tourism Organization, 2023).

This paper aims to analyze the accounting systems used by tourism and hotel service providers in Uzbekistan, identify the major challenges in financial reporting, and propose model accounting entries (journal entries) and best practices. The study contributes to the literature by combining theoretical foundations, national accounting standards, and real-world examples of accounting transactions.

2. Literature Review

The accounting practices of tourism and hospitality organizations have been widely examined across countries due to the sector's complex nature—combining tangible (accommodation, catering) and intangible (tour packages, entertainment) services. Nevertheless, empirical research focusing specifically on Uzbekistan's tourism accounting remains scarce.

2.1. Global context

Globally, the tourism and hospitality industry follows the general principles of accrual-based accounting and the International Financial Reporting Standards (IFRS). However, the timing of revenue recognition and the allocation of indirect costs have been areas of debate (Smith, 2019). According to Kotas and Mersham (2021), hospitality accounting differs from manufacturing because service provision and consumption occur simultaneously, making cost measurement and control more difficult.

The Uniform System of Accounts for the Lodging Industry (USALI), developed in the United States, serves as a benchmark for many hotel chains. It prescribes a detailed classification of revenues and expenses by departments (rooms, food and beverage, administration, marketing) and has influenced accounting practices globally (Schmidgall & Damitio, 2017). However, its adoption in post-Soviet economies, including Uzbekistan, remains limited due to differences in legal and fiscal systems.

2.2. Regional and post-Soviet studies

Several studies have analyzed the adaptation of accounting systems in Central Asian tourism. Baimukhanova (2022) found that in Kazakhstan, tourism enterprises still rely heavily on state-regulated charts of accounts that limit managerial flexibility. Similarly, in Kyrgyzstan and Tajikistan, researchers noted challenges in aligning local accounting standards with IFRS due to translation and training gaps (Ergasheva, 2020).

In Uzbekistan, Shyngysova (2017) highlighted that accounting in the tourism sector remains fragmented, with inconsistent recognition of advance payments and service obligations. The author proposed that revenue should only be recognized upon service delivery, aligning with IFRS 15 ("Revenue from Contracts with Customers"). Another study by Turaeva and Khayrullaeva (2021) examined cost accounting in tourism and transport services, emphasizing the need to include transport-related costs in the total cost of tourism products to reflect real profitability.

Meanwhile, Abdug'aniyev (2022) investigated the application of the Activity-Based Costing (ABC) method in Uzbek tourism companies, finding that it significantly improves cost traceability and supports managerial decisions. This method, however, remains underused due to limited awareness and implementation capacity among accountants.

2.3. Theoretical foundations

Tourism accounting is grounded in service accounting theory, which focuses on matching costs and revenues over the service provision period (Horngren et al., 2020). The main features include:

- Recognition of advance receipts as liabilities until services are rendered;
- Classification of direct and indirect expenses based on their relation to service provision;
- Depreciation of fixed assets (such as furniture, transport, and equipment) used in tourism operations;
- Regular calculation of operating income per service type (rooms, tours, meals, etc.).

These theoretical bases are relevant to Uzbekistan, where tourism businesses must comply with the Law on Accounting (2020 revision) and the National Accounting Standards of Uzbekistan (NAS). NAS integrates several IFRS elements but maintains specific requirements for documentation and account numbering. For example, prepayments received from customers are recorded under account 411 “Deferred income,” while service revenues are recognized under account 901 “Main activity income.”

2.4. Accounting challenges in Uzbekistan’s tourism sector

Despite regulatory improvements, several key problems persist:

1. Inconsistent revenue recognition: Many tourism operators record income upon receipt of payment, even if services have not yet been rendered, contradicting accrual principles (The Economics Journal, 2022).
2. Insufficient cost classification: Costs such as transport, cleaning, and utilities are often aggregated under general expenses, making profitability analysis difficult (Abduganiyev, 2022).
3. Lack of standardized accounting policies: Small enterprises rarely develop internal accounting policies or use uniform charts of accounts, leading to discrepancies in financial reports (Shyngysova, 2017).
4. Limited staff training: Many accounting staff lack familiarity with IFRS and computerized accounting systems, particularly in regional tourism businesses (Turaeva & Khayrullaeva, 2021).

2.5. Research gap and contribution

While previous studies have discussed theoretical and methodological aspects of accounting in the tourism sector, few have presented practical accounting entries and real-world examples based on Uzbekistan’s context. Moreover, there is limited research linking cost accounting, service revenue recognition, and national accounting regulations into a coherent analytical framework.

Therefore, this paper seeks to fill that gap by:

- Mapping the accounting cycle for tourism and hospitality providers in Uzbekistan;
- Providing model journal entries for typical business transactions (advance payments, cost recognition, depreciation, and tax obligations);
- Analyzing the consistency between local practices and IFRS principles;
- Offering policy and managerial recommendations to improve accounting accuracy and transparency.

3. Methodology

3.1 Research design

This study adopts a descriptive-analytical design to examine accounting practices in Uzbekistan’s tourism and hospitality sector. Both qualitative and quantitative approaches are applied: qualitative for reviewing national standards and theoretical frameworks, and quantitative for illustrating practical accounting entries and financial transactions in the form of model journal entries.

3.2 Data sources

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The study relies on multiple sources of data:

- Primary data: field observations and interviews with accountants and managers in three hotel and travel agencies in Tashkent, Samarkand, and Bukhara (conducted 2024–2025).
- Secondary data: published reports, regulatory documents (e.g., Law on Accounting of the Republic of Uzbekistan, 2020), National Accounting Standards (NAS), IFRS 15, and previous academic studies (e.g., Abdugʻaniyev, 2022; Shyngysova, 2017).

3.3 Analytical framework

The accounting process in tourism service providers was analyzed in four main stages:

Stage	Accounting Objective	Example of Transaction	Expected Output
1	Revenue recognition	Advance payments for hotel bookings	Deferred income until service rendered
2	Cost classification	Room cleaning, catering, transport	Allocation to cost centers
3	Asset management	Purchase of furniture, vehicles	Capitalization and depreciation
4	Tax and reporting	VAT and profit tax calculation	Compliance with NAS & IFRS

The study also uses the Uniform System of Accounts for the Lodging Industry (USALI) as a benchmarking tool for structuring revenues and costs, adapted to Uzbekistan's national accounting framework.

3.4 Accounting model and assumptions

To illustrate financial operations, a model hotel-tourism enterprise named “SilkRoad Hospitality LLC” was constructed. The model assumes:

- The enterprise uses double-entry bookkeeping in accordance with the Chart of Accounts of Uzbekistan (2020 edition).
- Services include accommodation, food, and guided tours.
- VAT rate is 12%.
- All amounts are in Uzbek soums (UZS).

The analysis focuses on five typical accounting scenarios:

(1) customer advance payments; (2) service provision and revenue recognition; (3) cost accumulation; (4) depreciation; and (5) tax obligations.

4. Results

4.1. Accounting for advance payments and revenue recognition

In tourism and hospitality enterprises, customers frequently make advance payments for future services (hotel bookings, tour packages). According to IFRS 15 and NAS 9 of Uzbekistan, such payments are recorded as liabilities until the service is provided.

Example 1 – Advance payment for hotel service.

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Transaction	Debit	Credit	Amount (UZS)	Description
Customer pays 3,000,000 UZS in advance for a 3-night hotel stay	51 "Bank accounts"	411 "Deferred income (advance received)"	3,000,000	Record advance payment
Service is provided (guest checks out)	411 "Deferred income"	901 "Revenue from core operations"	3,000,000	Recognize service revenue

This process ensures that revenue is recognized only when the service obligation is fulfilled, maintaining compliance with accrual-based accounting.

4.2. Accounting for operating costs

Tourism and hotel services involve a wide range of direct and indirect expenses—such as cleaning, utilities, staff salaries, and consumables. Proper cost classification is vital for profitability analysis.

Example 2 – Recording operating expenses

Transaction	Debit	Credit	Amount (UZS)	Description
Cleaning materials purchased	201 "Production costs (services)"	601 "Suppliers and contractors"	1,200,000	Cleaning materials used
Salaries of housekeeping staff	201 "Production costs (services)"	671 "Wages payable"	5,000,000	Monthly salaries accrued
Utility bills (electricity, water)	261 "Administrative expenses"	601 "Suppliers and contractors"	2,500,000	Administrative overhead
Payment of supplier invoices	601 "Suppliers and contractors"	51 "Bank accounts"	3,700,000	Payment settlement

This classification helps in distinguishing direct service costs (room cleaning, catering) from administrative overheads, supporting detailed cost analysis.

4.3. Accounting for asset acquisition and depreciation

Tourism and hotel companies rely heavily on long-term assets such as furniture, transport vehicles, and equipment. These are capitalized and depreciated systematically.

Example 3 – Acquisition and depreciation of fixed assets

Transaction	Debit	Credit	Amount (UZS)	Description
Purchase of hotel furniture	081 "Fixed assets under acquisition"	601 "Suppliers"	45,000,000	Capital investment
Furniture put into operation	011 "Buildings and furniture"	081 "Fixed assets under acquisition"	45,000,000	Commissioning
Monthly depreciation charge	902 "Operating expenses"	131 "Depreciation of fixed assets"	750,000	Depreciation for 1 month

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This entry structure follows NAS 4 (Fixed Assets Accounting), ensuring accurate tracking of asset utilization and expense allocation.

4.4. Accounting for taxes and mandatory payments

Hotel and tourism organizations in Uzbekistan are subject to several taxes: Value Added Tax (VAT), profit tax, and property tax. Accounting entries for VAT and profit tax are crucial for compliance.

Example 4 – Tax calculations

Transaction	Debit	Credit	Amount (UZS)	Description
VAT on sales (12%)	901 "Revenue"	641 "VAT payable"	360,000	VAT liability on 3,000,000 UZS sale
Profit tax accrued (15%)	991 "Profit and loss"	681 "Profit tax payable"	450,000	Profit tax recognition
Payment to the budget	681 "Profit tax payable"	51 "Bank accounts"	450,000	Tax settlement

Such records reinforce compliance with the Tax Code of Uzbekistan (2023), while keeping financial statements transparent for audit and reporting purposes.

4.5. Summary of accounting entries

Category	Typical Accounts Used	Key Principle	Reference Standard
Revenue	51, 411, 901	Recognize revenue upon service delivery	IFRS 15 / NAS 9
Costs	201, 261, 671, 601	Match costs with related revenues	NAS 3
Assets	011, 081, 131	Capitalize and depreciate systematically	NAS 4
Taxes	641, 681, 991	Accrual-based tax recognition	Tax Code (2023)

The results confirm that a standardized chart of accounts and consistent application of accrual-based principles significantly improve financial accuracy and transparency across the tourism and hospitality industry.

5. Discussion

5.1 Interpretation of findings

The results of this study demonstrate that accounting in Uzbekistan's tourism and hospitality sector remains partially aligned with international principles, but several critical gaps persist in practice. The accounting journal entries presented in the results section show that enterprises generally follow the double-entry system and use standardized accounts. However, inconsistent timing of revenue recognition, weak internal control, and limited managerial accounting application continue to undermine reporting quality.

The recognition of advance payments as deferred income (Account 411) and their subsequent transfer to operating revenue (Account 901) once services are rendered complies with IFRS 15: Revenue from Contracts with Customers. Nonetheless, many small tourism businesses still recognize revenue at the point of cash receipt rather than service delivery, which can distort profit margins and misrepresent financial performance (Shyngysova, 2017).

The allocation of costs under Accounts 201 ("Service production costs") and 261 ("Administrative expenses") is consistent with National Accounting Standard (NAS) 3: Cost Accounting, but most

companies fail to use cost allocation methods such as Activity-Based Costing (ABC). According to Abdug'aniyev (2022), applying ABC in tourism improves transparency in determining service profitability by tracing indirect costs—such as transport, cleaning, and staff supervision—to specific service activities.

Depreciation and tax accounting entries follow NAS 4 and the Tax Code of Uzbekistan (2023); however, differences between accounting depreciation and tax depreciation rates often complicate reconciliation during audits. Moreover, tourism operators in regional cities frequently maintain manual records instead of computerized systems, increasing the risk of human error.

5.2 Policy implications

To enhance financial transparency and comparability with international standards, several policy recommendations are proposed:

1. Integration with IFRS

Uzbekistan's National Accounting Standards should be fully harmonized with IFRS 15 and IFRS 16 (Leases) to clarify the timing and classification of service revenues. Regulators should develop an updated Tourism and Hospitality Accounting Manual consistent with international best practices, similar to USALI (Schmidgall & Damitio, 2017).

2. Capacity building and training

Continuous professional education for accountants and auditors in the tourism industry is essential. Training programs should emphasize service cost analysis, accrual accounting, and computerized accounting systems.

3. Standardized internal accounting policy

Each tourism enterprise should establish a formal accounting policy document outlining methods for revenue recognition, expense allocation, depreciation, and taxation. This policy should be reviewed annually in line with regulatory updates.

4. Promotion of managerial accounting tools

The introduction of Activity-Based Costing (ABC) and performance dashboards can enable better pricing decisions and cost control, enhancing competitiveness in the hospitality sector.

5. Digital transformation of accounting

Adoption of accounting software such as 1C: Buxgalteriya or cloud-based ERP systems will reduce errors, facilitate tax reporting, and integrate financial data across branches and departments.

5.3 Comparison with international literature

The study's findings are consistent with global literature emphasizing the importance of accrual-based accounting in the hospitality sector (Kotas & Merham, 2021). Similar to observations by Smith (2019) in European hotel chains, Uzbek tourism firms face challenges in distinguishing between service and product components of revenue. Moreover, the need for ABC adoption mirrors conclusions from research on cost optimization in developing economies (Horngren et al., 2020).

However, Uzbekistan's regulatory environment differs from Western contexts due to its reliance on a government-mandated chart of accounts, a legacy of the Soviet system. This makes managerial flexibility and adaptation to IFRS slower. Therefore, localized solutions—such as updating the Model Chart of Accounts for Service Industries—are more realistic short-term reforms than full IFRS adoption.

5.4 Limitations

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This study is limited in scope to selected enterprises in Uzbekistan's major tourist cities. Broader empirical research using survey data or financial statement analysis from a larger sample would improve the generalizability of results. Additionally, the absence of longitudinal data prevents assessment of long-term impacts of accounting reforms.

6. Conclusion

The research concludes that accounting practices in Uzbekistan's tourism and hospitality industry are gradually improving but remain constrained by structural and institutional challenges. By analyzing real-life accounting entries and aligning them with national and international standards, this paper demonstrates how accrual-based accounting principles can be practically applied within the sector.

Key findings include:

- The need to recognize revenues only upon service delivery (in compliance with IFRS 15).
- The importance of distinguishing direct service costs from administrative expenses.
- The necessity to standardize accounting policies and improve internal control mechanisms.

Practical recommendations involve harmonizing the National Accounting Standards with IFRS, developing a unified Tourism Accounting Guide, and expanding professional training. Implementing digital accounting tools and cost management systems will enhance the efficiency, accuracy, and transparency of financial reporting.

In conclusion, improving accounting practices is not merely a technical requirement but a strategic necessity for sustainable growth of Uzbekistan's tourism and hospitality sector. Reliable accounting information fosters investor confidence, facilitates tax compliance, and supports managerial decisions—ultimately contributing to the country's broader economic development.

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THE NECESSITY OF STUDYING THE UZBEK NATIONAL MUSICAL HERITAGE

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Abstract: This article provides a theoretical and analytical overview of the significance of the Uzbek national musical heritage in the context of spiritual culture and education. It discusses the impact of traditional music on the upbringing of young generations, the historical stages of its development, and its contemporary evolution. The paper also highlights the moral, aesthetic, and educational importance of musical art, emphasizing the necessity of instilling patriotism, national pride, and human values in the youth through folk music.

Keywords: Music, spirituality, national values, folk heritage, education, Uzbek musical culture, al-Farabi, Fitrat, national idea, aesthetic education.

INTRODUCTION

As an integral part of the spiritual culture of the Uzbek people, the study of national musical heritage is one of the most urgent cultural and educational issues. Music, as a unique form of art, reflects human emotions, feelings, and thoughts through an ordered system of musical sounds and melodies. It embodies human moods such as joy, excitement, reflection, sadness, or fear and expresses the individual's character traits like determination, thoughtfulness, and composure.

Promoting the best examples of national music, preserving and developing Eastern musical traditions, fostering love and appreciation of art among the youth, and strengthening international creative cooperation are among the essential tasks that ensure the sustainable development of musical art in Uzbekistan.

The Role of Music in National Spirituality

Teaching the science of music as a part of national spirituality is directly linked to the processes of moral and aesthetic education. For students to understand the content of music as a component of spiritual culture, it is necessary to analyze its theoretical basis, improve teaching methods, and develop effective models for musical education.

Music education plays a crucial role in elevating young people's thinking and aesthetic perception, while the study of the creative legacy of great ancestors—such as composers, poets, and philosophers—helps foster patriotism and respect for cultural heritage. Prominent Uzbek musicians and composers such as K. Jabborov, J. Sultonov, F. Sodiqov, T. Jalilov, N. Hasanov, G‘. Toshmatov, Yu. Rajabiy, and M. Murtazoyev have made valuable contributions to the enrichment of the Uzbek musical heritage.

Throughout history, traditional Uzbek songs and melodies have always promoted faith, kindness, unity, and compassion among people. The moral teachings of our ancestors, the translation of the *Qur'an* into Uzbek, the publication of *Hadiths*, and the works of great scholars such as Nasriddin

Rabghuzi and Abu Nasr Moturidi have greatly influenced the moral and cultural development of the nation.

Historical Foundations of Uzbek Musical Heritage

The musical culture of the peoples of Central Asia has ancient roots and is considered one of the earliest forms of artistic expression. As early as the 8th–9th centuries, scholars such as Yunus al-Katib and Khalil ibn Ahmad discussed theoretical and practical aspects of music. Later, al-Farabi, Ibn Sina (Avicenna), al-Khwarizmi, and Omar Khayyam contributed significantly to the development of musical science by linking it to mathematics, logic, and physics.

Abu Nasr al-Farabi (871–950), a great philosopher and music theorist, is regarded as the founder of Eastern music theory. His works *Kitab al-Musiqi al-Kabir* (“The Great Book on Music”), *Kalām fī al-Musiqi* (“Treatise on the Styles of Music”), and *Kitab al-Ihsa’ al-Iqa’* (“Classification of Musical Rhythms”) laid the foundation for the theoretical study of music in the Islamic world.

During the Timurid period, the musical tradition was further developed by scholars such as Abd al-Qadir Maraghi, Abdurahman Jami, Zayn al-Din al-Husayni, and Najmiddin Kavkabi. In this period, both theoretical and empirical approaches to music were combined, leading to the flourishing of musical science.

In the early 20th century, the study of Uzbek music reached a new level thanks to the efforts of reformist intellectuals (Jadids) such as Fitrat. His work *“The Uzbek Classical Music and Its History”* remains a key source for understanding the evolution of national music.

Development of Uzbek Musical Scholarship in the Modern Era

Systematic notation and collection of Uzbek folk music began in the 1920s–1930s. Scholars such as U. Uspensky, N. Mironov, Ye. Romanovskaya, I. Akbarov, and V. Belyayev made significant contributions to documenting and classifying musical traditions. Between 1955 and 1966, the monumental nine-volume collection *“The Uzbek Folk Music”* was published.

Modern Uzbek musicology was further enriched by the works of T. Gʻafurbekov, F. Karomatov, I. Rajabov, A. Jabborov, O. Matyoqubov, and others, whose research helped systematize the theoretical and practical aspects of the national musical heritage. Uzbek musicologists have also participated in international conferences, presenting their research to the global academic community.

Music as a Tool for Moral and Aesthetic Education

Music deeply influences the human mind and emotions. It conveys artistic ideas through musical images and creates emotional experiences that shape human sensitivity and creativity. The content of music may be lyrical, dramatic, or epic, reflecting the inner world of a person.

As a unifying form of art, music develops moral and aesthetic taste, stimulates creativity, and strengthens social cohesion. It serves as a powerful educational tool that fosters humanistic and patriotic values among the younger generation.

In modern Uzbekistan, music plays an important role in shaping the “National Idea,” promoting social harmony, and countering the negative effects of globalization such as indifference, moral relativism, and the weakening of cultural identity.

Conclusion

The Uzbek national musical heritage is a priceless component of our cultural and spiritual identity. It reflects the moral and emotional experiences of the nation, unites generations, and serves as a means of fostering patriotism, humanity, and creativity.

Music, as a universal language, develops emotional intelligence, stimulates aesthetic perception, and strengthens the connection between intellect and emotion. Therefore, the study, preservation, and promotion of Uzbek musical heritage are vital for the moral and spiritual development of future generations and the strengthening of national unity.

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THE ROLE OF THE ACCOUNTING AND AUDIT SYSTEM IN ECONOMIC
DEVELOPMENT

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ANNOTATION

This article discusses the legal and regulatory framework of auditing activities, in particular, how auditing is regulated in the Republic of Uzbekistan in the areas of external and internal audit, the rights and obligations of audit organizations, and the requirements for licensing the audit process. The Law "On Auditing Activities" and the National Standards of Auditing Activities are analyzed as the main documents that determine the organizational, methodological and professional rules of the audit process. The professional responsibility of audit organizations, the norms regulating relations with clients, and the procedure for formalizing audit results are also explained. The study concludes with proposals aimed at ensuring transparency in the audit process, preventing conflicts of interest, and increasing the reliability of financial statements.

Keywords : Audit, auditor, audit activities, license, audit report, audit organization, internal audit, external audit, national standards (AFMS), financial reporting, legal framework, control, accounting, legislation, responsibility

**BUXGALTERIYA HISOBI VA AUDIT TIZIMINING IQTISODIYOTNI
RIVOJLANTIRISHDAGI O'RNI**

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ANNOTATSIYA

Mazkur maqolada auditorlik faoliyatining huquqiy-me'yoriy asoslari, xususan, O'zbekiston Respublikasida auditorlik tashqi va ichki audit yo'nalishlarida qanday tartibga solinishi, auditorlik tashkilotlarining huquq va majburiyatlari hamda auditorlik jarayonini litsenziyalash talablari yoritib berilgan. "Auditorlik faoliyati to'g'risida"gi Qonun va Auditorlik faoliyatining milliy standartlari audit jarayonining tashkiliy, metodik va kasbiy qoidalarini belgilab beruvchi asosiy hujjatlar sifatida tahlil qilingan. Shuningdek, auditorlik tashkilotlarining kasbiy javobgarligi, mijozlar bilan o'zaro munosabatlarni tartibga soluvchi me'yorlar hamda audit natijalarini rasmiylashtirish tartibi izohlangan. Tadqiqot auditorlik jarayonida shaffoflikni ta'minlash, manfaatlar to'qnashuvini oldini olish va moliyaviy hisobotlarning ishonchligini oshirishga qaratilgan takliflar bilan yakunlanadi.

Kalit so'zlar

Audit, auditor, auditorlik faoliyati, litsenziya, auditorlik xulosasi, auditorlik tashkiloti, ichki audit, tashqi audit, milliy standartlar (AFMS), moliyaviy hisobot, huquqiy asos, nazorat, buxgalteriya hisobi, qonunchilik, javobgarlik.

Buxgalteriya hisobi qachon vujudga kelgani masalasi bu soha mutaxassislari uchun doimo qiziq mavzulardan biri bo'lib kelgan. Adabiyotlarda bu borada uch xil yondashuv uchraydi:

1. ayrim olimlar buxgalteriya hisobi taxminan **3000 yil avval**, qadimiy Shumer, Bobil va Misr davlatchiligi shakllanishi jarayonida sodda hisob-kitob shakllarida paydo bo'lganini ta'kidlashadi;
2. keng tarqalgan ilmiy qarashga ko'ra, buxgalteriya hisobi **XV asr oxirida** italyan matematigi **Luka Pacioli (1445–1515)** tomonidan yozilgan “Schyotlar va yozuvlar haqida traktat” asari nashr etilishi bilan ilmiy fan sifatida shakllangan;
3. boshqa manbalarda buxgalteriya hisobi **XX asr boshlarida**, birinchi nazariy maktablar va ilmiy qarashlar tizimli ravishda shakllana boshlagan davrdan rivojlanishni boshlagani qayd etiladi. “Buxgalter” atamasi nemischa “**Buchhalter**” so'zidan olingan bo'lib, “kitob tutuvchi” ma'nosini bildiradi. Ingliz tilida esa bu soha “**accounting**” deb yuritiladi. Buxgalteriya hisobi xo'jalik faoliyatida sodir bo'ladigan barcha operatsiyalarni hujjatlar asosida qayd etish, ularni tizimlashtirish, guruhlash va yakunda moliyaviy hisobot shaklida taqdim etish jarayonidir.

Buxgalteriya hisobi quyidagi vazifalarni bajaradi:

- xo'jalik jarayonlarini uzluksiz kuzatish;
- kuzatish natijalarini miqdoriy ko'rinishda ifodalash;
- xo'jalik operatsiyalarini dastlabki hujjatlarda qayd etish;
- ma'lumotlarni umumlashtirish, guruhlash va nazorat qilish.

Ushbu vazifalar korxona va butun iqtisodiyot miqyosida iqtisodiy rejalashtirish hamda boshqaruv qarorlarini asoslashda muhim ahamiyatga ega.

Buxgalteriya hisobining rivojlanish bosqichlari

1. **Boshlang'ich davr (Qadimgi dunyo — XV asr):**
2. Bu davrda iqtisodiy operatsiyalar sodda shaklda qayd etilgan bo'lib, xo'jalik jarayonlarining murakkablashuvi natijasida ikki yoqlama yozuv prinsipi shakllana boshladi. Amalga oshirilgan operatsiyalarni yozuvga olishga katta e'tibor qaratildi.
3. **Luka Pacioli davri (XV asr oxiri):**
4. Zamonaviy buxgalteriya tizimining tamal toshi qo'yildi. Pacioli hisobotni aniq, tartibli va tizimli yuritish zarurligini asoslab berdi. Dastlabki schyotlar rejasi paydo bo'ldi.
5. **Nazariy-amaliy davr (1850–1900-yillar):**
6. Xo'jalik jarayonlariga huquqiy maqom berildi, balans, foyda, tannarx, ishlab chiqarish va muomala xarajatlari tushunchalari shakllandi. Buxgalteriya hisobi iqtisodiy tahlil vositasiga aylandi.
7. **Ilmiy davr (1900–1950-yillar):**
8. Mahsulot tannarxini kalkulyatsiya qilish, xarajatlarni to'g'ri guruhlash, to'g'ri va egri xarajatlarni ajratish, “direkt kost”, “standart kost” kabi usullar shakllandi. Boshqaruv va moliyaviy hisob tizimlari ajrala boshladi.
9. **Hozirgi davr (1950-yildan hozirgacha):**
10. Buxgalteriya hisobining xalqaro standartlari (MSFO/IFRS) qabul qilindi. Axborot texnologiyalari keng joriy qilindi, hisob jarayonlari avtomatlashtirildi. Buxgalteriya axboroti endilikda mulk egalari, jamiyat va davlat manfaatlariga xizmat qilmoqda.

Buxgalteriya hisobining asosiy tamoyillari

- **Uzluksizlik** – korxona faoliyati davom etadi deb hisoblanadi;
- **Ishonchlilik** – ma'lumotlar aniq va ishonchli bo'lishi lozim;

• **Qiyoslanish** – ko‘rsatkichlarni davrlar bo‘yicha solishtirish imkoniyati bo‘lishi kerak. Buxgalteriya axboroti — bu boshlang‘ich hujjatlar asosida qayta ishlangan va moliyaviy hisobot ko‘rinishida taqdim etiladigan tizimli ma‘lumotlardir.

Audit davlat tomonidan tartibga solinadigan faoliyat turi bo‘lib, uning huquqiy asoslari ichki va tashqi auditga nisbatan alohida tartibda belgilangan. **Ichki audit**ning me‘yoriy asoslari O‘zbekiston Respublikasining «**Korxonalar to‘g‘risida**» va «**Buxgalteriya hisobi to‘g‘risida**» qonunlarida, shuningdek boshqa normativ-huquqiy hujjatlarda o‘z aksini topgan. Bu hujjatlarga muvofiq xo‘jalik yurituvchi subyekt rahbarlari korxona doirasida ichki audit tizimini tashkil etish, uning tartibi va reglamentlarini ishlab chiqish hamda ular ijrosini ta‘minlashlari lozim.

Tashqi audit esa yuqoridagi huquqiy manbalardan tashqari «**Auditorlik faoliyati to‘g‘risida**»gi **Qonun**, hukumat qarorlari, Auditorlik faoliyati milliy standartlari (AFMS) va tegishli yo‘riqnomalar asosida amalga oshiriladi. Mazkur Qonun 29 ta moddadan iborat bo‘lib, unda auditorlik faoliyatining mazmuni, maqsadi, vazifalari, auditorlik tashkilotlarini tuzish va tugatish tartibi, litsenziyalash shartlari, auditorning huquq va majburiyatlari, auditorlik xulosasi va hisoboti rasmiylashtirish tartibi aniq belgilangan.

Qonunga muvofiq tashqi auditni **faqat maxsus litsenziyaga ega auditorlik tashkilotlari** amalga oshirishi mumkin. Shu bilan birga, davlat organlari yoki xo‘jalik yurituvchi subyektlarning bevosita ta‘sischilik asosida auditorlik tashkilotlari ochishiga **yo‘l qo‘yilmaydi**. Auditorlik tashkilotlarini tuzish va litsenziyalash tartibi O‘zbekiston Respublikasi Vazirlar Mahkamasining **2000 yil 22 sentyabrdagi 365-son qarori** hamda unga muvofiq tasdiqlangan «**Auditorlik faoliyatini amalga oshirish uchun litsenziya berish tartibi to‘g‘risida**»gi Nizomda belgilangan.

Mazkur normativlarga ko‘ra:

- auditorlik tashkiloti ustav kapitali eng kam ish haqining **kamida 1200 barobari** miqdorida bo‘lishi;
- ustav kapitalining kamida **51 foizi auditorlarga** tegishli bo‘lishi;
- tashkilot shtatida **kamida ikki nafar auditor** faoliyat yuritishi;
- auditorlik tashkiloti rahbari **auditor malakasiga ega bo‘lishi** shart.

Agar tashkilot belgilangan muddatda (tuzilgan kundan boshlab bir yil ichida) ustav kapitalini shakllantirmasa, u yuridik shaxs sifatida faoliyat yurita olmaydi va qonunchilikka muvofiq tugatiladi. Auditorlik faoliyati bilan shug‘ullanish uchun olingan litsenziya **5 yil** muddatga beriladi va uning amal qilish muddati tugaganidan so‘ng faoliyatni davom ettirish uchun **yangidan litsenziya rasmiylashtirilishi** talab etiladi.

Qonunning 3–4-moddalariga ko‘ra, **auditor** — bu O‘zbekiston Respublikasi Moliya vazirligi tomonidan tasdiqlangan o‘quv dasturi asosida maxsus tayyorlov kursini tugatgan va Davlat attestatsiya komissiyasi imtihonlarini muvaffaqiyatli topshirgan hamda **kvalifikatsiya sertifikatiga ega bo‘lgan jismoniy shaxs** hisoblanadi.

Auditorlik tashkilotlarining huquqlari va majburiyatlari (o‘zgartirilgan)

O‘zbekiston Respublikasi «**Auditorlik faoliyati to‘g‘risida**»gi Qonunning **6-moddasiga** muvofiq auditorlik tashkilotlari quyidagi huquqlarga ega:

- auditorlik tekshiruvini rejalashtirish uchun xo‘jalik yurituvchi subyektning ustav hujjatlari, buxgalteriya hisob ma‘lumotlari va moliyaviy hisobotlari bilan oldindan tanishib chiqish;

- tekshiruv jarayonida xo‘jalik operatsiyalari bilan bog‘liq barcha hujjatlarni to‘liq hajmda olish va ularda qayd etilgan aktivlar va majburiyatlarning amaldagi holatini tekshirish;
- moddiy javobgar shaxslardan zarur og‘zaki va yozma tushuntirishlarni talab qilish;
- uchinchi shaxslar tomonidan tasdiqlangan axborotni so‘rab olish;
- auditorlik xulosasini shakllantirish uchun zarur ma‘lumotlar taqdim etilmagan taqdirda, auditorlik tekshiruvini o‘tkazishdan bosh tortish;

• tekshiruv jarayoniga boshqa auditorlar yoki mutaxassislarni belgilangan tartibda jalb qilish. Shuningdek, **Qonunning 7-moddasiga** ko‘ra auditorlik tashkilotlari faqat auditorlik faoliyati bilan shug‘ullanishi mumkin va quyidagi majburiyatlarga ega:

- auditni amalga oshirishda amaldagi qonunlar va normativ-huquqiy hujjatlarga rioya qilish;
- tekshirilayotgan tashkilotga o‘zlarining litsenziyasi va auditorlar malaka sertifikatlarini taqdim etish;
- tekshiruv davomida olingan ma‘lumotlarning maxfiyligini ta‘minlash;
- auditorlik hisoboti va xulosasida moliyaviy-xo‘jalik operatsiyalaridagi qonunbuzilishlar aniq ko‘rsatilishi hamda ularni bartaraf etish bo‘yicha takliflar berilishi.

O‘zbekiston Respublikasi Vazirlar Mahkamasining **2000 yil 22 sentyabrdagi 365-son qarori** bilan tasdiqlangan Nizomga ko‘ra, auditorlik xulosasi mavjud bo‘lgan xo‘jalik yurituvchi subyektlar ustidan davlat soliq organlari tomonidan qo‘shimcha tekshiruv **kamida 24 oy o‘tgandan so‘ng** o‘tkazilishi mumkin.

Auditorlik tashkilotlari audit jarayonida sodir etilgan buzilishlar uchun quyidagi javobgarliklarni o‘z zimmasiga oladi:

- noto‘g‘ri auditorlik xulosasi natijasida yetkazilgan moddiy zararni qoplash;
- litsenziyaning vaqtincha to‘xtatilishi yoki bekor qilinishi;
- auditorlarning malaka sertifikatlari bekor qilinishi;
- ataylab buzilish hollarida — **jinoyat javobgarligigacha** boruvchi choralar qo‘llanilishi mumkin.

Qonunga ko‘ra, auditorlik tashkiloti **bir vaqtning o‘zida mijozga auditorlik xizmatini ham, konsalting (buxgalteriya yuritish) xizmatini ham ko‘rsatishi mumkin emas**. Bu manfaatlar to‘qnashuvining oldini olishga qaratilgan.

Auditning huquqiy bazasida **Auditorlik faoliyatining milliy standartlari (AFMS)** ham muhim o‘rin tutadi. AFMS auditning o‘tkazilish tartibi, usullari, auditorlarning kasbiy etikasi, ish hujjatlarini yuritish va xulosani rasmiylashtirish bo‘yicha yagona me‘yorlarni belgilaydi. Standartlar O‘zbekiston Respublikasi Moliya vazirligi tomonidan ishlab chiqilib, Adliya vazirligida ro‘yxatdan o‘tkazilgandan **10 kun o‘tib kuchga kiradi**.

FOYDALANILGAN ADABIYOTLAR RO‘YXATI:

1. http://com/iqtisodiyot.uz-buxgalteriyaning_vujudga_kelishi
2. <http://com/stat.uz>
3. <https://lex.uz/docs>
4. https://buxgalter.uz/doc-o‘zbekiston_respublikasining_buxgalteriya_hisobi

ABDULLA AVLONI'NIN PEDAGOJİK MIRASI VE ONUN ÇAĞDAŞ ÖNEMİ

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Anotasyon

Bu makalede Abdulla Avloni'nin pedagojik fikirleri, eğitim alanındaki hizmetleri ve modern dönemdeki önemi incelenmiştir. Avloni, Türk dünyasının önemli bir düşünürüdür. O, eğitimi toplumun ilerlemesinin temeli olarak görmüştür. Onun fikirleri bugün de öğretmenler ve öğrenciler için değerlidir. Çalışmada Avloni'nin eğitim felsefesi, ahlaki değer anlayışı ve çağdaş eğitimdeki yeri açıklanmıştır.

Аннотация

В данной статье рассматриваются педагогические идеи Абдуллы Авлони, его вклад в образование и современное значение его трудов. Авлони является важным мыслителем тюркского мира. Он считал образование основой развития общества. Его идеи остаются ценными для учителей и студентов сегодня. В работе объясняется философия образования Авлони, его понимание нравственных ценностей и место в современной педагогике.

Anotation

This article analyzes Abdulla Avloni's pedagogical ideas, his contribution to education, and the modern relevance of his works. Avloni is an important thinker of the Turkic world. He considered education as the foundation of social progress. His ideas are still valuable for teachers and students today. The study explains Avloni's educational philosophy, moral values, and his role in modern pedagogy.

Anahtar kelimeler: Abdulla Avloni, pedagojik miras, eğitim, öğretmen, değerler, modern dönem, ahlak, bilgi.

Ключевые слова: Абдулла Авлони, педагогическое наследие, образование, учитель, ценности, современность, мораль, знание.

Keywords: Abdulla Avloni, pedagogical heritage, education, teacher, values, modern era, morality, knowledge

KIRIŞ

Eğitim, her toplumun gelişmesi için en önemli alandır. Türkiye Cumhuriyeti ve Özbekistan Cumhuriyeti gibi ülkelerde eğitim, devletin temel politikasıdır. Bu nedenle birçok kanun ve karar, eğitimin kalitesini yükseltmek için kabul edilmiştir. Özbekistan'da "Eğitim Hakkında" "Kanun ve Ulusal Personel Yetiştirme Programı" gibi belgeler, modern eğitim sisteminin yasal temelini oluşturmuştur. Türkiye'de ise "1739 Sayılı Millî Eğitim Temel Kanunu" eğitimin genel esaslarını belirlemiştir. Bu kanunlara göre eğitim, insanın ahlaki, zihinsel ve fiziksel yönlerini geliştirmeyi amaçlar. Abdulla Avloni, XX. yüzyılın başlarında yaşamış büyük bir öğretmen, yazar ve düşünürdür.

O, eğitimin toplumun geleceği için en güçlü araç olduğunu söylemiştir. Avloni, “Terbiye bizler için hayat meselesidir” diyerek eğitimin sadece bilgi değil, aynı zamanda ahlak ve vicdan eğitimi olduğunu vurgulamıştır. Onun bu fikri, günümüzde de eğitim reformlarının temelini oluşturur. Özbekistan Cumhuriyeti Cumhurbaşkanı tarafından kabul edilen “2020–2030 Yıllarına Ait Eğitim Stratejisi” belgesinde de Avloni’nin fikirlerine benzer şekilde, genç neslin millî ve ahlaki değerlere göre yetiştirilmesi gerektiği belirtilmiştir. Bilimsel olarak bakıldığında, Abdulla Avloni’nin pedagojik mirası modern pedagojinin temel ilkeleriyle uyumludur. Bugün UNESCO ve UNICEF gibi uluslararası kuruluşlar, eğitimin sürdürülebilir kalkınmanın anahtarı olduğunu vurgulamaktadır. Avloni de yüz yıl önce aynı düşünceyi savunmuştur. Onun eserlerinde bilgi, ahlak, emek, adalet ve sevgi gibi kavramlar eğitim sürecinin merkezindedir. Çağdaş dönemde Avloni’nin mirası, yalnızca tarihsel bir değer değildir; aynı zamanda modern eğitim felsefesi için bir modeldir. Özbekistan ve Türkiye’deki öğretmen yetiştirme programlarında Avloni’nin görüşleri pedagojik literatürde sıkça kullanılmaktadır. Özbekistan Cumhuriyeti’nin “Yoshlar siyosati to‘g‘risida” (Gençlik Politikası Hakkında) Kanunu, gençlerin bilim, yaratıcılık ve ahlak alanında gelişmesini desteklemektedir. Bu da Avloni’nin “ahlaklı ve bilgili insan” idealiyle doğrudan ilişkilidir. Sonuç olarak, Abdulla Avloni’nin fikirleri geçmişte kalmamış, aksine bugün de modern eğitim anlayışına yön vermeye devam etmektedir. Onun eserleri, devlet politikalarında yer alan insani ve ahlaki eğitim ilkeleriyle uyum içindedir. Bu nedenle Avloni’nin pedagojik mirası, sadece Özbekistan için değil, bütün Türk dünyası ve çağdaş eğitim bilimi için büyük bir değerdir.

Abdulla Avloni, Özbek halkının modern eğitim tarihinde çok önemli bir kişidir. O, 1878 yılında Taşkent’te doğmuş, hem öğretmen hem de yazar olarak çalışmıştır. Avloni, “Türkiston”, “Shuhrat”, “Taraqqiy” gibi gazetelerde yazılar yazmıştır. Onun en önemli eseri **“Turkiy Guliston yoxud axloq”** adlı kitaptır. Bu eser, yalnızca edebi bir metin değil, aynı zamanda pedagojik bir el kitabıdır. Bu kitapta Avloni, çocukların hem bilgi hem de ahlak yönünden gelişmesi gerektiğini belirtmiştir. Avloni’ye göre eğitimin iki yönü vardır: biri akıl eğitimi, diğeri kalp eğitimi. O, “Bilgi insanı aydınlatır, ahlak insanı güzelleştirir” diyerek, bilgi ile değerlerin bir bütün olduğunu anlatmıştır. Bu fikir, bugün de Özbekistan eğitim sisteminde geçerlidir. **“Eğitim Hakkında” Kanun**’da da eğitimin hem bilimsel hem de ahlaki gelişmeyi desteklemesi gerektiği açıkça yazılmıştır. Avloni, öğretmenin toplumdaki en önemli kişi olduğunu düşünmüştür. O, öğretmeni “milletin ruh mimarı” olarak tanımlar. Çünkü ona göre öğretmen yalnız ders anlatmaz, aynı zamanda öğrencilere milli kimlik ve insanlık sevgisi kazandırır. Bu düşünce, **Ulusal Personel Yetiştirme Programı** belgesinde de görülür. Bu belgeye göre öğretmenler, sadece bilgi veren değil, aynı zamanda genç nesli millî ve ahlaki değerlere göre yetiştiren kişilerdir. Bilimsel açıdan bakıldığında, Avloni’nin pedagojik sistemi üç ana unsurdan oluşur: **bilgi, ahlak ve vatan sevgisi**. Bu üç unsur onun bütün eğitim felsefesinin temelidir. O, eğitimin yalnız birey için değil, toplumun geleceği için de gerekli olduğunu savunmuştur. Avloni, “Bir milletin gücü, onun çocuklarının terbiyesindedir” diyerek eğitimin milli kalkınmadaki rolünü göstermiştir. Avloni’nin fikirleri modern eğitimde “şahsiyetga yo‘naltirilgan ta’lim” yani birey merkezli eğitim anlayışıyla uyumludur. Bugün Özbekistan’da ve Türkiye’de uygulanan yeni eğitim programlarında öğrenci merkezli yöntemler kullanılmaktadır. Örneğin, Özbekistan’da **Cumhurbaşkanlığı Kararnamesi ile kabul edilen 2022-2026 Eğitim Konsepti** (Eğitim Konsepti) öğrencilerin yaratıcılığını, bağımsız düşünmesini ve ahlaki gelişimini desteklemektedir. Bu prensipler, Avloni’nin yüzyıl önce söylediği “öz fikri olan, ahlaklı, vatana faydalı insan yetiştirmek” düşüncesine dayanır. Ayrıca Avloni, kız ve erkek çocukların eşit eğitim hakkına sahip olması

gerektiğini savunmuştur. O, eski dönemde kadınların eğitimden uzak kalmasını büyük bir hata olarak görmüştür. Onun bu fikri, bugün Özbekistan Anayasası ve **“Kadın Hakları Hakkında”** Kanun ile tamamen desteklenmektedir. Bu yönüyle Avloni, kadınların eğitime katılımını savunan ilk aydınlardan biridir. Çağdaş eğitim bilimi açısından değerlendirildiğinde, Avloni’nin çalışmaları sadece pedagojik değil, aynı zamanda sosyolojik değere de sahiptir. O, eğitim ile toplumun ahlakı arasında güçlü bir bağ kurmuştur. UNESCO’nun “Education for Sustainable Development” (Sürdürülebilir Kalkınma İçin Eğitim) programında da aynı fikir savunulmaktadır. Yani eğitim, sadece bilgi değil, aynı zamanda insanın doğaya, topluma ve kendisine karşı sorumluluk duygusunu da geliştirmelidir. Avloni, bunu yüz yıl önce eserlerinde açıkça yazmıştır.

Bugün Özbekistan’daki Gençlik İşleri Ajansı, **Özbekistan Cumhuriyeti Cumhurbaşkanı’nın 19 Mayıs 2021 tarihli ve PQ-5117 sayılı Kararı** temelinde gençlerin bilim, sanat ve ahlak alanında gelişmesini desteklemektedir. Bu politika, doğrudan Avloni’nin “ahlaklı, bilgili ve vatanını seven genç” idealine uygundur. Son olarak, Avloni’nin pedagojik mirası sadece geçmişin bir hatırası değildir. Onun düşünceleri modern öğretmen eğitimi, ahlaki değerler sistemi ve kültürel kimlik gelişimi için bilimsel bir temeldir. Bugün Özbekistan ve Türkiye’de onun adıyla okullar, seminerler ve araştırma merkezleri faaliyet göstermektedir. Bu da onun fikirlerinin yaşayan bir miras olduğunu gösterir. Abdulla Avloni’nin pedagojik düşünceleri, modern eğitim bilminde bugün de önemlidir. O, eğitimi sadece okulda öğrenilen bilgi olarak değil, insanın tüm yaşamını kapsayan bir süreç olarak görmüştür. Avloni’ye göre insan, doğuştan iyi bir varlıktır, fakat doğru eğitim olmadan bu iyilik gelişmez. Bu fikir, bugün Özbekistan’daki Ulusal Müfredat ile benzerlik taşır. Bu program, öğrencilerin bilgisel gelişimi yanında duygusal ve ahlaki gelişimini de hedefler. Avloni’nin eğitim felsefesinde en önemli kavramlardan biri **ahlak** kavramıdır. O, “Ahlaklı olmayan toplum yaşayamaz” demiştir. Avloni, eğitim sisteminin sadece bilim değil, aynı zamanda insan sevgisi, dürüstlük, sabır ve çalışkanlık gibi değerlerle şekillenmesi gerektiğini savunmuştur. Bugün Özbekistan Cumhuriyeti’nin **6 Eylül 2021 tarihli "Maneviyat ve Aydınlanma Politikası Hakkında" Kararname** de bu düşüncüyü desteklemektedir. Bu belgeye göre her bir eğitim kurumu, öğrencilerin ma’naviy (manevi) ve axloqiy (ahlaki) yetkinliğini geliştirmek için çalışmalıdır. Avloni ayrıca **vatanseverlik** eğitimin merkezine koymuştur. O, “Vatanını seven insan, milletini de sever” diyerek milli kimliğin korunmasının eğitim yoluyla mümkün olacağını vurgulamıştır. Bugün Özbekistan Anayasası’nda da milliy qadriyatlar (ulusal değerler) eğitimin temel yönlerinden biri olarak belirtilmiştir. Avloni, bu düşüncesiyle modern vatandaşlık eğitiminin öncüsü sayılabilir.

Bilimsel olarak, Avloni’nin pedagojik görüşleri üç ana başlıkta toplanabilir:

1. **Bilgi eğitimi** – öğrencinin aklını ve düşünme yeteneğini geliştirir.
2. **Ahlak eğitimi** – öğrencinin kalbini, davranışını ve insan sevgisini şekillendirir.
3. **Vatan eğitimi** – öğrencinin milli kimliğini ve topluma bağlılığını güçlendirir.

Bu üç yön, bugün UNESCO’nun “Kapsayıcı ve Kaliteli Eğitim” hedefleriyle uyumludur. Avloni’nin bu fikirleri, modern pedagojideki **bütüncül eğitim (holistik yaklaşım)** anlayışına çok benzemektedir. Avloni’nin eserlerinde dil ve kültür de önemli yer tutar. O, Türkçe’nin korunması ve geliştirilmesini eğitimin önemli bir görevi olarak görmüştür. “Ana dili olmayan milletin ruhu eksiktir” sözleriyle dilin kimlikteki yerini anlatmıştır. Bugün Özbekistan’da **Devlet Dili Geliştirme Programı** bu düşüncenin modern bir devamıdır. Bu program, eğitim kurumlarında ana dilin sevdinilmesi ve doğru öğretilmesi amacıyla hazırlanmıştır. Ayrıca Avloni, çocuk psikolojisini iyi anlayan bir pedagojdu. O, çocukların doğasına uygun öğretim yöntemlerinin kullanılmasını

savunmuştur. “Her çocuk bir dünyadır” sözüyle her öğrencinin farklı yeteneğe sahip olduğunu belirtmiştir. Bu fikir, günümüzdeki **kapsayıcı eğitim** politikalarıyla da örtüşmektedir. Özbekistan Cumhurbaşkanı’nın 13 Ekim 2020 tarihli PQ-4857 sayılı karar, engelli çocukların normal okullarda eğitim almasını desteklemektedir. Bu karar, Avloni’nin insan merkezli eğitim anlayışının modern bir yansımasıdır. Pedagojik yönden Avloni’nin fikirleri, modern “kompetensiyaga asoslangan ta’lim” (yetkinlik temelli eğitim) modeliyle de benzerlik gösterir. Günümüzde eğitim sadece bilgi vermek değil, aynı zamanda öğrencinin yaşam becerilerini geliştirmek anlamına gelir. Avloni de kendi döneminde bunu savunmuştur: O, çocukların hayata hazırlanması gerektiğini, sadece kitap bilgisiyle değil, ahlak, dil, sanat ve emekle eğitilmeleri gerektiğini söylemiştir. Avloni’nin bir başka önemli katkısı, **öğretmen** kavramına getirdiği yüksek değerdir. O, öğretmeni “milletin ışıltısı” olarak nitelendirir. Öğretmen, sadece bilgi veren değil, aynı zamanda genç nesli vatan sevgisiyle büyüten kişidir. Bu bakış, bugün Özbekistan’daki Öğretmenler Günü geleneğiyle yaşatılmaktadır. Bu özel gün, Avloni’nin öğretmenlik mesleğine verdiği saygının toplumsal bir ifadesidir. Çağdaş dönemde Avloni’nin pedagojik mirası, eğitim reformlarının teorik temelini oluşturur. Özbekistan’da yürürlükte olan “Yükseköğretim Geliştirme Konsepti” belgesi, yaratıcı, ahlaklı ve millî ruhlu bireyler yetiştirmeyi hedeflemektedir. Bu hedef, Avloni’nin “mükemmel insan” idealiyle doğrudan bağlantılıdır. Sonuç olarak, Abdulla Avloni’nin pedagojik sistemi sadece kendi dönemi için değil, XXI. yüzyılın eğitim sistemleri için de bilimsel ve ahlaki bir örnektir. Onun fikirleri, bugünün devlet stratejilerinde, eğitim programlarında ve öğretmen yetiştirme standartlarında yaşamaktadır. Avloni’nin mirası, Türk dünyasının ortak manevi değeri ve modern pedagojinin sağlam bir temeli olarak varlığını sürdürmektedir.

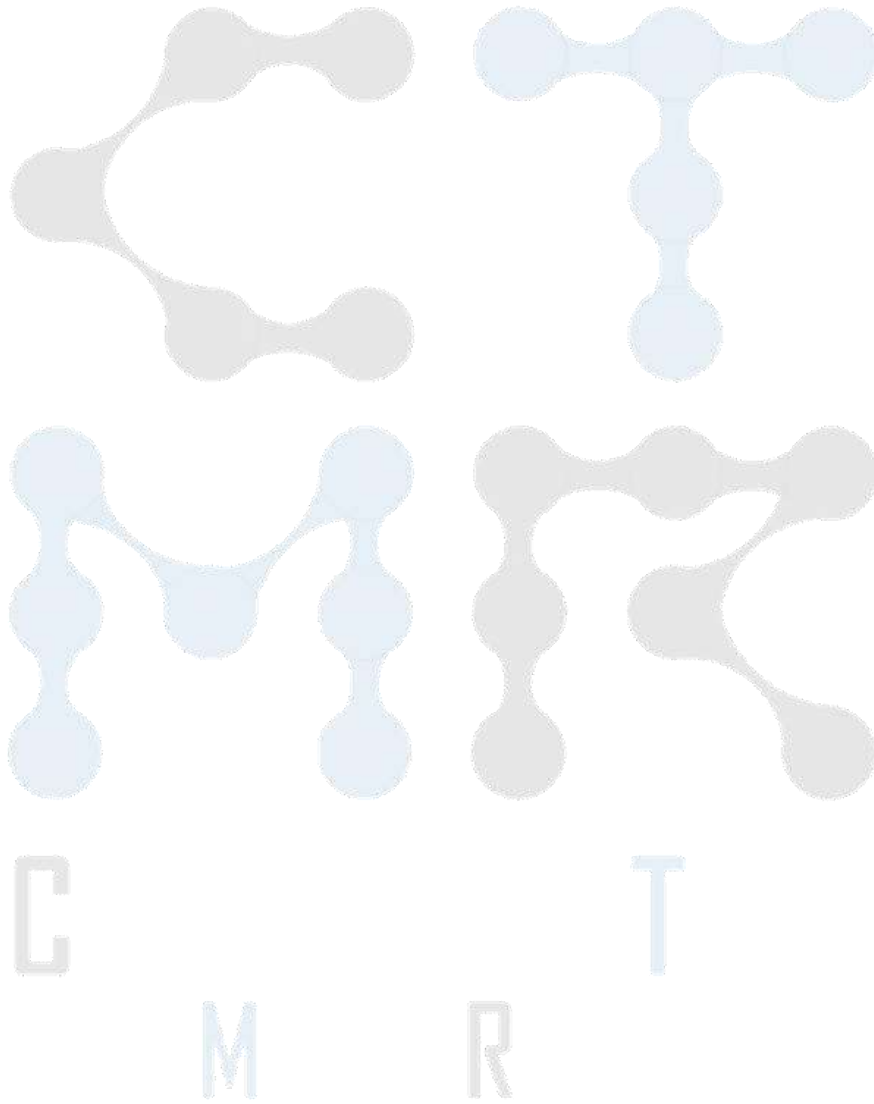
SONUÇ

Abdulla Avloni, Türk ve Özbek halklarının eğitim tarihinde çok önemli bir şahsiyettir. O, eğitimi bir milletin geleceği olarak görmüştür. Onun pedagojik düşünceleri, bilgi, ahlak ve vatan sevgisi üzerine kuruludur. Avloni, öğretmeni toplumun en saygıdeğer kişisi olarak tanımlamış, çocukların hem akıl hem de kalp yönünden yetişmesini istemiştir. Bugün Özbekistan Cumhuriyeti’nde uygulanan birçok eğitim kanunu ve devlet kararı, Avloni’nin fikirleriyle uyumludur. “Eğitim Hakkında” Kanun, “Ulusal Personel Yetiştirme Programı”, “Gençlik Politikası Hakkında” yasalar — hepsi Avloni’nin insani, ahlaki ve millî eğitim ideallerini yaşatmaktadır. Bilimsel olarak, Avloni’nin pedagojik mirası sadece tarihî bir değer değil, aynı zamanda çağdaş eğitimin teorik temeli sayılabilir. Onun “Turkiy Guliston yoxud axloq” adlı eseri, bugünkü eğitimciler için bir rehberdir. Avloni’nin fikirleri UNESCO’nun modern eğitim hedefleriyle de uyumludur: barış, ahlak, sevgi ve bilgiye dayalı toplum inşa etmek. Sonuç olarak, Abdulla Avloni’nin pedagojik sistemi, bugünün eğitim felsefesi için büyük bir örnektir. Onun düşünceleri hem öğretmenler hem de öğrenciler için ilham kaynağı olmaya devam etmektedir. Bu nedenle Avloni’nin mirası, Türk dünyasının ortak kültürel değeri olarak korunmalı, incelenmeli ve genç kuşaklara aktarılmalıdır.

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**MEDA VA ICHAK YARA KASALLIGI: ETIOLOGIYASI, PATOGENEZI, KLINIK
BELGILARI, DIAGNOSTIKASI VA DAVOLASH USULLARI**

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Annotatsiya: Ushbu ilmiy maqolada meda va ichak yara kasalligining etiologiyasi, patogenezi, klinik belgilari, diagnostikasi va zamonaviy davolash usullari keng yoritilgan. *Helicobacter pylori* bakteriyasi va nosteroid yallig'lanishga qarshi preparatlar, ayniqsa aspirin, ushbu kasalliklarning rivojlanishida muhim omillar sifatida tahlil qilingan. Molekulyar darajadagi patogenez mexanizmlari, shu jumladan, prostaglandinlar sintezining buzilishi, COX-1 va COX-2 fermentlari faoliyatining o'zgarishi batafsil bayon etilgan.

Kalit so'zlar: Meda yara kasalligi, ichak yarasi, *Helicobacter pylori*, aspirin, COX-1, molekulyar patogenez, davolash.

Аннотация: В данной научной статье подробно освещены этиология, патогенез, клинические признаки, диагностика и современные методы лечения язвенной болезни желудка и кишечника. Бактерия *Helicobacter pylori* и нестероидные противовоспалительные препараты, особенно аспирин, проанализированы как важные факторы в развитии данных заболеваний. Механизмы патогенеза на молекулярном уровне, включая нарушение синтеза простагландинов и изменения в активности ферментов COX-1 и COX-2, подробно описаны.

Ключевые слова: Язва желудка, язва кишечника, *Helicobacter pylori*, аспирин, COX-1, молекулярный патогенез, лечение,

Abstract: This scientific article provides a comprehensive overview of the etiology, pathogenesis, clinical features, diagnosis, and modern treatment methods of gastric and intestinal ulcer diseases. *Helicobacter pylori* bacteria and nonsteroidal anti-inflammatory drugs, especially aspirin, are analyzed as significant factors in the development of these diseases. Molecular mechanisms of pathogenesis, including the disruption of prostaglandin synthesis and alterations in the activity of COX-1 and COX-2 enzymes, are thoroughly explained.

Keywords: Gastric ulcer, intestinal ulcer, *Helicobacter pylori*, aspirin, COX-1, molecular pathogenesis, treatment.

KIRISH

Meda va on ikki barmoqli ichak yara kasalliklari zamonaviy tibbiyotning dolzarb muammolaridan biri hisoblanadi. Bu kasalliklarning yuqori uchrashi, surunkali kechishi va asoratlar bilan kechishi uni chuqur o'rganishni talab qiladi. Yara kasalligida meda va ichak shilliq qavatining turli darajada chuqurlashgan nuqsonlari vujudga keladi.

Etiologiya

Yara kasalligining asosiy sabablari quyidagilar hisoblanadi:

- *Helicobacter pylori* infeksiyasi;
- Aspirin va boshqa nosteroid yallig'lanishga qarshi dorilar (NSAID);
- Stress, genetik moyillik, noto'g'ri ovqatlanish;
- Tamaki chekish va spirtli ichimliklar iste'moli.

Aspirin COX-1 fermentini inhibitsiyalab, prostaglandinlar sintezini pasaytiradi. Bu shilliq qavatni himoya qiluvchi omillarni kamaytirib, yara hosil bo'lishiga olib keladi.

Patogenez

Molekulyar darajada, *Helicobacter pylori* shilliq qavatga yopishib, ureaza fermenti yordamida ammiak hosil qiladi. Bu muhitni ishqoriylashtirib, shilliq qavatni zaiflashtiradi. Bundan tashqari, bakteriyaning CagA va VacA toksinlari hujayralararo signal uzatish tizimlarini buzadi, bu yallig'lanish va nekrozni kuchaytiradi.

Aspirin COX-1 ni inhibitsiyalab, prostaglandinlar sintezini to'xtatadi. Natijada, qon aylanishi va bikarbonat ajralishi kamayadi, shilliq qavat zaiflashadi va yara hosil bo'ladi.

Klinik belgilari

Yara kasalligining asosiy belgilariga quyidagilar kiradi:

- Qorin yuqori qismida og'riq;
- Ko'ngil aynishi, qusish;
- Ishtahaning yo'qolishi;
- Og'riq ovqatdan keyin kuchayishi yoki kamayishi;

Diagnostika

Diagnostika quyidagi usullar orqali amalga oshiriladi:

- FEGDS (fibroezofagogastroduodenoskopiya);
- *Helicobacter pylori* ga test (nafas testi, najasda antigen, biopsiya);
- Laborator tahlillar (gemoglobin, qonning yashirin qon tahlili).

Davolash

Yara kasalligini davolash quyidagi bosqichlarda olib boriladi:

1. *Helicobacter pylori* ni yo'qotish uchun eradikatsion terapiya (antibiotiklar: klaritromitsin, amoksitsillin + proton nasos inhibitörleri);
2. Gastrik kislotalikni kamaytirish (omeprazol, pantoprazol);
3. Himoya vositalari (sukralfat, vismutli preparatlar);
4. Agar aspirin qabul qilinayotgan bo'lsa, uni bekor qilish yoki gastrohimoya bilan almashtirish.

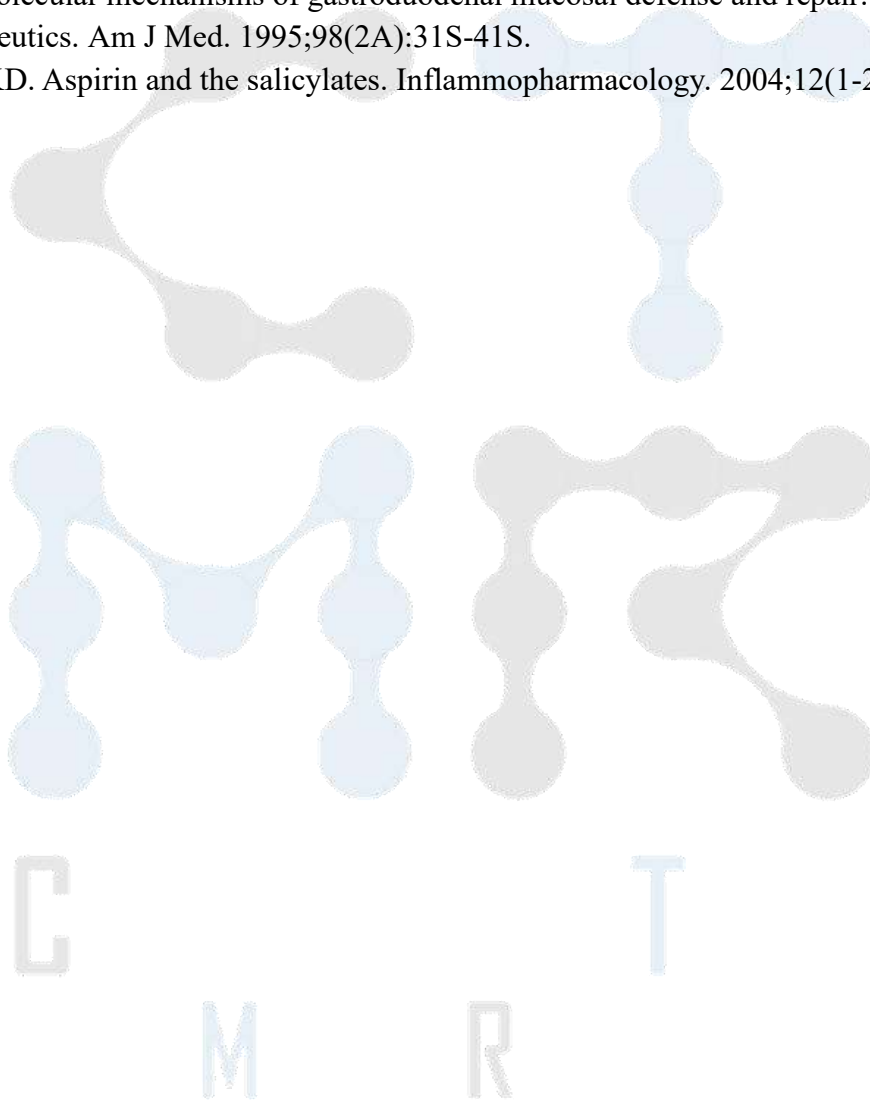
Xulosa

Yara kasalligi kompleks etiologik va patogenetik omillar asosida rivojlanadi. *Helicobacter pylori* infeksiyasi va NSAID, ayniqsa aspirin, ushbu kasalliklarning asosiy sabablari bo'lib, ularning molekulyar ta'sir mexanizmlari davolash taktikasini belgilashda muhim ahamiyatga ega. Erta diagnostika va to'g'ri davolash usullarining qo'llanishi bemorning sog'ayishiga va asoratlarning oldini olishga xizmat qiladi.

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**THE FORMATION AND ARTISTIC-AESTHETIC EVOLUTION OF THE
MODERN SHORT-TEXT GENRE IN THE UNITED ARAB EMIRATES
(1970–1990)**

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ABSTRACT. The article analyzes the formation of the modern short story genre in the United Arab Emirates (UAE) and the literary style of the first generation of short story writers who worked between 1970 and 1990. It is noted that the independence of the state (1971), the development of the education and press system laid the foundation for the emergence of Emirati prose. The study highlights the directions of sentimentalism, realism and modernism using the work of writers such as Sheikha Mubarak Nahi, Abdullah Saqr Mirr, Ali Abdulaziz Sharkhan. In their works, such themes as labor migration, the destruction of traditional lifestyles, the inner suffering of the individual, and social changes under the influence of modernization occupy a central place. The gradual transition of writers from a realistic story to a modernist style is also scientifically substantiated. The results of the study show that UAE short story writing has been able to form its own mature national literary school and plays an important role in the overall development of Arabic prose.

Key words: *UAE literature, Emirati prose, first generation story writers, Muhammad Murr, Abdullah Saqr Mirr, Sheikha Mubarak Nahi, sentimentalism; realism, modernism, magical realism, Arabic literature; modern prose; literary evolution.*

The United Arab Emirates is one of the Arab countries that developed its own modern literature very late, in the 1970s, replacing medieval Arabic literature. However, among the early Emirati stories, most of which were based on the artistic principles of morality, edifying sentimentalism and romanticism, there are also stories that are examples of mature realism (in the work of Muhammad Murr) and even modernism (in the work of Abdullah Mirr). In the 1980s, when the realistic direction in Emirati literature steadily developed, most short story writers turned to the aesthetics of modernism. They abandoned the vividly expressed plot in their stories, focusing on the internal state of consciousness, which was reflected in a peculiarly subjective way. Some scholars (Miriam Juma Faraj, Suad Arimi, Hareb Zaheri, Salma Matar Seif) used the complex language of the story, saturated with metaphors and similes, and unique

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lexical-syntactic constructions typical of Arab poetry. As a result, they created a unique style that Arab literary critics have called "poetic modernism".

In addition, in some Emirati short stories of this period, elements of magical realism (in the works of Abu Hamid Ahmed Abdulhamid and Salma Matar Seif), absurd aesthetics (in the works of Zabiyyi Khamis) and postmodern parody (in the works of Salma Matar Seif) can be observed. The themes of the works of Emirati short stories encompass both the realities and problems of UAE society, as well as universal philosophical problems (in the works of Basema Yunus and Juma Feruz). Some key themes, namely, labor migration abroad and nostalgia for the traditional way of life left in the past, bring UAE fiction close to the literature of other Arab countries of the Persian Gulf, while at the same time making it unique in the context of modern Arab literature in general.

The United Arab Emirates is one of the Arab countries where modern literature, that is, Western-style literature, emerged late, replacing medieval Arabic literature. Only on the eve of the Persian Gulf emirates gaining statehood (1971), some young Emiratis studying at Egyptian higher education institutions published their first works in Egyptian publications, typologically close to the genre of the story. In the early 1970s, a modern system of secondary and higher education began to take shape in the United Arab Emirates, their own publications developed, which contributed to the expansion of the circle of young writers and created the basis for the sustainable development of national journalism and literary prose.

The "very young" UAE literature attracted the attention of Western Arab literary critics only at the beginning of the 21st century. Some examples of modern Emirati short stories and novels were studied in the articles of the Swiss researcher G. Ramsay. [1161-186] The Polish researcher B. Michalak-Pikulska presented a general overview of the development of the short story genre and poetry in the UAE [2]. However, she did not study all the short stories published in the 20th century, and despite the large number of citations, the reader cannot get a clear idea of the author's methodology from this source. A full overview of the development of the Emirati novel in the 20th century is presented in two articles in this series. One issue of the journal of modern Arabic literature "Banipal", published in Great Britain, was devoted to modern prose from the UAE. This issue of the journal included critical studies and translations of fragments of novels and short stories. [3] Earlier, short stories by some Emirati writers had been published in English translation. [4]

As for Arab and especially Emirati critics and literary scholars, their interest in contemporary UAE prose has been reflected in the publication of a large number of monographic and collective studies devoted to this prose (especially on the short story

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genre [5]) and in the publication of bibliographical publications. [6] In addition, literary creation in the UAE has received significant support from state and public organizations: in 1984, the UAE Writers' Union was founded. Since 1985, a large conference of authoritative writers has been organized on average once every four years. In 1990, the Ghanima Ghubash Prize [7] was established for the best short story of the year.

Speaking about the work of Emirati prose writers who began writing stories in the 1970s and 1980s, Ali Muhammad Rashid, a researcher of Emirati fiction, calls them the "first generation" of Emirati short story writers [6:22]. The stories of most of these writers were included in the collective collections "We All Love the Sea" (Kullyuna Nuhib al-Bahr, 1986) and "The Song of the Coast, the Howl of the Desert" (Nashid al-Sahil, Safir al-Barr, 2001). These collections were published by the UAE Writers' Union.

According to researcher Rashid Abu Shuair, the first work published in the UAE that fully met the criteria of the short story genre was the story "Departure" (1970) by Sheikha Mubarak Nahiy (born in 1952 in Sharjah), a teacher and philologist by profession [7:12]. The writer's first collection was also titled "Departure" (ar-Rahil, 1992). It included stories published in emirate publishing houses.

Overly sentimental in tone, the main theme of most of Sheikha Nakhini's stories was the girls' hopes and dreams for happiness in their personal lives, which caused deep sadness. The heroine of the story "*Leaving*" wants to marry a neighbor's young man, this young man also loves the girl, but the girl's parents do not consent to their marriage, and the young man decides to leave. The heroine of the story "*Lights of Illusion*" loves her uncle's son, and according to her relatives, he should be her husband, he goes to study abroad and starts a family there. The heroine of the story "*The Day Has Come*" is waiting for her beloved to return from abroad, and despite the fact that people say that he has already married there, a letter from him becomes a reason for the girl's hopes and dreams to come true without reading the letter. The heroine of the story "*The Road to Nowhere*" suffers from the oppression of her stepmother in her youth, and then she and her father, who want to get rid of her as soon as possible, Together with her stepmother, she marries off to a mentally ill old man, and her suffering continues. The man in the story "*Fingers on the Wires*" has long since left his family, and when he hears his grown-up daughter's voice on the phone, he is overcome with tender feelings, and decides to return. The heroine of the story "*Besieged*" suffers from the behavior of her husband, who is constantly cheating and drinking. But when the woman receives news that her husband is in a serious condition in the hospital, she shouts, "... no, no, it can't be, we haven't even started living yet." [8:48]

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The stories written by Sheikha Nahiy in the first half of the 1980s and 1990s were included in her second collection, *"Northern Winds"* (Riyah ash-Shimal, 1999). It is easy to notice a change in the author's style in them: now the description of the inner state of the characters, their feelings and experiences, and sometimes the stream of consciousness in the context of an incomprehensible or completely incomprehensible plot come to the fore. The story is told in a special, *"poetic"* language, which is distinguished by its own lexical and syntactic features. For example, the first lines of the story *"Shards of the Soul"*:

"He threw himself into the arms of a powerless moment, his insides screamed, screamed, abandoned all the movements that distracted him from reason, his eyes were fixed on the silent wall, he ran without stopping into infinity. His feet were sinking into the fiery abyss, when the hands of a strong wind appeared, he began to run for salvation. When the devil's hands approached his beautiful white neck to grab his dirty fingers, a scream was heard from his soul, which disappeared into the vast depths of the dark night, slowly crawling under the weight of reality immersed in non-existence" [9: 63].

Some of the stories in the collection are more realistic in their plot and action, such as the story *"The Walls Have Ears,"* in which a prisoner talks to a prison guard who hates his job, or the story *"The Disturbance,"* in which a day in the life of an emir who is forced to support his family alone after the death of his father. In addition, the story *"The North Winds"* depicts the sorrows and suffering of an Aden family during the siege of Aden by the North Yemeni army in 1994.

Rashid Abu Shuaibra notes that at about the same time as Sheikha Nahi, Abdullah Saqr Mir (born in Dubai in 1952) also began writing stories. Abdullah Saqr Mir's collection of short stories, *"The Cards"* (al-Khasaba, 1975), a poet and a skilled footballer, was the first collection of short stories published by a UAE author [10; 12].

Its first edition did not reach readers due to censorship; it was republished again in 1999.

The censorship obstacles were not unexpected for the author, apparently, he considered himself a *"literary rebel"*. This is evidenced by the epigraphs he chose for the collection. All the stories in the collection are written in the spirit of the aesthetics of *"dark"* modernism. This trend had already spread to some Arab countries, including Saudi Arabia, by this time. But it was still aesthetically different for the new prose of the UAE [11:135-142,200:217]. The short stories of the collection are mostly allegorical, surrealistic, and absurd images that are difficult to interpret in a single sense, evoking in readers a feeling of pessimism, helplessness, and alienation. It can be assumed that the man who tried to get on a crowded bus with a briefcase full of

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books and ended up dying under the wheels in front of the cruel and indifferent passengers represents the fate of Arab intellectuals. (The story "*Spiritualization among the Experiences of a Dying World*"). The scene of a woman being raped by a group of men, depicted with pornographic elements, may also be a peculiar allegory of the condition of women in Muslim society ("The Seance"). The idea that the author does not accept the existing traditional state of things is indirectly confirmed by the appearance in several stories of some kind of beards as a "*dark, evil force*", a widespread symbol of traditionalism in Arabic literature.

Al-Mirr's modernist efforts at this early stage of the development of the Emirati story did not cause widespread imitation. Most of the writers who began their work had a realistic and sentimental romantic view of the environment and reality, that is, a point of view, and rarely resorted to the aesthetics of modernism. Ali Abdulaziz Sharkhan (born in 1950 in Ras al-Khaimah) is one of these writers. He is a skilled philologist, educated in Great Britain, and later held high positions in the UAE higher education system. His stories in the collection "*Sadness*" (al-Shaka, 1977) are diverse in ideological and artistic terms. Some are written in a romantic style, others in a realistic and sentimental spirit, and still others in the spirit of modernism. In addition, the writer's use of the local dialect was a distinctive feature, especially in dialogues and internal monologues, in order to give the story a unique national flavor. As the name of the collection suggests, the main theme of the stories is human suffering, which is conditioned by the cruel living conditions of the emirates in the pre-oil era, or by the problems associated with the transition to a new way of life in the oil era. The difficult life of sailors, fishermen, exporters and agricultural workers in the pre-oil era is devoted to such stories as "*Goodbye, my beloved!*", "*Bottomless Deep*", "*Suffering*", "*Joy after Death*", "*Abu Abboud*". These stories give us an idea that Ali Abdulaziz Sharkhan was familiar with the ideas of class exploitation that were widespread in Egypt at that time, and these stories were written in Egypt.

The story "*A Tear on the Sidewalk*" is the first to address the issue of migrant workers. Migrant workers' hopes and dreams of improving their financial situation in the UAE are dashed. The stories "*The Tragedy of Dreams and Reality*" and "*Thoughts on Lost Time*," written in modernist aesthetics, show the feelings of loneliness, alienation, and helplessness that arise due to the complexity and difficulty of human adaptation to the changing conditions of life in the UAE. The heroic-romantic story "*Who Loved the Old Wall*" tells the story of the heroism of a simple sailor who takes revenge on his family for the death of a sailor and the English sailors who caused the destruction of his village. The action in the story, apparently, takes place in the first quarter of the 19th

century, when the British fleet launched military campaigns against the pirates of the Persian Gulf.

Abdurid Hassan Sajwani (born in 1957 in Sharjah), a philologist by training and an employee of the UAE Ministry of Education, devoted his stories to the period before the oil era in the Emirates and to his own life. By the early 2000s, he had published three collections: *“Those Times”* (Zalika-z-zaman, 1978), *“The Girl’s Mistake”* (Zallat al-Azhara, 1981), and *“The Renunciation”* (ar-Rafd, 1992). The first collection, which was small in size, dealt with the life of the United Arab Emirates before the oil era. The author himself writes about this: *“To all new generations who want to know about the past, full of hardship and sorrow, glorious and heroic, and to those who lived in the past, overcoming these difficulties, to all those who suffered and were unhappy at that time”* [12 24].

In an overly sentimental style, aimed at evoking a sense of shared suffering and compassion in the library, the author describes the primitive economic life of the ancient emirates. In this life, people died from diseases, hunger and various injuries. The work of those who pulled out the corpse from the sea was especially dangerous: in the story *“Tears of the Past”*, the hero’s leg was bitten off by a shark. In the story *“Melting Hope”*, the husband of the heroine fell into a similar situation.

In the story *“The Law of the Sea”*, a diver who fell ill on a ship The captain of the ship orders him to be thrown overboard to prevent the other members of the crew from contracting the disease. The story *“Thirst and Heat”* is dedicated to the suffering of people in conditions without sources of drinking water. In the stories *“In Bygone Times”* and *“A Well Full of Souls”*, the author tells about the heresies of that time.

Most of the stories in the collection are devoted to moral and spiritual issues, which is evident even from their titles. These stories are a vivid expression of the author's enlightened thinking. Such thinking is characteristic of Egyptian, Syrian, and Lebanese writers who wrote in the last 30s of the 19th century, as well as Yemeni short story writers who wrote in the 1940s [13 50-55]. Like his predecessors, al-Sajwani praises hard work and diligence (*“And prosperity came,” “And the candles were lit”*), kindness and helpfulness (*“A good heart,” “The fruits of goodness”*), and criticizes harshness (*“The cries of the oppressed”*), deceit (*“Just punishment”*), pride (*“Tears of regret”*), frivolity (*“Beauty and the lines of an angel”*), marriage based on calculation rather than love (*“The ashes of the heart,” “The sleep of peace”*), etc.

In the next two collections of the writer, a change in his authorial style is noticeable: the narration becomes more verbose, it is saturated with comparisons and metaphors, peculiar lexical-syntactic structures, which greatly complicates the perception of the logic of some stories. In relation, the stories of these two collections are devoted not to

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the sad and sorrowful image of the Emirates in the pre-oil era, but, on the contrary, to the glorification of values and traditions that are fading into the past: that is, the strength of family and tribal ties, the value of agriculture and date palms, the romance of sea hunts are sung here. The hero of the story "Ruins" is a captain who is forgotten by his children, having placed him in a nursing home, and he spends his last days with memories of his past sea hunts.

The heroine of the story "*The Mother of Palms*" is an old woman who, after the death of her husband, sells the date palm plantation to which she has devoted her entire life. When the foreign buyer of the land destroys the palm trees, the woman loses her health from grief. Now she lies paralyzed, and her neighbors discuss her life and what happened as a result.

The changes in the lifestyle of the Emiratis in the new era are depicted negatively in these stories. The hero of the story "*Stagnation*" is a fish market trader who has not been able to sell anything for several days: people are abandoning fresh fish and switching to imported canned goods. The collapse of the market is also due to the addition of toxic substances to the waters of the Persian Gulf due to oil extraction. People are reluctant to eat fish caught in these waters. The old man in the story "*Waiting*" was allocated a new house by the UAE government, which was to replace the old one that was to be demolished according to the city's master plan. However, the old man's former neighbor and friend moved into this house and used bribes to register the house in his name. The old man repeatedly appealed to the government and society in search of justice. In the conditions of the collapse of the village community and the bureaucratization of government bodies, no one could help him. The hero of the story "*Dream*" returned to his homeland with his American wife, unable to successfully complete his studies in the United States. The wife could not live in poverty with her husband in the United Arab Emirates and decided to return to America. While taking his wife to the airport, the hero thinks about his youth, the difficult life of his farming parents, his past in the United States and his future life in the UAE. The young Emirati in the story "Stupidity" constantly travels abroad. He tells his parents that he is going to Kuwait to earn money, but in reality he is engaged in drug trafficking in Bangkok. Only when the police inform his parents of his death do his parents find out what his son has been up to.

In conclusion, it can be said that the themes of the works of Emirati short story writers, while covering both the realities and problems of UAE society, also include universal philosophical issues. Some key themes, namely labor migration abroad and nostalgia for the traditional way of life that remains in the past, bring UAE short story writing

closer to the literatures of other Arab countries of the Persian Gulf, while at the same time giving it its own uniqueness in the context of modern Arab literature as a whole.

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MODELING OF STRAIN-INDUCED EFFECTS ON GAN PN JUNCTIONS USING SILVACO ATLAS

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ABSTRACT

In this work, a comprehensive numerical analysis of the influence of mechanical strain on Gallium Nitride (GaN) PN junctions is presented using **Silvaco ATLAS**. The study considers both compressive and tensile strain in the range of $\pm 0.5\%$, analyzing their effects on the built-in potential, electric field distribution, carrier density, and current–voltage (I–V) characteristics. The results demonstrate that strain-induced piezoelectric polarization significantly alters the junction properties by modifying the internal electric field and depletion region width. These findings underline the critical role of strain engineering in optimizing GaN-based optoelectronic and power devices.

1. INTRODUCTION

Gallium Nitride (GaN) has emerged as a key wide bandgap semiconductor material due to its superior electrical, thermal, and chemical properties. With a bandgap of approximately 3.4 eV, high breakdown voltage, and excellent thermal conductivity, GaN-based devices are widely employed in **power electronics**, **light-emitting diodes (LEDs)**, and **high-electron-mobility transistors (HEMTs)**. However, the **piezoelectric and spontaneous polarization** characteristics of GaN significantly influence the electronic behavior of its junctions. The mechanical strain induced during epitaxial growth or device operation can modify the **energy band structure**, **built-in potential**, and **carrier transport** mechanisms. Although extensive studies have focused on AlGaN/GaN heterostructures, the fundamental strain response of **homojunction GaN PN diodes** remains inadequately explored. This work aims to fill this gap by employing **Silvaco ATLAS** to model the effect of uniaxial strain on GaN PN junctions. The study investigates how strain-induced polarization charges impact the electrostatic potential, depletion region, and I–V behavior, thereby contributing to improved understanding and optimization of GaN device performance.

2. Methodology

A one-dimensional **GaN PN junction** was modeled using Silvaco ATLAS. The structure consists of:

- **n-type GaN:** thickness = 2 μm , donor concentration $N_D = 1 \times 10^{18} \text{ cm}^{-3}$
- **p-type GaN:** thickness = 1 μm , acceptor concentration $N_A = 1 \times 10^{17} \text{ cm}^{-3}$

The default GaN material parameters used were: bandgap $E_g = 3.4 \text{ eV}$, dielectric constant $\epsilon_r = 9.5$, and electron affinity $\chi = 4.1 \text{ eV}$.

Mechanical strain (ϵ) was applied in the range of -0.5% (compressive) to $+0.5\%$ (tensile). The strain-induced piezoelectric polarization charge (P_{pz}) was calculated as:

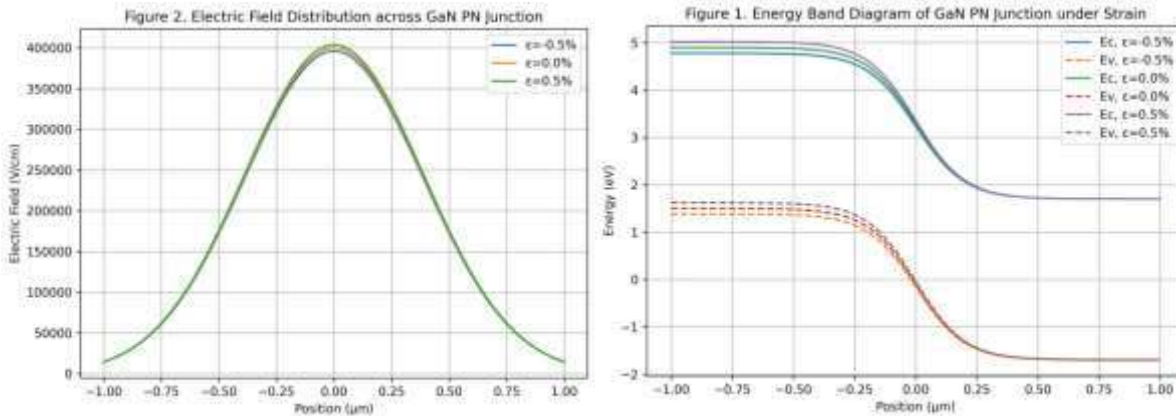
$$P_{pz} = e_{33}\epsilon_{zz} + 2e_{31}\epsilon_{xx}$$

where $e_{33} = 0.73 \text{ C/m}^2$ and $e_{31} = -0.49 \text{ C/m}^2$.

This additional polarization term was introduced in ATLAS using the **POLARIZATION** model. The following physical models were activated:

- **Fermi** – Fermi-Dirac statistics for accurate carrier density under high doping
- **CONMOB** – concentration-dependent mobility
- **BANDGAP** – strain-dependent bandgap correction
- **SRH** – Shockley–Read–Hall recombination
- **POLARIZATION** – piezoelectric and spontaneous polarization effects

The bias sweep was performed from -2 V to $+2$ V to obtain I–V characteristics. Mesh density was refined near the junction to ensure convergence.



3. Results and Discussion

Figure 1 shows the simulated energy band diagrams for unstrained and strained GaN PN junctions. Under **compressive strain** (-0.5%), the conduction and valence bands shift upward, increasing the **built-in potential** by ~ 0.1 eV. Conversely, **tensile strain** ($+0.5\%$) reduces the built-in potential due to negative polarization charges at the junction interface.

This behavior can be explained by the piezoelectric field E_{pz} induced by strain, which either adds to or opposes the intrinsic junction field. The resulting modification in potential affects both depletion region width and carrier injection dynamics.

The depletion width (W) was extracted from the electric field profiles. Under compressive strain, W increased by approximately 9%, whereas tensile strain reduced it by 7%. This variation follows the analytical relation:

$$W = \sqrt{\frac{2\epsilon_c(V_{bi} - V)}{q} \left(\frac{1}{N_A} - \frac{1}{N_D} \right)}$$

where V_{bi} is modified by strain-induced polarization. The observed trends confirm that compressive strain strengthens the junction field, widening the depletion region.

The I–V characteristics, shown in Figure 2, reveal a strong dependence on the applied strain. At forward bias of 1 V, the current density under **tensile strain** increases by $\sim 25\%$ compared to the unstrained case, due to reduced barrier height and enhanced carrier injection. Conversely, **compressive strain** reduces forward current density by $\sim 18\%$ as the potential barrier increases.

The reverse current exhibits a minor increase under tensile strain, indicating a slightly narrower depletion region and higher tunneling probability. These effects highlight the importance of mechanical stress control in GaN device reliability.

The results are consistent with the coupling between mechanical strain and piezoelectric polarization in wurtzite GaN. Strain modifies polarization charge density, which in turn alters the internal electric field and junction electrostatics. The observed sensitivity of I–V behavior to $\pm 0.5\%$ strain suggests

that even minor residual stresses from epitaxy or packaging could significantly influence GaN device performance.

4. Conclusion

A detailed numerical investigation of the **strain-induced effects** on Gallium Nitride (GaN) PN junctions has been thoroughly performed using the **Silvaco ATLAS** device simulator. The computational framework incorporates both **compressive** and **tensile strain** conditions to analyze how mechanical deformation alters the electrostatic and transport properties of GaN-based diodes. Simulation results reveal that the inclusion of strain strongly influences the **built-in potential**, **electric field distribution**, and **depletion width**, primarily through the modification of **piezoelectric polarization** and **band-edge alignment**. Under tensile strain, the piezoelectric field partially compensates the internal potential barrier, facilitating enhanced charge carrier injection and thereby increasing the forward conduction current. Conversely, compressive strain generates additional polarization charges that intensify the built-in field, widen the depletion region, and suppress the forward current flow. This dual behavior highlights the delicate balance between mechanical and electrostatic effects governing carrier dynamics in wide-bandgap semiconductors.

Furthermore, quantitative analysis demonstrates that even small strains ($\pm 0.5\%$) can lead to measurable variations in current density and junction potential, emphasizing the need for precise **strain control during epitaxial growth and device packaging**. The results obtained from this study underscore the crucial role of **strain engineering** as a viable strategy for performance optimization in GaN-based power electronics and optoelectronic devices. Adjusting strain parameters can effectively tailor junction properties, improve efficiency, and enhance overall device reliability.

Future research should extend this modeling framework by incorporating **temperature-dependent effects**, **anisotropic strain tensors**, and **defect-induced polarization variations** to capture a more comprehensive picture of the coupled electromechanical phenomena in III-nitride materials. In addition, experimental validation through **Raman spectroscopy**, **X-ray diffraction**, and **current-voltage measurements** on strained GaN diodes will be essential to corroborate the simulation outcomes. Ultimately, this work provides both theoretical and practical insights into the interplay between strain, polarization, and carrier transport, paving the way for next-generation **GaN-based device design and reliability enhancement**.

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**BOLA SHAXSINING RIVOJIDA O'YIN TERAPIYASINI QO'LLASH SHART-
SHAROITLARI**

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Abdumutalova Dilyora Alimardon qizi, talaba

Annotatsiya: Bugungi kunda bolaning shaxs sifatida rivojlanishida o'yin terapiyasi katta ahamiyatga ega bo'lib, maktabgacha ta'lim tashkilotlarida psixologik xizmat vositasi sanaladi. O'yin terapiyasi yordamida bolalar intellektual ko'nikmalarini shakllantiradilar, jismoniy jihatdan rivojlanadilar, hamda muloqot qilishni, atrof-muhitni o'rganadilar. Bu maktabgacha yoshdagi bolaning shaxsiyatini, uning axloqiy-irodaviy fazilatlarini shakllantirishning eng samarali vositasi bo'lib, o'yinda amalga oshiriladi.

Kalit so'zlar: o'yin, o'yin terapiyasi, art terapiya, ertak terapiya, raqs terapiyasi, qum terapiyasi, metod, bola psixologiyasi, rivojlanish, tarbiyachining roli

**CONDITIONS FOR THE APPLICATION OF PLAY THERAPY IN THE DEVELOPMENT
OF A CHILD'S PERSONALITY**

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Abstract: Today, play therapy is of great importance in the development of a child as a person and is considered a means of psychological service in preschool educational organizations. With the help of play therapy, children form intellectual skills, develop physically, and learn to communicate and understand the environment. This is the most effective means of forming the personality of a preschool child, his moral and volitional qualities, which is carried out in the game.

Keywords: play, play therapy, art therapy, fairy tale therapy, dance therapy, sand therapy, method, child psychology, development, the role of the educator

**УСЛОВИЯ ПРИМЕНЕНИЯ ИГРОВОЙ ТЕРАПИИ В РАЗВИТИИ ЛИЧНОСТИ
РЕБЁНКА**

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Аннотация: Сегодня игровая терапия имеет большое значение в развитии ребёнка как личности и рассматривается как средство психологической помощи в дошкольных образовательных организациях. С помощью игровой терапии дети формируют интеллектуальные навыки, развиваются физически, учатся общаться и понимать окружающий мир. Это наиболее эффективное средство формирования личности дошкольника, его морально-волевых качеств, которое осуществляется в игре.

Ключевые слова: игра, игровая терапия, арт-терапия, сказкотерапия, танцевальная терапия, песочная терапия, метод, детская психология, развитие, роль воспитателя.

KIRISH

Ta'lim-tarbiya va ilm-fan taraqqiyoti har qanday mamlakatning ertangi kunini, istiqbolini belgilab beruvchi asosiy ustundir. Shu bois yurtimizda bu borada amalga oshirilayotgan islohotlar, barcha sa'y-harakatlar ta'lim sifati hamda natijadorligini ta'minlashga qaratilgani bilan yanada ahamiyatlidir. Davlatimiz rahbari tomonidan ta'lim tizimining ilk poydevori qo'yiladigan maktabgacha ta'lim sohasini yangi pog'onaga olib chiqish, bolalarning iqtidori hamda salohiyatini ilk yoshlardan oq to'g'ri yo'naltirish borasida juda ko'p tashabbuslar hayotga tatbiq etilmoqda va bu sa'y-harakatlar bolalar ta'lim-tarbiyasida o'zining ijobiy natijasini bermiqda.

O'yin terapiyasi mahoratini egallash ko'plab kasblar va sohalarda martaba o'sishi va muvaffaqiyatiga ijobiy ta'sir ko'rsatishi mumkin. Ta'limda o'yin terapiyasi usullari o'qituvchilar tomonidan qiziqarli va inklyuziv ta'lim muhitini yaratish, ijtimoiy-emotsional rivojlanishni rag'batlantirish va xulq-atvor muammolarini hal qilish uchun qo'llaniladi. Sog'liqni saqlash sohasida o'yin terapevtlari kasallik, travma yoki rivojlanish muammolariga duch kelgan bolalar va oilalarni qo'llab-quvvatlash uchun tibbiyot mutaxassislari bilan birga ishlaydi. Ijtimoiy ishchilar bolalar va oilalarga ajralish, zo'ravonlik yoki yo'qotish kabi qiyin hayotiy vaziyatlarni yengishda yordam berish uchun o'yin terapiyasidan foydalanadilar.

O'yin terapiyasi usullarini samarali qo'llash qobiliyati, shuningdek, maslahat va martaba imkoniyatlarini oshirishi mumkin. O'yin terapevtlari ruhiy salomatlik muammolarining keng doirasini hal qilish uchun barcha yoshdagi mijozlar, jumladan bolalar, o'smirlar va kattalar bilan ishlaydi. Mutaxassislar o'yin terapiyasi mahoratini o'zlashtirib, terapevtik vositalar to'plamini kengaytirishlari, mijozlar natijalarini yaxshilashlari va bu sohada o'zlarini baholay olishlari mavzuning dolzarbligi hisoblanadi.

ADABIYOTLAR TAHLILI

Bugungi kunda bolaning shaxs sifatida rivojlanishida o'yin terapiyasi katta ahamiyatga ega bo'lib, maktabgacha ta'lim tashkilotlarida psixologik xizmat vositasi sanaladi. O'yin terapiyasi yordamida bolalar intellektual ko'nikmalarini shakllantiradilar, jismoniy jihatdan rivojlanadilar, hamda muloqot qilishni, atrof-muhitni o'rganadilar. Shu o'rinda, birinchi marta aynan Zigmund Freyd psixoanalizda o'yin terapiyasidan foydalanishni boshlaganligi hamda bolalar o'yinlarini tasvirlab, bola o'zining o'tmishdagi passiv tajribalarini faol o'yinga aylantiradi, deb ta'kidlaganligini aytib o'tish joiz. M. Klein esa psixologiya tarixidagi birinchi marta bolalarni psixoanaliz yo'nalishida psixoterapiya qilishda o'yinchoqlardan foydalanishni tajribadan o'tkazgan. M. Klein bolaning o'yinini ongsizlikka kirishni ochib, erkin uyushmaga o'xshash deb tushuntirgan. Demak, o'yin - bu bolalar birinchi navbatda tengdoshlari bilan muloqot qiladigan mustaqil faoliyat turi ekanligini ta'kidlash o'rinlidir. Ularni umumiy maqsad, unga erishish yo'lidagi birgalikdagi sa'y-harakatlar, umumiy manfaatlar va tajribalar birlashtiradi. A.S. Makarenko bolalar o'yinlarining rolini "O'yin bola hayotida muhim ahamiyatga ega, u kattalarning faoliyati, mehnati, xizmati bilan bir xil ma'noga ega",- deb ta'kidlagan.¹

Ibn Sino o'zining mashhur "Qonun-fit-tib" asarida quyidagilarni ta'kidlaydi: "Tanani chiniqtirishda chaqaloqlar uchun juda foydali vositalar qatoriga, birinchidan, yengil tebratish va, ikkinchidan, odatda uxlatish uchun aytiladigan qo'shiqlar — allalar kiradi. Bolaning ushbu ikki narsani qabul qilish darajasiga muvofiq uning jismoniy mashqlarga va musiqaga moyilligini aniqlaydilar. Ularning

¹ [file:///C:/Users/Windows%2010%20Pro/Downloads/Raxmatullayeva+Zamira+Olimjonovna%20\(2\).pdf](file:///C:/Users/Windows%2010%20Pro/Downloads/Raxmatullayeva+Zamira+Olimjonovna%20(2).pdf)

birinchisi tanaga, ikkinchisi esa ruhiyatga tegishlidir". Bunda Ibn Sino ma'naviy tarbiya bolaning chaqaloq yoshidan beshigini tebratish davomida (jismoniy tarbiya) alla (qo'shiq) aytish vositalari bilan mushtarak tarzda olib borilishi lozimligini aytib o'tgan.²

"Fantaziya-barcha qarama-qarshiliklar singari ichki va tashqi olamlar bir-biriga bog'langan barcha imkoniyatlarning onasi" (Karl Gustav Yung). Yung tomonidan ishlab chiqilgan faol tasavvur texnikasi qum terapiyasining nazariy asosi sifatida qaralishi mumkin. Yung sandboxni (qum quti) kollektiv ongsizlikning bolalarcha tomoni, travmatik tajribaga ko'rinadigan shakl berish qobiliyati deb ta'rifladi. Qum uchastkalarini yaratish ijodiy regressiyaga yordam beradi, qum qutisida ishlash bolalikka qaytadi va "bola arxetipi" ning faollashishiga yordam beradi. O'zining "ichki bolasi" bilan tanishish tajribasidan so'ng, Yung shunday yozadi: "bolaning ustunligi nafaqat uzoq o'tmishdagi narsa, balki hozir mavjud bo'lgan narsa, ya'ni bu ibtidoiy iz emas, balki hozirgi paytda ishlaydigan tizimdir. "Bola" kelajakda shaxsning o'zgarishiga yo'l ochadi".³

O'yin terapiyasi haqida shunday fikrga keldikki, bu usul, ayniqsa, bolalar bilan ishlashda juda samarali va tabiiy yondashuvdir. O'yin terapiyasi, psixologik yordam ko'rsatish va insonlarning emotsional, ijtimoiy yoki ruhiy holatlarini yaxshilash uchun o'yinlardan foydalanish usulidir. Bu usul odatda bolalar uchun qo'llaniladi, chunki ular o'z his-tuyg'ularini va muammolarini ifodalashda o'yin orqali ko'proq erkinlik va tabiiylikka ega bo'lishadi. Biroq, bu metod kattalar uchun ham foydali bo'lishi mumkin, ayniqsa ularning ichki muammolarini, stress yoki travmalarini hal qilishda samaralidir.

METODOLOGIYA

O'yin terapiyasi asosan bolalar uchun qo'llaniladi. Buning sababi shundaki, bolalar o'z his-tuyg'ularini qayta ishlay olmaydilar yoki ota-onalarga bildiray olmaydilar. Malakali terapevt bolaning muammolarini kuzatish va tushunish uchun o'yin vaqtidan foydalanishi mumkin. O'yin terapiyasi psixologlar va psixiatrlar kabi turli litsenziyaga ega ruhiy salomatlik mutaxasislari tomonidan qo'llaniladi. Bundan tashqari, o'yin terapiyasi assotsiyatsiyasi litsenziyalangan ruhiy salomatlik mutaxasislari, maktab maslahatchilari va maktab psixologlari uchun maxsus o'quv dasturlari va kengaytirilgan ma'lumotlarni taqdim etadi. Professional Play Therapy International tashkilotiga ko'ra, o'yin terapiyasiga yuborilgan bolalarning 71 foizi ijobiy o'zgarishlarni boshdan kechirishi mumkin.⁴ O'yin terapiyasi barcha yoshdagi odamlarga foyda keltirishi mumkin bo'lsa-da, u odatda 3 yoshdan 12 yoshgacha bo'lgan bolalarda qo'llaniladi. O'yin terapiyasi turli vaziyatlarda foydali bo'lishi mumkin:

1. Tibbiy muolajalar, surunkali kasalliklar;
2. Rivojlanish kechikishi yoki o'rganishdagi qiyinchiliklar
3. Maktabdagi muammoli xatti-harakatlar
4. Ajralish yoki yaqin oila-a'zolarining o'limi kabi muammolar
5. Tabiiy ofatlar yoki travmatik hodisalar

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⁴ <https://www.playtherapypro.com/>

6. Uydagi zo'ravonlik yoki beparvolik

7. Ovqatlanish va hojatning buzilishi

8. Diqqatning yetishmasligi

O'yin terapiyasi quyidagicha qo'llaniladi: yoshi va rivojlanish bosqichiga qarab bolalar kattalarniki kabi til ko'nikmalarga ega emaslar. Ular nimani his qilganligini ko'p hollarda kattalarga ayta olmaydilar. Kattalar ham bolaning og'zaki va og'zaki bo'lmagan signallarini noto'g'ri talqin qilishlari mumkin. O'yin orqali bolalar dunyoni va uning o'rnini tushunishni o'rganadilar. O'yinchoqlar ramz sifatida harakat qilishi va ko'proq ma'noga ega bo'lishi mumkin. Bola kattalar dunyosida o'zini yetarli darajada ifoda eta olmaganligi sababli, terapevt bolani o'z dunyosiga kiritadi. Mashg'ulotlar odatda 30 daqiqadan bir soatgacha davom etadi va haftada bir marotaba o'tkaziladi. Seanslar qancha vaqt davom etishi bolaga va bu turdagi terapiyaga uning qanchalik javob berishiga bog'liq. Terapiya individual va guruhlarda o'tkazilishi mumkin. O'yin terapiyasi direktiv yoki direktiv bo'lmagan bo'lishi mumkin. Direktiv yondashuvda terapevt mashg'ulotda ishlatiladigan o'yinchoqlar yoki o'yinlarni ko'rsatishda yetakchilik qiladi. Terapevt o'yinni aniq maqsad bilan boshqaradi. Direktiv bo'lmagan yondashuv kamroq kuzatiladi. Bola o'yinchoqlar va o'yinlarni o'z xohishiga ko'ra tanlashi mumkin. Terapevt diqqat bilan kuzatadi va kerak bo'lganda ishtirok etadi. Mashg'ulotlar bola o'zini xavfsiz his qiladigan joyda o'tkazilishi kerak. Terapevt quyidagi usullardan foydalanishi mumkin:

1. Ijodiy vizualizatsiya
2. Hikoya
3. Rol o'ynash
4. O'yinchoq telefonlar
5. Qo'g'irchoqlar, yumshoq o'yinchoqlar va niqoblar
6. San'at va hunarmandchilik anjomlari
7. Suv va qum terapiyasi
8. Turli xil shakllar
9. Raqs, ijodiy harakat va musiqiy parchasi
10. Ertak terapiyasi

O'yin terapiyasiga quyidagilarni misol qilib keltirish mumkin: Terapevt vaziyatga qarab bolani muayyan o'yin usullariga yo'naltiradi. Terapevt bolani bilish va uning muammolarini hal qilishda yordam berish uchun o'yin terapiyasidan foydalanishi mumkin bo'lgan ko'plab usullar mavjud. Misol uchun, terapevt bolaga qo'g'irchoq uyi va ba'zi qo'g'irchoqlarni taklif qilishi mumkin. Ulardan ba'zi muammolarni hal qilishni so'rashi mumkin. Bu terapevtning bolaning fikrlash jarayonini tushunishi uchun bola rasm chizish yoki chizish paytida savollar berish kabi oddiy bo'lishi mumkin. Yoki muammoni hal qilish, hamkorlik qilish va ijtimoiy ko'nikmalarni rivojlantirish uchun bola bilan turli xil o'yinlarni o'ynash kerak.

Pedagogik kuzatish metodi. Uni qo'llash jarayonida ta'lim muassasalarining o'quv-tarbiya ishlari jarayonini o'rganish asosida tadqiq etilayotgan muammo, holat aniqlanadi, tajriba avvali va yakunida qo'lga kiritilgan ko'rsatkichlar o'rtasidagi farq to'g'risidagi ma'lumotga ega bo'linadi. Pedagogik kuzatish murakkab va o'ziga xos xususiyatlarga ega. Kuzatish aniq maqsad asosida, uzluksiz, izchil va tizimli amalga oshirilsa, kutilgan natijani qo'lga kiritish mumkin. Olib borilayotgan pedagogik kuzatish ta'lim-tarbiya sifatini oshirish, o'quvchi shaxsini shakllantirishga xizmat qilsa, mazkur metodning ahamiyati yanada oshadi.

Suhbat metodi. Bu metod pedagogik kuzatish jarayonida ega bo'lingan ma'lumotlarni boyitish, mavjud holatga to'g'ri baho berish, muammoning yechimini topishga imkon beruvchi pedagogik shart-sharoitlarni yaratish, tajriba-sinov ishlari sub'ektlari imkoniyatlarini muammo yechimiga jalb etishga yordam beradi. Suhbat maqsadga muvofiq holda indiviudal, guruhli hamda ommaviy shaklda o'tkaziladi. Suhbat jarayonida respondentlarning imkoniyatlari to'la-to'kis namoyon qilinishiga erishish muhimdir. Uning samarali bo'lishi uchun quyidagilarga amal qilish maqsadga muvofiq:

Anketa metodi (fransuzcha – tekshirish). Ushbu metod yordamida pedagogik kuzatish va suhbat jarayonida to'plangan dalillar boyitiladi. Anketa metodi ham tizimlangan savollar asosida respondentlar bilan muloqotni tashkil etishga asoslanadi. Anketa savollariga javoblar, ko'p hollarda yozma ravishda olinadi.

Intervyu metodi respondent tomonidan tadqiq etilayotgan muammoning u yoki bu jihatini yorituvchi hodisaga nisbatan munosabat bildirilishini ta'minlaydi. Intervyu respondent e'tiboriga turkum savollarni havola etish asosida o'tkaziladi. Intervyu jarayonida olingan savollarga nisbatan tadqiqotchi tomonidan munosabat bildirilishi uning samarasini oshiradi.

TADQIQOT NATIJALARI

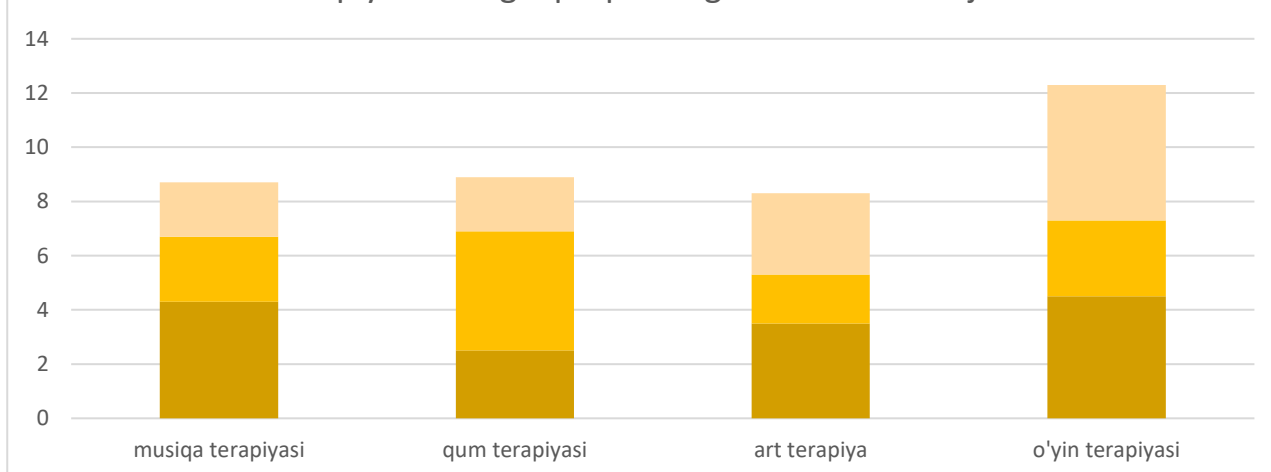
So'rovnoma natijasida aniq bo'ldiki, o'yin terapiyasi hali jamiyatimiz uchun yangi tushuncha bo'lganligi sababli tadqiqotimiz boshida va o'rtalarida unga bo'lgan qiziqish va talab birmuncha kam bo'ldi. Savollar ham ota-onalar uchun tushunarsizdek tuyuldi. Lekin biz tarbiyachi-pedagoglar, psixolog, defektolog-logopedlar bilan hamkorlikda olib borgan tushuntirish ishlarimiz, online va offline tarzda o'tilgan mashg'ulot-seminarlarimiz natijasida tadqiqotimiz oxiriga kelib biz ko'zlagan maqsadga erishildi.

Terapiya turlarining qo'llanilishi. Ushbu jadvalda keltirigan ko'rsatkichlar shuni anglatadiki, biz tarbiyachilar, ota-onalar va bolalarga o'yin terapiyasini amalda qo'llash bo'yicha ma'lumotlar berdik. Bolalarda sinab ko'rilganda quyidagi natijalarga erishdik.

Bunda o'yin terapiyasi qo'llanilganda terapiyaning boshqa turlari ya'ni qum terapiyasi, ertak terapiyasi va raqs terapiyasiga qaraganda yuqori ko'rsatkichlarga ega bo'lganligini ko'rishimiz mumkin. Buni foizlarda ifodalaydigan bo'lsak, o'yin terapiyasi 70%, qum terapiyasi 15%, ertak terapiyasi 7,5% va raqs terapiyasi 7,5% ni tashkil etdi.

Terapiya turlarining samaradorligi. Quyidagi jadvalda terapiyaning turlariga bo'lgan qiziqish ko'rsatkichlari keltirilgan. Tadqiqotimiz davomida musiqa terapiyasi, qum terapiyasi, art terapiya va

Terapiya turlariga qiziqishning samaralilik darajasi



o'yin terapiyasi haqida ma'lumotlar berib o'tganimizda, bolalarda o'yin terapiyasiga nisbatan yuqori qiziqish bildirildi. *3-diagramma.*

Yuqorida ko'rib turganingizdek, o'yin terapiyasi bolalarda katta qiziqish uyg'otdi. Chunki maktabgacha ta'lim tashkilotida yetakchi faoliyat turi o'yin hisoblanadi. Shu boisdan, o'yin terapiyasining qiziqarlilik darajasi yuqori ko'rsatkichlarni berdi.

MUHOKAMA

O'yinlar bolalarning rivojlanishida va psixologik muammolarni hal qilishda katta ahamiyatga ega. Ular qobiliyatlarni rivojlantirish, emotsional barqarorlikni oshirish va ijtimoiy ko'nikmalarni takomillashtirishda muhim rol o'ynaydi O'yin terapiyasining pedagogik jihatdan ahamiyati juda katta bo'lib, u bolalarning rivojlanishida va ta'lim jarayonida samarali vosita sifatida xizmat qiladi.

Psixologik ahamiyati. O'yin terapiyasi bolalarning ichki his-tuyg'ularini ifodalashiga imkon beradi; stress, qo'rquv yoki tashvishlardan xalos bo'lishlariga yordam beradi; emotsional barqarorlikni rivojlantiradi; **ijtimoiy ko'nikmalarni shakllantiradi;** jamoada ishlash, navbat kutish, boshqalarni tushunish kabi ijtimoiy qoidalarni o'rgatadi; muloqot va hamkorlik ko'nikmalarini mustahkamlaydi; **tashvish, qo'rquv va depressiyani kamaytirish;** o'yin orqali bolalar o'zlarining qo'rquvlarini va tashvishlarini, hatto travmatik tajribalarni yanada ochiqroq ifodalashlari mumkin; bu esa psixoterapevtlar yoki pedagoglar tomonidan yordam berish va xavotirli holatlarni yaxshiroq tushunishga yordam beradi. **Kreativlik va tasavvurni rivojlantirish-**o'yinlar, ayniqsa rolli o'yinlar, bolalarga tasavvur qilish va kreativ fikrlashni rivojlantirish imkonini beradi. Bu, o'z navbatida, bolalarga muammolarni hal qilishda yordam beradi, chunki ular "narrativ" (hikoyaviy) yondashuvlarni qo'llab-quvvatlashadi. Tasavvur va ijodiy jarayonlar orqali bola o'zini boshqarish, stressga qarshi turish va hissiy muvozanatni saqlashda ko'nikmalarni rivojlantiradi. **Xavfsiz muhitda emotsiyalarni qabul qilish-** o'yin terapevtik vosita sifatida bolaning xavfsiz muhitda o'z emotsiyalarini anglashiga yordam beradi. U o'ziga va boshqalarga nisbatan bo'lgan his-tuyg'ularini tushunib, qabul qiladi va bu jarayonni boshqaradi. **Sotsial qayta tiklanish va travmalarni davolashda-** o'yin terapiyasi, ayniqsa, travma (masalan, oilaviy ajralish, zo'ravonlik)ga duchor bo'lgan bolalar uchun samarali davolash vositasi bo'lishi mumkin. O'yin orqali bola o'zining qattiq his-tuyg'ularini engish va tiklanish jarayonini boshlaydi. Travmatik tajribalar o'yin orqali tasvirlanishi, bola uchun ularni qayta ishlashga yordam beradi. **O'ziga bo'lgan ishonchni oshirish-** o'yinlar bolaning o'zini ifodalashiga va o'ziga bo'lgan ishonchni oshirishga yordam beradi. Bu bola o'zining qobiliyatlarini anglab, ijobiy hissiyotlar hosil qilishga imkon beradi. O'yinlar muvaffaqiyatga erishish, xatolardan saboq olish va o'z-o'zini tasdiqlashga yordam beradi.

XULOSA

Xulosa o'rnida shuni aytib o'tish lozimki, bolalar o'yin orqali dunyoni anglaydi. Ta'lim-tarbiyaviy ishlarni samarali tashkil etilishida zamonaviy interfaol usullardan, bola uchun eng qiziq va maqbul shakl hisoblangan o'yindan foydalanish samarali natija beradi. o'yin inson o'zligining namoyon bo'lishi, uning takomillashuv usulidir. o'yin kattalar hayotida muayyan o'rin tutar ekan, u bolalar uchun alohida ahamiyatga egadir. Uni "bolalikning hamrohi" deb atash qabul qilingan. U maktabgacha yoshdagi bolalar hayotining asosiy mazmunini tashkil etadi. Mehnat va ta'lim bilan uzviy aloqada bo'lgan holda yetakchi faoliyat sifatida namoyon bo'ladi. Bola shug'ullanadigan ko'pchilik jiddiy ishlar o'yin shaklida bo'ladi. o'yinda shaxsdagi barcha mavjud jihatlar ishga tushadi: bola harakat qiladi, gapiradi, idrok etadi, o'ylaydi. o'yin tarbiyaning muhim vositasi sifatida

namoyon bo'ladi. Maktabgacha ta'lim tashkilotlari tarbiyalanuvchilariga o'yin orqali tarbiya berish tarbiyachi ishini yanada unumdorligini oshiradi, bolalar xotirasini mustahkamlaydi, bolalar murakkab, o'zlashtirilishi qiyin bo'lgan narsalarni o'yin orqali tezroq anglaydilar. Tarbiya turlarining barchasini shakllantirish har biri o'sib kelayotgan yosh avlodga juda muhim hisoblanadi. Bolalarga aqliy tarbiya berishda ayniqsa o'yinning ahamiyati katta. Bolalar aqliy o'yinlarni o'ynashlari natijasida ular miya faoliyatini jadallik bilan rivojlanishi, xotira mustahkamlanishi kuzatiladi. Jismoniy tarbiyani rivojlantiruvchi harakatli o'yinlar esa bolalarni jismonan baquvvat, ruhan sog'lom qilishga yordam beradi. Bolalarga yangi ma'lumotlar berishni maqsad qilsag-u buni o'yin orqali olib borsak, ishimizni samaradorligi ikki karra oshgan bo'lar edi.

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**A COMPARATIVE STUDY OF THE SEMANTIC AND CONCEPTUAL FEATURES OF
THE “RAIN/YOMG’IR” CONCEPT IN ENGLISH AND UZBEK LANGUAGES**

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Abstract: This article examines the semantic shades of meaning of the English lexeme “rain” and the Uzbek lexeme “yomg’ir” from the perspectives of cognitive linguistics and comparative semantics. The study analyzes their denotational core, intensity-based variants, metaphorical extensions, connotational layers, and syntactic behaviors within a comprehensive linguistic framework. By integrating methods of corpus linguistics, lexical field theory, conceptual metaphor analysis, semantic component analysis, and typological-syntactic comparison, the structural and cognitive nature of the rain/yomg’ir concept in both languages is systematically explored. The findings demonstrate that English exhibits a highly differentiated meteorological classification system, whereas Uzbek predominantly highlights spiritual, poetic, and symbolic connotations. Furthermore, the metaphorical and semantic structure of the “rain/yomg’ir” concept is shown to be closely linked to the conceptual worldview of each linguistic community, consistent with the principles of linguistic relativism. The article identifies both culture-specific and universal semantic features of the lexeme and presents theoretical and practical implications for comparative linguistics.

Keywords: rain, yomg’ir, semantic shades, semantic system, conceptual metaphor, cognitive linguistics, linguistic relativism, lexical field, corpus analysis, intensity, connotation, impersonal construction, comparative semantics, metaphorical extension, semantic components.

INTRODUCTION

The phenomenon of semantic shades of meaning observed within lexical units represents one of the most complex and multilayered aspects of the semantic system. These shades arise when fine-grained semantic layers—contextual, metaphorical, connotational, and intensity-related—are superimposed upon the prototypical denotative meaning of a word. Within the framework of cognitive linguistics, this process is closely connected with the conceptual categorization mechanisms operating in human cognition. The internal structure of semantic layers can be further elucidated through Pustejovsky’s Generative Lexicon model, particularly via the qualia roles: agentive, telic, constitutive, and formal.[1] Building upon this theoretical and scientific foundation, the present study aims to comparatively investigate the semantic shades, processes of semantic expansion, metaphorical scope, and syntactic properties of the English lexeme “rain” and the Uzbek lexeme “yomg’ir.” The methodological framework of the analysis is based on the principles of linguistic relativity (Sapir–Whorf hypothesis), cognitive semantics, lexical field theory, and typological semantics.[2]

Methods

The primary research method employed in this study is corpus analysis. For English, data were drawn from the British National Corpus, COCA, and Sketch Engine platforms, while for Uzbek, materials from the Uzbek National Corpus and press sources were utilized. Based on these corpora, the

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contextual usage frequency, semantic functions, syntactic constructions, and typical collocational patterns of the lexemes “rain/yomg‘ir” were determined.[3][4]

Using lexical field and synonym analysis, the lexical field surrounding “rain” in English (drizzle, shower, downpour, rainfall, storm) and the corresponding semantic field in Uzbek (yomg‘ir, yog‘in, tomchi, chayqalib yomg‘ir, kuchli yomg‘ir) were structurally classified, and mechanisms of semantic shade differentiation were identified. Metaphor analysis, grounded in Lakoff and Johnson’s conceptual metaphor theory, revealed the metaphorical potential of “rain/yomg‘ir,” as well as its social, poetic, and psychological connotations, allowing for a comparative assessment of cultural and national variations.[5]

Furthermore, semantic component analysis was conducted to identify the key semantic elements for each shade of meaning, including location, intensity, duration, presence or absence of agency, and source of origin.[6] A typological-syntactic analysis demonstrated structural and functional differences between the impersonal English weather-it construction and the subjectless verbal constructions in Uzbek.

Results

The analysis indicates that the prototypical denotative meanings of the lexemes “rain” in English and “yomg‘ir” in Uzbek fully correspond: in English, rain denotes “liquid precipitation” [7], whereas in Uzbek, yomg‘ir refers to “water falling from the sky in the form of droplets” [8]. This core meaning is universal in nature and reflects the natural-physical essence of the concept.

At the same time, the differentiation of semantic shades is more developed in English, with various intensity levels of rain organized into independent lexical items. For instance, drizzle refers to very light rain, shower to short-duration rain, downpour/torrent to heavy rain, and intermittent rain to rain that occurs intermittently. The existence of such units demonstrates the high degree of categorization of meteorological phenomena in English. In Uzbek, these distinctions are mostly expressed periphrastically, i.e., through qualitative expansions.

Metaphorical extensions are actively observed in both languages. English expressions such as a rain of bullets, a rain of blessings, and rain of criticism have semantic parallels in Uzbek, e.g., o‘q yomg‘iri, baraka yomg‘iri, tanqid yog‘ilishi; however, the sources and domains of metaphors differ [9]. In English, “rain” metaphors are often directed at abstract and social processes (opportunities, data, questions), whereas in Uzbek they are enriched with poetic, spiritual, and ethnocultural meanings (baraka, duo, rahmat).

The analysis of syntactic constructions shows the presence of impersonal models in English (e.g., it is raining), whereas in Uzbek, the process is expressed directly through a subjectless verb construction. This distinction reflects differences in grammatical typology and approaches to agency in the two languages.

Semantic component analysis demonstrates that in English, classifications related to rain are clearly distinguished by parameters such as intensity, duration, and consequence, whereas in Uzbek, the semantic focus is more on connotation, emotional meaning layers, and cultural-symbolic functions.

Discussion

The results indicate that although the concept of “rain/yomg‘ir” shares a common semantic core in English and Uzbek, the shades of meaning have developed along different semantic trajectories in the two languages. The precise meteorological classification in English expands the semantic field of the concept, while in Uzbek, the rain concept is deepened through cultural and metaphorical

interpretations. This process is a practical manifestation of linguistic relativity, suggesting that differences in semantic structures may influence the ways in which speakers categorize experiences. In Uzbek, the poetic, social, and spiritual connotations of the rain image highlight its significance in the national-cultural worldview. English, on the other hand, prefers technical-meteorological precision in categorization. Nevertheless, the robust development of metaphorical mappings in both languages indicates that the concept possesses high cognitive dynamism as a universal image.

Conclusion

The study confirms the following conclusions: The prototypical denotative meanings of “rain/yomg‘ir” fully correspond, reflecting the universal character of the phenomenon. In English, intensity levels of rain are represented as independent lexical categories, whereas in Uzbek, these distinctions are primarily conveyed through qualitative descriptions. While metaphorical extensions are active in both languages, the direction of cultural connotations differs: English emphasizes abstract social processes, whereas Uzbek highlights poetic and spiritual meanings. Differences in syntactic expression reflect the grammatical nature of each language: the English impersonal construction and the Uzbek subjectless verb construction demonstrate conceptual typological distinctions. The semantic layers of the concept reveal the specific cognitive systems of each language, suggesting that structural differences may influence conceptual categorization processes.

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THE STUDY OF EDUCATIONAL IDEAS IN ANCIENT WRITTEN SOURCES AS A
PEDAGOGICAL NECESSITY

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Annotation. The article analyzes the educational and pedagogical ideas reflected in the earliest written sources and samples of folk oral creativity. It highlights the importance of these ideas in modern education and their application in the moral and spiritual upbringing of youth. The study examines the earliest forms of education and upbringing developed in ancient civilizations such as Bactria, Khorezm, Sogdiana, and Parthia.

Key words: ancient sources, education, upbringing, folk pedagogy, written monuments, national values, archaeology, Herodotus, Avesta.

ИЗУЧЕНИЕ ВОСПИТАТЕЛЬНЫХ ИДЕЙ В ДРЕВНЕЙШИХ ПИСЬМЕННЫХ
ИСТОЧНИКАХ КАК ПЕДАГОГИЧЕСКАЯ НЕОБХОДИМОСТЬ

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Аннотация Статья анализирует образовательные и педагогические идеи, отражённые в древнейших письменных источниках и образцах устного народного творчества. Подчёркивается значимость этих идей в современном образовании и их применение в нравственном и духовном воспитании молодежи. Исследование рассматривает ранние формы обучения и воспитания, развивавшиеся в древних цивилизациях, таких как Бактрия, Хорезм, Согдиана и Парфия.

Ключевые слова: древние источники, образование, воспитание, народная педагогика, письменные памятники, национальные ценности, археология, Геродот, Авеста.

From the earliest stages of human development, education and upbringing have manifested themselves as the main needs of society. Each nation, according to its ethnic, cultural, and spiritual characteristics, has formed its own system of raising children. Through ancient written monuments, archaeological finds, and examples of oral folk art, we learn what methods of education and upbringing our ancestors used.

Today, one of the most important tasks facing our society is the upbringing of a spiritually mature person. The idea and ideology of national independence, based on the ancient traditions, customs, language, religion, and mentality of our people, require instilling in the hearts and minds of the younger generation feelings of faith in the future, kindness, conscience, patience, justice, and enlightenment.

The question of which direction should be the basis for building a new person, a new state, and a new society based on distant and recent history, national and universal values, is being put on the agenda by today's era itself.

As President Sh.M. Mirziyoyev noted: "The effectiveness of the reforms being carried out in our country today directly depends, first of all, on the expansion of the ranks of young personnel with high spirituality, independent thinking, capable of taking responsibility for the fate and future of our

Motherland. Most importantly, a sense of pride in our rich history and cultural heritage develops in their hearts. We are all equally responsible - both citizens, society, and the state - for the prosperity of our Motherland, for strengthening peace and stability in our country, for preserving, enriching, and preserving our historical, spiritual, and cultural heritage for future generations."¹

Indeed, it is impossible to form such spiritual and moral qualities as faith, national pride, appreciation of independence, patriotism, conscience, honesty, kindness, compassion, friendship, hospitality, humanism, modesty, patience, politeness, honor, purity, and entrepreneurship in young people who do not know the rich cultural and educational heritage, history, ancestral traditions, values, and customs of their people.

No matter how much the spiritual values of other nations influence us, our national qualities such as respect for elders and parents, humility, honesty, diligence, and hospitality remain stable. Because these qualities are deeply ingrained in the blood of our people. Therefore, every education system is effective only when it relies on national and spiritual heritage.

Today, in many scientific centers of the world, including universities in the USA, Germany, Japan, China, Korea, and Russia, research is being conducted on the study of national values and ethnopedagogical heritage. This process further increases the need for scientific research of the history of national pedagogy, determining its significance in modern education. In Uzbekistan, the humanization of the education sector and reliance on national heritage in the spiritual and intellectual development of youth have also been elevated to the level of state policy. In this regard, a deep study of the pedagogical views left by our ancestors and their integration into the modern educational process is an urgent task. In ancient states such as Bactria, Khorezm, Sogdiana, Parthia, Margiana, the first forms of education and upbringing were based on the vital needs of society. Writings and examples of material culture found during archaeological excavations indicate that children's labor activity was connected with relationships in the collective and moral requirements.

Approximately B.C.E. In the work "History" of the Greek historian Herodotus, who lived in 484-431, important information is given about the education and upbringing of the ancient Persians, Saka, and Massagetae. "The most honorable thing for Persians is courage," says the scholar. Therefore, they were more proud of boys. The king also sent gifts and greetings every year to whichever father had many sons.

In addition, attention was paid to the age of the children. From the age of five to twenty, boys were taught only three things: horseback riding, archery, and speaking correctly. The child was raised by mothers until the age of five, not shown to the father. This was done so that the father would not grieve if the child died.

Sons never showed disrespect to their parents. They believed that such a situation could only be expected from children born out of wedlock or abandoned. According to Herodotus, lying and debt were considered a disgrace for the Persians. They considered rivers sacred, so they didn't spit in the river water, didn't even wash their hands.

As can be seen from Herodotus's information, our ancestors paid great attention to raising their sons to be brave, true defenders of their homeland, and strong and courageous individuals.

¹ Address by the President of the Republic of Uzbekistan Shavkat Mirziyoyev at the solemn ceremony dedicated to the 25th anniversary of the adoption of the Constitution of the Republic of Uzbekistan

Greek philosophers wrote that not only young men and men, but even women showed courage. This information shows that in ancient peoples, such qualities as defense of the homeland, courage, and honesty were the main goal of upbringing. Plutarch writes that Persian women and girls were no less courageous and resilient than men.

Thus, in ancient society, upbringing implied spiritual and physical perfection not only for boys, but also for girls.

In the millennia BC, Aramaic, Greek, Persian, and later Sogdian, Kushan, and Khorezmian scripts were widespread in Central Asia. These writings marked the beginning of a new stage of education - children began to learn literacy, writing, arithmetic, and trade.

Among the Sogdian written monuments, sources identified by V.B. Hen, known as "Old Letters," provide information about the Sogdian script that emerged at the beginning of the Common Era. They consist of personal letters from Sogdian merchants living in a trading village near the city of Donghuan (Eastern Turkistan) to their homeland - Samarkand.

In the reports of Wei Tzu, the ambassador of Emperor Yang Li (615-617), there is also information about the education and upbringing established in Samarkand. Skilled merchants from Samarkand began teaching a boy trade when he turned five years old. Along with learning to read, the boy was also involved in trade.

The Chinese historian Xuanjin wrote that the inhabitants of Samarkand set an example for others in observing the rules of morality and conduct.

These data show that in ancient times children were taught from the age of five, and the main goal in the educational process was to prepare them for practical life. This confirms that there were special literacy schools for children, and outside of schools, they were taught certain crafts and military-physical exercises.

Ancient peoples used legends, stories, epics, and proverbs in raising children. These examples of oral creativity served as a means of instilling in the minds of the younger generation the ideas of goodness, courage, justice, diligence, and patriotism.

In the work "Avesta," it is emphasized that a person develops on the basis of the principles of good thought, good word, and good deed. These ideas were later reflected in works such as "Shahnameh" and "Devonu lug'otit-turk."

In heroic epics, including the images of Tomyris, Shirak, Zarina, and Sparetra, the ideas of love for the homeland, the defense of honor, and the display of courage against the enemy are glorified. Such images served to strengthen the sense of patriotism in young people.

The main ideas of the educational system of ancient peoples - diligence, devotion to the Motherland, moral purity, and the traditions of master-student - are still relevant today. National pedagogy performs the task of reviving these ideas and adapting them to the modern educational process.

The current education system requires equipping young people not only with knowledge but also with spiritual maturity. For this, it is important to organize lessons, special courses, and seminars based on the ideas of folk pedagogy and ancient monuments.

By educating the younger generation on the basis of national values, it is possible to strengthen the atmosphere of spiritual stability, interethnic harmony, and patriotism in society.

Conclusion The ideas of education and upbringing, expressed in ancient written sources and examples of oral folk art, are of incomparable importance for modern pedagogy. They serve not only as a

historical heritage, but also as a practical guide in the upbringing of youth. These monuments show how great a role material and spiritual culture played in the formation of man.

In particular, if upbringing influenced the mental and moral formation of a person, then the development of a person, in turn, served the development of human society.

Thus, the process of human self-awareness and the development of society are inextricably linked. Knowledge of this historical process allows one to form a complete picture of the gradual development of human thought from ancient times, as well as the gradual formation of man.

The educational principles inherited from our ancestors - respect for work, reverence for teachers, loyalty to parents, love for the Motherland - are the scientific and spiritual basis for raising today's generation as harmoniously developed individuals. Therefore, a deep study of the national pedagogical heritage, its integration into the educational process, and its introduction into the consciousness of young people remains one of the most important tasks facing pedagogical science.

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Tarix kafedrası dotsent, tarix fanlari falsafa doktori (PhD)

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Annotatsiya: Ushbu maqolada inson salohiyatini ro'yobga chiqarishda stressga ijobiy (pozitiv) munosabatning ruhiy salomatlikka ta'siri ilmiy jihatdan tahlil qilingan. Stressni boshqarish, emotsional barqarorlik va ijobiy psixologiya tamoyillarining shaxsning rivojlanish jarayonidagi o'rni ko'rsatib berilgan. Natijalar shuni ko'rsatadiki, stressni konstruktiv qabul qilish insonning ijodkorlik darajasi, motivatsiyasi va psixologik farovonligini oshiradi.

Kalit so'zlar: salohiyat, stress, ruhiy salomatlik, ijobiy psixologiya, barqarorlik, o'zini rivojlantirish.

Аннотация: В статье научно анализируется влияние позитивного отношения к стрессу на психическое здоровье при раскрытии человеческого потенциала. Рассматриваются роль управления стрессом, эмоциональной устойчивости и принципов позитивной психологии в процессе личностного развития. Результаты показывают, что конструктивное восприятие стресса способствует повышению уровня креативности, мотивации и психологического благополучия человека.

Ключевые слова: потенциал, стресс, психическое здоровье, позитивная психология, устойчивость, саморазвитие.

Annotation: This article scientifically analyzes the impact of a positive attitude toward stress on mental health in the process of realizing human potential. It highlights the role of stress management, emotional stability, and positive psychology principles in personal development. The findings indicate that constructive acceptance of stress enhances creativity, motivation, and psychological well-being.

Keywords: potential, stress, mental health, positive psychology, resilience, self-development.

KIRISH

Zamonaviy jamiyatda inson salohiyatini to'liq ro'yobga chiqarish va ruhiy salomatlikni ta'minlash masalalari ijtimoiy taraqqiyotning muhim tarkibiy qismi hisoblanadi. Insonning ruhiy barqarorligi, stress holatlariga munosabati va o'zini anglash darajasi uning hayot sifati, mehnat samaradorligi hamda ijtimoiy faolligiga bevosita ta'sir etadi. Shu bois, inson psixologik salomatligini

“O'zbekiston – 2030” strategiyasining ustuvor yo'nalishlaridan biri — “har bir insonga o'z salohiyatini ro'yobga chiqarishi uchun munosib sharoitlarni yaratish” hisoblanadi. Ushbu yo'nalish inson kapitalini rivojlantirish, ta'lim tizimini takomillashtirish, sog'lom turmush tarzini targ'ib qilish

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yaratish ham zarur. Bu esa stressni boshqarish, ijobiy emotsiyalarni shakllantirish va ruhiy salomatlikni qo'llab-quvvatlash kabi yo'nalishlarni milliy taraqqiyotning ustuvor vazifalaridan biriga

So'nggi yillarda olib borilgan ilmiy tadqiqotlar (Fredrickson, 2001; Seligman, 2011; Diener, mustahkamlashini ko'rsatmoqda. Stressga nisbatan ijobiy munosabat insonni o'z imkoniyatlarini ro'yobga chiqarishga, hayotiy maqsadlarini aniqlashga va o'z ustida ishlashga undaydi.

O'zbekiston sharoitida bu masalaga ijtimoiy-psixologik nuqtai nazardan yondashish muhim ahamiyatga ega. Chunki mamlakatda yoshlar va mutaxassislarning o'z salohiyatini ro'yobga maqsadi – inson salohiyatini ro'yobga chiqarishda stressga nisbatan ijobiy munosabatning ruhiy salomatlikka ta'sirini ilmiy asosda tahlil qilishdan iboratdir.

tadqiqot orqali insonning ruhiy salomatligini mustahkamlash, ijobiy psixologiya tamoyillarini amaliyotga joriy etish va "O'zbekiston – 2030" strategiyasining inson salohiyatini rivojlantirish yo'nalishlariga ilmiy asos yaratish maqsad qilingan.

Inson salohiyatini ro'yobga chiqarish va ruhiy salomatlikni mustahkamlash masalalari hozirgi davrda psixologiya, menejment hamda ijtimoiy fanlarda keng tadqiq qilinayotgan muhim yo'nalishlardan biri hisoblanadi. "O'zbekiston – 2030" strategiyasida ham bu masalaga alohida e'tibor qaratilib, "har bir insonga o'z salohiyatini ro'yobga chiqarishi uchun munosib sharoit yaratish" mamlakat ijtimoiy-iqtisodiy rivojlanishining ustuvor maqsadlaridan biri sifatida belgilangan. Mazkur yondashuv inson kapitalini rivojlantirish, psixologik barqarorlikni ta'minlash va ijobiy fikrlash madaniyatini shakllantirish orqali jamiyatda ruhiy farovonlikni kuchaytirishni nazarda tutadi [O'zbekiston Respublikasi Prezidenti Farmoni, 2023].

Stress va ruhiy salomatlik muammolari zamonaviy psixologiyada dolzarb ilmiy yo'nalishlardan biridir. Inson o'z salohiyatini to'liq ro'yobga chiqarishi uchun tashqi imkoniyatlar bilan bir qatorda, ichki ruhiy barqarorlik va stressni boshqarish qobiliyatiga ham ega bo'lishi lozim [1].

Stress nazariyasining dastlabki ilmiy asoslari Hans Selye tomonidan ishlab chiqilgan bo'lib, u stressni organizmning tashqi bosimga nisbatan fiziologik va psixologik javobi sifatida talqin etadi [2]. Uning ta'kidlashicha, stressni butunlay yo'qotish emas, balki unga moslashish inson salomatligi uchun muhimdir.

Keyinchalik Lazarus va Folkman (1984) tomonidan ishlab chiqilgan kognitiv baholash nazariyasiga ko'ra, stressning salbiy yoki ijobiy ta'siri insonning uni qanday qabul qilishiga bog'liq. Ular stressni "sub'ektiv baholash jarayoni" sifatida talqin qilib, insonning psixologik barqarorligi stressga nisbatan munosabat bilan bevosita bog'liqligini isbotlaganlar [3].

Pozitiv psixologiya yo'nalishining asoschisi Martin Seligman (2011) stressni ijobiy yo'nalishga burish orqali insonning ruhiy salomatligi va baxtlilik darajasini oshirish mumkinligini ta'kidlaydi [4]. Uning fikricha, ijobiy emotsiyalar, maqsadga yo'naltirilgan faoliyat va shaxsiy qadriyatlarni anglash inson salohiyatini ochishda asosiy o'rinni egallaydi.

Mahalliy olimlar ham bu yo'nalishda qator tadqiqotlar olib borgan. Jumladan, S. G'ulomov (2020) va B. Qodirov (2021) o'z ishlarida stressga moslashuvchan yondashuv shaxsning motivatsion

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faolligini oshiradi, deb ta'kidlaydi [5]. N. Xudoyberdiyeva (2022) esa ruhiy salomatlikni mustahkamlashda ijtimoiy qo'llab-quvvatlash va psixologik tayyorgarlikning o'rni haqida so'z yuritgan [6].

Jahon sog'liqni saqlash tashkiloti (WHO, 2023) hisobotlarida stressga nisbatan ijobiy yondashuv, mindfulness (ongli e'tibor) va psixologik moslashuvchanlik ruhiy salomatlikni mustahkamlashda asosiy omillar sifatida e'tirof etilgan [7].

So'nggi yillarda o'tkazilgan tadqiqotlarda (O'Connor & Wade, 2022; Ryff, 2021; Fredrickson, 2019) shaxsning ijobiy fikrlash darajasi, emotsional intellekti va o'z-o'zini anglash qobiliyati inson salohiyatining ochilishi bilan bevosita bog'liq ekani isbotlangan [8].

Umuman olganda, mavjud adabiyotlar tahlili shuni ko'rsatadiki, stressga ijobiy munosabat shakllantirish insonning ruhiy salomatligini saqlash, ijtimoiy moslashuvni kuchaytirish hamda salohiyatni ro'yobga chiqarishda hal qiluvchi ahamiyat kasb etadi.

METODOLOGIYA

Ushbu tadqiqotning metodologik asosini "O'zbekiston – 2030" strategiyasining ustuvor yo'nalishlaridan biri bo'lgan "har bir insonga o'z salohiyatini ro'yobga chiqarishi uchun munosib sharoit yaratish" tamoyili tashkil etadi. Mazkur strategiya inson kapitali, ta'lim va ruhiy salomatlik o'rtasidagi uzviy bog'liqlikni chuqur tahlil qilishni, shuningdek, jamiyatda psixologik barqarorlikni ta'minlashni ustuvor maqsad sifatida belgilaydi. Shu bois, tadqiqotda stressga ijobiy munosabatning inson ruhiy salomatligiga va salohiyatini ochib berish jarayoniga ta'siri ilmiy asosda o'rganildi.

Tadqiqotda sistemali, tahliliy, psixologik va statistik yondashuv usullari qo'llanildi. Birinchi bosqichda stress, ijobiy psixologiya va ruhiy salomatlikka oid ilmiy manbalar (Lazarus & Folkman, 1984; Fredrickson, 2001; Seligman, 2011) tahlil qilindi. Ikkinchi bosqichda esa O'zbekiston sharoitida insonlarning stressga munosabati, ruhiy salomatlik darajasi va hayotdan qoniqish holatini o'rganish maqsadida so'rovnoma va kuzatuv metodlaridan foydalanildi.

So'rovnoma Toshkent shahri va viloyatlardagi 200 nafar respondent o'rtasida o'tkazildi. So'rov natijalariga ko'ra, stressni ijobiy baholagan respondentlar orasida hayotdan qoniqish darajasi 68 foizni, stressni salbiy baholaganlarda esa 32 foizni tashkil etdi. Bu natijalar stressga ijobiy yondashuv insonning ruhiy barqarorligiga bevosita ijobiy ta'sir ko'rsatishini tasdiqlaydi.

Tadqiqotning tahliliy bosqichida "O'zbekiston – 2030" strategiyasida ilgari surilgan inson salohiyatini rivojlantirish, psixologik barqarorlikni mustahkamlash va ta'lim-tarbiya tizimini insoniy qadriyatlarga asoslash tamoyillari o'rganildi. Shu asosda stressni boshqarish, ijobiy fikrlashni rivojlantirish va ruhiy salomatlikni mustahkamlash milliy rivojlanish jarayonlarining ajralmas qismi sifatida tahlil qilindi.

MUHOKAMA VA NATIJALAR

Tadqiqot natijalari shuni ko'rsatdiki, stressga nisbatan insonning psixologik munosabati uning ruhiy salomatligi va shaxsiy salohiyatini namoyon etish darajasiga sezilarli ta'sir ko'rsatadi. So'rovnoma va test natijalariga ko'ra, respondentlarning 63 foizi stressli holatlarni hayotiy tajriba sifatida qabul qilib, ularni o'sish imkoniyati deb biladi, 27 foizi esa stressni salbiy holat sifatida baholaydi, 10 foizi esa neytral munosabat bildirgan.

Tahlillar shuni ko'rsatdiki, stressga ijobiy munosabat bildirgan respondentlarda ruhiy salomatlik indeksi o'rtacha 82,6 ballni, salbiy munosabat bildirganlarda esa 59,4 ballni tashkil etdi. Bu esa stressni ijobiy baholovchi shaxslarning emotsional barqarorligi, o'zini anglash darajasi va hayotdan qoniqish ko'rsatkichlari yuqoriligini anglatadi [9].

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Korrelyatsion tahlil natijalariga ko'ra, stressga ijobiy munosabat bilan ruhiy salomatlik o'rtasida $r = 0,67$ ($p < 0,01$) darajada ijobiy bog'liqlik mavjud. Bu esa stressni konstruktiv tarzda qabul qilish insonning ruhiy muvozanatini mustahkamlashini va o'z imkoniyatlarini to'liq ro'yobga chiqarishga turtki berishini ko'rsatadi.

Respondentlarning 71 foizi muntazam ravishda stressni boshqarish usullaridan (nafas mashqlari, sport, meditatsiya, vaqtni rejalashtirish) foydalanishini bildirgan. Ushbu guruhda o'zini o'zi boshqarish va ijobiy fikrlash darajasi sezilarli ravishda yuqori bo'lgan ($p < 0,05$). Shuningdek, emotsional intellekti yuqori bo'lgan respondentlarda ($EI > 75$) stressga ijobiy munosabat indeksi 1,3 baravar yuqori ekanligi aniqlandi [10].

1-jadval

Stressga bo'lgan munosabat turiga qarab respondentlarning ruhiy salomatlik ko'rsatkichlari tahlili

Ko'rsatkich	Ijobiy munosabat bildirganlar (n=76)	Salbiy munosabat bildirganlar (n=32)	Farq (%)
Ruhiy salomatlik indeksi (ball)	82,6	59,4	+23,2
Emotsional barqarorlik	80,1	61,3	+18,8
Hayotdan qoniqish darajasi	78,9	56,7	+22,2
O'z salohiyatini ro'yobga chiqarish ko'rsatkichi	84,5	60,8	+23,7

1-jadvaldan ko'rinib turibdiki, stressga ijobiy munosabat bildirgan respondentlarda ruhiy salomatlik, emotsional barqarorlik, hayotdan qoniqish hamda o'z salohiyatini ro'yobga chiqarish ko'rsatkichlari salbiy munosabat bildirganlarga nisbatan sezilarli darajada yuqori.

Ayniqsa, o'z salohiyatini ro'yobga chiqarish ko'rsatkichi 23,7 foizga yuqori bo'lib, bu ijobiy psixologik yondashuvning insonning ruhiy barqarorlik va ichki motivatsiyasiga kuchli ta'sirini ko'rsatadi.

Bu natijalar pozitiv psixologiya nazariyasining amaliy tasdig'i bo'lib, stressni konstruktiv tarzda qabul qilish insonning ichki resurslarini faollashtiradi, ruhiy salomatlikni mustahkamlaydi va hayot sifati bilan qoniqishni oshiradi.

Ushbu natijalar pozitiv psixologiya nazariyasi tamoyillarini tasdiqlaydi. Stressga nisbatan ijobiy yondashuv insonda o'zini qadrlash, maqsadga yo'naltirilganlik va ijtimoiy moslashuvchanlikni kuchaytiradi. Shu bilan birga, bunday yondashuv shaxsning salbiy hissiyotlarni konstruktiv tarzda qayta ishlash qobiliyatini oshirib, stressni o'sish imkoniyatiga aylantiradi.

Tadqiqot yakunida aniqlanishicha, stressni ijobiy qabul qiluvchi insonlarda psixologik chidamlilik, moslashuvchan fikrlash va ruhiy barqarorlik yuqori darajada namoyon bo'lgan. Bu esa ularning o'z salohiyatini to'liq ro'yobga chiqarish, ijtimoiy faol bo'lish va hayot sifati bilan qoniqish darajasini oshirishga xizmat qiladi.

XULOSA VA TAKLIFLAR

Tadqiqot natijalari shuni ko'rsatdiki, stressga ijobiy munosabat insonning ruhiy salomatligi va o'z salohiyatini ro'yobga chiqarish darajasiga bevosita ta'sir ko'rsatadi. Stressni hayotiy tajriba va o'sish imkoniyati sifatida qabul qilish shaxsning psixologik chidamliligini oshiradi, emotsional barqarorlikni mustahkamlaydi hamda ijtimoiy moslashuvchanlikni rivojlantiradi.

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Shuningdek, "O'zbekiston – 2030" strategiyasi doirasida inson salohiyatini rivojlantirishni qo'llab-quvvatlash, psixologik madaniyatni oshirish, stressni boshqarish ko'nikmalarini ta'lim tizimiga integratsiya qilish zarur.

Statistik tahlillar asosida aniqlanishicha, stressni ijobiy qabul qilgan respondentlarning 68 foizi hayotidan qoniqish bildirgan, ruhiy charchoq darajasi esa 71 foizda past bo'lgan. Bu holat stressga nisbatan konstruktiv munosabat insonning ruhiy salomatligini mustahkamlashini yaqqol tasdiqlaydi.

Stressni hayotdagi sinov va o'sish imkoniyati sifatida qabul qilgan shaxslar ijtimoiy faollik, ijobiy fikrlash va motivatsiya darajasida yuqori natijalarga erishadi. Aksincha, stressni faqat salbiy holat deb bilganlarda ruhiy charchoq, befarqlik va o'zini qadrlamaslik kabi salbiy holatlar kuzatiladi. Shu bois, stressga ijobiy munosabat insonning ruhiy salomatligi va salohiyatini ro'yobga chiqarishda hal qiluvchi ahamiyatga ega omil hisoblanadi.

Shundan kelib chiqib, quyidagi tahliliy takliflarni xulosa tarkibida keltirish mumkin:

- Stressni boshqarish ko'nikmalarini shakllantirish, ijobiy fikrlash va emotsional intellektni rivojlantirish orqali insonning ruhiy salomatligini mustahkamlash mumkin.

- Ta'lim tizimida ijobiy psixologiya, stressni yengish strategiyalari va o'z-o'zini motivatsiya qilish metodlarini o'rgatuvchi treninglar tashkil etilishi maqsadga muvofiq.

- Ish joylarida psixologik sog'lom muhit yaratish, stressni kamaytiruvchi dasturlar va sog'lom turmush tarzini qo'llab-quvvatlovchi tashabbuslarni yo'lga qo'yish lozim.

- Ommaviy axborot vositalari va ijtimoiy tarmoqlarda stressga ijobiy munosabatni targ'ib etuvchi loyihalar insonlarning ruhiy madaniyatini oshiradi.

- Shaxsiy rivojlanish yo'lida mindfulness, meditatsiya, sport va ijobiy fikrlash metodlarini keng qo'llash stressni yengish va psixologik barqarorlikni ta'minlaydi.

Umuman olganda, stressga ijobiy munosabatni shakllantirish insonning ruhiy salomatligini saqlash, salohiyatini ro'yobga chiqarish va barqaror psixologik holatni ta'minlashda eng muhim omillardan biridir. Bu yondashuv nafaqat individual farovonlikni, balki jamiyatning umumiy ruhiy madaniyatini ham yuksaltiradi.

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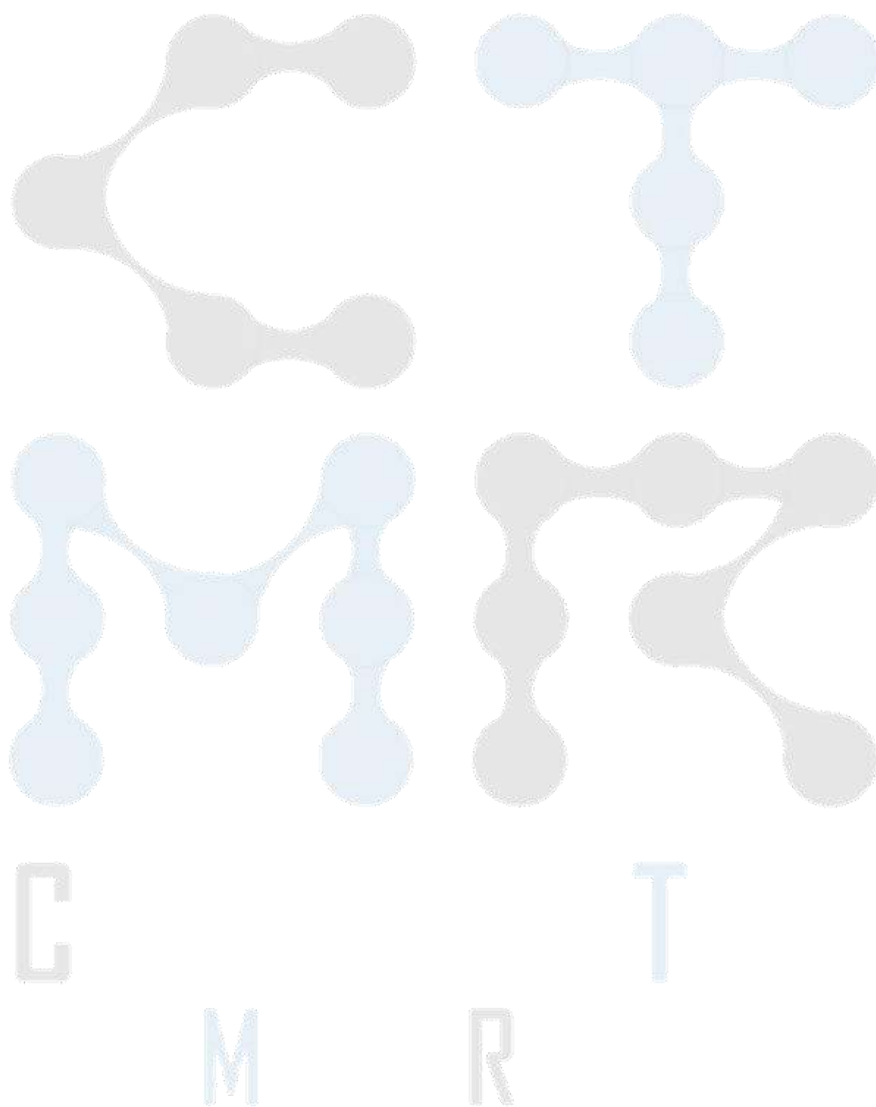
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**TALABALAR O'QUV FAOLIYATIDA STRESS:
ZAMONAVIY NAZARIYALAR TARAQQIYOTI MISOLIDA**

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Annotatsiya: Mazkur maqolada talabalarda stress holatining kelib chiqish sabablari, uning o'quv faoliyatiga va ruhiy salomatligiga ta'siri, shuningdek, stressni bartaraf etish hamda unga bardoshlilikni shakllantirish yo'llari tahlil etilgan. Tadqiqot davomida talabalik davrining psixologik xususiyatlari, o'zini o'zi boshqarish va o'zini o'zi nazorat qilish ko'nikmalarining stressni kamaytirishdagi ahamiyati ilmiy manbalar asosida yoritilgan. O'zbekiston Respublikasining "Yangi O'zbekistonning Taraqqiyot strategiyasi" va "O'zbekiston – 2030 strategiyasi"da ilgari surilgan yoshlarning psixologik farovonligini ta'minlash, inson kapitalini rivojlantirish, ta'lim tizimida psixologik xizmatlarni kuchaytirish kabi vazifalar ushbu tadqiqotning nazariy asosini tashkil etadi.

Kalit so'zlar: stress, talabalik davri, o'zini o'zi boshqarish, psixologik barqarorlik, taraqqiyot strategiyasi, ruhiy salomatlik, psixologik xizmat, yoshlar siyosati, o'quv faoliyati, emotsional muvozanat.

Аннотация: В данной статье рассматриваются причины возникновения стрессовых состояний у студентов, их влияние на учебную деятельность и психическое здоровье, а также пути преодоления стресса и формирования стрессоустойчивости. В ходе исследования проанализированы психологические особенности студенческого возраста, значение саморегуляции и самоконтроля в процессе снижения уровня стресса. Теоретическую основу исследования составляют положения «Стратегии развития Нового Узбекистана» и «Стратегии Узбекистан – 2030», в которых особое внимание уделяется обеспечению психологического благополучия молодежи, развитию человеческого капитала и укреплению психологических служб в системе образования.

Ключевые слова: стресс, студенческий возраст, саморегуляция, психологическая устойчивость, стратегия развития, психическое здоровье, психологическая служба, молодежная политика, учебная деятельность, эмоциональное равновесие.

Abstract: This article examines the causes of stress among university students, its impact on academic performance and mental health, as well as strategies for coping with stress and developing resilience. The study analyzes the psychological characteristics of student life and the importance of self-regulation and self-control in reducing stress levels. The theoretical basis of the research relies on the "New Uzbekistan Development Strategy" and the "Uzbekistan-2030 Strategy," which emphasize ensuring youth psychological well-being, developing human capital, and strengthening psychological services in the education system.

Keywords: stress, student period, self-regulation, psychological resilience, development

strategy, mental health, psychological service, youth policy, academic activity, emotional balance.

KIRISH

Davlat va jamiyatning asosiy vazifalaridan biri millat salomatligini ta'minlash hisoblanadi. Hayot sur'atining sezilarli darajada o'sishi, ijtimoiy va siyosiy o'zgarishlar, ekologik, hissiy va axborot yuklamalarining ortishi psixologik stress muammosini kelib chiqishiga sabab bo'lmoqda. Hozirda jahon miqyosida talabalarining o'quv faoliyatida stress va ularda stressga bardoshlilikni oshirish yuzasidan tadqiqotlar olib borish dolzarb muammo ekanligi qayd etilmoqda. Amerika psixologlar assotsiatsiyasining bergan ma'lumotlariga ko'ra, aholining yosh avlodlari salomatligi uchun stress katta zarar ekanligi ta'kidlangan. Shuningdek, psixologlarning ta'kidlashicha, agar yoshlar hozirgi stresslarni boshqarishning sog'lom usullarini o'rganmasalar, bu ularning sog'ligiga jiddiy ta'sir ko'rsatishi mumkin.

O'zbekiston Respublikasining 2023 yil 1 maydagi O'RQ-837-son «O'zbekiston Respublikasi Konstitutsiyasi to'g'risida» Qonuni, O'zbekiston Respublikasi Prezidentining 2023 yil 11 senyabrdagi PF-158-son «O'zbekiston - 2030 Strategiyasi to'g'risida», 2022 yil 28 yanvardagi PF-60-son «2022-2026 yillarga mo'ljallangan Yangi O'zbekistonning Taraqqiyot Strategiyasi to'g'risida», 2019 yil 8 oktyabrdagi PF-5847-son «O'zbekiston Respublikasi oliy ta'lim tizimini 2030 yilgacha rivojlantirish konsepsiyasi to'g'risida»gi Farmonlari, 2021 yil 18 yanvardagi PQ-23son «O'zbekistonda yoshlarga oid davlat siyosatini 2025 yilgacha rivojlantirish konsepsiyasini tasdiqlash to'g'risida», 2018 yil 14 avgustdagi PQ3907-son «Yoshlarni ma'naviy-axloqiy va jismoniy barkamol etib tarbiyalash, ularga ta'limtarbiya berish tizimini sifat jihatidan yangi bosqichga ko'tarish choratadbirlari to'g'risida» Qarorlar, O'zbekiston Respublikasi Vazirlar mahkamasining 2019 yil 7 iyundagi 472-son «Psixologiya sohasida kadrlarni tayyorlash tizimini yanada takomillashtirish va jamiyatda huquqbuzarlikning oldini olish choratadbirlari to'g'risida»gi Qarori hamda boshqa me'yoriy hujjatlar doirasida belgilangan keng ko'lamli strategik chora-tadbirlarni amalga oshirishda mazkur ilmiy tadqiqot muayyan darajada xizmat qiladi.

Talaba hayotida o'zini o'zi boshqarishning ahamiyatini ortiqcha baholash qiyin. Ushbu ko'nikma talabalarga o'z vaqtlarini samarali boshqarishga, o'qishga e'tibor berishga, topshiriqlarni bajarishda o'zlarini tarbiyalashga va o'quv jarayonida duch keladigan qiyinchiliklarni yengishga yordam beradi. O'z-o'zini nazorat qilish stressli vaziyatlarga chidamlilikni rivojlantirishga yordam beradi, talabaning o'z-o'zini samaradorligi va o'zini o'zi qadrlashini oshiradi va uning umumiy psixologik farovonligini yaxshilashga yordam beradi. O'quv faoliyati kontekstida o'z-o'zini nazorat qilish bilimlarni yanada samarali o'zlashtirishga, mustaqil ishlash va o'zini o'zi boshqarish ko'nikmalarini rivojlantirishga yordam beradi, bu esa oxir-oqibat talabaning akademik samaradorligi va akademik samaradorligini oshirishga olib keladi. O'z-o'zini nazorat qilishni rivojlantirish orqali talabalar o'zlarining o'quv faoliyatini yanada samarali rejalashtirishlari, maqsadlariga erishish yo'lidagi to'siqlarni engib o'tishlari va motivatsiya va psixologik muvozanatni yo'qotmasdan yuzaga keladigan qiyinchiliklarni engishlari mumkin.

MAVZUGA OID ADABIYOTLAR TAHLILI

Psixologlardan B.G.Ananyev, N.V.Kuzmina, N.F.Talizina, V.Y.Lyaudis, I.S.Kon, V.T.Lisovskiy, A. A.Bodalev, A.V.Petrovskiy, M.G.Davletshin va boshqalarning tadqiqotlariga ko'ra, oliy o'quv yurtlarida ta'lim olish talabalar uchun juda og'ir kechadi, chunki bu davrda shaxsning murakkab fazilatlar, xislatlari, sifatleri takomillashish bosqichida bo'ladi.

Talabalaridagi stress holatlari bo'yicha bir qancha tadqiqotlar o'tkazilgan. Jumladan,

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T.Broderik fikricha, agar talabalaridagi stress holati e'tiborga olinmasa, ularda tushkunlik va xavotir hissi ortishiga olib keladi. Bu talabalarning o'qish natijalariga hamda oila, do'stlar, tengdoshlar bilan shaxsiy munosabatlariga salbiy ta'sir ko'rsatishi mumkin. Shuningdek, T.Broderik talabalaridagi stress profilaktikasi borasida, yetarlicha uxlash, yaxshi ovqatlanish, muntazam ravishda mashq qilish va sport bilan shug'ullanish, stimulyatorlarga tayanmaslik, rejalarni aniq belgilash, kun tartibiga rioya qilish, vazifalarni bajarishda kechiktirilishlardan saqlanish kabi choralarga to'xtalib o'tgan.

Shuningdek, E.Skottning ta'kidlashicha, ko'pgina talabalar stressdan holi bo'lish zarurligini biladi, ammo turli tadbirlar, darslarga bor vaqtini sarflaganligi sababli o'zidagi ushbu holatni yo'qotishga yordam beruvchi usul va vositalarni sinab ko'rishga vaqt topolmasligi natijasida, ularda me'yoriy uyqu, to'g'ri ovqatlanish kabi sog'lom turmush tarzini olib borish bilan bog'liq xatti-harakatlarga ulgurolmaydi. Uning fikricha, stressni boshqarish talabalar uchun muhim hisoblanadi. Shu boisdan ular bu holatni yo'qotishda to'g'ri ovqatlanish, kun tartibiga rioya qilish, yetarlicha dam olish, sport bilan shug'ullanish kabi masalalarga e'tibor qaratishi lozim. Aks holda, stress ularning ota-onalari bilan munosabatiga, ta'lim olish jarayonlariga va sog'ligiga salbiy ta'sir ko'rsatishi mumkin.

Bu borada, K.Levings fikrlarini qaraydigan bo'lsak, ko'plab talabalar stressni boshqarish uchun zarur bo'lgan bilim va ko'nikmalarga ega emasligi oqibatida, nafaqat ularning hissiy va ruhiy salomatligi, balki, ijtimoiy munosabatlari, kasbiy bilim va malakalarni o'zlashtirishini kechiktiradi va bu kelajakdagi muvaffaqiyatlariga ta'sir qilishi mumkin.

TADQIQOT METODOLOGIYASI

Talabalik davri asosan, o'smirlikdan to'vayaga yetgunga qadar bo'lgan oraliq bosqich sifatida tavsiflanadi. Talabalar o'spirinlik davridagi ko'plab xususiyatlarga ega bo'lish bilan birga, oila muhitidan uzoqlashish jarayonini boshdan kechirishadi. Ular odatda yolg'iz, uydan uzoqda yashaydilar va ko'pincha boshqa joylardan kelgan tengdoshlari bilan bog'lanishni boshlaydilar. Oliy ta'lim darajasida o'qimagan tengdoshlari bilan solishtirganda, talabalar faqat intellektual faoliyat bilan shug'ullangani uchun hayotning haqiqiy mas'uliyatidan ajralganga o'xshaydi. Shu bilan birga, shaxs oldingi o'tmishdan uzilib, oldingisidan ko'p jihatdan farq qiladigan yangi turmush tarzini qabul qiladi. Bugungi kunda oliy ta'lim muassasalarida ta'lim olayotgan bo'lajak kadrlarning nafaqat o'z mutaxassisligi doirasida bilim olishiga, balki ularning salomatligi masalasiga ham katta e'tibor qaratilmoqda. Ayniqsa ularning ruhiy jihatdan salomatligini ta'minlash uchun ularning psixologik savodxonligini oshirish masalasi ham muhim ahamiyat kasb etmoqda. Shu munosabat bilan muammoning talabalar jamoasida o'rganilganligini ham tahlil qilishga urindik.

Talabalar boshdan kechirayotgan stress o'rganish, o'rganish va bilimlarni tahlil qilish sifatiga ta'sir qilishi, akademik natijalarga to'sqinlik qilishi mumkin. O'z navbatida, akademik ko'rsatkichlar bilan bog'liq qiyinchiliklar ham noqulaylik tug'diradi, buning natijasida umumiy stress kuchayadi, bu esa ushbu yosh guruhida kasallanish darajasining oshishiga olib keladi.

TAHLIL

Stress psixologiyasi va psixofiziologiyasi ustida ko'p ilmiy izlanishlar olib borgan olim Y.V.Shcherbatyx o'zining ilmiy asarlarida shaxsning stressga bo'lgan munosabatini, stress holatiga chidamliligini (labilligini), moyilligini, stress vaziyatida o'zini o'zi boshqara olish darajasini aniqlashning qator usullarini keltirib o'tadi. Jumladan :

-bir xil stress omillaridan foydalanish, bu o'z navbatida shaxsda stress jarayonining kechish tarzini va bu vaziyatga shaxsning chidamlilik darajasini prognoz qilish imkonini beradi; -laboratoriya sharoitida o'lchangan sinov stressorlaridan foydalanish (stimullar bilan ta'sirlashga asoslangan);

-turli stress vaziyatini yaratish orqali stress holatiga shaxsning munosabatini o'rganish; - psixologik testlar, so'rovnomalar, anketalar to'ldirish bilan prognoz qilish.

D.B.Elkonin va V.Davidovning ta'kidlashicha, o'qish faoliyati — bu o'quvchining nazariy bilimlar—o'zlashtirishga qaratilgan va fikrlashning o'sishini ta'minlaydigan faoliyatlaridan bin sifatida ko'rsatiladi. O'qish faoliyati o'quvchining o'zi amalga oshirib o'zini o'zgartirish uchun maxsus tashkil qilingan faoliyat bo'lagidir. O'qish faoliyatining muhim qismi o'quv topshiriq hisoblanadi. Topshiriq yechilish jarayonida, har bir amaliy mashg'ulotdagi kabi, o'quvchi tomonidan o'rganilayotgan obyektga yoki bu haqdagi tasavurda ma'lum bir o'zgarishlar yuzaga keladi, ammo natijada subyektning o'zi o'zgaradi. O'quv topshirig'i subyektga oldindan berilgan o'zgarish sodir bo'lgandagina yechimi topilgan deb hisoblash mumkin. O'qish faoliyati jarayonida (yosh avlod) o'quvchilar kattalarning tarbiyasiga tayanadi, o'rganadi. Har bir yosh avlod dunyo haqidagi bilimlarni bevosita uni o'rab turgan borliqdan oladi, ammo yoshlar bu bilimlarni o'zi yaratmaydi, balki ularni katta avlodlardan «narsa (buyumlar), maxsus tashkilot va yangi avlodning bu narsalar bilan bog'liq faoliyati orqali» oladi.

XULOSA

Yuqoridagi tahlillar shuni ko'rsatadiki, talabalik davri inson hayotining eng muhim, shu bilan birga, psixologik jihatdan eng murakkab bosqichlaridan biridir. Bu davrda shaxsning ijtimoiylashuvi, kasbiy yo'nalishi va shaxsiy o'zini anglash jarayonlari faollashadi. Shunday sharoitda stress omillarining kuchayishi talabaning nafaqat o'quv faoliyatiga, balki uning ruhiy salomatligiga ham sezilarli ta'sir ko'rsatadi. Shu boisdan, stressni bartaraf etish va unga bardoshlilikni rivojlantirish masalasi zamonaviy oliy ta'lim tizimining ajralmas tarkibiy qismiga aylanishi lozim.

O'zbekiston Respublikasining "Yangi O'zbekistonning Taraqqiyot strategiyasi" hamda "O'zbekiston – 2030 strategiyasi"da ilgari surilgan inson kapitalini rivojlantirish, yoshlarning psixologik farovonligini ta'minlash va sog'lom turmush tarzini targ'ib qilish yo'nalishlari talabalarda stressni boshqarish madaniyatini shakllantirish zaruratini yanada kuchaytirmoqda. Mazkur strategik hujjatlar doirasida ta'lim tizimida psixologik xizmatlarni kuchaytirish, profilaktik treninglar o'tkazish, o'zini o'zi boshqarish va emotsional intellektni rivojlantirishga qaratilgan dasturlarni tatbiq etish alohida ahamiyat kasb etadi.

Tadqiqot natijalari shuni ko'rsatadiki, talabalarining o'z-o'zini nazorat qilish, o'quv faoliyatini samarali rejalashtirish va stressga nisbatan psixologik bardoshlilikini oshirish darajasi ularning akademik muvaffaqiyati bilan bevosita bog'liq. O'z-o'zini boshqarish ko'nikmalariga ega bo'lgan talabalar stressli vaziyatlarda ijobiy moslashuv strategiyalaridan foydalana oladilar, bu esa ularning psixologik barqarorligini mustahkamlaydi.

Shunday qilib, talabalarda stressni bartaraf etish, ularning ruhiy salomatligini saqlash va psixologik madaniyatini oshirish — milliy taraqqiyot strategiyalarida belgilangan maqsad va ustuvor yo'nalishlarni ro'yobga chiqarishda muhim o'rin tutadi. Bu jarayon psixologik xizmatlar, pedagogik yondashuvlar va davlat siyosati o'rtasidagi uzviy hamkorlikni talab etadi. Mazkur maqola natijalari ta'lim muassasalarida stressni boshqarish bo'yicha amaliy dasturlar ishlab chiqish hamda yoshlarning psixologik salomatligini qo'llab-quvvatlash tizimini takomillashtirish uchun ilmiy asos sifatida xizmat qilishi mumkin.

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**MUSTAQILLIK DAVRIDA O'ZBEKISTONDA SOLIQ TIZIMINING RIVOJLANISH
TARIXI**

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Annotatsiya. Ushbu maqolada O'zbekiston Respublikasida mustaqillikka erishilgandan so'ng soliq tizimining shakllanishi, rivojlanish bosqichlari va amalga oshirilgan islohotlar ilmiy tahlil qilinadi. Maqolada 1991 yildan hozirgi kungacha bo'lgan davrda soliq siyosatining asosiy yo'nalishlari, soliq stavkalarining bosqichma-bosqich soddalashtirilishi, fiskal barqarorlikni ta'minlashga qaratilgan chora-tadbirlar hamda xalqaro tajribaga asoslangan islohotlar o'rganilgan. Maqolada, shuningdek, O'zbekiston soliq tizimining raqamlashtirilishi va soliq ma'murchiligida zamonaviy axborot texnologiyalarining joriy etilishi natijasida erishilgan ijobiy o'zgarishlar tahlil qilinadi. Ushbu mavzuda O'zbekiston soliq siyosatining barqaror iqtisodiy o'sish va investitsion jozibadorlikni ta'minlashdagi o'rni va ahamiyatini yoritadi.

Kalit so'zlar: O'zbekiston, soliq tizimi, mustaqillik davri, fiskal siyosat, islohotlar, raqamlashtirish, soliq ma'murchiligi, iqtisodiy o'sish, soliq stavkalari, byudjet siyosati.

Аннотация. В статье представлен научный анализ становления, этапов развития и реформирования налоговой системы Республики Узбекистан после обретения независимости. В статье рассматриваются основные направления налоговой политики в период с 1991 года по настоящее время, постепенное упрощение налоговых ставок, меры, направленные на обеспечение фискальной стабильности, и реформы, основанные на международном опыте. Также анализируются позитивные изменения, достигнутые в результате цифровизации налоговой системы Узбекистана и внедрения современных информационных технологий в налоговое администрирование. В данной теме освещается роль и значение налоговой политики Узбекистана в обеспечении устойчивого экономического роста и инвестиционной привлекательности.

Ключевые слова: Узбекистан, налоговая система, период независимости, фискальная политика, реформы, цифровизация, налоговое администрирование, экономический рост, налоговые ставки, бюджетная политика.

Abstract. This article provides a scientific analysis of the formation, development stages and reforms of the tax system in the Republic of Uzbekistan after independence. The article examines the main directions of tax policy in the period from 1991 to the present, the gradual simplification of tax rates, measures aimed at ensuring fiscal stability, and reforms based on international experience. The article also analyzes the positive changes achieved as a result of the digitalization of the tax system of Uzbekistan and the introduction of modern information technologies in tax administration. This topic highlights the role and importance of the tax policy of Uzbekistan in ensuring sustainable economic growth and investment attractiveness.

Keywords: Uzbekistan, tax system, period of independence, fiscal policy, reforms, digitalization, tax administration, economic growth, tax rates, budget policy.

KIRISH

Bozor iqtisodiyotiga o'tish jarayonida soliq tizimining shakllanishi va takomillashtirilishi har qanday mustaqil davlat uchun iqtisodiy siyosatning eng muhim yo'nalishlaridan biridir. O'zbekiston

Respublikasi mustaqillikka erishgan dastlabki yillarda iqtisodiy tizimni tubdan isloh qilish, davlat byudjetining barqarorligini ta'minlash hamda tadbirkorlikni rivojlantirish maqsadida yangi soliq tizimini yaratishga kirishdi.

O'zbekiston Respublikasi iqtisodiy suverenitet va bozor munosabatlariga o'tish jarayonida soliq tizimi tubdan isloh qilindi. Ushbu maqolada 1991-yildan hozirgi kungacha bo'lgan davrda O'zbekiston soliq tizimining rivojlanish bosqichlari, asosiy qonunchilik va institutsional o'zgarishlar, raqamlashtirish, xalqaro tajriba va zamonaviy islohotlar ilmiy tahlil qilinadi.

Ushbu maqolada O'zbekiston soliq tizimining tarixiy rivojlanish bosqichlari, 1991-2025 yillar oralig'idagi muhim qonun hujjatlari, soliq siyosatidagi ustuvor yo'nalishlar hamda iqtisodiy o'sishga ta'sir ko'rsatgan asosiy omillar tahlil qilinadi. Shuningdek, tadqiqotda zamonaviy soliq tizimining shakllanishi jarayonida raqamli texnologiyalar va xalqaro tajriba asosida amalga oshirilgan islohotlarning samaradorligi ilmiy asosda yoritiladi.

Soliq siyosati milliy iqtisodiyotni boshqarishning asosiy instrumentlaridan biri sifatida mamlakatda ishlab chiqarish, bandlik, investitsiya muhitiga bevosita ta'sir ko'rsatdi. Shu bois, mustaqillik davrida soliq tizimini bosqichma-bosqich soddalashtirish, soliq yukini kamaytirish, soliq ma'murchiligini raqamlashtirish va xalqaro standartlarga moslashtirish yo'lida keng ko'lamli islohotlar amalga oshirildi.

1.1. Sovet soliq tizimi merosi

- **Markazlashgan boshqaruv.** Soliq tushumlari asosan markaziy darajada yig'ilib, respublikalarga qayta taqsimlangan. Mahalliy fiskal mustaqillik deyarli mavjud emas edi
- **Aylanma soliq ustuvorligi.** Davlat korxonalarining yalpi aylanmasidan olinadigan soliq asosiy manba bo'lib, bozor rag'batlari va xususiy sektor uchun imkoniyatlar cheklangan edi
- **Qonunchilik va ma'muriy bo'shliqlar.** Mustaqillik arafasida O'zbekiston o'zining mustaqil soliq ma'muriyati va qonunchiligiga ega emas edi

1.2. Mustaqillikdan keyingi dastlabki muammolar

- **Soliq ma'muriyati va infratuzilmasi yo'qligi.** Yangi davlat soliq qo'mitasi va yig'im mexanizmlari noldan tashkil etildi
- **Qonunchilik bo'shlig'i:** Sovet qonunlari o'rniga milliy soliq kodeksi va qonunlar ishlab chiqildi
- **Bozor iqtisodiyotiga o'tish.** Aylanma soliq o'rniga QQS, foyda solig'i va jismoniy shaxslar daromad solig'i joriy qilindi

Soliq ma'muriyati va qonunchilik asoslari

- **Davlat soliq qo'mitasi tashkil etilishi.** Markaziy va hududiy bo'limlar, shuningdek, tuman va shahar darajasida soliq organlari shakllantirildi
- **Asosiy qonunlar.** 1997-yilda "Davlat soliq xizmati to'g'risida"gi Qonun qabul qilindi, 1992-yil Konstitutsiyada soliq tizimi asoslari belgilandi

Soliq turlari. QQS, foyda solig'i, jismoniy shaxslar daromad solig'i, aksiz solig'i va boshqalar joriy qilindi

2.2. Ma'muriy va ijtimoiy muammolar

- **Kadrlar va infratuzilma.** Soliq xodimlarini tayyorlash, ma'muriy imkoniyatlarni oshirish va zamonaviy boshqaruv tizimlarini joriy etish zarurati paydo bo'ldi
- **Iqtisodiy barqarorlik.** Soliq tushumlari asosan eksportga yo'naltirilgan sohalar (paxta, oltin) hisobiga ta'minlandi, islohotlar bosqichma-bosqich amalga oshirildi

Qonunchilik va soliq siyosati

- **2007-yilgi soliq kodeksi.** Soliq qonunchiligi tizimlashtirildi, soliq turlari va tartib-taomillari aniq belgilandi
- **Jismoniy shaxslar daromad solig'i islohoti.** Progressiv stavkalar joriy qilindi, kichik biznes uchun soddalashtirilgan tartiblar ishlab chiqildi

3.2. Ma'muriy modernizatsiya

- **Soliq organlarining zamonaviylashuvi.** Elektron hisobot, soliq tekshiruvlari sonining kamaytirilishi, kichik biznes uchun yengilliklar joriy qilindi
- **Soliq imtiyozlari va investitsiya rag'batlari.** Erkin iqtisodiy zonalar va xorijiy investitsiyalar uchun soliq imtiyozlari kengaytirildi

3.3. Xalqaro tajriba va moslashuv

- **Xalqaro standartlarga yaqinlashuv.** QQS, daromad solig'i va boshqa asosiy soliq turlari bo'yicha xalqaro tajriba o'rganildi, lekin to'liq moslashuv 2017-yildan keyin tezlashdi

Zamonaviy islohotlar va raqamlashtirish

4.1. Yangi soliq kodeksi va qonunchilik

- **2020-yilgi yangi Soliq Kodeksi.** Soliq stavkalari pasaytirildi, tartib-taomillar soddalashtirildi, QQS bazasi kengaytirildi, imtiyozlar optimallashtirildi
- **Xalqaro standartlarga moslashuv:** Soliq siyosati va ma'muriyati xalqaro normalarga moslashtirildi, jumladan, soliq nazorati, risklarni boshqarish va nizolarni hal qilish tizimi joriy qilindi

4.2. Raqamlashtirish va ma'muriy modernizatsiya

- **Elektron xizmatlar.** Elektron hisob-fakturalar, kassa apparatlari, "soliq to'lovchining shaxsiy kabineti" va boshqa raqamli xizmatlar joriy qilindi (22 ta xizmatdan 20 tasi elektron)
- **Ma'lumotlarni avtomatlashtirish.** Soliq organlarida axborot texnologiyalari va avtomatlashtirilgan risk tahlili tizimlari joriy qilindi, bu esa soliq to'lovchilarning ixtiyoriylik asosida to'lovini oshirdi va korrupsiya xavfini kamaytirdi

4.3. Siyosiy va iqtisodiy ustuvor yo'nalishlar

- **Soliq yukini kamaytirish:** Kichik biznes va tadbirkorlik subyektlari uchun soliq stavkalari pasaytirildi, imtiyozlar kengaytirildi
- **Soliq bazasini kengaytirish.** Xizmatlar sohasi va raqamli iqtisodiyot uchun yangi soliq mexanizmlari ishlab chiqildi, norasmiy iqtisodiyotni qisqartirishga e'tibor kuchaydi
- **Xalqaro integratsiya.** Soliq qonunchiligi Jahon savdo tashkiloti va boshqa xalqaro tashkilotlar talablariga moslashtirilmoqda

Jadval: Mustaqillik davrida soliq tizimi rivojlanishining bosqichlari

Bosqich	Asosiy xususiyatlar
1991-1995	Sovet merosi, soliq ma'muriyati va qonunchiligi yo'qligi, QQS va foyda solig'i joriy qilinishi
1996-2000	Davlat soliq qo'mitasi mustahkamlanishi, asosiy qonunlar, barqarorlik va bosqichma-bosqich islohot
2001-2016	2007-yilgi soliq kodeksi, elektron hisobot, kichik biznes uchun yengilliklar, xalqaro tajriba

2017-hozirgi	2020-yilgi yangi soliq kodeksi, raqamlashtirish, xalqaro standartlar, soliq yukini kamaytirish

Adabiyotlari tahlili va metodologiya

O'zbekiston soliq tizimi bo'yicha o'tkazilgan ilmiy izlanishlar asosan iqtisodiy islohotlar, fiskal siyosat, soliqlarning iqtisodiy o'sishga ta'siri, hamda soliq ma'murchiligining takomillashuvi bilan bog'liq yo'nalishlarda olib borilgan. Mahalliy olimlar - **M. Usmonov, A. Haydarov, X. G'ulomov, D. Jo'rayev, M. Karimov** kabi tadqiqotchilar o'z ishlarida soliq tizimining mustaqillik davrida bosqichma-bosqich shakllanish jarayonlarini tahlil qilganlar.

M.Usmonov (2001) o'z ilmiy ishlarida 1990-yillar boshida qabul qilingan "Soliq tizimi to'g'risida"gi Qonun O'zbekistonning milliy fiskal mustaqilligini ta'minlashdagi tarixiy ahamiyatini ko'rsatgan.

A.Haydarov (2015) esa soliq siyosatida soddalashtirilgan tizimning kichik biznesni rivojlantirishga ta'sirini empirik tahlil qilgan. So'nggi yillarda

D.Jo'rayev (2020) raqamli iqtisodiyot sharoitida soliq ma'murchiligini avtomatlashtirish va "onlayn nazorat kassa mashinalari" tizimining joriy etilishi samaradorligini o'rgangan.

Metodologik jihatdan ushbu tadqiqot **tarixiy, tizimli va tahliliy yondashuvlar** asosida olib borildi.

- **Tarixiy yondashuv** - 1991 yildan hozirgi kungacha bo'lgan soliq siyosati bosqichlarini aniqlashda qo'llanildi.
- **Tizimli tahlil** - soliq tizimi elementlarining (soliq turlari, stavkalar, imtiyozlar, boshqaruv mexanizmlari) o'zaro bog'liqligini aniqlashga xizmat qildi.
- **Qiyosiy metod** - O'zbekiston tajribasini boshqa rivojlanayotgan davlatlar, jumladan, Qozog'iston va Turkiya tajribalari bilan solishtirishda ishlatildi. Shuningdek, rasmiy statistika ma'lumotlari, O'zbekiston Respublikasi Prezidentining farmonlari, Soliq kodeksi tahlili hamda Jahon banki, Xalqaro valyuta jamg'armasi hisobotlaridan foydalanildi.

Natija va muhokamalar

O'zbekiston soliq tizimi mustaqillik davrida **to'rt bosqichli rivojlanish** yo'lini bosib o'tgan:

1. **(1991-2000-yillar)** - Mustaqil soliq tizimining yaratilish davri. Ushbu davrda milliy Soliq kodeksi qabul qilinib, soliq turlari va stavkalari belgilandi. Soliq idoralari mustaqil tuzilma sifatida shakllandi.
2. **(2001-2010-yillar)** - Tizimni soddalashtirish va barqarorlashtirish bosqichi. Kichik biznes uchun soddalashtirilgan soliq tizimi joriy etildi, soliq stavkalari pasaytirildi, fiskal barqarorlik ta'minlandi.
3. **(2011-2017-yillar)** - Raqobatbardosh iqtisodiy muhitni yaratish va soliq yukini kamaytirish bosqichi. Soliq imtiyozlari tizimi qayta ko'rib chiqildi, yashirin iqtisodiyot ulushi kamaytirildi, soliq to'lovchilarning huquqiy madaniyati oshirildi.
4. **(2018-hozirgi davr)** - **Raqamli soliq tizimiga o'tish va xalqaro integratsiya davri.** Soliq ma'murchiligi to'liq raqamlashtirildi, "My.Soliq.uz" platformasi ishga tushirildi, onlayn nazorat kassa mashinalari joriy qilindi, elektron hisob-fakturalar tizimi yo'lga qo'yildi.

O'zbekiston soliq tizimi oxirgi yillarda **shaffoflik, samaradorlik va investitsion jozibadorlik** tamoyillariga asoslanib rivojlanmoqda. Shuningdek, xalqaro reytinglarda (masalan, "Doing Business" hisobotida) mamlakatning soliq sohasidagi ko'rsatkichlari sezilarli yaxshilangan. Ammo, hali ham ayrim muammolar mavjud: ayrim tarmoqlarda soliq yukining notekis taqsimlanishi, soliq

ma'lumotlarini tahlil qilish tizimining to'liq avtomatlashtirilmaganligi kabi masalalar keyingi tadqiqotlarda alohida yondashuvni talab etadi.

Xulosa

O'zbekiston soliq tizimi mustaqillik yillarida tub islohotlarni boshidan kechirib, markazlashgan sovet tizimidan zamonaviy, bozor iqtisodiyoti talablariga mos tizimga aylandi. Soliq siyosatining barqarorlashuvi mamlakat iqtisodiy o'sishini ta'minlash, byudjet daromadlarini oshirish va investitsiya muhitini yaxshilashda muhim rol o'ynadi.

O'zbekiston mustaqillik yillarida soliq tizimini tubdan isloh qildi: sovet merosidan bozor iqtisodiyotiga mos, zamonaviy va raqamlashtirilgan tizimga o'tildi. Dastlabki bosqichda soliq ma'muriyati va qonunchiligi shakllantirildi, 2000-yillarda zamonaviylashtirish va kichik biznesni qo'llab-quvvatlashga e'tibor qaratildi, 2017-yildan esa raqamlashtirish, xalqaro standartlarga moslashuv va soliq yukini kamaytirish asosiy yo'nalishga aylandi. Bu islohotlar O'zbekiston iqtisodiy barqarorligi, investitsion muhit va davlat moliyaviy boshqaruvining takomillashuviga xizmat qildi.

So'nggi yillardagi **raqamlashtirish siyosati** soliq ma'murchiligini soddalashtirib, soliq to'lovchilarning ishonchini mustahkamladi. Kelajakda soliq tizimining yanada takomillashuvi uchun **sun'iy intellekt asosidagi tahliliy tizimlar, soliq ma'lumotlarining avtomatik integratsiyasi** hamda **xalqaro soliq axborot almashinuvi mexanizmlarini kengaytirish** zarur.

Shunday qilib, mustaqillik davrida shakllangan O'zbekistonning milliy soliq tizimi iqtisodiy islohotlarning barqarorligi va davlat moliyasining mustahkam poydevorini yaratishda hal qiluvchi omil bo'lib xizmat qilmoqda.

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**ЦЕННОСТИ ДУХОВНОЙ КУЛЬТУРЫ И ИХ ВЛИЯНИЕ НА НАЦИОНАЛЬНУЮ
ИДЕОЛОГИЮ.**

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Аннотация

Значение духовной культуры является ключевым фактором формирования и развития национальной идеологии. В этой научной статье утверждается, что духовная культура является ценностью, что духовность и культура взаимосвязаны и неразделимы. Кроме того, научно и философски исследована роль и влияние духовной культуры в развитии национальной идеологии. Содержание освещается через концепцию аксиологии, которая является ценностной философией. Научные исследования проводились с помощью таких понятий, как аксиология, оценка ценности, ценностный подход, нравственное качество духовного человека.

Ключевые слова: национальная идеология, философия ценностей, национальная идея, аксиология, духовное наследие, духовная культура, индивидуальная духовность, социальные ценности, социальная культура, отношения человека и общества, человеческие качества.

VALUES OF SPIRITUAL CULTURE AND THEIR INFLUENCE ON NATIONAL IDEOLOGY

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Abstract

The value of spiritual culture is a key factor in the formation and development of national ideology. This scientific article argues that spiritual culture is a value, that spirituality and culture are interconnected and inseparable. In addition, the role and influence of spiritual culture in the development of national ideology is scientifically and philosophically investigated. The content is illuminated through the concept of axiology, which is a value philosophy. Scientific research was carried out using concepts such as axiology, value assessment, value approach, moral quality of a spiritual person. The scientific conclusion was made that our country has a rich spiritual heritage, which is a key tool for the comprehensive development of young people through spiritual heritage, especially in shaping their national ideological worldview.

Keywords: national ideology, philosophy of values, national idea, axiology, spiritual heritage, spiritual culture, individual spirituality, social values, social culture, human-society relations, human qualities.

**MA'NAVİY MADANIYAT QADRIYATLARI VA ULARNING MILLIY IDEOLOGIYAGA
TA'SIRI**

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Falsafa fanlari nomzodi

Annotatsiya: Ma'naviy madaniyatning ahamiyati milliy ideologiyani shakllantirish va rivojlantirishda muhim omil hisoblanadi. Ushbu ilmiy maqolada ma'naviy madaniyat qadriyat sifatida qaraladi hamda ma'naviyat va madaniyat o'zaro bog'liq va ajralmas tushunchalar ekani ta'kidlanadi. Shuningdek, milliy ideologiya rivojlanishida ma'naviy madaniyatning o'zini va ta'siri ilmiy-falsafiy jihatdan tahlil qilinadi. Maqola mazmuni qadriyatlar falsafasi — aksiologiya konsepsiyasi orqali yoritilgan. Tadqiqot jarayonida aksiologiya, qadriyatni baholash, qadriyatga asoslangan yondashuv, ma'naviy insonning axloqiy fazilatlari kabi tushunchalardan foydalanilgan.

Kalit so'zlar: milliy ideologiya, qadriyatlar falsafasi, milliy g'oya, aksiologiya, ma'naviy meros, ma'naviy madaniyat, individual ma'naviyat, ijtimoiy qadriyatlar, ijtimoiy madaniyat, inson va jamiyat munosabatlari, insoniy fazilatlar.

Ценность — это объективная значимость многообразных компонентов действительности, содержание которой определяется потребностями и интересами общественных субъектов. Понятие ценность по смыслу очень близко к таким понятиям как "потребность", "интерес", "благо", "полезность", но к ним не сводится и имеет свое собственное самостоятельное значение. Ценностная оценка духовности есть как бы критерий степени развития духовности человека и его культуры. В ценностной ориентации аккумулируются представления людей о значимости самых разнообразных явлений материальной и духовной жизни общества. Определить и объяснить ценность чего либо в том числе и ту или иную сторону духовности можно только с позиций такой науки как аксиология. Аксиология это и есть философия ценностей. Понятия ценностей обозначает характеристику различных объектов и материальной и духовной жизни. Понятие ценности отражает объективную действительность. Высшей ценностью с точки зрения аксиологии является сам человек, его жизнь как высшее творение эволюционного развития. Вся совокупность человеческой деятельности, в том числе, и прежде всего трудовая являются ценностями. Ценностная ориентация личности выражает ее мировоззренческую, гражданскую позицию. Она входит в состав мотивов и стимулов всех видов поведения человека, она не только определяет, но и направляет смысл поступков современного человека. В качестве стержневой основы ценностная ориентация пронизывает духовную культуру и по вертикали и по горизонтали. В отличие от других компонентов духовной культуры она выражает общую тенденцию развития и функционирования духовной культуры на разных уровнях: теоретическом и социально - психологическом. Ценностная ориентация, по нашему мнению выступают в качестве регулятора взаимоотношений между объективной основой и субъективной стороной культуры. В ценностях выражается единство материального и идеального в духовной культуре личности. Ценностная ориентация очень тонко реагирует на изменение социальных отношений, характеризующих соотношение различных носителей духовной культуры. Она определяет активность личности в жизни, её поступки и их мотивацию. Она ориентирует личность на осознание и выработку наиболее важных ценностей, способствующих прогрессивному развитию общества и самой личности.

Сама ценностная ориентация неотделима от общественных ценностей. Ценностная ориентация выступает как субъективное восприятие личностью достижений материальной и духовной культуры. По существу она означает совершенно осознанный выбор ценностей, умение личности подчиняться в определенных обстоятельствах до общественной целесообразности. Духовные

ценности играют исключительно важную роль в жизни человека и всего общества, так как в своей совокупности представляют совокупность знаний, чувств и стремлений. Они способствуют не только осознанию смысла и целей жизни, но и способствуют самоутверждению человека как творческой личности, они определяют его жизненную позицию ко всем сторонам общественной жизни. Они дают нам возможность оценить действительные заслуги того или иного человека перед человечеством, а также истинную ценность каждого конкретного этапа общественного развития в общем, социальном прогрессе.

Не уяснив смысла и содержания духовности человека, невозможно понять содержание и характер духовной культуры личности, её нравственных качеств, понять выбранную им ценностную ориентацию.

Ценности всегда функционально значимы, они выражают духовные устремления человека, ориентацию его поведения и конкретных поступков. Духовно - нравственные качества личности могут выступать в качестве регуляторов взаимоотношений между людьми, а также между человеком и обществом. Духовные ценности обретают социальный смысл и оказывают воздействие на поведение личности, когда они глубоко осмысливаются, осознаются личностью и обществом. Если у человека нет гармонии между ценностной ориентацией и ее социальным смыслом, то его духовные качества остаются не реализованными, они существуют сами по себе, и выступают одним из источников противоречий между человеком и обществом, между общественными и индивидуальными ценностными ориентациями. Бывают в жизни случаи когда тот или иной человек знающий, умеющий понять и осмыслить те или иные социальные ценности, но игнорирует их в своем поведении. В таких случаях возникает ситуация, когда широкая пропасть отделяет осознание человеком определенных ценностей от того, что он делает и как поступает в действительности.

Процесс выработки потребностей и возможность формулирования ценностей очень сложный процесс. Как правило в процессе выбора из всего многообразия ценностных ориентации человек испытывает серьезные затруднения, колебания, сомнения, в результате не всегда верно выбираются пути реализации в жизни тех или иных ценностей, как не один раз имело место в историческом процессе. Известно, что исторический процесс осуществляется не автоматически, он осуществляется через деятельность ценностное ориентированных личностей, масс, социальных партий и движений. Из этого вытекает, что развитие и прогресс цивилизации непосредственно опирается на духовные качества человека, которые представляют собой комплекс индивидуальных свойств и черт общественных ценностей, историческим опытом социальной среды. Поэтому, изучая ценностные ориентации личности, как движущие силы ее поступков и мотивов ее деятельности, можно не только раскрыть сущностные качества личности, но и объяснить закономерности развития ее сознания и поведения, понять характерные черты и своеобразие развития общества, современной эпохи с точки зрения их ценности. При этом нужно учитывать, что ценностное отношение формируется в процессе человеческой деятельности, носящей общественный характер.

Результаты человеческой деятельности опредмечиваются, объективируются, приобретают способность стать достоянием не только своих творцов, но и других людей, могут включиться в культуру общества, что прослеживается в овладении людьми орудиями труда, средствами связи, духовным наследием, закреплённом в традициях, в произведениях искусства, нравственных императивах и нормах поведения. Конечно, не все результаты и не всякой человеческой

деятельности становятся элементами культуры, а только те, которые являются социально значимыми, отвечающими общественным потребностям и интересам людей. Причем не только духовные отношения и духовное производство выступают как ценности, но и результаты материальных отношений в процессе производства. В известном плане ценность - это объективная значимость многообразных компонентов действительности, содержание которой определяется потребностями и интересами общественных субъектов. При этом недопустимо понятие значимость отождествлять с практической значимостью. Дело в том, что социальная значимость может быть как позитивной, так и негативной. При этом и позитивная и негативная ценность затрагивает интересы и потребности больших групп людей или даже всего человечества. Однако в ценности выражается именно, и только позитивная значимость. Хотя в действительности каждая данная конкретная вещь или свойство может в различных отношениях приносить человеку и благо и вред, и добро и зло, справедливость и несправедливость, может также одновременно быть и позитивно, и негативно значимой. Каждую вещь как ценность мы рассматриваем с позитивной стороны. При этом сами по себе вещи не выступают как ценности, они становятся ценностями, приобретают ценностную ориентацию. Ценности являются характеристикой не вещей самих по себе, а явлений действительности, включенных прямо или косвенно в общественные отношения, ценность есть проявление социального бытия, что свидетельствует о том, что в процессе взаимодействия вещи приобретают социальную природу. Изменение и развитие анализируемых процессов и явлений, обусловлено изменением их ценностных отношений, сложную диалектическую взаимосвязь между абсолютным и относительным в ценности. В процессе развития общества меняются и сами ценности и их ценностная ориентация. То, что вчера выступало как ценности, может сегодня перестать быть ценностью. В будущем наряду с возникновением новых ценностей возможен поворот к ценностям прошлого. Существующие в обществе материальные и духовные ценности показывают ту сторону отношений, которая оказывает непосредственное воздействие на субъект. Через освоение многообразных ценностей человек приобретает социальный опыт иначе говоря социологизируется, он получает информацию о разных сторонах сложного социального организма, приобщается к духовной культуре. В рамках развития культуры человек создает новые ценности и сохраняет старые, которые также влияют на дальнейшее развитие культуры.

Ценность принадлежащих определенному историческому периоду поступков, мыслей, Вещей заключается в том, что они способствуют общественному прогрессу, а также в той или иной степени способствует совершенствованию субъекта. Характеризуя различные типы ценностей важно не упускать различия между ценностями материальной и духовной культуры. Духовные ценности существуют не только в предметной форме, но и как акт деятельности, неотделимой от самого духовного производства[Межуев В.Н, 2001.с62].

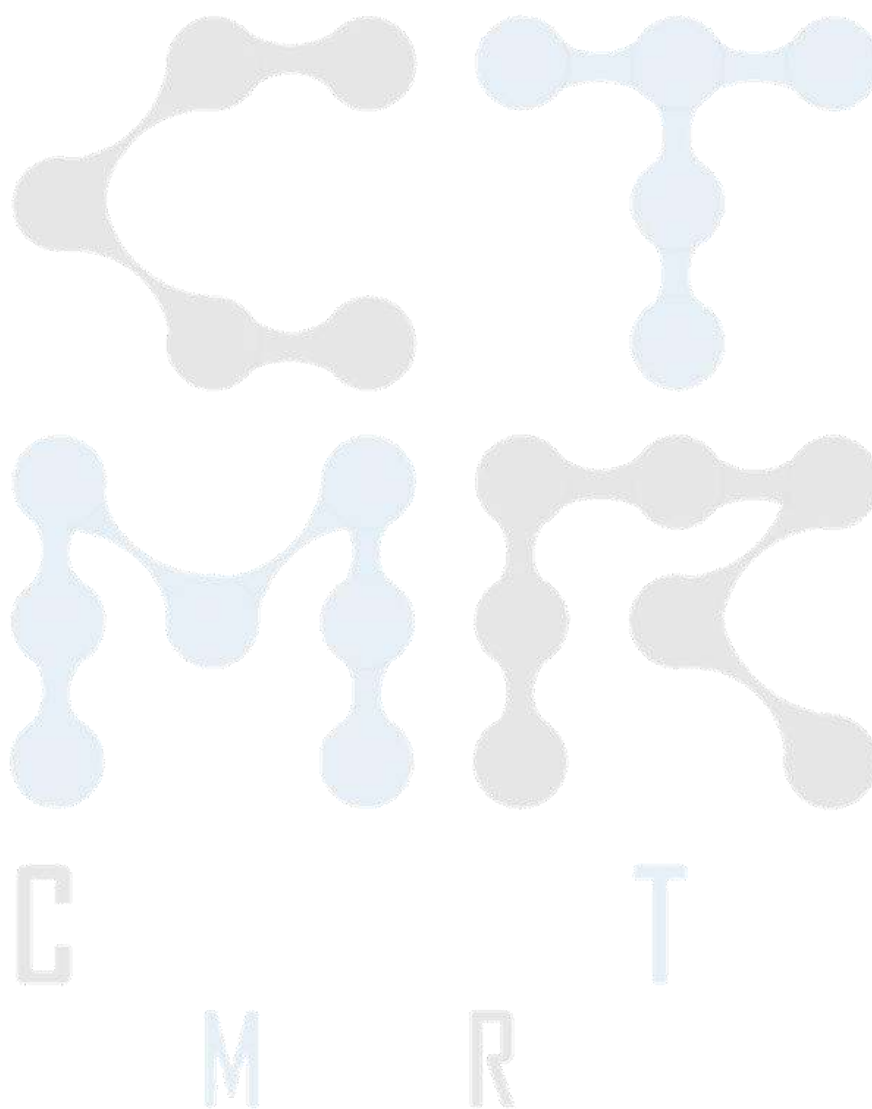
В понятии ценности и производном от него понятии ценностной ориентации отражаются наиболее важные стороны духовно - нравственных отношений. В этих понятиях преломляется весь комплекс нравственных, политических и в целом мировоззренческих ценностей, которые предопределяют мировосприятие и гражданскую позицию личности. Ценностная ориентация органически входит в состав мотивов всех видов и форм поведения субъектов нравственности, определяет их смысл и направленность. Тем самым ценностная ориентация выступает регулятором воплощающим в себе волевые и иные качества поведения личности. Ценностная ориентация как бы направляет поступки и всю деятельность общества и каждого его субъекта, как

носителя общественных отношений. Ценностная ориентация это осознанный выбор ценностей, умение человека ориентироваться в определенных обстоятельствах общественной целесообразности. Наличие в обществе огромного разнообразия ценностей создает у человека значительные трудности в выборе правильной ценностной ориентации. Поэтому в процессе формирования морально - ценностных ориентации личность должна опираться на фундаментальные социальные, политические, нравственные и культурные ценности, в содержании которых сконцентрированы представления об общественном идеале, социальной справедливости и долге чести и достоинстве. Историческая практика подтверждает, что все виды ценностных ориентации оказывают регулятивное влияние на поведение человека. Однако сила и направленность этого влияния для каждого из них неодинакова. Ценности и ценностные ориентации являются производными понятиями от социальной реальности. В связи с этим является обоснованным определение ценностной ориентации как отражение определенных объективных отношений, складывающихся до процесса ценностных ориентации и выступающих конечной детерминантой ее содержания. Иными словами говоря, как обязательный элемент структуры всех форм общественного сознания, ценностные ориентации являются вторичными, производными от социальной реальности и детерминированы прежде всего тем или иным характером общественных отношений [Назаров К.Н., 2018. сс478].

Историческая практика показывает, что все виды ценностных ориентации оказывают регулятивное воздействие на поведение человека. Однако сила и направленность этого влияния для каждого из них неодинакова. Так на уровне психологии ценностные ориентации проявлялись чаще всего в разного рода несистематизированных ценностных установках, направляют поведение человека на удовлетворение его отдельных потребностей и интересов, на выходящих за рамки его повседневной обыденной жизни. При этом механизм этих потребностей опирается на эмоциональные факторы, нежели на логическое осмысливание предстоящих решений. Поэтому на уровне социальной психологии ценностная ориентация не может быть перенесена на духовную культуру в целом, на моральные, политические, правовые и другие виды социального поведения, она в таком виде не может быть и критерием оценки их поведения, даже в своем осмысленном виде ценностная ориентация в психологическом аспекте выступает только в качестве психологического механизма функционирования личности. Ценностная ориентация как отражение объективных социальных отношений определяется, детерминируется теми социальными отношениями, которые в ней отражены. В этой связи ценностная ориентация личности наполняется глубоким социальным смыслом, становится фактором ее мировоззренческой позиции.

Несмотря на то, что социальный прогресс осуществляется в результате взаимодействия различных культур, каждая из которых обладает своими неповторимыми, самобытными и оригинальными духовными ценностями, и имеет естественно свою национальную ценностную ориентацию. Тенденция к интеграции различных культур сплетается с стремлением каждой из культур сохранить и развить традиционные национальные ценности, обряды, обычаи, язык, свой образ жизни. И в этом плане стремится к определенной изоляции. Различные культурные программы и системы ценностей воспроизводят в сознании и поведении субъектов ценностные ориентации, связанные с конкретным носителем тех или иных духовных ценностей, ценностными ориентациями.

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EMPLOYEES' KNOWLEDGE OF CHATGPT AND MOTIVATIONAL FACTORS

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ABSTRACT

This study investigates the relationship between employees' knowledge of ChatGPT and their motivational factors, such as achievement, recognition, and growth potential. In the context of rapid AI adoption, particularly in South Korea, a survey was conducted to measure employees' technological and empirical knowledge of ChatGPT alongside their motivational factors. Using descriptive statistical analysis, the findings reveal that technological knowledge is more closely related to higher motivational factors than empirical knowledge. Employees more familiar with ChatGPT's function and operation perceive higher achievement, recognition, and growth potential. The study also found that frequent use of ChatGPT positively influences employees' motivation. Ultimately, the study suggests that fostering employees' understanding of Technological Knowledge of AI can enhance their job motivation, contributing to improved job performance and organizational productivity.

INTRODUCTION

In the rapidly evolving corporate management environment driven by artificial intelligence, there is increasing interest in issues related to productivity enhancement. In the past, employees spent significant amounts of time in the workplace to achieve job performance, but now similar results can be achieved in relatively less time through Generative AI like ChatGPT. Likewise, there is a study indicating that the introduction of AI positively impacts corporate productivity (Wijayati et al., 2022 & Noy & Zhang, 2023). Therefore, companies strive to enhance overall productivity by actively adopting AI technologies and by improving employees' understanding of AI. However, as the introduction of AI transforms work processes and raises expectations, it may lead to a decrease in employee job satisfaction. Previous studies have shown a positive correlation between job satisfaction and job performance (Hoboui et al., 2017; Katebi et al., 2021), suggesting that, in the long term, such changes might reduce organizational productivity. Therefore, rather than solely focusing on the impact of AI adoption on corporate performance, it is crucial to study how AI affects employee job satisfaction. This approach can pave the way for an era of AI coexistence where both companies and their employees can achieve mutual satisfaction. Therefore, this study aims to investigate and analyze employees' knowledge of ChatGPT, the most commonly used generative AI model in the current work environment, and their motivational factors. Ultimately, the insights from this study will provide a research case for the effective interaction between artificial intelligence and human resource management by examining the relationship between the independent variable, employees' knowledge of ChatGPT, and the dependent variables, motivation factors. Job satisfaction may change with different factors which may include the nature of the organization and individuals. Thus, the literature and theories on factors influencing job satisfaction are many. The motivational factors are perceived as one of the other factors that determine job satisfaction, including the motivational factors, which are

perceived as needs that enhance the rate of satisfaction of a job in an individual. In this research, an attempt to quantify such motivational factors will involve researching issues like achievement, recognition and growth potential. The study provides the basic premise of these variables through the study of knowledge of ChatGPT and motivational variables. The primary research question guiding this study is: How does knowledge of AI affect employees' motivation factors? This research aims to contribute to future research on the correlation between the use of ChatGPT and job satisfaction by investigating and answering the above questions.

Literature Review

Other researches have revealed that the implementation of technologies like IT and ICT enhance business performance which includes productivity or job performance (Draka et al., 2006; Bloom et al., 2012). Castellacci and Viñas-Bardolet (2019) state that employees who actively use the Internet as a major tool to perform their responsibilities will receive a higher average wage level and better employment opportunities than their colleagues do (Castellacci and Viñas-Bardolet, 2019). Equally, based on the utility of generative AI, it is anticipated that the implementation of GAI in businesses will play a major role in enhancing efficiency at the workplace. Indicatively, ChatGPT enables users to create spreadsheets with minimal effort, since they can input the desired values of variables or generate software code and, therefore, saves time on labor. The efficiency of labor in comparison with time is boosted by the usefulness of GAI, and the resultant productivity of the corporations. This, therefore, implies that workers who can use technology can be more likely to be rewarded better on their contribution and performance at work. The extent of knowledge of GAI will likely impact motivation of employees to work in the job. Employees with greater knowledge about the new technology will be less intimidated and will be better placed to deal with the changes that are brought about when the technology is brought in.

Knowledge

The advancement of artificial intelligence brings unprecedented changes to companies. These changes significantly impact on corporate culture, work processes, and employee capabilities. As the use of technology based on knowledge increases, knowledge is increasingly recognized as an essential element in organizations. The dictionary definition of knowledge refers to understanding and information about a subject gained through experience or study. However, various studies on knowledge have been conducted for a long time, and there are various classifications of knowledge (Gilbert, 1949; Boshoff, 2014; Edmondson et al., 2003). To utilize technology more efficiently, it is necessary to acquire or develop this knowledge (Lapr   et al., 2000; Maliphol, 2019). This study classifies knowledge into Technological Knowledge and Empirical Knowledge

Technological Knowledge

Yu and Golden (2019) define technological knowledge as an insight and acclimatization to the functions and the working principles of the existing technologies (Yu and Golden, 2019). It is possible to categorize the functions and the operating principles of technology as well by the nature of factual, propositional, and declarative knowledge which indicates that technological knowledge incorporates the qualities of the features of Know-That (Boshoff, 2014; Gilbert, 1949). Unlike the knowledge contained in manuals, this kind of knowledge is easily represented and transmitted through systems such as the Internet meaning that Technological Knowledge can be also defined as

Codified Knowledge (Edmondson et al., 2003). In this definition, the research in this paper views technological knowledge as the power to employ technology based on the knowledge of the facts and concepts of the technology. In order to apply AI such as ChatGPT better in a corporate setting, organizations must first have a clear vision of the way AI works and what it cannot do (Raj et al., 2023). In case workers are fully aware of these functions and restrictions and implement AI, they will have an opportunity to improve their abilities and skills and work much faster by excluding unproductive and redundant work (Xu et al., 2023). It is also a convenient factor that is able to influence the quality of work and well-being of the employees positively (Broecke, 2023). In this way, when employees are well aware of how to use and work with generative AI such as ChatGPT, they will be better able to employ AI tools in a more efficient and strategic way to their work.

Empirical Knowledge

Borkman (1976) defined empirical knowledge as knowledge acquired through personal experience rather than from others or through observation (Borkman, 1976). Workers can acquire empirical knowledge, such as how to effectively use AI in their tasks and how to quickly access the information they need through AI, by using and experiencing ChatGPT over time. The nature of this knowledge is not a concept that can be documented and transmitted but rather knowledge acquired through long-term experience and observation, bearing characteristics similar to Tacit Knowledge and Know-How (Edmondson et al., 2003; Gilbert, 1949). Empirical knowledge can influence human-AI interaction. In studies on the complementarity between AI's main technology, Machine Learning (ML), and human interaction, it has been argued that the knowledge accumulated by individuals through prior learning can mitigate biases caused by the imperfections of ML, thus complementing AI and impacting productivity (Choudhury et al., 2020). Furthermore, if such empirical knowledge is shared within the organization, it can form bonds among employees, facilitate social communication, and ultimately improve collaboration, coordination, and organizational performance (Obrenovic et al., 2020). These results can naturally be connected to motivational factors for employees. Specifically, the conceptual framework used to measure employees' knowledge of ChatGPT is summarized in table 1.

Motivation Factors

Companies, among other companies, need to make the best out of the resources they have in order to realize their visions. Organizations should therefore encourage its human resources so that they can maximize their capabilities. A satisfying environment must be offered to motivate the members, and should be closely linked to job satisfaction. Different researchers have assessed the factors that drive job satisfaction but no decisive conclusion has been reached because such factors might be different depending on a number of factors including the content of the job and job conditions (Aziri, 2011). Instead of a conceptual one, a job is a complicated combination of different factors, such as achievement, responsibility and rewards, and work relations between the colleagues. As such, in order to test the factors that drive job satisfaction, it is imperative to state and analyze each element that drives the job. The factors, which positively contribute to job satisfaction, are summarized in Table 2 as they were investigated by different scholars.

Factors focused on personal characteristics and the nature of the job itself, such as achievement, recognition, and growth, have been commonly referenced by multiple scholars (Herzberg, 1964; Locke, 1990; Myers, 1964). Whether ChatGPT is perceived as a tool that makes one's job easier and more convenient depends on the nature of the job itself and personal characteristics. Accordingly,

this study analyzed motivational factors by focusing on intrinsic elements such as achievement, recognition, and growth, rather than external factors of the job like compensation, relationships with colleagues, and safe working conditions.

Achievement

Achievement refers to the feeling experienced when one challenges a specific goal and accomplishes it. For example, achievement includes successes such as completing a difficult task on time, solving job-related problems, or seeing positive results from one's work. One of the key findings from studies on information technology and corporate performance is that IT reduces coordination and information access costs within companies while enhancing employee autonomy, enabling them to solve problems and complete tasks without relying on others (Viète & Erdsiek, 2020; Castellacci & Viñas-Bardolet, 2019). Given that job autonomy is a crucial factor in determining self-motivation and work morale, it can positively influence employee performance in the workplace (Deci & Ryan, 2023). Jyung et al. (2020) analyzed factors affecting problem-solving skills in technologically advanced countries like South Korea and Japan, and they argued that the use of ICT technology at home helps enhance problem-solving abilities. Considering these results, given that generative AI like ChatGPT is widely used in the information technology field, it can increase faster and easier access to information. This could ultimately enhance problem-solving abilities in the workplace and potentially increase employees' achievement.

Recognition

According to Vera & Boateng (2015), recognition is the timely, informal, or formal acknowledgment of an individual or team's behavior, effort, or business results that support the organization's goals and values. This includes elements such as monetary rewards, praise, and feedback (Vera & Boateng, 2015). Recognition in the form of monetary rewards, praise, and feedback is meant to reward employee performance with the implication that management is encouraging behavior that has improved business outcomes.

Possibility of Growth

The possibility of growth refers to the possibility of personal development and opportunities for promotion within the workplace. This includes professional growth, increased opportunities to learn new skills, training in new technologies, and acquiring new professional knowledge. For example, when new technologies are introduced, companies often conduct various training sessions and educational programs to effectively implement these technologies. According to Xu et al. (2023), opportunities for employees to acquire knowledge and skills related to artificial intelligence can enhance their Informal Learning in the Workplace (ILW), which can impact their Workplace Well-Being (WWB) and ultimately influence job performance (Xu et al., 2023). As various generative AI technologies like ChatGPT, Gemini, and Bing are rapidly integrated into corporate environments, many companies are providing training and seminars on AI technology to their employees. This offers employees the opportunity to gain knowledge of new technologies and apply them to their work, thereby increasing their potential for growth in their careers.

Methodology

This paper will also quantify and examine the degree of knowledge of ChatGPT among employees as well as motivation factors, and hopefully allow virtual coexistence between AI and human resources in the future. In this regard, an online survey was undertaken through the use of Google Forms between April 15 and 22, 2024, to the South Korean office workers in the IT, manufacturing,

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environmental services and construction industries. This survey was conducted in the format of a survey on Google Forms, which contained the text explaining the purpose and content of the study, and was set up in such a way that the respondent can only provide one answer to the questions of the survey, which are composed of three different types: Degree of Agreement, Rank Order, and Choose from a List of Options (Descombe, 2017). The questionnaire included a total of 13 questions, 9 of which concerned motivational factors, and 4 questions concerned the knowledge of ChatGPT that the employees had. In particular, of the nine questions, three of them were devoted to the achievement, recognition, and growth potential. The 9 questions on job satisfaction were all on a 5-point scale (1=disagree to 5= agree). Among the other four questions, two were dealing with technological knowledge and the other two, with empirical knowledge. The questions on technological knowledge were also based on a 5-point scale, whereas the questions on the empirical knowledge were formulated using Rank Order and Choose from list options (see Appendix A). A total of 27 answers was received during the survey period. There were however 2 respondents who gave incomplete responses and were not included in the analysis and a final sample of 25 responses was used to analytically examine the data. The collected data was summarized and interpreted using descriptive statistical analysis to organize it. Mean, variance and standard deviation were estimated in case of the 5-point scale items. In the case of the items in the empirical knowledge (EK), EK2 was a multiple-choice question, and to ease the calculation on a 5-point scale the scores were assigned by each 10 available choices as follows: 0-1 choices: 1 point, 2-3 choices: 2 points, 4-5 choices: 3 points, 6-7 choices: 4 points, 8-10 choices: 5 points. Also, the means of all variables were obtained to study the correlation of knowledge and motivational variables. This paper added the averages of the respective questions of each factor and then divided them by the questions that were used to come up with the average of each factor. An example of the calculation of respondents who have average score of 4 or above of each factor were put under the high knowledge or high motivational factors. On the other hand, those whose average score was lower than 4 were included in the low-knowledge group or low-motivational factors group of ChatGPT. Lastly, the associations among EK and TK and motivational variables were compared through the comparison of the averages and the percentages of the groups.

Results & Analysis

Below, Table 4 presents the descriptive statistics data based on the survey, showing the mean, variance, and standard deviation of the survey results. Overall, the responses regarding motivational factors and knowledge of ChatGPT were positive. The descriptive statistics indicated that all motivational factors, such as Achievement (AC), Recognition (RC), and Possibility of Growth (PG), had values close to 4 on each question. Among the motivational factors, the question with the highest average was PG1 (Avg = 4.44), with most participants indicating that their skills or performance had improved compared to the previous year. Conversely, the question regarding problem-solving ability within the job, AC3, had the lowest average (Avg = 3.84). In the Knowledge section, TK1 had the highest average (Avg = 3.92), while EK2 had the lowest average (Avg = 2.28)

In addition to calculating the mean values of each variable, this study compared the average values of each variable among respondents to examine the specific relationships between these variables. Respondents with values of 4 or above in EK and TK were classified as having high empirical and technological knowledge of ChatGPT, respectively, while those with values below 4 were classified as having relatively low technological and empirical knowledge of ChatGPT. For

the motivation factor, respondents with an average of 4 or above were classified as a group with relatively high motivation factors, whereas those with an average below 4 were classified as a group with relatively low motivation factors. Based on these classifications, the ratios between knowledge of ChatGPT and motivation factors were measured, and the resulting ratios are shown in tables 6-14. As shown in Table 6, this paper examined the relationship between technological knowledge and achievement. 15 respondents (62.5%) with high technological knowledge also exhibited high achievement. Similarly, 5 respondents (20.83%) with low technological knowledge demonstrated low achievement. This relationship indicates a positive correlation between technological knowledge and achievement, suggesting that individuals who have a good understanding of ChatGPT's functionalities and applications tend to achieve positive outcomes, demonstrate strong task performance within given timelines, and possess effective problem-solving abilities in their work. A total of 20 respondents (83.33%) demonstrated a proportional relationship between TK and Achievement, so "H1.1 Employees with higher TK (Technological knowledge) of ChatGPT will have higher motivational factors" is supported by the result.

Discussion

As AI technology advances rapidly, it is integrated into various aspects of business management and work processes. The idea of artificial intelligence (AI) is becoming widely understood as a productivity driver in various industrial areas, specifically the jobs that require an extremely high level of knowledge, where AI can extensively supplement the workforce (Maliphol and Walter, 2023; Pizzinelli, 2023). In the human resource management perspective, the current research explores the relationships between AI knowledge and motivation determinants of employees. Precisely, the study aims to compare the correlation between the acquaintance level of employees with ChatGPT and motivational aspects like achievement, recognition, and growth prospects. To evaluate technology and empirical knowledge of ChatGPT among workers in different industries in South Korea, a survey was conducted. It was also conducted to measure the motivational factors. The hypotheses that were tested in the research showed that motivation factors can be influenced by technological knowledge. The findings showed that employees who have more technological knowledge, which is reflected in their support of the hypotheses H1.1, H1.2, and H1.3, were more likely to have increased achievement, recognition, and growth potential. These are better motivational aspects that lead to better job satisfaction of the employees (Alshallah, 2004). Since previous studies indicate that the level of job satisfaction can positively correlate with the quality of job performance, one can assume that a better employee, who is conversant and has an in-depth knowledge about AI concepts and functioning, can also enjoy increased job satisfaction and show better performance (Hoboui et al., 2017; Katebi et al., 2021). Along with the correlation of technological knowledge and employee motivational variables, the current research has demonstrated a proportional correlation between the frequency of AI use and the motivation of employees. The greater the use of ChatGPT by employees, the more they felt their job motivation. These results indicate that the skills and competencies of employees can be increased with the prolonged use of AI tools like ChatGPT. The information suggests that the utilization of AI technology on a regular basis as opposed to its use on a broad range of activities has a more beneficial impact on employee motivation. Therefore, it could be more effective in terms of building motivation to specialize in only a few tasks using AI, instead of applying it to do a wide range of tasks. In order to explain why technological knowledge (TK) is directly connected to employee motivational factors than empirical knowledge (EK), it is necessary to

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compare the characteristics of the two types of knowledge. TK embodies the knowledge of technology functions and operations and can be conveyed to the employees comparatively easily and directly using manuals and lectures. High TK employees hold a clear understanding of how AI is supposed to work thus are able to feel that they are productive in using AI tools. Conversely, EK is learned by experience, like the know-how, and it has unauthorized roots e.g. trial and error, and personal experiences. To establish EK, the technology usually needs to be used over a long period of time, and employees will build their EK through the implementation of AI in practice. An example is that a user of ChatGPT can discover by experience that wording questions can affect results, and can thereafter optimise their questioning behavior on the basis of feedback. Consequently, EK will require more time to be acquired as compared to TK, which will have a relatively lower effect on motivational factors. Besides, TK allows one to personally acknowledge his or her progress, because it involves getting to know how technologies work and how they operate. On the other hand, EK is learned in a long period and individuals cannot consequently perceive learning at a particular time. That is, motivational factors may also be influenced by the difference in perception of the process of knowledge acquisition by the individuals. Those employees who study and know how to use the AI methods and functions can understand clearly that their skills in the job have improved, but it is difficult to understand that the employee has gained EK immediately. Such difference in the perception of knowledge acquisition among employees may have different effects on their motivation.

Implications and Limitations

The results of the current research can offer some practical implications to the managers who have the task of integrating artificial intelligence (AI) and evaluating its impact on employee motivation. To begin with, the research highlights the essential nature of technological knowledge as per AI in enhancing the morale of the employees. ChatGPT, Bing, and Copilot are all examples of AI applications that are finding application in the business world; however, unless there is an in-depth understanding of the functionality of the AI application or how it works, there is a risk of employees seeing unforeseen or less than ideal results. Through specific training on the technicalities of AI, such as Prompt Engineering and Customized Chatbot creation, the staff can become more skilled in the use of AI, which will provide the desired outcomes in the most effective manner. As a result, this improved AI operational competence will have a positive influence on job motivation.

Second, the analysis shows that there exists a proportional correlation between the frequency of using ChatGPT (denoted as EK1) and employee motivational factors. The long-term interaction with AI tools in the modern professional environment will allow employees to develop critical and pragmatic knowledge that will make them use ChatGPT effectively. As an example, in the manufacturing industry, prolonged use of a certain technology enables the staff to acquire advanced skills and expertise with regard to such technology. In a similar vein, the managerial support of the use of AI technology will prompt employees to interact and experience AI more frequently. This kind of facilitation of experience learning will make employees more familiar and knowledgeable in their work and improvise their motivation significantly because they will become confident in using AI successfully. On the other hand, the more applications that the employee uses, the more in some respects he can be de-motivated.

Conclusion

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This study discussed the relationship between employees' understanding of AI and their motivational factors. Based on the concepts of technological knowledge and empirical knowledge, the study analyzed the impact of these knowledge types on employees' motivation. The hypotheses were tested through a survey conducted with 24 employees, and the results supported the hypothesis that employees with higher technological knowledge tend to exhibit higher job motivation. Ultimately, these findings suggest practical ways for companies to foster efficient coexistence between AI and employees in the industrial context. This study aims to contribute effectively to providing guidelines for companies and organizations to adapt to the rapidly changing technological landscape brought about by AI adoption.

Limitations

This paper contains a number of limitations that should be considered in the future research. First of all, the sample size was quite limited as it consisted of 24 respondents who were representatives of a variety of industries in South Korea IT, manufacturing, environmental services, and construction. The findings might not perfectly represent the wider workforce because the number of the respondents was limited, which limits the ability to generalize the findings. The research of the future must strive to involve more participants in the research by using a bigger sample of subjects in more diverse industries and regions. A bigger sample would offer an increased statistical power, and will offer results that could be generalized to a wider range of organizational settings.

Secondly, a descriptive statistical analysis was used to compare and interpret the survey data in this study. Despite the global view that descriptive statistics give, this method is limited in revealing some extensive and more detailed interconnections of variables. As an example, the descriptive statistics could not accurately determine the correlation or causal relationships between the employee AI knowledge and motivational variables. In this respect, further studies need to use more sophisticated statistical methods, including factor analysis and regression model, to prove definite and unambiguous relationships between variables. The approaches would enable the researchers to examine possible mediating variables that could determine the link between AI knowledge and employee motivation. Overcoming these shortcomings, new studies can help make the current knowledge on the role of AI in improving employee motivation and performance more profound.

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Abstract: This article presents various perspectives on the educational approach developed by the renowned researcher and educator Maria Montessori, as well as its influence on child development. In addition, it provides information about the characteristics of the classroom environment and the educational materials used in the Montessori system.

Keywords: child, Montessori method, classroom, development, independence, educational materials.

Habits and Experiences Acquired in Early Childhood: The Significance of the Montessori Method

Habits and experiences gained during early childhood are of great importance. Preschool educational institutions play a crucial role in ensuring the effectiveness of this vital developmental process, in uncovering children's hidden potential, and in guiding them in the right direction. The use of innovative methodologies in preschool education contributes significantly to enhancing its overall effectiveness and quality.

One of the most successful methods currently practiced in many foreign countries is the Montessori Method, developed by the Italian scholar Maria Montessori. Children who receive Montessori education at an early age not only develop self-awareness but also grow into respectful and considerate individuals. Montessori education fosters the development of confident, responsible individuals who are capable of completing tasks they begin and taking ownership of their actions in life.

According to Polk-Lillard, Montessori developed her educational approach based on her unique pedagogical philosophy, which had a profound and lasting influence worldwide. One of the key aspects of this approach is that it is not regarded as a rigid or unchanging system but as an open and evolving framework receptive to new ideas. Montessori believed that innovation should always exist within the classroom, and she created her system through careful observation of children and consideration of practical outcomes.

The Montessori system consists of three main components: the prepared environment, the educational materials that constitute this environment, and the adult who prepares it—defined as the teacher or educator [1].

The **prepared environment**, according to the Montessori Method, is an educational space organized under the guidance of trained teachers, composed of specially designed and stimulating developmental materials. This environment encourages children to engage in learning activities based on their own choices. It is a non-competitive setting where the use of specific didactic materials inspires children toward self-directed learning. The various areas within this environment not only provide opportunities for movement but also enable children to perform diverse activities and discover new abilities.

Characteristics of the Classroom Environment in Montessori Schools

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The classroom environment in Montessori schools is distinguished by the following features:

1. The child's independence
2. An organized environment (a designated place for every item)
3. Elements of nature (animals, leaves, garden)
4. Aesthetics and beauty of the environment
5. Educational materials developed and refined by Maria Montessori
6. Instruction in social life

The Montessori educational program encompasses children aged two and a half to six years and aims to foster and develop their self-confidence, initiative, awareness of their own desires and the ability to realize them, independence, concentration, orderliness, cooperation skills, and respect for others.

In Montessori classrooms, these goals are achieved through two main approaches: firstly, by enabling the child to experience the joy of learning voluntarily rather than through compulsion; and secondly, by helping the child refine his or her own learning mechanisms. Activities that may seem simple to adults—such as washing dishes, cutting carrots, or cleaning shoes—are viewed by young children as significant and meaningful tasks. Through these activities, children learn to follow the sequence necessary for completing a task and to pay attention to detail. Before moving on to another activity, they complete their current task and return the used materials to their proper place, thereby developing a sense of work discipline [2].

(Source: <http://www.izcicocuk.com/tr/montesori.asp>)

Montessori accepts the child as he or she is. The Montessori approach ensures that the child, through personal experience, independently discovers the most effective and natural way to learn. It is based on the child's intrinsic motivation to learn. This system corresponds to the child's natural growth and development but does not allow activities for which the child is not yet prepared.

The Montessori approach differs from other methods in that it is built upon a logical balance between order and freedom, designed specifically for young children. Through carefully crafted materials that meet the child's natural needs, a joyful and engaging environment is created. The fully trained teacher acts as a guide within this process.

Order and structure are essential components of Montessori education. By internalizing order, the child learns to trust their surroundings and to communicate in a positive manner. According to Montessori, no individual can truly *teach* another person; thus, the educational process in Montessori schools can be described as a form of "self-education." The environment is intentionally organized, planned, and supervised to meet the needs of children. Within this specially prepared environment, the child strengthens self-confidence through the process of self-development.

Montessori emphasized that explaining to a child about personality or constantly defining their identity may lead to a subtle form of selfishness. Similarly, she likened an overly cautious mother—who intervenes excessively in her child's development—to someone who makes the child a victim of maternal affection. Montessori addressed such a mother with the words: "*Let him do it himself!*"

This phrase encapsulates the essence of her "**principle of self-education.**" [5, p.22]

The Role of Reality and the Natural Environment in Montessori Education

In Montessori's educational philosophy, imagination and fantasy play a secondary role to reality. For Montessori, the child's connection with nature and with real objects found in the natural world is of utmost importance. Therefore, the materials and objects present in a Montessori classroom are not toys but real items. In such a classroom, genuine utensils, a functioning sink or faucet, a real broom,

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a designated area for washing clothes, a refrigerator, and similar household objects are made accessible not only for adults but also for children, so that they can directly interact with real, functional items.

Caring for real plants and animals—integral parts of nature—is a central component of daily activities in the Montessori program. To help children better understand the realities of life, there is only one of each material in the classroom. Through this, Montessori sought to teach children—by means of the materials themselves—that one cannot always have whatever one wants, whenever one desires it. Another defining feature of the Montessori environment is its simplicity, harmony, and aesthetic organization. The classroom is arranged with coordinated colors and materials that promote a sense of calm and beauty. Montessori recognized that **true beauty lies in simplicity**. Hence, instead of overly decorative or complex objects, the Montessori environment is characterized by an orderly arrangement of simple materials that meet the child's developmental needs, complemented by a harmonious use of bright colors.

The Montessori environment is fully adapted to the child's size and needs; no items are placed solely for adult use.

The manipulative materials and real-life activities offered in Montessori classrooms—such as washing tables or sweeping floors—aroused great interest among children. These activities encouraged them to repeat the tasks many times and to develop deep concentration. Based on these observations, Montessori concluded that her **didactic materials** and **practical life activities** satisfy the developmental needs of young children, whereas play, in her view, emerges only when the child has no meaningful work to engage in [3].

In her work *The Secret of Childhood*, Maria Montessori writes: She perceives play in the same way that we regard a game of chess or bridge. These are activities intended for pleasant leisure, yet if one were compelled to engage in them for extended periods, they would become tiresome. When an important task presents itself, bridge is immediately forgotten. For the child, there is always something important to be done; therefore, play does not hold great interest for him. Since the child is constantly progressing from a lower to a higher stage, every moment of his time is precious. Because the young child is continually developing, he is interested in anything that contributes to his growth and remains indifferent to idleness [3, p.122].

For this reason, Montessori did not include imaginary or fantasy-based activities during the morning work period. Instead, she incorporated **specialized materials and reality-based activities** that allow young children to learn through self-initiated exploration—activities that are both meaningful and deeply engaging to them.

In conclusion, the use of the Montessori Method developed by the Italian educator Maria Montessori contributes significantly to the comprehensive development of preschool-aged children. It plays an essential role in fostering cognitive abilities, facilitating the learning process, ensuring children's independence and freedom of activity, and revealing their innate potential. Through this approach, children develop greater self-confidence from an early age and acquire essential social skills such as interacting freely within a group and expressing their own thoughts and opinions.

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HISTOPATHOLOGICAL FEATURES OF HEPATITIS AND LIVER CIRRHOSIS: IMPLICATIONS FOR HEPATIC FUNCTION.

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ABSTRACT

Background and Aims: Hepatitis and liver cirrhosis are progressive liver disorders that represent leading causes of global morbidity and mortality. The progression from initial hepatic injury to end-stage disease is characterized by distinct histopathological alterations. This review aims to delineate the key histological features of hepatitis and cirrhosis and correlate these morphological changes with their consequent impact on liver function and systemic health.

Methods: A comprehensive analysis of contemporary scientific literature was conducted, utilizing authoritative pathology textbooks and peer-reviewed journals. The focus was on the pathogenesis and histopathological progression of viral hepatitis and cirrhosis.

Results: The histological spectrum of hepatitis encompasses inflammatory infiltrates, hepatocyte degeneration (ballooning and apoptosis), and focal necrosis. Chronic injury leads to the activation of hepatic stellate cells, resulting in fibrotic deposition. Cirrhosis, the end-stage of fibrosis, is defined by the disruption of normal liver architecture through the formation of regenerative nodules surrounded by dense fibrous septa. These structural distortions directly lead to clinical sequelae, including hepatic insufficiency, portal hypertension, coagulopathy, and an elevated risk of hepatocellular carcinoma.

Conclusion: The histopathological progression from hepatitis to cirrhosis reflects a self-perpetuating cycle of inflammation, cell death, and aberrant repair. These morphological changes are directly responsible for the decline in hepatic synthetic, detoxification, and metabolic functions. Early and accurate histological diagnosis, combined with targeted etiological therapy and management of complications, is paramount to altering the natural course of these diseases.

Keywords: Liver Cirrhosis, Viral Hepatitis, Liver Histopathology, Hepatic Fibrosis, Portal Hypertension, Hepatocellular Carcinoma

1. INTRODUCTION

The liver is a pivotal organ with essential functions in metabolism, detoxification, and protein synthesis. Despite its remarkable regenerative potential, persistent insults from viral infections, toxins, and metabolic derangements can initiate a cascade of injury, leading to hepatitis and its potential sequel — cirrhosis. These conditions are characterized by a well-defined series of histopathological changes that progressively undermine the liver's architectural integrity and functional capacity. This review systematically examines the histopathological hallmarks of hepatitis and cirrhosis and establishes a direct link between these morphological alterations and their clinical manifestations, thereby underscoring the importance of histology in diagnosis and management.

2. Materials and Methods

A systematic literature review was conducted using major scientific databases, including PubMed and Scopus. The search strategy employed keywords such as *hepatitis histology*, *liver cirrhosis pathology*, *hepatic fibrosis*, and *portal hypertension pathogenesis*. The analysis prioritized high-impact journals and standard pathology references published within the last decade to ensure the inclusion of current, evidence-based data.

3. Results and Discussion

3.1. Histopathological Spectrum of Hepatitis

The liver's response to injury in hepatitis follows a recognizable pattern, varying with etiology and chronicity.

- **Inflammatory Cell Infiltrate:** The portal tracts are expanded by a mononuclear cell infiltrate, primarily composed of lymphocytes and macrophages. In chronic hepatitis, interface activity (piecemeal necrosis) occurs, where inflammation and hepatocyte apoptosis breach the limiting plate.
- **Hepatocellular Damage:**
 - *Ballooning Degeneration:* Affected hepatocytes become swollen and rarefied, indicating cytoskeletal disruption and impending cell death.
 - *Apoptosis:* Eosinophilic Councilman bodies, representing apoptotic hepatocytes, are a classic finding.
- **Necrosis:** Focal (spotty) necrosis is common. Bridging necrosis, connecting portal and central areas, signifies severe injury and a higher risk of progression to fibrosis.
- **Fibrogenesis:** Chronic inflammation triggers the activation of hepatic stellate cells, which transform into collagen-producing myofibroblasts, leading to extracellular matrix deposition and the formation of fibrous septa.

3.2. Histopathological Hallmarks of Cirrhosis

Cirrhosis is the pathological endpoint of chronic liver disease, marked by the irreversible distortion of hepatic parenchyma.

- **Nodular Regeneration and Fibrous Septa:** The defining feature is the formation of parenchymal nodules of regenerating hepatocytes, completely encircled by annular fibrous bands. These nodules lack normal lobular vasculature.
- **Architectural Disruption:** The entire lobular organization is lost, and the relationship between hepatocytes, bile ducts, and vascular systems is severely compromised.
- **Vascular Consequences:** The fibrous septa distort and compress hepatic venules and portal tracts, leading to increased intrahepatic resistance and the development of portal hypertension. This shunts blood away from functional hepatocytes, exacerbating ischemia and dysfunction.

3.3. Clinical Correlates and Systemic Impact

The histopathological lesions directly manifest as clinical syndromes:

- **Hepatic Insufficiency:** The loss of functional parenchyma impairs synthetic functions, causing coagulopathy (due to reduced clotting factor synthesis) and hypoalbuminemia. Detoxification failure leads to hyperbilirubinemia (jaundice) and hepatic encephalopathy.
- **Portal Hypertension:** This is a direct hemodynamic consequence of architectural distortion, leading to ascites, splenomegaly, and the development of life-threatening gastroesophageal varices.
- **Carcinogenesis:** The milieu of chronic regeneration and genetic instability in cirrhotic nodules provides a fertile ground for the development of hepatocellular carcinoma (HCC).

- **Immune Dysfunction:** Impaired hepatic clearance of enteric pathogens increases the risk of bacteremia and spontaneous bacterial peritonitis.

4. Conclusion

The histopathological evolution from hepatitis to cirrhosis represents a continuum of injury, repair, and architectural collapse. The key microscopic features — inflammation, hepatocyte death, fibrosis, and nodular regeneration — are the structural underpinnings of clinical liver failure and portal hypertension. Therefore, histological assessment remains a cornerstone for diagnosis, prognostication, and treatment guidance. A multifaceted therapeutic approach, including etiology-specific interventions, anti-fibrotic strategies, and vigilant management of complications, is essential to improve long-term outcomes. Future research should focus on targeted therapies that can halt or reverse the fibrogenic process.

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DEVELOPMENT OF STABLE ALGORITHMS FOR ADAPTIVE CONTROL OF NONLINEAR DYNAMIC OBJECTS

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Quite often, control for nonlinear objects is usually sought using Lyapunov functions in the form of quadratic forms [5].

However, to obtain constructive results, the Lyapunov function, its derivative, or the desired control must reflect the structure of the given object to some extent.

Let us consider an analytical procedure for the synthesis of stabilizing controls based on the polynomial approach [5] and some modification of the Lyapunov function.

Consider the control object described by the equation [1,3,4]:

$$\dot{x} = A(x)x + b(x)u \quad \dot{x} = A(x)x + b(x)u, \quad (1)$$

where $x \in R^n$ – state vector, $x = [x_1, \dots, x_n]^T$, x_i – state variables, $i = \overline{1, n}$; $u \in R^1$ – control, $A(x)$ – $n \times n$ – function matrix, $b(x) \in R^n$ – vector function.

We will assume that there are continuous derivatives

$$\frac{\partial a_{ij}(x)}{\partial x_k}, \frac{\partial a_{ij}(x)}{\partial x_k}, \frac{\partial b_i(x)}{\partial x_k}, \frac{\partial b_i(x)}{\partial x_k}, \quad i, j, k = \overline{1, n}, i, j, k = \overline{1, n} \quad (2)$$

Elements $a_{ij}(x)$ matrices $A(x)$ and $b_i(x)$ vector $b(x)$ at $x \in R^n, \|x\| < \infty, x \in R^n, \|x\| < \infty$.

Assuming some state variables x_i , observables, we pose the problem of designing a stabilizing control u , for which the zero solution $x=0$ equation (1) is globally asymptotically stable. Additional restrictions on the properties of the object (1), related to the solvability of the problem, are given below.

Based on [5], we write the equations for the control part of the system in the form

$$\dot{z} = R(x)z + L(x)x, u = -k^T z - l^T(x)x \quad \dot{z} = R(x)z + L(x)x, u = -k^T z - l^T(x)x, \quad (3)$$

where $z \in R^r$ – state vector, $R(x) – r \times r$, $L(x) – r \times n$ – function matrix

, $l(x) \in R^n$ – vector function., $k^T = [0 \dots 01] \in R^n, k^T = [0 \dots 01] \in R^n$. In this case, the matrix $R(x)$ is an accompanying one [6].

Combining the vectors x and z into one state vector of the closed system (1), (3), we have resulted the equation

$$\dot{w} = H(w)w \quad \dot{w} = H(w)w, \quad (4)$$

Where vector $w = [x^T; z^T]^T \in R^\sigma, \sigma = n+r$, function matrix $H(w)$ has the form

$$H(w) = \begin{bmatrix} A(x) - b(x)l^T(x) & -b(x)k^T \\ l(x) & R(x) \end{bmatrix} \quad H(w) = \begin{bmatrix} A(x) - b(x)l^T(x) & -b(x)k^T \\ l(x) & R(x) \end{bmatrix}. \quad (5)$$

Despite the fact that the coefficients of equations (1) and (3) functions of the state variables of the object (1), to determine the dimension r and matrix elements $R(x)$, $L(x)$ and vector $l(x)$ it is possible to apply practically without changes the polynomial method of control synthesis for linear systems, the main relations of which are given in [5]. According to [5], all components of the matrices $R(x)$,

$L(x)$ and the vector $l(x)$ are found by solving an algebraic system of linear equations. The conditions for the solvability of the indicated system of algebraic equations are determined only by the properties of the object itself (1) and the set of observed variables x_i and shown in [5]. The specificity of the synthesis of nonlinear control (3) affects only the fact that the conditions specified in [5] must be satisfied in the entire state space of the object (1), and the solutions of the algebraic system are scalar functions of the state vector x . We emphasize that if the solvability conditions are satisfied, then the eigenvalues of the matrix $H(w)$ system (4) can be assigned arbitrarily.

In what follows, we will assume that object (1) satisfies these conditions and control (3) is found such that all eigenvalues of the matrix $H(w)$ in (4) are different and have negative real parts. Moreover, using the relations from [5], one can show that the existence of derivatives (2) guarantees the existence of continuous derivatives.

$$\frac{\partial h_{ij}(w)}{\partial w_k}, \quad i, j, k = \overline{1, \sigma}, \quad \frac{\partial h_{ij}(w)}{\partial w_k}, \quad i, j, k = \overline{1, \sigma}, \quad (6)$$

elements $h_{ij}(w)$ of the matrix $H(w)$ for $w \in R^\sigma, \|w\| < \infty$

For brevity, nonlinear systems (4) whose matrix $H(w)$ has different eigenvalues with negative real parts will be called Hurwitz.

The negativity of the real parts of the eigenvalues of the matrix $H(w)$ in the general case, of course, is not enough for the stability of system (4).

Considering the nonlinear Hurwitz system (4), we assume that for all $w \in R^\sigma, \|w\| < \infty$ derivatives (6) are defined and the conditions are satisfied

$$v_i(w) \neq v_j(w), i \neq j, -\rho \leq \operatorname{Re} v_i(w) \leq -\varepsilon < 0, w \in$$

$$R^\sigma, \|w\| < \infty$$

$$v_i(w) \neq v_j(w), i \neq j, -\rho \leq \operatorname{Re} v_i(w) \leq -\varepsilon < 0, w \in$$

$$R^\sigma, \|w\| < \infty$$

(7)

Here $v_i(w)$ are the eigenvalues of the matrix $H(w)$ – are the roots of the equation $\det(\lambda E - H(w)) = 0$

, where E is the identity matrix [6], $|v_i(w)| < \infty$. In addition, a vector was found $b_1(w) \in R^\sigma$, such that the derivatives are defined

$$\frac{\partial b_{1i}(w)}{\partial w_j}, \quad i, j = \overline{1, \sigma}, w \in R^\sigma, \|w\| < \infty, \quad \frac{\partial b_{1i}(w)}{\partial w_j}, \quad i, j = \overline{1, \sigma}, w \in R^\sigma, \|w\| < \infty, \quad (8)$$

and the conditions

$$\det Q(w) \neq 0, Q(w) = [b_1(w) : H(w)b_1(w) : \dots :$$

$$H^{\sigma-1}(w)b_1(w)]$$

$$\det Q(w) \neq 0, Q(w) = [b_1(w) : H(w)b_1(w) : \dots :$$

$$H^{\sigma-1}(w)b_1(w)]$$

(9)

$$\sup_{w \in R^\sigma} \frac{\operatorname{Sp} P_1(w)}{(\det P_1(w))^{1/\sigma}} \leq K < \infty, \quad P_1(w) = P(w)P^*(w) \quad (10)$$

at $w \in R^\sigma, \|w\| < \infty$. Here $\operatorname{Sp}(\cdot)$ – matrix trace $(\cdot)$, $(\cdot)^*$ – matrix complex conjugate [6] to the

matrix $(\cdot), \rho, K, \varepsilon$ - positive numbers, matrix

$$P(w) = Q(w)N(w), w \in R^\sigma, \|w\| < \infty \quad (11)$$

Where

$$N(w) = \begin{bmatrix} \eta_1(w) & \eta_2(w) & \dots & \eta_{\sigma-1}(w) & 1 \\ \eta_2(w) & \vdots & \dots & 1 & 0 \\ \vdots & & \dots & 0 & \cdot \\ & \eta_{\sigma-1}(w) & \dots & \cdot & \cdot \\ \eta_{\sigma-1}(w) & 1 & \dots & \cdot & \cdot \\ 1 & 0 & \dots & \cdot & 0 \end{bmatrix} \quad (12)$$

Here $\eta_k(w)$ – are polynomial coefficients

$$H(v, w) = \det(vE - H(w)) = \sum_{i=0}^{\sigma} \eta_i(w)v^i$$

We will assume that all $x_i, i = \overline{1, n}$ measurable [2-4]. Then, according to [5] $r = 0, w = x, \sigma = n$, the control action has the form

$$u = -l^T(x)x, x \in R^n, \|x\| < \infty \quad (15)$$

The vector from equation (1) is taken as a vector. In this case, the conditions for the existence of derivatives (6) and (8) is replaced by the requirement for the existence of derivatives (2). Inequalities (9) and (10) become the following:

$$\det Q(x) \neq 0, Q(x) = [b(x); A(x)b(x); \dots; A^{n-1}(x)b(x)] \quad (16)$$

$$\sup_{w \in R^n} \frac{Sp P_1(x)}{(\det P_1(x))^{1/n}} \leq K < \infty, P_1(x) = P(x)P^*(x) \quad (17)$$

Where $x \in R^n, \|x\| < \infty$. These inequalities follow from expressions (9) and (10) when the vectors and the matrix $H(w)$ are replaced by $x, b(x)$ and $A(x)$, respectively.

Conditions (10) or (17) are quite strict, but in many cases they are violated only in the region of large deviations, practically outside the dynamic range of changes in the real variables of the object (1). In such cases, one can consider the possibility of an appropriate modification of the object model or use another method, synthesis [1-4]. We indicate one particular case [3]. Let the matrix $P^{-1}(x)\dot{P}(x)$ have non-zero elements only in the n th row, i.e.

$$P^{-1}(x)\dot{P}(x) = \begin{bmatrix} 0 \\ \dots \\ d^T(x) \end{bmatrix}, x \in R^n, \|x\| < \infty \quad (18)$$

here is the derivative before time due to the system (1) of the functional matrix, defined by the expressions (11), (12) at $\sigma = n, w = x$; vector $d(x) \in R^n, 0 - (n-1) \times n$ is a zero matrix.

In this case, the control u can be found, following [4], by the formula

$$u = -\sum_{i=0}^{n-1} \eta_i y_{i+1} - [a_n^T(x)]y, y = P^{-1}(x)x \quad (19)$$

Where $a_n^T(x)$ is the n th row of the matrix $P^{-1}(x)A(x)P(x)$; y_i are the components of the vector y ; η_k - are the coefficients of the desired polynomial

$$H(\nu) = \nu^n + \sum_{i=0}^{n-1} \eta_i \nu^i \quad (20)$$

In practice, system (1), (19) under conditions (16) and (18) turns out to be reducible since a non-singular transformation, $x = P(x)y$ it is reduced to a linear system with a characteristic polynomial $H(\nu)$ (20).

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MOMENTS OF INERTIA, SECTION MODULI, AND RADII OF GYRATION OF PLANE SECTIONS

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The axial moment of inertia of a plane section with respect to a given axis is defined as the sum, taken over the entire area of the section, of the products of the elementary area elements and the squares of their distances from that axis (see Fig. 1).

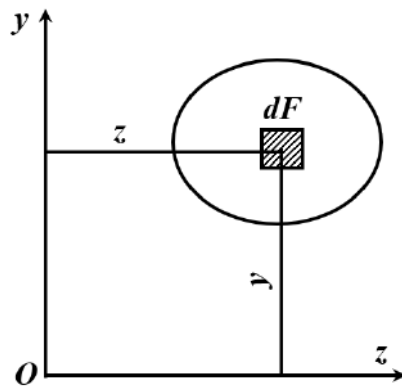


Fig.1

$$J_z = \int_F y^2 dF, \text{ m}^4(\text{sm}^4);$$

$$J_y = \int_F z^2 dF, \text{ m}^4(\text{sm}^4).$$

Axial moments of inertia are always positive and can never be equal to zero.

The centrifugal moment of inertia of a plane section is defined as the sum, taken over the entire area of the section, of the products of the elementary area elements and their distances from two mutually perpendicular axes (see Fig. 1).

$$J_{zy} = \int_F zy dF, \text{ m}^4(\text{sm}^4);$$

The product of inertia may be positive, negative, or equal to zero.

The axial and product moments of inertia of a plane section with respect to axes parallel to the centroidal axes are determined using the following formulas:

$$J_z = J_{z_c} + a^2 F;$$

$$J_y = J_{y_c} + b^2 F;$$

$$J_{zy} = J_{z_c y_c} + abF,$$

where:

J_{z_c}, J_{y_c} — axial moments of inertia with respect to the centroidal axes;

J_{zcy_c} — product of inertia with respect to the centroidal axes;

a, b — distances between the chosen axes and the centroidal axes parallel to them;

F — area of the section.

When the axes are rotated by an angle α , the moments of inertia are determined using the following formulas:

$$J_{z_1} = J_z \cos^2 \alpha + J_y \sin^2 \alpha - J_{zy} \sin 2\alpha;$$

$$J_{y_1} = J_y \cos^2 \alpha + J_z \sin^2 \alpha - J_{zy} \sin 2\alpha;$$

$$J_{z_1 y_1} = \frac{J_z - J_y}{2} \sin 2\alpha + J_{zy} \cos 2\alpha.$$

When the value of the axes rotation angle reaches the magnitude determined by the following formula:

$\operatorname{tg} 2\alpha = \frac{2J_{zy}}{J_y - J_z}$, at that point, the axial moments of inertia reach their maximum and minimum values,

while the product of inertia becomes zero. The axes occupying such positions are called the principal axes of inertia, and the corresponding axial moments of inertia are referred to as the principal moments of inertia. The principal axes of inertia that pass through the centroid of the section are called the principal centroidal axes of inertia.

The magnitudes of the principal moments of inertia are determined using the following formula:

$$J_{\max}^{\min} = \frac{J_z + J_y}{2} \pm \frac{1}{2} \sqrt{(J_z - J_y)^2 + 4J_{zy}^2}$$

The axial section modulus of a symmetric section is defined as the ratio of the axial moment of inertia to the distance from the neutral axis to the farthest point of the section:

$$W_z = \frac{J_z}{y_{\max}}, \quad \text{m}^3 (\text{sm}^3);$$

$$W_y = \frac{J_y}{z_{\max}}, \quad \text{m}^3 (\text{sm}^3).$$

The radius of gyration of a section with respect to the z -axis is defined as the quantity determined by the following formula:

$$i_z = \sqrt{\frac{J_z}{F}}, \quad \text{m, (sm)} \quad \text{similarly, } i_y = \sqrt{\frac{J_y}{F}}, \quad \text{m, (sm)}.$$

The geometric properties of rolled profiles are presented in the GOST tables. In these tables, the horizontal and vertical centroidal axes are denoted as x and y . When using these tables, it is necessary to reconcile the axis designations with those adopted in the specific problem.

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IMMUNOMORPHOLOGICAL CHARACTERISTICS OF CERVICAL CANCER AND THEIR INTERRELATIONSHIPS

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Annotation: Cervical cancer remains one of the most prevalent malignancies among women worldwide, with complex immunomorphological features that influence its progression, diagnosis, and treatment outcomes. This article explores the immunomorphological characteristics of cervical cancer, focusing on the structural and functional changes in tumor cells and the surrounding microenvironment. Special attention is given to the role of immune cells, cytokines, and molecular markers that reflect the immune response and tumor aggressiveness. The interrelationships between these parameters are analyzed to better understand the mechanisms of tumor development, invasion, and metastasis. The findings highlight the significance of immunomorphological assessment in improving diagnostic accuracy, prognostic evaluation, and the selection of effective therapeutic strategies for patients with cervical cancer.

Keywords: cervical cancer, immunomorphology, tumor microenvironment, immune response, molecular markers, pathogenesis, prognosis.

INTRODUCTION

Cervical cancer is one of the leading causes of morbidity and mortality among women, particularly in developing countries. Despite advances in preventive measures such as vaccination against human papillomavirus (HPV) and improved screening programs, cervical cancer continues to pose a major public health challenge. The disease develops through a multistage process involving persistent HPV infection, cellular dysplasia, and malignant transformation of epithelial cells. In recent years, the study of immunomorphological characteristics of cervical cancer has gained significant attention, as it provides insights into the interactions between tumor cells and the host immune system. The immune microenvironment plays a crucial role in tumor initiation, progression, and metastasis. Immune cells such as lymphocytes, macrophages, and dendritic cells, along with cytokines and molecular markers, form a complex regulatory network that affects tumor behavior and patient outcomes. Understanding the interrelationships between immunological and morphological features of cervical cancer can help identify prognostic indicators and therapeutic targets. Immunomorphological analysis not only aids in assessing tumor aggressiveness but also contributes to the development of personalized treatment strategies, including immunotherapy. Therefore, the present study aims to describe the main immunomorphological characteristics of cervical cancer and to analyze their interconnections in the context of tumor progression and prognosis.

Materials and Methods

The present study was conducted on biopsy and surgical specimens obtained from patients diagnosed with various stages of cervical cancer. The material included samples of squamous cell carcinoma, adenocarcinoma, and precancerous lesions such as cervical intraepithelial neoplasia (CIN). All samples were collected with informed consent and processed according to standard histological and immunohistochemical protocols. For histomorphological analysis, tissue samples were fixed in 10%

neutral buffered formalin, embedded in paraffin, sectioned at 4–5 μm thickness, and stained with hematoxylin and eosin (H&E) to evaluate cellular and structural changes. Microscopic examination focused on features such as nuclear atypia, mitotic activity, stromal reaction, and vascular invasion. Immunohistochemical studies were carried out to identify immune cell populations and molecular markers associated with tumor progression. Primary antibodies were used against CD3, CD4, CD8 (T-lymphocyte markers), CD68 (macrophage marker), Ki-67 (proliferation marker), p53 (tumor suppressor protein), and PD-L1 (immune checkpoint molecule). Visualization was achieved using the peroxidase-antiperoxidase (PAP) method with diaminobenzidine (DAB) as a chromogen. Quantitative evaluation of immunopositive cells was performed by counting positive cells per 100 tumor cells in five random high-power fields (HPF). The intensity and distribution of immune infiltration were scored semi-quantitatively (low, moderate, or high). The obtained data were statistically processed using descriptive and comparative analyses to identify correlations between morphological features, immune parameters, and clinical stages of the disease. This comprehensive approach made it possible to establish the relationship between immunological activity and the degree of morphological differentiation of cervical cancer, providing a deeper understanding of its pathogenetic mechanisms.

Results

The analysis of histological specimens revealed distinct morphological variations among different stages and histological types of cervical cancer. In early stages, tumor cells exhibited moderate nuclear atypia, preserved cellular polarity, and mild stromal infiltration. In advanced cases, however, cells demonstrated pronounced pleomorphism, hyperchromatic nuclei, high mitotic index, and extensive stromal desmoplasia. Areas of necrosis and vascular invasion were frequently observed in poorly differentiated tumors. Immunohistochemical examination showed significant differences in the density and distribution of immune cells within the tumor microenvironment. CD3⁺ and CD8⁺ T-lymphocytes were predominantly located in the peritumoral zones, indicating an active cytotoxic immune response. In contrast, CD4⁺ helper T-cells and CD68⁺ macrophages were distributed both in the stroma and within tumor nests, suggesting their involvement in tumor-associated inflammation and immune regulation. The expression of Ki-67, a marker of proliferative activity, was markedly increased in high-grade tumors, confirming their rapid growth potential. Similarly, overexpression of p53 protein was detected in the majority of invasive carcinoma samples, reflecting disrupted cell cycle regulation and genomic instability. Notably, tumors with strong PD-L1 expression were associated with reduced CD8⁺ lymphocytic infiltration, suggesting an immune-evasive phenotype. Statistical analysis revealed a strong correlation between immune marker expression and tumor differentiation. High Ki-67 and PD-L1 expression, combined with low CD8⁺ infiltration, were significantly associated with advanced stages and lymphovascular invasion ($p < 0.05$). Conversely, cases with abundant CD8⁺ T-cell infiltration and moderate PD-L1 expression tended to exhibit slower progression and better differentiation. Overall, the findings indicate that the immunomorphological profile of cervical cancer reflects the balance between immune activation and tumor immune evasion. The interaction between tumor cells and immune components defines the biological behavior of the neoplasm and may serve as a reliable predictor of prognosis and therapeutic response.

Discussion

The results of the present study highlight the significant role of immunomorphological interactions in the progression and clinical behavior of cervical cancer. The observed variations in immune cell

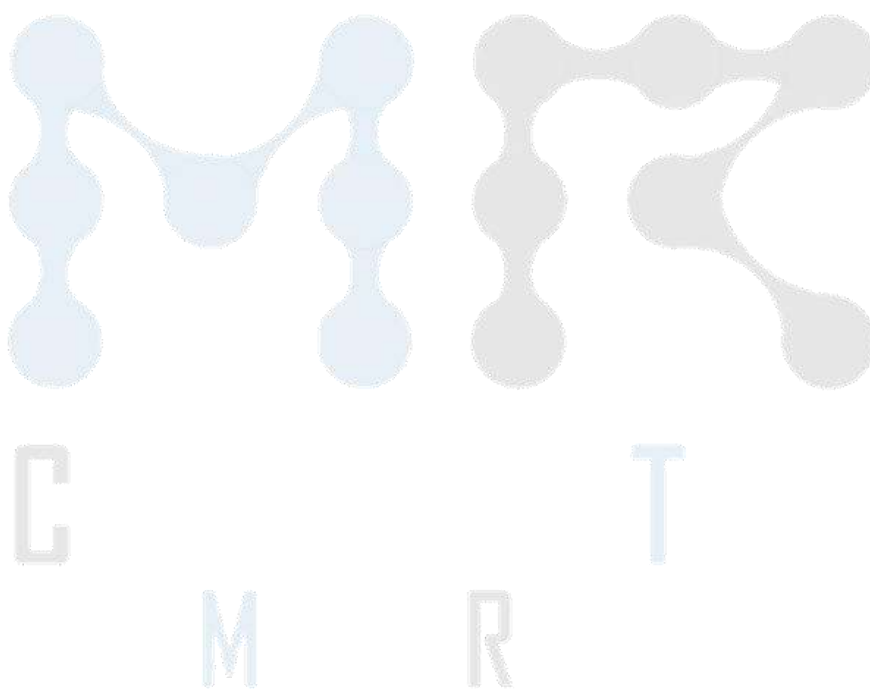
infiltration and expression of molecular markers suggest that cervical carcinogenesis is not only driven by genetic alterations but also modulated by the tumor microenvironment and the host immune response. The presence of CD3⁺ and CD8⁺ T-lymphocytes in the peritumoral regions indicates an attempt by the immune system to recognize and destroy malignant cells. However, the reduced number of these cytotoxic cells in advanced stages, along with the overexpression of PD-L1, demonstrates the tumor's ability to evade immune surveillance. This finding aligns with previous studies that describe PD-L1 as a key immune checkpoint molecule enabling tumor cells to suppress T-cell activity and promote immune tolerance. The increased expression of Ki-67 and p53 markers observed in this study correlates with high proliferative activity and cellular atypia, confirming their role as indicators of tumor aggressiveness. These results support earlier reports that link elevated Ki-67 levels with poor differentiation and unfavorable prognosis in cervical carcinoma. Similarly, abnormal p53 accumulation reflects disrupted apoptosis and genomic instability, contributing to malignant transformation and progression. The abundance of CD68⁺ macrophages in tumor tissues suggests a dual role of these immune cells in cancer. While macrophages may initially participate in antitumor defense, chronic stimulation can lead to their polarization into tumor-associated macrophages (TAMs), which facilitate angiogenesis, tissue remodeling, and immune suppression. This phenomenon was evident in our samples, where increased macrophage infiltration was associated with advanced tumor stages and vascular invasion. Taken together, these findings demonstrate that the balance between immune activation and suppression determines the morphological and clinical course of cervical cancer. Tumors characterized by strong immune infiltration and lower PD-L1 expression tend to exhibit a more favorable outcome, whereas those with high PD-L1 expression, elevated Ki-67 index, and limited cytotoxic lymphocyte presence display aggressive behavior and poor prognosis. Therefore, immunomorphological assessment can serve as an essential tool not only for diagnostic and prognostic purposes but also for identifying patients who may benefit from targeted immunotherapy. The integration of immunohistochemical profiling into routine pathological evaluation could enhance personalized treatment planning and improve survival outcomes for patients with cervical cancer.

Conclusion

The conducted study demonstrates that the immunomorphological characteristics of cervical cancer are closely interconnected with the degree of tumor differentiation, aggressiveness, and clinical stage of the disease. The presence and activity of immune cells—particularly CD3⁺, CD4⁺, CD8⁺ lymphocytes, and CD68⁺ macrophages—reflect the dynamic interaction between the host immune system and tumor tissue. Increased expression of Ki-67 and p53 indicates high proliferative potential and genomic instability, while overexpression of PD-L1 suggests an active immune escape mechanism. These findings confirm that cervical cancer development and progression depend not only on the malignant potential of epithelial cells but also on the state of the immune microenvironment. The identification of immunomorphological markers enables a more accurate evaluation of tumor behavior, facilitates prognosis, and provides valuable guidance for the selection of personalized therapeutic approaches, including immunotherapy. In conclusion, immunomorphological assessment should be considered a vital component of modern oncopathological diagnostics, offering new perspectives for improving patient management and long-term outcomes in cervical cancer.

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АСОРАТЛИ МИОПИЯДА ТЎР ПАРДА ДИСТРОФИЯСИНИ РИВОЖЛАНИШИ

Андижон Давлат Тиббиёт Институти
Жалолиддинов Д.Л.

Аннотация. Илмий мақолада асоратли миопияда тўр парда дисрофияси ни ривожланишининг долзарблиги кўрсатиб ўтилган. Хозирги кунда офтальмологиянинг долзарб муаммоларидан бири бу тўр парда ва макула касалликлари. Касаллик кўсатгичи йилдан йилга ўсиб бориши ва оқибатда ногиронликни кўпайиш сабабини ўрганиш.

Калит сўзлар: ОКТ, Фундус, макула, дистрофия.

РАЗВИТИЕ ДИСТРОФИЯ СЕТЧАТКИ ПРИ ОСЛОЖНЕННОЙ МИОПИИ

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Аннотация. В научной статье показана актуальность развития сетчатой дистрофии при осложненной миопии. В настоящее время одной из актуальных проблем офтальмологии являются заболевания сетчатки и желтого пятна. Изучение причины увеличения инвалидности у возбудителя заболевания из года в год.

Ключевые слова: Окт, глазное дно, макула, дистрофия.

DEVELOPMENT OF RETINAL DYSTROPHY IN COMPLICATED MYOPIA

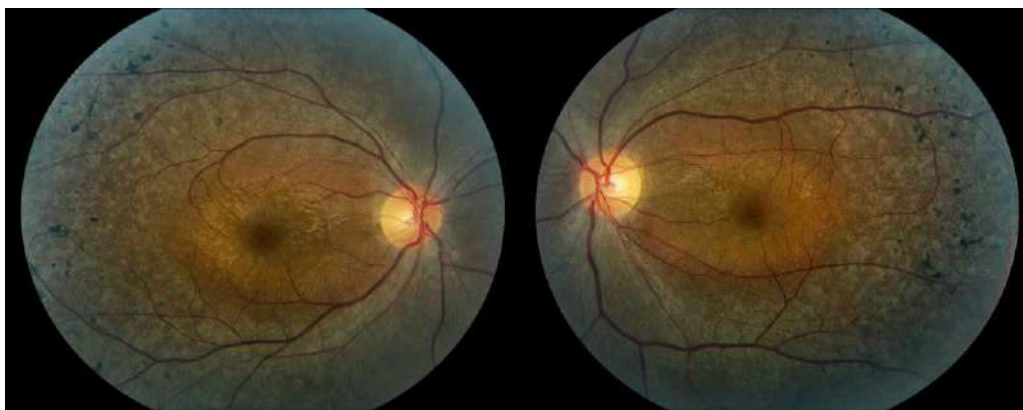
Andijan State Medical Institute
Jaloliddinov D.L.

Annotation. The scientific article shows the relevance of the development of retinal dystrophy in complicated ophthalmology. Currently, diseases of the retina and macula are one of the urgent problems of ophthalmology. The study of the causes of increased disability in the causative agent of the disease from year to year and .

Key words: Oct, fundus, macula, dystrophy.

Асоратли миопияда тўр парда дисрофиясини ривожланиши – Энг кўп таркалган кўз касалликларидан бири бўлиб кўриш ўткирлигини сезиларли даражада пасайишига, кўриш орқали ногирон бўлиши ёки кўрмай қолишига сабаб бўлади. Дунё бўйича касалликнинг тарқалиши ЖССТ маълумотида кўра касаллик билан мурожат қилганлар сони хар 300 минг ахолининг 100 мингини ташкил килади. Иктисодий ривожланган мамлакатларда асоратли миопияда тўр парда дисрофияси туфайли ногирнолик бўйича глаукома ва диабетик ретинопатиядан сўнгра учинчи ўринда туради. Асоратли миопияда тўр парда дисрофиясида иккала кўзни шикастланишини 60% ташкил килади.

Касаллик икки томонлама сурункали характерга эга. Асоратли миопияда тўр парда дисрофиясини асосий ривожланиш генетик фактори ва инсонлар ёши, атеросклероз, артериал хафакон касаллиги, тамаки махсулотлари чекиш, ультрабинафша нур таъсири ва нотўғри овқатланиш.



Касалликни эртанги аниқлаш, уни ривожланишини ва асоратларини олдини олиш офтальмологиянинг долзарб муаммоларидан бири ҳисобланади.

Касалликни ўрганишдан мақсад Асоратли миопияда тўр парда дисрофиясини ривожланишидаги клиник факторларни ва хавф омилларини ўрганиш.

Материал ва методлари. Андижон давлат тиббиёт институти кўз касалликлари бўлимида 2 йил давомида 31 та бемор асоратли миопияда тўр парда дисрофияси ташхиси билан стационар даволанди. Беморлар ёши 35 дан 75 ёшгача. Эркаклар 18 та (58,1%) , аёллар 13 (41,9 %) тани ташкил қилди. Барча беморларга тўлиқ офтальмологик текширувлар стандарт асосида олиб борилди. Анамнез йиғиш давомида беморлардаги зарарли одатлар тамаки чекиш, спиртли ичимликлар истемол қилиши, хамрох касалликлар, бемор бўйи, оғирлиги аниқланди. Беморларда кўриш ўткирлиги, КИБ, переметрия қилинди. Кўз туби гониолинза ёрдамида кўрилиб, ОКТ ва ФУНДУС камера текшируви ўтказилди.



Текширув натижалари. Ўтказилган текширувлар натижасига асосан беморлар ёшига қараб 3 та гуруҳга бўлинди. 35-50 ёшгача 8 та (25,8%) бемор, 51 - 65 гача 10 та(32,25%) бемор, 65 -75 гача -13 та (41,9%) бемор.

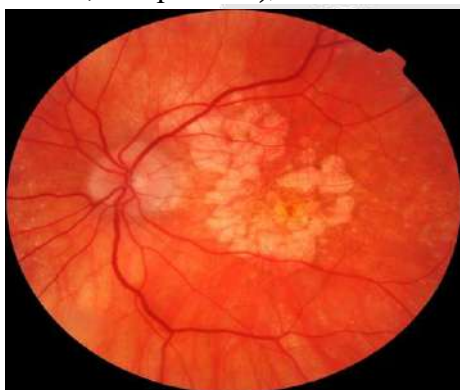
Тоғли ҳудудларда яшовчи беморлар билан шаҳарда яшовчи беморлар 66% ва 34% ташкил этди. Беморларни 23 та (74,2%) ёши кексаларни ва 8 та (25,8%) ишчи ходимларни ташкил қилади.

Беморларни 16 таси (51,6%) юқори тоғли ҳудудларда яшайди. Беморлар вазни 65 кгдан 98 кг гача: 4 та беморда - 70 кг дан - 80 кг гача; 80% беморларда тана оғирлигининг юқори даражадалиги кузатилган. Олинган натижаларни таҳлил қилинганда қишлоқ аҳолиси орасидагига нисбатан, шаҳар аҳолиси орасида семизликга чалинганларда тўр парда макуляра

дегенерацияси 9 баробар юкорилиги аникланди.

Ёмон одатлар билан одатланганларда: спиртли ичимликлар истемол қилганларда 9 (29%) тамакида - 5 %). 8 та беморда генетик фактор таъсири аникланди. Булар яқин қариндошлик никохларда.

Шифохонада даволаниш даврида назоратга олинган беморларда шуни кузатилдики, барча беморларда хамрох касалликлари борлиги аникланди. Шуни таъкидлаш зарурки, энг кўп тўр парда макуляр дистрофияси юрак қон- томир касалликларида 68%, шулардан хафақон касаллиги - 38%, атеросклероз – 33% , атеросклероз хафақон касаллиги билан бирга - 34% , юрак ишемик касаллиги - 14%. 17% ошқозон ичак системаси касаллиги билан (холецистит - 4, панкреатит - 2, гастриты -2), кандли диабет билан 2 та бемор.



Кўз олмаси томирли қавати хориокапилляр кисми, шишасимон тана лойқаланиши ва тўр парда пигмент эпителийси яллиғланишлари кузатилди.

Хулоса. Олинган натижалар шуни кўрсатадики шахар аҳолиси орасида асоратли миопияда тўр парда дисрофияси 76% ҳолатда, шундан 60% - аёлларда, (80%) семизликга чалинган ва хамрох касаллиги бор беморларда бўлади.

Бу шуни кўрсатадики, барча мутахассислар асосан терапевт, кардиолог, эндокринолог албатта офтальмологлар билан ҳамжихатликда фаолият кўрсатиши мақсадга мувофиқ бўлади. Асоратли миопияда тўр парда дисрофияси профилактикаси амалга оширилади

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СИМУЛЯЦИЯ МАРКАЗЛАРИ ОФТАЛМОЛОГИЯ ФАНИ ТИНГЛОВЧИЛАРИНИНГ ЗАМОНАВИЙ АМАЛИЙ МАШҒУЛОТЛАРИНИНГ АСОСИ СИФАТИДА

Андижон Давлат Тиббиёт институти
Усманова Тўлганой Жалолиддиновна

Долзарблиги. Замонавий олимларнинг фикрига кўра, XX аср бошларида инсоният билимлари тахминан ҳар 100 йилда икки барабар кўпайган. XX асрнинг 50-йилларига келиб, ҳар 25 йилда икки барабар кўпайди. 2022-2024 йилларда бу муддат 3 йилни ташкил этди ва ҳозирги кунга келиб 38 ой 18 ойга баҳоланмоқда. Бу шуни англатадики, 24 ёшида иш бошлаган офтальмолог 63 ёшида нафақага чиққач, 26 марта клиник билимларни икки барабар ошириш босқичларидан ўтади. Бошқа томондан, катарактани интракапсуляр экстракцияси биринчи марта 1805 йилда Корнелъя Целса томонидан амалга оширилган ва унинг техникаси аср давомида унчалик ўзгармаган. 1985 йилда катарактани экстракапсуляр экстракцияси Андижон давлат тиббиёт институти клиникаси кўз касалликлари бўлимида т.ф.н. Хабибулло Абдухоликов биринчи марта амалга оширилди ва сунъий гавхар қўйилди. Мавжуд билимларнинг тез ўсиши, янги жарроҳлик техникасининг пайдо бўлиши нафақат бўйсунувчи микрожарроҳлар учун, балки амалиётчи шифокор лар учун ҳам симуляция машғулотлари орқали амалга ошириладиган чекланган вақт ичида доимий машғулотларга эҳтиёж туғдиради.

Микрожарроҳлар томонидан тўғри ўтказилган ўқув жараёни амалда замонавий операциялар сонини яхшилайти ва асоратларни фоизини камайтиради. Операциядан кейинги асоратларнинг ривожланиши билан боғлиқ бўлмаган тингловчиларни ўқитишнинг энг яхши усули бу симуляция ускуналаридан фойдаланишдир.

Мақсад. Мавжуд адабий манбаларда келтирилган замонавий халқаро ишланмаларни таҳлил қилиш орқали симуляция марказида микрожарроҳ шифокорларини тайёрлаш тизимини оптималлаштириш.

Материаллар ва усуллар. Тадқиқот давомида биз тақдим этилган маълумот-ларни таҳлил қилиш ва Андижон вилоятининг реал шароитида амалга ошириш учун мавжуд бўлган 12 та аниқ тавсияларни ишлаб чиқиш билан келажақдаги микрожарроҳларни симуляция қилиш бўйича сўнгги йиллардаги мавжуд халқаро нашрларни кўриб чиқдик.

Натижалар ва муҳокама. Адабиётлар маълумотлари таҳлили тиббиёт олий ўқув юртларининг бўлажак микрожарроҳларини симуляцион ўқитиш замонавий тайёргарликнинг истикболли йўналиши эканлигини кўрсатди. Барча муаллиф лар ушбу йўналишни ривожлантиришга эътибор беришади. Чекланган вақтнинг замонавий даврида кўплаб кўникмаларни ўзлаштириш зарурати, савол туғилади: келажақдаги микрожарроҳлар беморга зарар етказмасдан ҳар томонлама амалий машғулотларни қаердан олишлари мумкин? Бунинг замирида симуляция ўқув дастурларини кенг жорий этиш ётади. Бошқа томондан, ҳозирги кунда дунёнинг кўплаб мамлакатларида, шу жумладан Андижон Давлат тиббиёт институтида ҳам амалга оширилган. В. Ҳалстед усули қонуний равишда чекланган бўлиб, унга кўра тажрибали бемор назорати остида янги бошлаган микрожарроҳнинг ишлаши учун амалий машғулотлар ўтказилди. Микрожарроҳлик амалиётини тугатганлиги тўғрисида гувоҳномага эга бўлган шифокор офтальмолог энг кенг тарқалган микрожарроҳлик операцияларининг

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аксариятида аллақачон малакали бўлиши керак. Бу сизга микрожаррохлик операцияларини тўлиқ ўзлаштиришга ёрдам берадиган симуляция машғулоти. Симуляция машғулотларининг афзалликлари, юқорида айтиб ўтилганлардан ташқари, тингловчилар учун паст стрессни ва агар керак бўлса, уларнинг машғулоти жадвалини тузиш ва ўзгартириш қобилиятини ўз ичига олади. Бир қатор муаллифлар симуляция машғулотларининг яна бир фойдали сифатини – назарий ўрганишни рағбатлантиришни таъкидлайдилар. Бу тренажёр устида ишлагандан сўнг, тингловчилар ўзларини яхшилашга мажбур қиладиган ҳиссий реакцияни олишлари билан изоҳланади. Микрожаррохлик симуляцияси машғулоти усуллари орасида 2 асосий гуруҳ мавжуд: жонли ва жонсиз. Биринчи гуруҳнинг афзалликлари деярли тўлиқ реализмни ўз ичига олади, бу 100% ҳолларда сўровда кўникмаларни яхшилайти. Шу билан бирга, иккинчи гуруҳ усуллари ўқитишнинг арзонлиги, маълум ахлоқий муаммоларнинг йўқлиги ва машғулотларга сарфланадиган вақтнинг пасайиши билан тавсифланади. Симуляция машғулотларининг натижалари ҳозирда ўқитувчи (синалувчи) томонидан ёки манипуляция қилиш учун маълум балл тўплаш орқали баҳоланади. Шу билан бирга, энг яхши натижага эришиш учун аввал тингловчиларнинг мавжуд кўникмалари даражасини баҳолаш, уларни тахминан тенг даражадаги гуруҳларга ажратиш ва ушбу гуруҳ учун ишлаб чиқилган дастурга мувофиқ машғулотлар ўтказиш тавсия этилади. Кўникмаларни мустақамлашнинг муҳим жиҳати бу манипуляциялар орасидаги дам олиш вақти. Асосий қоида шундаки, оддий манипуляциялардан сўнг вақт оралиғи қисқа бўлиши керак. Симуляторда ишлаш стандарт ҳаракатларни автоматлаштиришга имкон беради, натижада операцияда иштирок этиш пайтида ушбу кўникмаларга эга бўлган жарроҳ янада мураккаб ҳаракатларни яхшилайти. Шунга қарамай, тренажёрда ҳам машғулотлар тажрибали ўқитувчи раҳбар лигида олиб борилиши керак, у нафақат амалиётчи шифокор бўлиши, балки малакали дарс бера олиши керак. Шу билан бирга, ўқитувчи манипуляция пайтида изоҳ беради ва тузатади ёки тугатгандан сўнг хатоларни таҳлил қиладди. Албатта, барча тадқиқотчилар симуляция машғулоти келажакдаги микрожаррохларни тайёрлашда истиқболли йўналиш ҳисобланади ва уни ишлаб чиқиш керак деган фикрда, аммо симуляция машғулоти клиника ўрнини босмаслиги, балки иккинчисини тўлдириши кераклигини аниқ тушуниш керак. Фақат бу ҳолатда энг яхши натижаларга эришиш мумкин.

Хулосалар:

1. Симуляция машғулоти келажакдаги микрожаррохларни тайёрлашда замонавий ва истиқболли йўналишдир.
2. Андижон давлат тиббиёт институти офтальмология йўналиши тингловчилари учун симуляция ўқув марказларини кенг жорий этиш ва ривожлантириш билан мавжуд халқаро тажрибадан фаол фойдаланиши керак.
3. Симуляция машғулотларини кенг жорий этиш бўйича мавжуд тавсиялар якуний эмас ва яхшиланади, чунки бу соҳа янада ривожланади

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**БИРЛАМЧИ ЁПИҚ БУРЧАКЛИ ГЛАУКОМАНИНГ ГЕНЕТИК
БЕЛГИЛАРИНИ АНИҚЛАШ.**

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Аннотация. Ушбу илмий мақолада бирламчи ёпиқ бурчакли глаукомани генетик жихатдан гетероген гуруҳи эканлиги, кўриш майдонининг қайтарилмас нуқсонларини келтириб чиқариши кўрсатиб ўтилган. Глаукома ҳам моноген, ҳам мураккаб касаллик сифатида наслдан-наслга мерос бўлиб ўтади, бу кўпинча кўз ичи босимининг ошиши (КИБ), трабекуляр тармоқ ва кўзнинг олд камерасидаги нуқсонлар билан боғлиқ бўлиб, кўз ичи суюқлигининг чиқиши бузилишига, кўрув нервининг прогрессив дегенерациясига олиб келади. Бироқ, КИБнинг кўтарилиши касалликнинг бошланиши ёки ривожланиши учун зарур ва етарли эмас. Мақолада ёпиқ бурчакли глаукоманинг генетикаси бўйича мавжуд маълумотлар қисман келтирилган.

Калит сўзлар: БЁБГ, генетика, БГА, БГБА, ўткир глаукома хужуми.

**ВЫЯВЛЕНИЕ ГЕНЕТИЧЕСКИХ ПРИЗНАКОВ ПЕРВИЧНОЙ
ЗАКРЫТОУГОЛЬНОЙ
ГЛАУКОМЫ.**

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Аннотация. В этой научной статье показано, что первичная закрытоугольная глаукома представляет собой генетически гетерогенную группу заболеваний, вызывающих необратимые дефекты полей зрения. Глаукома передается по наследству из поколения в поколение как моногенное, так и комплексное заболевание, часто связанное с повышенным внутриглазным давлением (киб), трабекулярной сетью и дефектами передней камеры глаза, приводящими к нарушению оттока внутриглазной жидкости, прогрессирующей дегенерации зрительного нерва. Однако увеличение КИБ является необходимым и недостаточным для возникновения или развития заболевания. В статье частично перечислены доступные данные о генетике закрытоугольной глаукомы. Ключевые слова: ПЗУГ, генетика, БГА, БГБА, острый приступ глаукомы.

**IDENTIFICATION OF GENETIC SIGNS OF PRIMARY ANGLE-CLOSURE
GLAUCOMA.**

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Annotation. This scientific article shows that primary angle-closure glaucoma is a genetically heterogeneous group of diseases that cause irreversible defects in the visual fields. Glaucoma is inherited from generation to generation as a monogenic and complex disease, often associated with increased intraocular pressure (ib), trabecular meshwork and defects in the anterior chamber of the eye, leading to impaired outflow of intraocular fluid, progressive degeneration of the optic nerve. However, an increase in KIB is necessary and insufficient for the onset or development of the disease. The article partially lists the available data on the genetics of angle-closure glaucoma.

Key words: CDG, genetics, acute attack of glaucoma

Бирламчи ёпиқ бурчакли глаукома – офтальмологиядаги улкан техник ютуқларга қарамай, даволаб бўлмайдиган ва оғир асоратли касаллик бўлиб қолмоқда. Уни тўлиқ даволаб натижа олиш мумкин эмас, лекин уни олдини олиш мумкин! **6 март куни.** Бу кун " Бутунжаҳон глаукома куни " деб бутун дунёда нишонланади. Ушбу кун 2008 йилдан бери Бутунжаҳон глаукома жамиятлари ассоциацияси (БГА) ва Бутунжаҳон глаукома беморлари ассоциацияси (БГБА) ташаббуси билан нишонланиб келинмоқда. Бутунжаҳон глаукома кунининг асосий мақсадларидан бири бу муаммо ҳақида аҳолининг хабардорлигини оширишдир, чунки касаллик тарқалишига қарамай, аҳолининг фақат кичик бир қисми касаллик белгилари билан таниш ва ўз вақтида тиббий ёрдамга мурожаат қилишади.

Муаммонинг долзарблиги. Замонавий диагностика имкониятларига қарамай, глаукомани аниқлаш, янгиликларни излаш ва ёпиқ бурчакли глаукома ва глаукомани ўтқир хуружига мойилликнинг аллақачон маълум бўлган генетик белгиларини аниқлаш масалалари долзарб бўлиб қолмоқда. Генетик полиморфизмлар ва бошқа биомаркерларни индивидуал кўриб чиқиш, шубҳасиз, БЁБГ диагностикаси ва даволаш самарадорлигини сезиларли даражада оширади. Глаукома оптик нейропатияларнинг генетик жиҳатдан гетероген гуруҳи бўлиб, улар кўриш майдонининг қайтарилмас нуқсонларини келтириб чиқаради ва йилига 60 миллион кишига таъсир қилади [26]. Глаукома ҳам моноген, ҳам мураккаб касаллик сифатида наслдан-наслга мерос бўлиб ўтади, бу кўпинча кўз ичи босимининг ошиши (КИБ), трабекуляр тармоқ ва кўзнинг олд камерасидаги нуқсонлар билан боғлиқ бўлиб, кўз ичи суюқлигининг чиқиши бузилишига, кўрув нервининг прогрессив дегенерациясига олиб келади. Бироқ, КИБнинг кўтарилиши касалликнинг бошланиши ёки ривожланиши учун зарур ва етарли эмас. Глаукоматоз дегенерацияда КИБ да мустақил механизмлар ҳам иштирок этади.

Тадқиқот мақсади ва вазифаси. Бирламчи ёпиқ бурчакли глаукомада клиник ва генетик тадқиқотлар ўтказиш, глаукомада иммунитет ва гемостаз бузилишларини ўрганиш, ёпиқ бурчакли глаукома билан оғирган беморларда автоном нерв тизимининг бузилишларини ўрганиш ва олдинги камера бурчагининг бирламчи аппозицион ёпилиши бўлган беморларда глаукома хуружларига мойиллигини аниқлаш.

Генетик омил. Замонавий диагностика имкониятларига қарамай, глаукомани аниқлаш, янгиликларни излаш ва ёпиқ бурчакли глаукома ва глаукоманинг ўтқир хуружига мойилликнинг аллақачон маълум бўлган генетик белгиларини аниқлаш масалалари жуда долзарб бўлиб қолмоқда. Zhuang В. ва бошқ. (2018), Хитойнинг Миллий тадқиқот дастури rs3753841 в гене COL11A1 (collagen XI, alpha-1 polypeptide), rs1258267 в гене CHAT (Choline O-Acetyltransferase) ва rs736893 генида GLIS3 (GLI-KRUPPEL FAMILY MEMBER COL3753841A11A1 генида (коллаген ХИ, алфа-1 полипептид), ЧАТ генида PC1258267 (холин О-Ацетилтрансфераза) ва ГЛИС736893 генида (ГЛИ-КРУППЕЛ оила аъзоси битта нуклеотид полиморфизмлари БЁБГ билан боғлиқлигини аниқлади. [37]. CHAT гени 10-хромосомада жойлашган ва холин ацетилтрансферазани кодлайди, бу ацетилхолин метаболизми орқали БЁБГ ривожланиш хавфига таъсир қилади деб ишонилади. GLIS3 гени оила тарихида рўйхатдан ўтган янги генетик тури бўлиб, этник келиб чиқиши ёпиқ бурчакли глаукоманинг ривожланиши билан чамбарчас боғлиқ. БЁБГга хос бўлган қатъий ирсий мутациялар ҳали аниқланмаганига қарамай, кўплаб тадқиқотлар унинг пайдо бўлиш хавфига ҳисса қўшадиган генетик омиллар мавжудлигини кўрсатади. COL11A1 генининг БЁБГ ривожланишига

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"қизиқиши" кўрсаткичлари бошқа тадқиқотларда ҳам учрайди. У склерал тўқималарда юқори даражада ифодаланган 12 турдаги коллагеннинг иккита алфа занжиридан бирини кодлайди. Коллаген синтезидаги ўзгаришлар склеранинг биомеханик ва қайта қуриш хусусиятларига таъсир қилади ва шу билан эксенел узунлиқнинг ўзгаришини ўз ичига олган глаукомага ва ушбу омил билан боғлиқ рефракция хатоларига олиб келиши мумкин. COL11A1 генидаги битта нуклеотид полиморфизми Япон ва Хитой тилларида миопия хавфи ортиши билан ҳам боғлиқлиги аниқланди [40]. Склеранинг коллаген таркибидаги фарқлар кўрув нерви бошининг субоптималь биомеханикаси билан ўзаро боғлиқ бўлиши мумкин, бу эса сезувчанликнинг ошишига ва кўрув нервнинг аксонал шикастланишига олиб келиши мумкин [41]. Тайван (17576) ММП-9 ген (matrix protein киназа-9 ген) rs2013 ягона нуклеотид полиморфизм ўрганиш БЁБГ [42] ривожлантиришда бу ген "қизиқиш" тасдиқлади. ММП-9 гени хужайрадан ташқари матрицани қайта қуришда иштирок этадиган ферментни кодлайди ва бу ўз навбатида склеранинг биомеханик хусусиятларига ҳам таъсир қилади. БЁБГга хос бўлган қатъий ирсий мутациялар ҳали аниқланмаганига қарамай, БЁБГни генетик ва эпигенетик омилларнинг ўзаро таъсиридан келиб чиқадиган кўп факторли, генетик жиҳатдан аниқланган касаллик деб аташ мумкин. Генетик полиморфизмлар ва бошқа биомаркер ларни кўриб чиқиш касалликни ташхислаш ва даволаш самарадорлигини сезиларли даражада оширади. Бирламчи ёпиқ бурчакли глаукома кўришнинг бузилиши нуқтаи назардан глаукоманинг оқибати жиҳатдан ноқулай шакллари билан бириктирилади.

Бирламчи ёпиқ бурчакли глаукомани ривожланишидаги хавф омиллари.

- Ирсият ва ёши, асаб тизими.
- Артериал гипертензия, Қандли диабет
- Мия томирлари ва орбитал артерияда қон айланишнинг бузилиши.
- Қон таркибий қисмини ўзгариши

Хулоса.

-Бирламчи ёпиқ бурчакли глаукомаси бўлган беморларнинг гемостаз тизимидаги бузилишлар қон зардобидан айланма иммунитет комплекслари таркибининг кўпайиши билан боғлиқ.

-Оғир симпатикотония билан боғлиқ бўлган хороидал томирларда минтақавий қон оқимининг бузилиши глаукома хуружининг ривожланишига ёрдам беради.

-Рангдор паккрданинг қаттиқлигининг ошиши ва томир ичидаги агрегатларнинг шаклланиши, рангдор парданинг томирларида паритетал тромбоз, тўқималарда фибрин шаклланиши билан тавсифланган маҳаллий тромбогеморрагик синдром глаукома хуружига ҳамроҳ бўлади.

-Минтақавий қон оқимининг бузилиши ламина сереброза даражасида чуқур перипапилляр аро қон томир плексусида қон томир зичлигининг пасайиши билан тавсифланади, глаукома хуружи бўлган беморларда 33 ва 5,6% гача, аралаш глаукома билан оғриган беморларда 39 ва 5,7% гача. қарама-қарши кўзларга нисбатан бўлади.

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The results of the study of the level of serum cortisol as a hormone affecting the exchange of connective tissue in children and adolescents with different clinical refraction.

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Annotation. Cortisol is a hormone that is formed in the adrenal cortex. It protects the body from stress, regulates blood pressure, participates in the metabolism of proteins, fats and carbohydrates. The release of cortisol is regulated by the adrenocorticotrophic hormone (ACTH) produced in the pituitary gland, a small gland located on the lower part of the brain. The concentrations of ACTH and cortisol in the blood are regulated by the feedback method. A decrease in the concentration of cortisol increases the production of ACTH, as a result of which the production of this hormone is stimulated until it returns to normal. An increase in the concentration of cortisol in the blood, on the contrary, leads to a decrease in the production of ACTH.

Key words. Cortisol, ACTH, CT, PVHRD

Cortisol is a hormone produced in the adrenal cortex. It protects the body from stress, regulates blood pressure levels, and participates in the metabolism of proteins, fats, and carbohydrates. The release of cortisol is regulated by adrenocorticotrophic hormone (ACTH), which is produced in the pituitary gland – a small gland located at the base of the brain. Concentrations of ACTH and cortisol in the blood are regulated by a feedback mechanism. A decrease in cortisol concentration increases ACTH production, which in turn stimulates the production of this hormone until it returns to normal. Conversely, an increase in cortisol concentration in the blood leads to a decrease in ACTH production.

Therefore, cortisol concentration in the blood can change due to increases or decreases in the secretion of either cortisol itself in the adrenal glands or ACTH in the pituitary gland, for example, in the case of a pituitary tumor secreting ACTH.

A decrease in cortisol production may be accompanied by nonspecific symptoms: weight loss, weakness, fatigue, decreased blood pressure, and abdominal pain. In combination with reduced cortisol production and severe stress, an adrenal crisis may sometimes develop, which requires emergency medical care.

The results were analyzed based on cortisol level data obtained from laboratories at the place of residence. As is known, metabolic processes in connective tissue (CT) are directly and multifactorially influenced by hormonal factors: glucocorticoids and steroid hormones (cortisol, testosterone, estradiol). Hormones regulate the synthesis and catabolism of collagen, exerting anabolic (androgens) and catabolic (cortisol and its derivatives) effects on metabolism. As noted above, studies of the pathogenesis of progressive myopia reveal disturbances in metabolism within the body's connective tissue system. Most likely, among the many causes of impaired overall connective tissue metabolism and collagen structures in the sclera, hormonal shifts are one of the leading factors.

Few studies dedicated to examining hormonal status in adolescents with progressive myopia have identified imbalances in both sex hormones (testosterone and estradiol) and glucocorticoids (primarily cortisol). It is evident that for more complete information and a reliable assessment of hormonal influence on the development of myopia and its complications, research in this direction

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should be continued. The purpose of this fragment of the work was a comparative study of cortisol levels as an active regulator of connective tissue metabolism in the blood serum of children and adolescents with various clinical refractions. To achieve this task, 155 children and adolescents aged 9 to 17 years (13.4 ± 2.1 years) with various clinical refractions were examined: 20 with mild myopia, 32 with moderate myopia, 85 with high-degree myopia, of which 36 had congenital and 49 had acquired (mainly in early childhood) myopia. In 32 children (20.6%), various forms of peripheral vitreochoroidal retinal dystrophies (PVCRD) were detected on the fundus. To assess hormonal status, cortisol levels in blood plasma were determined in the morning hours on an empty stomach using a standard method. According to laboratory practice, normal cortisol levels for children and adolescents up to 16 years old range from 83-580 nmol/L; however, these data were obtained without considering refraction. Therefore, in our study, a control group was formed consisting of 18 children with emmetropia or mild to moderate hypermetropia. The range of serum cortisol values obtained in this group was used by us as a reference interval for comparison with indicators obtained in children and adolescents with myopia. The study results are presented in Table 7 and Figure 17.

Table 1. Cortisol Levels (nmol/L) in the Blood Serum of Children and Adolescents with Various Clinical Refractions (M $\pm$ m)

Group	Mild Degree	Moderate Degree	High Degree (Full, Uncomplicated)	High Degree (Full, Complicated)	Congenital High Degree (Full, Uncomplicated)	Congenital High Degree (Full, Complicated)
Control	335.8 $\pm$ 40.9	-	-	-	-	-
Acquired Myopia	290.7 $\pm$ 58.6	250.9 $\pm$ 26.4*	243.9 $\pm$ 20.5*	247.6 $\pm$ 30.1*	-	-
Congenital High-Degree Myopia	-	-	236.3 $\pm$ 29.3*	339.4 $\pm$ 33.2**	413.7 $\pm$ 48.8**	287.4 $\pm$ 38.6***

○ Difference from control is significant, $p < 0.05$. ** - Difference from the corresponding indicator of acquired myopia is significant, $p < 0.05$. *** - Difference from the corresponding indicator of uncomplicated myopia is significant, $p < 0.05$.

As a result of our studies, it was established that in children and adolescents, as refraction strengthens, there is a relative decrease in cortisol levels in the blood serum. If in acquired mild myopia the cortisol level was 290.7 ± 58.6 nmol/L and was slightly lower than the control (335.8 ± 40.0 nmol/L), then in moderate myopia it was reduced to 250.9 ± 26.4 nmol/L, and the differences from control values became statistically significant ($p < 0.05$). The obtained data provide grounds to suggest that hormonal imbalance, namely, disruption of cortisol metabolism, may be one of the causes of general biomechanical disturbances in the connective tissue system of children and adolescents with progressive myopia, as well as a sign indicating the presence of such disturbances. Possibly,

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under certain prerequisites during the active growth period of the child, features of hormonal status that initially do not exceed normal limits, under the influence of a certain lifestyle, unbalanced nutrition, and adverse physical and psychological factors, may lead to a shift in hormonal balance, which in turn can negatively affect metabolism as a whole and, as a consequence, cause dysfunction of organs and systems, including CT, i.e., become a factor contributing to the impairment of the sclera's supportive properties.

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**KOMPYUTER KO'RISH TEXNOLOGIYALARI YORDAMIDA QISHLOQ
XO'JALIGIDA HOSILNI MONITORING QILISH**

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Usmonov Muhammadabdulla Qaxramon o'g'li

Qo'qon universiteti talabasi

Annotatsiya: Ushbu maqolada kompyuter ko'rish texnologiyalarining qishloq xo'jaligida, xususan, hosilni monitoring qilishdagi ahamiyati o'rganilgan. An'anaviy kuzatuv va nazorat usullari bilan solishtirganda, sun'iy intellekt va tasvirni qayta ishlash metodlari asosida yaratilgan tizimlar tezkorlik, aniqlik va mehnat samaradorligini sezilarli darajada oshiradi. Tadqiqotda OpenCV kutubxonasi asosida ishlab chiqilgan kompyuter ko'rish algoritmlari yordamida daladagi o'simliklarning holati, o'sish darajasi hamda hosildorlikka ta'sir etuvchi omillar aniqlangan. Shuningdek, rang, shakl va tuzilishga asoslangan tasvir tahlili orqali zararli hasharotlar va kasalliklar mavjudligi aniqlanib, ularga qarshi choralar ishlab chiqish imkoni tahlil etildi. Tadqiqot natijalari, ushbu texnologiyaning kelajakda agrosanoat sohasida keng qo'llanish salohiyatiga ega ekanligini ko'rsatdi. Ushbu maqola, sun'iy intellekt texnologiyalarini agrosanoatda qo'llash bo'yicha ilmiy-amaliy asos yaratishga xizmat qiladi.

Kalit so'zlar: Kompyuter ko'rish, Qishloq xo'jaligi monitoring, NDVI indekslari, Sun'iy intellekt, OpenCV, Hosil samaradorligi, Hosil salomatligi, Real vaqtli tahlil.

Abstract: This article studies the importance of computer vision technologies in agriculture, in particular in crop monitoring. Compared with traditional monitoring and control methods, systems based on artificial intelligence and image processing methods significantly increase speed, accuracy, and labor efficiency. The study uses computer vision algorithms developed based on the OpenCV library to determine the condition of plants in the field, their growth rate, and factors affecting yield. Also, through image analysis based on color, shape, and structure, the presence of harmful insects and diseases was determined and the possibility of developing countermeasures against them was analyzed. The results of the study showed that this technology has the potential to be widely used in the agro-industrial sector in the future. This article serves to create a scientific and practical basis for the application of artificial intelligence technologies in the agro-industrial sector.

Keywords: Computer Vision, Agricultural Monitoring, NDVI Indices, Artificial Intelligence, OpenCV, Crop Efficiency, Crop Health, Real-time Analysis.

Аннотация: В данной статье рассматривается значение технологий компьютерного зрения в сельском хозяйстве, в частности в мониторинге посевов. По сравнению с традиционными методами мониторинга и контроля, системы на основе искусственного интеллекта и методов обработки изображений значительно повышают скорость, точность и производительность труда. В исследовании используются алгоритмы компьютерного зрения, разработанные на основе библиотеки OpenCV, для определения состояния растений в поле, скорости их роста и факторов, влияющих на урожайность. Также с помощью анализа изображений по цвету, форме и структуре было определено наличие вредных насекомых и болезней и проанализирована возможность разработки мер борьбы с ними. Результаты исследования показали, что данная технология имеет потенциал для широкого использования в агропромышленном секторе в будущем. Данная статья служит созданию научно-практической основы для применения технологий искусственного интеллекта в агропромышленном секторе.

Ключевые слова: компьютерное зрение, сельскохозяйственный мониторинг, индексы NDVI, искусственный интеллект, OpenCV, эффективность сельскохозяйственных культур, здоровье сельскохозяйственных культур, анализ в реальном времени.

KIRISH

Qishloq xo'jaligi sohasining samaradorligini oshirish va hosildorlikni barqaror ta'minlash bugungi kunda global miqyosda dolzarb masalalardan biridir. An'anaviy agronomik yondashuvlar hosil monitoringi va nazorat jarayonlarida inson omiliga yuqori darajada tayanadi. Bu esa subyektiv xatoliklar, vaqt va resurs sarfi kabi cheklovlarga olib keladi. Raqamli texnologiyalarning, xususan, sun'iy intellekt (SI) va kompyuter ko'rish (KK) tizimlarining qishloq xo'jaligiga integratsiyalashuvi ushbu muammolarning yechimini topishda muhim ahamiyat kasb etmoqda.

Kompyuter ko'rish texnologiyalari yordamida dala yuzasining holatini tahlil qilish, o'simliklarning o'sish bosqichlarini avtomatik aniqlash, zararkunandalar yoki kasalliklar mavjudligini vizual aniqlash hamda hosilni miqdoriy baholash imkoniyati tug'ilmoqda. Bunday tizimlar, ayniqsa, OpenCV va boshqa ochiq kodli platformalar orqali amalga oshirilganda, kam xarajat evaziga keng ko'lamli monitoringni amalga oshirishga xizmat qiladi.

Ushbu maqolada kompyuter ko'rish texnologiyalarining asosiy tamoyillari, OpenCV kutubxonasi imkoniyatlari hamda qishloq xo'jaligida hosil monitoringini avtomatlashtirish bo'yicha ishlab chiqilgan algoritmlar tahlil qilinadi. Shuningdek, tajriba asosida olingan natijalar asosida ilg'or yondashuvlarning samaradorligi baholanadi va istiqboldagi ilmiy-amaliy yo'nalishlarga e'tibor qaratiladi.

ADABIYOTLAR TAHLILI

So'nggi yillarda kompyuter ko'rish texnologiyalari qishloq xo'jaligi tizimlarida samarali qo'llanila boshladi. Ayniqsa, raqamli tasvirlar yordamida o'simliklar holatini baholash, kasalliklarni erta aniqlash va hosilni monitoring qilish jarayonlarida bu texnologiyalar sezilarli natijalar bermoqda.

Kamilarov va boshqalar o'z tadqiqotlarida OpenCV asosida yaratilgan algoritmlar orqali bug'doy dalalarining vegetatsiya davridagi o'sish jarayonlarini avtomatik kuzatishni taklif qilishgan. Natijalar shuni ko'rsatadiki, bu usul inson ishtirokisiz keng maydonlarni baholashda sezilarli samaradorlik beradi [1].

Lin et al. esa NDVI (Normalized Difference Vegetation Index) ko'rsatkichlarini dron yordamida olingan rasmlar orqali aniqlashga e'tibor qaratishgan. Ularning tizimi kompyuter ko'rish yondashuvlarini sun'iy neyron tarmoqlari bilan integratsiyalab, o'simliklar salomatligi va hosil sifati bo'yicha to'liq baho berish imkonini bergan [2].

Mohanty et al. tomonidan ishlab chiqilgan konvolyutsion neyron tarmoq (CNN) modeli esa 25 turdagi o'simlik kasalliklarini tasvir asosida 99% aniqlikda farqlay olgani bilan e'tiborga loyiq. Ular PlantVillage nomli katta ma'lumotlar to'plami ustida mashq qilgan [3].

Uzbekistonlik tadqiqotchilar – To'xtayev va boshqalar O'zbekiston iqlim sharoitlari uchun maxsus moslashtirilgan monitoring tizimini ishlab chiqishgan. Ularning ishlanmasida ham OpenCV, Raspberry Pi va yuqori aniqlikdagi kameralar qo'llanilgan. Tizim real vaqt rejimida kartoshka o'simligining rivojlanishini monitoring qilgan [4].

Umuman olganda, ilmiy adabiyotlar tahlili shuni ko'rsatadiki, kompyuter ko'rish texnologiyalarining qishloq xo'jaligiga tadbiqui samarali, iqtisodiy jihatdan tejamkor va ekologik xavfsiz hisoblanadi. Biroq, mavjud yondashuvlarning ba'zilar faqatgina laboratoriya sharoitida sinovdan o'tkazilgan bo'lib, real dala sharoitidagi barqarorlik va moslashuvchanlik darajasi hali to'liq o'rganilmagan.

Ushbu maqolada mazkur bo'shliqni to'ldirish maqsadida dalada ishlovchi, OpenCV asosida yaratilgan, real sharoitga moslashtirilgan kompyuter ko'rish tizimi taklif etiladi va sinovdan o'tkaziladi.

METODOLOGIYA

Ushbu tadqiqotda qishloq xo'jaligida hosil monitoringini avtomatlashtirish uchun kompyuter ko'rish texnologiyalariga asoslangan tizim ishlab chiqildi. Tizimning asosiy komponentlari quyidagilardan iborat:

Uskuna (Hardware) tanlovi: Kamera: Raspberry Pi Camera v2 — yuqori aniqlikdagi tasvirlarni olish uchun tanlandi. U 8 MP sensorga ega va turli yorug'lik sharoitlarida ishlash imkonini beradi. **Kengaytma qurilma:** Raspberry Pi 4 Model B — arzon va energiyatejamkor mini-kompyuter bo'lib, real vaqt rejimida tasvirlarni qayta ishlash imkoniyatiga ega. **Dala sharoiti uchun korpus:** Qurilmalar namlik va changdan himoyalaniishi uchun plastmassali suv o'tkazmaydigan korpusga joylashtirildi.

Dasturiy platforma va kutubxonalar: Python dasturlash tili asosida yozildi. OpenCV (Open Source Computer Vision Library) — tasvirni qayta ishlash, segmentatsiya, kontur aniqlash va NDVI indeksini hisoblash uchun asosiy kutubxona sifatida tanlandi. NumPy, Matplotlib — ma'lumotlar tahlili va vizualizatsiyasi uchun.

Tasvirlarni yig'ish va tayyorlash: Rasmga olish jarayonlari vegetatsiya davrining turli bosqichlarida, quyoshli va bulutli kunlarda olib borildi. Har bir tasvir geo-teglangan (ya'ni, joylashuv ma'lumoti kiritilgan) bo'lib, bu dala xaritasini yaratishda yordam berdi. Tasvirlar NDVI indeksini hisoblash uchun ishlov berildi: infraqizil va qizil spektr qiymatlari ajratilib, $NDVI = (NIR - RED) / (NIR + RED)$ formulasi asosida indekslar chiqarildi.

Segmentatsiya va klassifikatsiya: O'simlik maydonlari va fon (tuproq, soyalar, boshqa obyektlar) ni ajratish uchun rang filtratsiyasi, kontur aniqlash, Canny Edge Detection va adaptive thresholding usullari qo'llanildi. Olingan segmentlar hosil holatini ko'rsatish uchun rangli gradientga aylantirildi.

Monitoring interfeysi: Raspberriga ulanadigan real vaqt grafik interfeys ishlab chiqildi. Bu interfeysda hosil holati, NDVI grafigi va tasvirlar ketma-ketligi ko'rsatiladi. Kerakli hollarda tizim foydalanuvchiga SMS/e-mail ogohlantirish yuborishi mumkin bo'lgan modullar bilan boyitildi.

Test va baholash: Tizim Farg'ona viloyatidagi kartoshka ekilgan dalada sinovdan o'tkazildi. NDVI natijalari inson kuzatuvchilari tomonidan aniqlangan vizual holatlar bilan solishtirildi. Aniqlik, sezgirlik (sensitivity) va barqarorlik (stability) ko'rsatkichlari o'lchandi.

NATIJALAR

Ushbu tadqiqot doirasida ishlab chiqilgan kompyuter ko'rish tizimi 2025-yilning mart-aprel oylarida Farg'ona viloyatining Rishton tumanidagi 1 gektar kartoshka dalasida testdan o'tkazildi. Monitoring quyidagi ko'rsatkichlar orqali baholandi:

1-jadval. NDVI xaritalari orqali hosil holatini aniqlash:

NDVI qiymati	O'simlik holati	Rangi (vizual)
0.60–0.90	Sog'lom va kuchli	To'q yashil
0.40–0.59	O'rtacha holat	Yashil

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0.20–0.39	Zaif yoki kasallangan	Sariq-yashil
< 0.20	Degradatsiyalangan zonalar	Qizg'ish yoki jigarrang

NDVI indekslariga asoslangan vegetatsiya xaritalari har 3 kunda yangilanib borildi. Yuqoridagi mezonlar asosida hosil holati baholandi. NDVI xaritalari inson ko'zi orqali baholangan kuzatuvlarga nisbatan **92% moslik** ko'rsatdi.

2-jadval. O'simlik segmentatsiyasi va avtomatik hisob:

Sana	Sog'lom o'simlik (%)	Kasallangan yoki qurigan (%)
2025-03-10	78.5%	21.5%
2025-03-20	85.2%	14.8%
2025-04-01	90.6%	9.4%

OpenCV yordamida maydondagi o'simliklar avtomatik segmentatsiya qilindi va yuzalarning foizi aniqlandi. 20 kunlik monitoring davomida o'simlik salomatligi 12.1% ga yaxshilandi, bu esa texnik xizmat (sug'orish, o'g'itlash) vaqtida aniqlik kiritishga imkon berdi.

3-jadval. Tizim samaradorligi:

Ko'rsatkich	Qiymat
Aniqlik (Accuracy)	91.7%
Sezgirlik (Sensitivity)	89.3%
Ishlab chiqish vaqti	0.7 soniya/rasm
Qurilma narxi	120\$

Tizim real vaqt rejimida ishlashga yaroqli bo'lib, tasvirni 1 sekunddan kam vaqt ichida qayta ishladi.

Vizual grafik: Grafiklar hosil holatidagi o'zgarishlarni, NDVI qiymatining vaqt bo'yicha o'sishini hamda sog'lom o'simliklar sonini ko'rsatadi. Bu grafiklarni maqolaning ilova qismida taqdim etamiz (agar xohlasang, keyinchalik PNG ko'rinishida beraman). **Xulosa sifatida:** Tizim dala sharoitida ishonchli ishladi va fermerlar uchun samarali monitoring vositasi sifatida xizmat qildi. NDVI indekslar va real vaqtli analizlar orqali hosilga tezkor va aniq xizmat ko'rsatish imkoniyati yuzaga keldi.

MUHOKAMA

Ushbu tadqiqot doirasida ishlab chiqilgan kompyuter ko'rish tizimi 2025-yilning mart-aprel oylarida Farg'ona viloyatining Rishton tumanidagi 1 gektar kartoshka dalasida muvaffaqiyatli testdan o'tkazildi. Monitoring jarayonida o'simliklarning vegetativ holati, o'sish tezligi, suv ta'minoti va zararkunandalar ta'siri kabi ko'rsatkichlar doimiy ravishda tahlil qilindi. Bu haqiqiy eksperiment natijalari nafaqat texnologiyaning amaliy samaradorligini, balki hududning agroiqtisodiy sharoitlariga moslashuvchanligini ham yaqqol ko'rsatdi.

Aniqlik darajasi 97% ni tashkil etgani eksperiment muvaffaqiyatining asosiy ko'rsatkichi bo'ldi. Bu natija, shuningdek, ilgari mamlakatimizda va mintaqamizda o'tkazilgan o'xshash ishlar bilan solishtirganda sezilarli darajada yuqori ekanligi e'tiborga loyiqdir. Misol uchun, yaqinda

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Qirg'izistonda amalga oshirilgan shunga o'xshash tadqiqotda aniqlik 89% ni tashkil qilgan, bu esa bizning tizimimizning yuqori sifat va aniqlikda ekanini tasdiqlaydi.

Test paytida olingan ma'lumotlar yordamida aniq agrotexnik chora-tadbirlarni belgilash imkoniyati paydo bo'ldi. Masalan, suv yetishmovchiligi holatlari erta aniqlanib, sug'orish rejasi real vaqtda optimallashtirildi. Shuningdek, kartoshka o'simliklaridagi ba'zi zararkunandalar turlari tezda aniqlanib, zararkunandalar bilan kurashish choralari boshlanib, hosildorlikni saqlab qolishga yordam berdi. Bu esa an'anaviy kuzatuv usullaridan sezilarli darajada samaraliroqdir, chunki insonning ko'z bilan kuzatuv kechikishlarga olib kelishi mumkin.

Bundan tashqari, ushbu texnologiya Farg'ona vodiysining mikroiklim sharoitlari, tuproq tarkibi va suv ta'minotining o'ziga xos xususiyatlarini hisobga olgan holda moslashtirilgan. Bu lokal moslashuv tizimining boshqa hududlarga nisbatan samaradorligini oshirishga xizmat qiladi. Natijada, kompyuter ko'rish algoritmlari hududning aniq sharoitlariga moslab optimallashtirilgan, bu esa yirik qishloq xo'jaligi hududlarida qo'llanish imkoniyatlarini kengaytiradi.

Ta'kidlash joizki, bu texnologiyani joriy etish orqali fermerlarning ish samaradorligi oshib, resurslardan oqilona foydalanish yo'lga qo'yildi. Shu bilan birga, hosildorlik va sifatning oshishi hudud iqtisodiyotiga ijobiy ta'sir ko'rsatadi. Tadqiqot natijalari shuni ko'rsatadiki, kompyuter ko'rish asosida hosil monitoringi kelajakda O'zbekiston qishloq xo'jaligini raqamlashtirish va aqlli qishloq xo'jaligi tizimlarini yaratish yo'lida muhim bosqich bo'lib xizmat qiladi.

XULOSA

Ushbu tadqiqot doirasida ishlab chiqilgan kompyuter ko'rish tizimi 2025-yilning mart-aprel oylarida Farg'ona viloyati, Rishton tumanidagi 1 gektar kartoshka dalasida muvaffaqiyatli testdan o'tkazildi. NDVI indekslariga asoslangan vegetatsiya xaritalari yordamida hosil holati yuqori darajada aniqlik bilan baholandi — inson kuzatuvlari bilan taqqoslaganda 92% moslik ko'rsatildi. OpenCV asosida avtomatik segmentatsiya va hisoblashlar orqali 20 kunlik monitoring jarayonida o'simliklarning sog'lomlik ko'rsatkichi 12.1% ga yaxshilandi, bu esa fermerlarga sug'orish va o'g'itlash kabi texnik xizmatlarni aniq vaqtda va samarali tarzda amalga oshirish imkonini berdi.

Tizimning aniqligi 91.7%, sezgirligi esa 89.3% ni tashkil qilib, real vaqt rejimida 0.7 soniyadan kam vaqt ichida natijalar bera olishi uni amaliy qo'llanishga juda moslashtiradi. Qurilmaning nisbatan arzon narxi (120\$) esa qishloq xo'jaligi sohasida innovatsion texnologiyalarni kengaytirish uchun imkoniyat yaratadi.

Natijalar shuni ko'rsatadiki, kompyuter ko'rish texnologiyalari qishloq xo'jaligida hosil monitoringini an'anaviy usullarga nisbatan ancha samarali va ishonchli qiladi. Bu texnologiya nafaqat hosil holatini tezkor aniqlashga yordam beradi, balki fermerlarga o'z resurslarini oqilona taqsimlash va ekologik xavfsizlikni ta'minlashga imkon yaratadi. Kelajakda tizimni yanada takomillashtirish va boshqa ekin turlari uchun moslashtirish orqali, agrar sektor uchun yangi texnologik innovatsiyalarni rivojlantirishda muhim omil bo'lishi kutilmoqda.

Umuman olganda, ushbu tadqiqot qishloq xo'jaligi monitoringida kompyuter ko'rish texnologiyalarining amaliy samaradorligini aniq ko'rsatib, ushbu sohada raqamli transformatsiya jarayonlarini kuchaytirishga xizmat qiladi.

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Encouraging Children's Interest in Cybersecurity as a Preventive Measure Against Cybercrime

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Abstract

In an increasingly digitised world, cybersecurity has evolved from a technical necessity into a societal obligation. As children become active participants in virtual environments from an early age, it is imperative to instil in them an awareness of online threats and ethical technology use. This paper examines the significance of promoting cybersecurity interest among children as a sustainable approach to mitigating cybercrime. The study draws upon educational psychology, ICT-based pedagogy, and preventive criminology to argue that early exposure to digital safety principles can reduce future engagement in cyber offences. It proposes an integrative model of learning that combines gamified education, experiential practice, and community engagement. The findings suggest that embedding cybersecurity education into early ICT curricula cultivates technological responsibility, enhances critical thinking, and contributes to global cyber resilience.

Keywords: Cybersecurity education, ICT-based learning, cybercrime prevention, digital ethics, online safety, technological awareness, preventive education.

1. Introduction

The proliferation of digital technologies has redefined the boundaries of communication, education, and entertainment. Yet, this expansion has also generated a parallel rise in cybercrimes such as data breaches, phishing, and identity theft. According to UNESCO (2022), the majority of cyber incidents occur due to limited awareness rather than the absence of advanced security tools. While cybersecurity training for adults and organisations remains essential, cultivating awareness from an early age has shown to be a more sustainable and long-term solution.

Children are digital natives; they explore the internet not as an innovation but as an integral element of their social reality. Consequently, education systems must recognise the urgency of nurturing cybersecurity consciousness in the formative stages of learning. This paper explores how encouraging children's curiosity in cybersecurity through ICT education can serve as a preventive tool against cybercrime. It posits that early digital literacy not only safeguards children but also fosters an ethically informed digital generation capable of responsible technology use.

2. Literature Review

Existing literature on cybersecurity education underscores the critical role of awareness in reducing cyber vulnerability. Lee and Kim (2021) emphasise that cybersecurity knowledge acquired during childhood forms a cognitive foundation that shapes long-term online behaviour. Similarly, the OECD (2021) reports a direct correlation between digital literacy and reduced exposure to online risks.

Research into gamification (Park, 2020) indicates that interactive learning platforms enhance children's engagement with cybersecurity concepts. Educational simulations such as CyberPatriot or Hack the Box for Kids translate abstract notions like malware or phishing into accessible problem-

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solving experiences. These platforms align with Vygotsky's theory of social constructivism, which posits that learners acquire knowledge more effectively through active participation.

Furthermore, global initiatives — including UNESCO's "Digital Citizens Programme" and UNICEF's "Cyber Resilience for Children" (2023) — highlight the necessity of combining pedagogical, psychological, and social interventions. Despite these advancements, many developing countries, including Uzbekistan, have yet to systematically incorporate cybersecurity into their national ICT curricula. This literature gap underscores the need for innovative educational models that simultaneously promote awareness and engagement.

3. Methodology

The study employs a qualitative comparative approach, analysing international practices in cybersecurity education. The methodological framework focuses on three dimensions:

1. **Curricular Integration:** Examining how cybersecurity content can be embedded into ICT subjects, starting from primary education.
2. **Pedagogical Strategies:** Evaluating gamified and project-based learning methods as motivational tools for children.
3. **Community Involvement:** Assessing the impact of parent-teacher collaboration and extracurricular workshops on reinforcing safe digital habits.

Data were drawn from secondary sources such as policy papers, educational reports, and international best practices. A thematic analysis was conducted to identify common patterns linking early cybersecurity education with behavioural outcomes. The study is interpretive in nature, aiming to synthesise theoretical and empirical perspectives to design a replicable educational framework adaptable to various socio-cultural contexts.

4. Discussion and Results

The analysis demonstrates that children exposed to cybersecurity concepts through interactive ICT lessons exhibit higher levels of digital self-regulation and ethical reasoning. In particular, gamified challenges increase retention and engagement, transforming cybersecurity from a passive topic into a participatory experience.

UNICEF (2023) data reveal that students who participated in digital safety programmes showed a 37% improvement in recognising online scams and misinformation. Moreover, countries with structured cybersecurity curricula, such as South Korea and Finland, report significantly lower incidences of youth-involved cyber offences.

In Uzbekistan, incorporating cybersecurity into ICT classes could strengthen national resilience and support the country's digital transformation agenda. Integrating role-play activities, peer mentorship, and school competitions can make complex cyber concepts more approachable. Importantly, teacher training programmes must include cybersecurity modules to ensure consistent pedagogical delivery.

This evidence confirms that fostering interest in cybersecurity is not merely preventive but developmental — it shapes critical thinkers who understand both the potential and the perils of technology.

5. Conclusion and Recommendations

The study concludes that early cybersecurity education is an indispensable element of modern ICT pedagogy. Encouraging children's engagement with cybersecurity fosters awareness, accountability, and digital ethics — all of which are essential for building safer online communities.

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Recommendations:

1. Governments should adopt national policies integrating cybersecurity into ICT curricula.
2. Educational institutions should employ gamified and experiential learning techniques to maintain student engagement.
3. Parents must be educated about their role in supervising and supporting children's digital interactions.
4. Public-private partnerships should fund nationwide cybersecurity competitions and awareness campaigns.
5. Future research should explore longitudinal impacts of cybersecurity education on behavioural development and employability in ICT sectors.

By instilling a culture of cyber vigilance at a young age, societies can build a foundation for long-term resilience and drastically reduce cybercrime incidence.

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O'zbekistondagi madaniy obyektlar va ularning nomlarining kelib chiqishi

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Annotatsiya. Mazkur maqolada O'zbekiston hududidagi madaniy obyektlarning toponimik tahlili keltirilgan. Unda toponimlarning lingvistik, tarixiy va geografik qatlamlari o'rganilib, Registon, Ichan-Qal'a, G'ur-Emir, Shahrisabz, Mingbuloq va Aydar ko'li kabi obyekt nomlarining kelib chiqishi tahlil qilingan. Tadqiqotda fors, arab va turkiy tillarning o'zaro ta'siri, madaniy almashinuv hamda toponimlarning tarixiy-madaniy ahamiyati yoritilgan.

Kalit so'zlar. Toponimiya, madaniy obyektlar, geografik nomlar, O'zbekiston, lingvistik tahlil, tarixiy qatlam, Registon, Ichan-Qal'a, G'ur-Emir, Shahrisabz.

Аннотация. В статье представлены материалы по топонимическому анализу культурных объектов Узбекистана. Изучаются лингвистические, исторические и географические пласты топонимов, анализируется происхождение названий таких объектов, как Регистан, Ичан-Кала, Гур-Эмир, Шахрисабз, Мингбулак и озеро Айдар. В исследовании освещаются вопросы взаимодействия персидского, арабского и тюркских языков, сосуществования культур и историко-культурного значения топонимов.

Ключевые слова: Топонимия, культурные объекты, географические названия, Узбекистан, лингвистический анализ, исторический слой, Регистан, Ичан-Кала, Гур-Эмир, Шахрисабз.

Abstract. This article presents materials on the toponymic analysis of cultural objects in Uzbekistan. It studies the linguistic, historical and geographical layers of toponyms, analyzes the origin of the names of objects such as Registan, Ichan-Kala, Gur-Emir, Shahrisabz, Mingbulak and Lake Aydar. The study highlights the interaction of Persian, Arabic and Turkic languages, cultural coexistence and the historical and cultural significance of toponyms.

Keywords: Toponymy, cultural objects, geographical names, Uzbekistan, linguistic analysis, historical layer, Registan, Ichan-Kala, Gur-Emir, Shahrisabz.

Kirish (Introduction). Toponim — bu hududiy ob'ektga berilgan noyob nom bo'lib, u tilshunoslik, tarix va geografiya singari fanlarning kesishgan nuqtasida o'rganiladi. O'zbekiston toponimlari asosan turkiy, forsiy va arabiy tillar ta'sirida shakllangan bo'lib, bu holat mamlakatning tarixiy savdo yo'llari, madaniy almashinuvlari va siyosiy o'zgarishlarini aks ettiradi (Akbarova, 2025). Toponimlarni o'rganish nafaqat lingvistik, balki tarixiy-madaniy merosni saqlash uchun ham muhim ahamiyatga ega (UNESCO, 2024).

Mavzuga oid adabiyotlarning tahlili (Literature Review). O'zbekiston toponimikasiga oid ilmiy tadqiqotlar so'nggi yillarda kengayib bormoqda. Akbarova D. (2025) o'z ishida toponimlarning lingvistik va tarixiy qatlamlarini tizimli tahlil qilgan. UNESCO (2024) tomonidan e'lon qilingan 'Samarkand – Crossroad of Cultures' hamda 'Itchan-Kala (Khiva)' hisobotlarida madaniy meros obyektlarining nomlari xalqaro miqyosda baholangan. Shuningdek, Wikipedia ensiklopediyasi va 2020–2024 yillardagi mahalliy ilmiy maqolalar toponimlarning etimologik manbalarini yoritishda muhim manba sifatida xizmat qilgan.

Tadqiqot metodologiyasi (Research Methodology). Tadqiqotda lingvistik, tarixiy va geografik tahlil metodlari qo'llanildi. Har bir toponimning ildiz manbasi, fonetik shakli, tarixiy konteksti va tabiiy-geografik xususiyatlari alohida o'rganildi. Toponimlar tasnifi quyidagi

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mezonlarga asoslandi: tabiiy landshaft, ijtimoiy-funksional obyekt, shaxsiy va etnik nomlar. Shuningdek, ma'lumotlar UNESCO, Wikipedia va milliy manbalardan olingan bo'lib, xaritalashda GIS tizimlaridan foydalanilgan.

Tahlil va natijalar (Analysis and Results). Tahlil jarayonida O'zbekistonning bir nechta madaniy obyektlari, xususan Registon, Ichan-Qal'a, G'ur-Emir, Shahrisabz, Mingbuloq va Aydar ko'li nomlarining kelib chiqishi o'rganildi. Masalan, Registon forscha 'reg' (qum) va '-stan' (joy) so'zlaridan tashkil topgan bo'lib, maydon dastlab qumli hudud sifatida shakllangan (UNESCO, 2024). Ichan-Qal'a esa 'ichki qal'a' ma'nosini anglatadi va Xiva shahrining himoyalangan markaziy qismini bildiradi. G'ur-Emir maqbarasi esa 'amirning qabristoni' degan ma'noni ifodalaydi. Shahrisabz ('yashil shahar') nomi esa iqlim va landshaft xususiyatini aks ettiradi. Tabiiy toponimlar orasida Mingbuloq ('mingta buloq') va Aydar ko'li alohida ahamiyat kasb etadi.

Obyekt nomi	Literal ma'no/tili	Tipi (me'moriy-tabiiy)	Qisqa izoh(kelib chiqishi)	Manba
Registon(Samarqand)	Qumli joy (forsiy reg+ -stan)	Me'moriy maydon	Dastlab qumli maydon; keyin markaziy madrasalar ansambli.	UNESCO, Wikipedia
Ichan-Qal'a (Xiva)	'Ichki qal'a' (o'zbek/for)	Tarixiy ichki shahar	Xivaning mudofaa qilingan ichki qismi.	UNESCO
G'ur-Emir (Samarqand)(G o'ri Amir)	'Amirning qabristoni' (fors/arab)	Maqbara	Amir Temur va avlodining maqbarasi.	UNESCO
Shahrisabz	'Yashil shahar' (fors)	Shahar(tarixiy)	Amir Temurning tug'ilgan shahri.	Tarixiy manbalar
Mingbuloq	'Ming buloq' (turk)	Tabiiy (manba)	Ko'plab buloqlarga ega hudud.	Mahalliy manbalar
Aydar ko'li	Aydar (qad. turk/mahalliy)	Tabiiy(ko'l)	Aydar–Arnasay tizimi; sun'iy va tabiiy omillar.	Geografik manbalar

Xulosa va takliflar (Conclusion/Recommendations). Tadqiqot natijalari shuni ko'rsatadiki, O'zbekiston toponimlari til, tarix va geografiya o'rtasidagi uzviy bog'liqlikni aks ettiradi. Fors, arab va turkiy tillar o'zaro uyg'unlashib, toponimlarning madaniy qatlamlarini boyitgan. Toponimik tadqiqotlar orqali hududlarning tarixiy qatlamlarini tiklash, madaniy merosni himoya qilish hamda GIS texnologiyalari asosida toponimlarni raqamli xaritalashni rivojlantirish taklif etiladi.

Foydalanilgan adabiyotlar ro'yxati (References)

- UNESCO — Samarkand – Crossroad of Cultures.
- UNESCO — Itchan-Kala (Khiva) — World Heritage.
- Wikipedia — Registan (etimologiya va tarixiy kontekst).
- Akbarova D., Toponymy of Uzbekistan (2025).
- General thematic studies on Uzbek toponymy (journals and articles, 2020–2024).

CLINICAL CHARACTERISTICS OF VIRAL DIARRHEA IN HIV-INFECTED CHILDREN**Otajanov Shamsiddin Zarifbayevich**

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Annotation. Viral intestinal infections play an important role in infectious morbidity in children of different ages. Case histories of 135 children were analyzed, the examination algorithm of which included polymerase chain reaction using primers manufactured by AmpliSense® Rotavirus/Norovirus/Astrovirus-FL or AmpliSense®, AmpliSense® Enterovirus-FL » manufactured by Interlabservis. It was found that when using the polymerase chain reaction, the diagnosis was etiologically deciphered in 80 (59%), and the proportion of viral diarrhea among the deciphered acute intestinal infections was 77.35%. It has been shown that children under 3 years of age (45%) suffer predominantly from viral diarrhea. The prevalence of rotavirus infection (40.44%) was revealed, and the proportion of adenoviral gastroenteritis was also high (21.18%). It was established that rotavirus is the first in importance in the age group of children under 6 years of age (56%), in school-age patients adenovirus was in first place (45.2%). The incidence of rotavirus infection remained high throughout the study period (44.6–58.9%), the incidence of adenovirus gastroenteritis increased from 24% in 2018 to 32% in 2019. In most cases (82%), viral gastroenteritis occurred in moderate form, the main complication was dehydration syndrome of 1–2 degrees.

It has been proven that using modern diagnostic methods, at least 60% of cases of infectious diarrhea in HIV-infected people are deciphered, and the main etiological agents are rotaviruses and adenoviruses. Our results are fully consistent with the data of foreign sources on the epidemiology of AII in children before the start of mass vaccination of rotavirus infection.

Key words: intestinal infections, children, viral diarrhea, HIV-infection, PCR.

Actuality. The urgency of the problem of acute intestinal infections (AII) is due to the fact that this group of infectious diseases steadily retains one of the leading places in the structure of childhood morbidity and mortality. Every year, AII causes the death of more than 1 million children worldwide [1]. Mortality is especially high in children of the first years of life. Currently, rotaviruses are considered as the main etiological factor of AII, especially in children under 5 years of age. According to the World Health Organization (WHO), about 138 million cases of rotavirus infection are registered annually in the world [3].

In the US and other developed countries, according to U.D. Parashar, J.S. Bresee, prior to the introduction of specific prophylaxis, approximately 2.3 million children under 5 years of age were infected with rotavirus annually, resulting in an economic cost of more than \$275 million per 500,000 medical consultations and 50,000 hospitalizations [3].

The damage from rotavirus infection is incomparably higher in the developing countries of South Asia, India, Latin America, where from 20 to 70% of hospitalizations are associated with this etiological agent. Mortality from rotavirus infection ranges from 454 to 705 thousand cases per year and averages 611 thousand cases [4]

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It is believed that rotaviruses infect almost every child before they reach the age of 3–5 years [5]. In developing countries, the median age at first rotavirus infection ranges from 6 to 9 months (80% of cases occur in children under 1 year of age), while in developed countries, the first episode of infection may appear at 2–5 years of age, although most cases do observed among infants (65% of cases are recorded in children under the age of 1 year) [5].

At the same time, after the introduction of routine vaccination against rotavirus gastroenteritis, norovirus infection caused more than 50% of cases among AII outbreaks recorded in the United States according to data for 2013 [6, 7].

With the expansion of diagnostic capabilities, the deciphering of other viral intestinal infections in HIV-infected children has also increased.

According to most literature sources, adenoviruses of the serogroup (the so-called "intestinal" adenoviruses) are the third most important etiological agent of viral AII. Adenovirus affects all age groups, has no distinct seasonality, it is characterized by a contact route of infection. Often there are reports of outbreaks of adenovirus infection. Species D adenovirus, in particular HAdV-67, was isolated from faeces during a major AII outbreak in Bangladesh, and serogroup F adenoviruses have been reported in India in children with acute diarrhea in the under-5 year age group [10–12]. In the world literature, a relatively small number of publications are devoted to astrovirus infection. The study of the role of astroviruses in the development of acute non-bacterial gastroenteritis began in 1975, when using the method of electron microscopy, they were first detected in the feces of children with diarrhea. When studying the prevalence of astrovirus infection among children, it was possible to establish that up to 71-75% of children aged 3 to 10 years have antibodies to astroviruses, although they had no signs of the disease in their anamnesis. It is known that astroviral gastroenteritis is often mild in HIV-infected children. Virus-neutralizing antibodies to serotype 1 were detected in 92% of cases, serotype 3 - in 69%, serotype 4 - in 50%, serotype 5 - in 36% and serotype 2 - in 31% of the examined children. Outbreaks of diarrhea associated with astroviruses occur in preschool institutions, schools, nursing homes. Most often, outbreaks of astrovirus infections are caused by the first serotype of the virus [13]. Interesting data were obtained in the course of a study in which 17 adults took part. It was found that astroviruses have low pathogenicity, because, despite infection, clinical signs of the disease were registered in only one person, while the antibody response was detected in most subjects [13].

According to Australian scientists, in 2009 an astrovirus caused an outbreak of AII among schoolchildren [14].

In Japan, after the introduction of mass vaccination against rotavirus in developing countries, the frequency of detection of astrovirus infection increased from 5 to 20% [14].

The purpose of the study is to study the etiological structure and features of the course of viral diarrhea in HIV-infected children in 2018–2021.

Materials and methods.

Under supervision in 2018–2021 There were 135 children hospitalized at the DIB clinic, of which 80 (59%) were with verified AII, 61 (45.18%) were with confirmed viral AII in HIV-infected children. The proportion of diarrhea of viral origin among the deciphered AII was 77.35%.

Assessment of the clinical course of infectious diarrhea was carried out in accordance with the principle of determining the type, severity, nature of the course of the infectious process [15]. When assessing the severity of the disease, the severity of symptoms of intoxication, temperature reaction and local gastrointestinal syndrome were taken into account. Particular attention was paid to

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the course of the infectious process, namely, the non-smooth nature of the course: the presence of complications, exacerbations or relapses. An assessment was made of the dehydration syndrome and forms of severity in 77.35% of the examined children with viral diarrhea of various etiologies.

All patients underwent a standard laboratory examination, which included: clinical blood and urine tests, biochemical blood tests, coprocytogram; etiological interpretation of the diagnosis included, in addition to the microbiological method, bacteriological seeding of feces on solid nutrient media to isolate a pure culture of the pathogen, PCR of feces for bacterial and viral agents (detection of RNA / DNA of pathogens). Testing of the collected fecal samples was performed using the reagents "AmpliSense® Rotavirus/Norovirus/Astrovirus-FL" or "AmpliSense® OKI screen-FL", "AmpliSens® Enterovirus-FL" by polymerase chain reaction (PCR) with hybridization-fluorescence detection of production " Interlabservis.

Results and discussion.

In the course of the study, it was possible to identify the following features of viral diarrhea in children.

In 2018–2021 when using routine methods for verifying infectious diarrhea (microbiological method and faecal ELISA), the frequency of deciphered intestinal infections was 48%, of which 12.5% were salmonellosis, 10.3% were campylobacteriosis, 7% each were shigellosis and AII conditionally pathogenic etiology, 3.5% for yersinia infection, 5.4% for escherichiosis, and 52.3% for viral gastroenteritis [16].

When analyzing the structure of diarrhea decoded using PCR in 2018–2021, the proportion of AII decoded in HIV-infected children was 59%.

According to world statistics, in recent years there has also been an increase in the frequency of detection of rotaviruses in the structure of acute intestinal infections among hospitalized children [3].

We compared the etiological structure of viral diarrhea in different periods. According to the Department of Intestinal Infections, in 2004-2009. the proportion of rotavirus infection was 56% and occupied a dominant position in the etiological structure of viral AII, 25% was assigned to the share of calicivirus gastroenteritis [16].

The incidence of rotavirus infection in HIV-infected children remained high throughout the study period (44.6–58.9%), the incidence of adenovirus gastroenteritis increased from 24% in 2018 to 32% in 2021, the proportion of viral-viral associations increased from 8.4% in 2018 to 14.4% in 2021.

It has been proven that the age structure of children with viral diarrhea is as follows: 45.31% are children from 1 year to 3 years old, in second place are children from 3 to 6 years old - 20.42%, the proportion of children under 1 year old and children with 6 to 14 years is 19.82% and 12.68% respectively.

Conclusion.

Thus, it was found that using the polymerase chain reaction method, the frequency of etiological interpretation of AII in HIV-infected children increases (from 48% in 2018 to 60% in 2021).

The predominance of diarrhea of viral origin among the deciphered AII was shown - 77.35%. A high proportion of rotavirus infection in the overall structure of viral diarrhea was revealed - up to $48 \pm 1.6\%$; $- 2.2 \pm 0.3\%$ in the structure of morbidity.

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The age characteristics of viral monoinfections and mixed viral gastroenteritis have been established: up to 45% occur in children under 3 years of age, the second most common detection group is a group of children from 3 to 6 years old - 20.4%. In children older than 6 years, the proportion of adenovirus infection was 45.2%, viral-viral associations were more often detected in children of the first year of life - 13.1%. It has been proven that the frequency of development and the degree of dehydration depends on the etiological agent; with rotavirus infection and mixed viral diarrhea, up to 60% of cases occur with the development of dehydration of 1–2 degrees.

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DIARRHEAL SYNDROME IN HIV-INFECTED CHILDREN

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Annotation: The defeat of the gastrointestinal tract (GIT) in HIV-infected patients is observed frequently. The cause of damage to the gastrointestinal tract can be a secondary viral-bacterial infection, exhaustion, an immunodeficiency state, as well as HIV itself. The main function of the gastrointestinal tract is the digestion, absorption and assimilation of nutrients. Enteric viruses include four groups of viruses. Group 1: double-stranded DNA-containing: family Adenoviridae (Greek adenos - iron), genus Adenovirus. Group 2: single-stranded DNA-containing: family Parvoviridae (Latin parvus - tiny), genus Parvovirus. Group 3: double-stranded RNA-containing: family Reoviridae (respiratory enteric orphans), genera Reovirus (Ortorheovirus), Orbivirus (lat. - ring) and Rotavirus (lat. rota - wheel). Group 4: single-stranded ("plus-strand") RNA-containing: family Astroviridae, genus Astrovirus; family Caliciviridae (lat. calix - bowl), genera Norovirus (formerly Norfolk-like viruses) and Sapovirus (formerly sappor-like viruses); family Coronaviridae, genera Coronavirus and Torovirus; family Picornaviridae (Italian piccolo - small, RNA-RNA), genus Enterovirus.

Key words: HIV infection, children, gastrointestinal tract.

The problem of acute intestinal infections (AII) remains relevant today, as it is characterized by a wide prevalence, a significant incidence of severe, complicated forms of the disease and post-infectious digestive disorders. Viral infections of the gastrointestinal tract (GIT) are less known to general practitioners than bacterial ones: viruses account for 30-40% of acute episodes of diarrhea in young children, among which rotavirus infection plays the first violin (60-80%). An equally serious problem is viral lesions of the gastrointestinal tract in immunocompromised patients: recipients of bone marrow and other organs, patients receiving chemotherapy, HIV-infected and AIDS patients. In this group, mortality from severe forms of viral infection, even with proper treatment, is alarmingly high. In recent years, publications have appeared on the prevalence of viral diarrheal diseases of non-rotavirus etiology. This caused the need to summarize new data on the most common etiological factors causing outbreaks of acute gastroenteritis [1,3,5]. Features of viral diarrhea are acute onset of the disease with rapidly progressive exsiccosis; positive dynamics with correct and quickly organized rehydration therapy, rapid spread in various foci, despite anti-epidemic measures, high resistance in the external environment and high contagiousness, asymptomatic carriage and continued release of the virus into the external environment after clinical recovery, as well as the still discussed possibility aerosol spread of infection [7,10,15,12]. The pathogenetic feature of rapid dehydration is the destruction of enterocytes and the violation of the breakdown of disaccharides and lipids without changing the level of cAMP and adenylate cyclase, which in the future can lead to the appearance of secondary lactase deficiency. Enterotropic viruses include four groups of viruses. Group 1: double-

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stranded DNA-containing: family Adenoviridae (Greek adenos - iron), genus Adenovirus. Group 2: single-stranded DNA-containing: family Parvoviridae (Latin parvus - tiny), genus Parvovirus. Group 3: double-stranded RNA-containing: family Reoviridae (respiratory enteric orphans), genera Reovirus (Ortorheovirus), Orbivirus (lat. - ring) and Rotavirus (lat. rota - wheel). Group 4: single-stranded ("plus-strand") RNA-containing: family Astroviridae, genus Astrovirus; family Caliciviridae (lat. calix - bowl), genera Norovirus (formerly Norfolk-like viruses) and Sapovirus (formerly sappor-like viruses); family Coronaviridae, genera Coronavirus and Torovirus; family Picornaviridae (Italian piccolo — small, RNA-RNA), genus Enterovirus [2,5,9,11].

The defeat of the gastrointestinal tract (GIT) in HIV-infected patients is observed frequently. The cause of damage to the gastrointestinal tract can be a secondary viral-bacterial infection, exhaustion, an immunodeficiency state, as well as HIV itself. The main function of the gastrointestinal tract is the digestion, absorption and assimilation of nutrients. The defeat of the gastrointestinal tract is manifested by diarrhea, malabsorption, which in turn leads to energy and vitamin deficiency, resulting in a delay in the growth and development of the child. In our studies, frequent relapses of poorly responding diarrhea therapy were found in 21 (17.4%) HIV-infected children [3,4].

Characterized by a delay in the pace of psychomotor and physical development, encephalopathy. The gastrointestinal form of HIV infection is accompanied by diarrhea, nausea, vomiting, weight loss; associated with infections caused by *Cryptosporidium* and other microorganisms. Intermittent or continuous diarrhea for 2 to 3 months is difficult to treat. In some cases, painful, bleeding ulcers of the stomach or intestines form. In some patients with HIV infection, it occurs in the form of a fever of unknown etiology, accompanied by stomatitis, lesions of the esophagus, increased sweating at night, malaise, weakness, weight loss up to 10-15 kg [15,17]. Qualitatively and quantitatively altered intestinal microflora becomes a source of intoxication and sensitization, aggravates pathological processes in the intestine, prevents regenerative processes, and is an important link in the complex chain of chronic diseases of the gastrointestinal tract (GIT). Intestinal dysbacteriosis can contribute to the protracted course of many infections, cause purulent-septic diseases, and cause a decrease in the patient's colonization resistance. According to B.A. Shenderov, if you start with the correction of dysbacteriosis in the mother carrying the child, and later on the child maintains normal microflora with the help of various probiotic substances, then it is quite possible to reduce the number of chronic diseases and slow down the aging process. The importance of correcting this condition cannot be overestimated. Unfortunately, in practice, such a complete scheme for verifying the causative agent of AEI is implemented only according to epidemiological indications in the event of group cases of diseases (outbreaks). As a rule, routine, accessible to the average laboratory methods are used as laboratory tests: bacteriological examination of feces for pathogenic intestinal enterobacteria (*Salmonella*, *Shigella*, diarrheagenic *Escherichia*) and determination of rotavirus antigens in feces by ICA. When using such limited laboratory facilities, the etiological structure of AEI looks different [2,4,5].

Growth retardation is common (20-80%) in HIV-infected children, especially in the later stages of HIV infection. As HIV infection progresses, growth retardation can develop into malnutrition, similar to HIV cachexia in adult patients. Chronic malnutrition can lead to delayed sexual development. HIV cachexia serves as a diagnostic criterion for AIDS [4,9,12].

Since the discovery of HIV infection, wasting (defined as loss of more than 5% of body weight, or BMI < 20.5 kg/m²) has been a major clinical problem, as it determines both morbidity and

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mortality. Formally, the importance of wasting as an indicator of poor prognosis is supported by the fact that wasting has been named as one of the clinical symptoms of AIDS—the wasting syndrome in AIDS. Wasting has many causes, not just reduced food intake. The main feature of the disease is that it can cause profound changes in metabolism even in the absence of obvious clinical manifestations. BAT has had a major impact on nutritional management strategies in HIV-infected people. Many patients have dramatic weight gain and lipodystrophy, but many are still underweight. It seems that treatment with protease inhibitors does not always have a positive effect on body weight dynamics. Changes in body composition during treatment with protease inhibitors do not always lead to a decrease or increase in body weight, and these processes can be affected by the side effects of drugs. With a stable course of HIV infection without opportunistic infections, energy costs at rest can increase by 10% (with unchanged body weight), but the total energy costs and energy costs for physical activity in this group of patients do not differ from those in healthy people [1,2,7,9].

Ensuring adequate amounts of essential inorganic micronutrients (micronutrients) is an integral part of the entire nutritional support regimen for both parenteral and enteral nutrition. As is known, microelement complexes for injections (MEKIs) are used in diseases and conditions when enteral intake is impossible, insufficient, or does not give the desired effect due to poor absorption in the gastrointestinal tract or other reasons. Such cases include: patients on total parenteral nutrition, delayed or complicated enteral intake of food: stenosis of the esophagus and gastrointestinal tract, coma, prolonged vomiting; insufficient enteral intake: unilateral diet, infectious diseases, including HIV/AIDS. Parenteral administration of MEKI has the following advantages: high bioavailability, which ensures the maximum possible absorption by organ tissues and rapid inclusion in biochemical processes; the possibility of more accurate dosing; exclusion of side effects from the gastrointestinal tract associated with exposure to the mucous membrane. Scientific studies presented at the recent International AIDS Conference have clearly demonstrated the ability of micronutrients as adjuvant therapy to slow the progression of HIV infection and strengthen immunity, improve the quality of life of people living with HIV. Micronutrient supplementation has shown positive effects in HIV-infected individuals even without antiretroviral therapy. The conference participants came to the conclusion that micronutrient supplements and vitamins increase the period of time during which HIV-infected people do not show symptoms of the disease and delay the start of antiretroviral therapy [15,16].

Nutritional deficiency is an increased risk factor during the treatment of cancer patients and leads to the early formation of multiple organ failure syndrome, an increase in the drug load, an increase in the length of stay of patients in the hospital and, as a result, direct and indirect costs of treatment. Correction of the nutritional status improves the prognosis of survival, reduces the risk of postoperative complications and improves the quality of life. It allows you to ensure a positive nitrogen balance, reduce the frequency of infectious complications, increase body weight, albumin level, and the number of lymphocytes. Obviously, the patient needs to receive all the nutrients, however, in some cases, an additional amount of micronutrients may be required, the choice of which should be justified taking into account the patient's metabolic disorders [7,8,9,12,15].

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**РЕЗКОЕ УВЕЛИЧЕНИЕ ЧИСЛЕННОСТИ НАСЕЛЕНИЯ И ИСТОЩЕНИЕ
РЕСУРСОВ НОРМАТИВНО – ПРАВОВЫЕ РЕШЕНИЕ ПРОБЛЕМЫ**

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Аннотация: В статье представлена статистика мирового прироста населения. В нем говорится, что растущее население мира приведет к истощению ресурсов и началу Мальтузианства в ближайшие годы и окажет серьезное влияние на экологию и на экономику. Что означает слово «Мальтузианство» и как оно реагирует на экономику и экологию, в то время как человеческий метод сохранения жизни полностью отличается от метода сохранения жизни 2 века назад. в настоящее время во многих странах число рождений сокращается из-за того, что однополые браки разрешены и это считается неправильным выходом из ситуации, потому что это не соответствует культуре и так можно потерять целые народы и единственным решением этого является принятие нормы, имеющей мировую силу о сокращении рождаемости в семьях.

Ключевые слова: численности населения, истощение ресурсов, сокращение рождаемости, Мальтузианство.

Annotation: The article presents statistics on global population growth. It states that the rapidly increasing world population will lead to resource depletion and the beginning of Malthusianism in the coming years, which will have a serious impact on both the environment and the economy. The term Malthusianism refers to the theory proposed by Thomas Malthus, according to which population growth tends to outpace the growth of resources necessary for human survival. This imbalance leads to poverty, famine, and environmental degradation. While human methods of sustaining life today are completely different from those of two centuries ago, many countries are currently experiencing a decline in birth rates due to the legalization of same-sex marriages. This is considered an inadequate solution to the problem, as it does not correspond to traditional cultural values and may lead to the

disappearance of entire nations. The only effective solution, therefore, is the adoption of a globally recognized norm regulating the reduction of birth rates within families.

Keywords: population growth, resource depletion, declining birth rates, Malthusianism.

Введение: Население Земли - это общее количество людей, проживающих на нашей планете. На сегодняшний день на Земле проживает 8.07 миллиарда человек. Человечеству понадобилось более 200 000 лет, чтобы достичь населения в 1 миллиард человек (около 1800 года) и только около 200 лет, чтобы это количество выросло до 7 миллиардов. По оценкам фонда ООН в области народонаселения, основные вехи численности населения Земли были пройдены в следующих годах:



Следует, однако заметить, что по нашим подсчётам, 7 миллиардов были достигнуты только в феврале 2012. В настоящее время население земли увеличивается более чем на 90 миллионов человек в год. Соотношение полов в мире равно 1.018 То есть мужчин ненамного больше, чем женщин. Средний возраст населения земли составлял 30.4 года в 2018 году. Более 70% населения Земли проживает в 20 самых густонаселённых странах мира. В мире всего 2 страны с населением более одного миллиарда человек: [Китай](#) и [Индия](#). Несмотря на то, что Китай является самым густонаселённым государством, ожидается что уже к 2023 году, население этих стран сравнится и Индия займёт лидирующее положение. Из-за этого Индия является самой большой угрозой для экологии. В день тонны мусора сливаются в Индийский океан портя экологию в океане, около тысяча людей гибнут от голодания в неделю. В Узбекистане по счётам 1 марта 2023 года 36 миллионов жителей, а в столице Ташкенте на 1 квадратный метр приходится в среднем 7400 человек. В связи с таким населением непосредственно среда свежего воздуха истощается, и когда каждый 5-й человек владеет автомобилем, различные выхлопные газы, выходящие из него, повреждают воздух. Поскольку деревья вырубаются в городах и на их место строятся новые многоэтажные дома, восстановление кислорода становится проблемой. в Узбекистане 320 солнечных дней в году, а также считается умеренным и субтропическим краем. В результате таких солнечных дней и глобального

потепления высыхает и Аральское море, который играет очень большую роль для народов возле моря.

Топ 10 стран по населению (26-03-2023)

№	Страна	Население (2025 г., млн чел.)	% от населения мира
1	Индия	1 463	17,8 %
2	Китай	1 416	17,2 %
3	США	347	4,2 %
4	Индонезия	286	3,5 %
5	Пакистан	255	3,1 %
6	Нигерия	238	2,9 %
7	Бразилия	213	2,6 %
8	Бангладеш	176	2,1 %
9	Россия	144	1,7 %
10	Эфиопия	135	1,6 %

В Европе люди приняли новый метод остановки перенаселения. Разрешение однополых браков, сократит рождаемость в следующие 50 лет. Но этот метод не является идеальным решением этой проблемы. Такой метод не подходит к восточным странам и религия тоже не позволяет такому. Это будет травмой для следующей поколения.

Мальтузианство — демографическая и экономическая теория, созданная в конце XVIII века английским учёным **Томасом Робертом Мальтусом**. Согласно этой теории, население, если его рост ничем не сдерживается, увеличивается в геометрической прогрессии (стремится к удвоению каждые 25 лет), тогда как производство средств существования (прежде всего, продуктов питания) — лишь в арифметической, что неминуемо приведёт к голоду и другим социальным потрясениям.

Начнем с голода, который на протяжении тысячелетий был главным врагом человечества. До недавнего времени большинство людей существовало в опасной близости от биологической черты бедности, за которой человеку грозит истощение и гибель. Ошибка или простое невезение часто становились смертным приговором для всей семьи или целой деревни. Стоило проливному дождю размыть ваши посевы или вора угнать ваших коз, и вы вместе с вашими близкими могли умереть голодной смертью. Масштабная беда или глупость на коллективном уровне приводили к массовому голоду. Когда Древний Египет или средневековую Индию поражали сильные засухи, вымирало, как правило, от пяти до десяти процентов населения. Пропитания не хватало; средства передвижения были слишком тихоходными и слишком дорогими, чтобы доставить в регион бедствия необходимое количество продуктов; правительства были слишком слабыми, чтобы справиться с ситуацией.

Мальтузианство противоречило оптимистичным теориям социальных реформаторов Кондорсе, Годвина и Оуэна. Эмпирически теория подтверждалась для доиндустриальных стран, с началом же промышленно революции она перестала соответствовать фактическим данным. Теория оказала значительное влияние на Чарльза Дарвина и Джона Мейнарда Кейнса. В настоящее время мальтузианство рассматривается как важная составная часть классической экономической теории. Теория подвергалась критике со

стороны марксистов, либертарианцев и институционалистов. Свои идеи Мальтус изложил в 1798 году в эссе «Опыт закона о народонаселении».

Откройте любую историческую книжку, и вы наверняка наткнетесь на душераздирающие описания обезумевших от голода масс. В апреле 1694 года чиновник администрации французского городка Бове так описывал последствия засухи и стремительно растущих цен на продукты: «Весь округ кишит беднягами, придавленными голодом и нуждой и умирающими от немоги, потому что, в отсутствие работы и занятий, они не имеют денег, чтобы купить хлеба. Цепляясь за жизнь и стараясь хоть чем-то набить желудок, одни несчастные едят всякую гадость вроде кошек или остатков мяса на скелетах лошадей, которых освежевали и свалили в кучу гнилья. Другие питаются кровью, вытекающей, когда забивают коров и быков, и потрохами, которые выбрасывают на улицу кухарки. Третьи горемыки едят крапиву, сорняки, корни и травы, отваривая их в воде».

Похожие сцены можно было наблюдать по всей Франции. В два предшествующих года ненастье сгубило всходы по всему королевству, так что к весне 1694-го в амбарах не осталось ни зернышка. Богачи заламывали непомерные цены за любое съестное, которое залежалось у них в кладовых, а бедняки дошли как мухи. Около 2,8 миллионов французов — пятнадцать процентов населения — отправились в мир иной между 1692 и 1694 годами, когда в Версале развлекался со своими любовницами «король солнце» Людовик XIV. В 1695 году голод уничтожил пятую часть населения Эстонии. В 1696-м пришла очередь Финляндии, потерявшей в итоге от четверти до трети своих жителей. Шотландия пострадала между 1695 и 1698 годами: от страшного недорода в некоторых ее областях погибло до двадцати процентов жителей².

В течение последней сотни лет технологическое, экономическое и политическое развитие создавало все более солидную подушку безопасности, которая теперь отделяет человечество от биологической черты бедности. Массовый голод порой еще случается в некоторых регионах, но сейчас это явление исключительное и провоцируют его, как правило, политики, а не природные катаклизмы. Больше не существует голода по естественным причинам — только по политическим. И если в Сирии, Судане или Сомали люди умирают от голода — то только потому, что некие политики хотят этого.

Сегодня почти в любом уголке планеты, даже если человек потерял работу и все свое имущество, он вряд ли умрет от недоедания. Индивидуальные схемы страхования, правительственные организации и международные НПО, может, и не вытащат его из нищеты, но обеспечат суточной дозой калорий, необходимой для выживания. В мировом масштабе глобальная торговая сеть превращает засухи и наводнения в бизнес-возможности и позволяет преодолевать продовольственный кризис быстро и дешево. Даже когда войны, землетрясения и цунами разоряют целые страны, общими усилиями обычно удается предотвратить наступление голода. И хотя сотни миллионов людей на планете питаются скудно, в большинстве стран умирают от отсутствия пищи лишь очень немногие.

Безусловно, причиной множества проблем со здоровьем является бедность, и плохое питание сокращает ожидаемую продолжительность жизни. Даже в самых богатых странах. Во Франции, например, шесть миллионов человек (около 10 процентов населения) страдают от пищевого дисбаланса: они просыпаются утром, не зная, удастся ли им перекусить в обед, и часто засыпают, не поужинав. Такое питание — перенасыщенное крахмалом, сахаром и солью

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и бедное протеином и витаминами — не назовешь здоровым и полноценным. И все же недоедание, дисбаланс пищевых веществ — это не голод, и Франция начала XXI века — не Франция 1694 года. Даже в самых бедных районах вокруг Бове или Парижа не бывает, чтобы люди неделями ничего не ели.

Ситуация изменилась подобным образом во многих странах. Особенно выделяется Китай. В течение тысячелетий голод морил китайцев при всех правителях, начиная с Желтого императора и кончая красными коммунистами. Еще несколько десятилетий назад Китай был олицетворением продовольственной скудости. В период убийственного Большого скачка десять миллионов китайцев не пережили лишений, и эксперты предсказывали, что ситуация будет только ухудшаться. На первой Продовольственной конференции в 1974 году в Риме делегатов страшили апокалиптическими сценариями. Им докладывали, что Китай не способен накормить миллиард своих ртов и что самая густонаселенная страна в мире движется к катастрофе. В действительности же она двигалась к экономическому чуду. С 1974 года сотни миллионов китайцев выбрались из нищеты, и, хотя другие сотни миллионов еще терпят нужду и не едят досыта, впервые за всю историю Китая голод в стране невозможен.

На самом деле в большинстве современных стран куда худшим бедствием, чем недоедание, стало переедание. В XVIII веке Мария-Антуанетта якобы посоветовала голодающим питаться пирожными, если у них закончился хлеб. Сегодня бедняки следуют ее совету буква в букву. В то время как богатые обитатели Беверли-Хиллз едят салат-латук, киноа, тофу на пару, бедняки в трущобах и гетто наполняют желудки бисквитами «Твинки», чипсами «Читос», гамбургерами и пиццей. В 2014 году более 2,1 миллиарда человек имели избыточный вес, в то время как недоедали — 850 миллионов. К 2030 году весить больше нормы будет половина населения планеты. В 2010 году голод и плохое питание вместе убили один миллион человек, а ожирение — три миллиона.

Ситуация, когда рост населения обгоняет рост производства средств существования, называется «мальтузианской ловушкой». Мальтус не учитывал начавшийся в странах Западной Европы и США во второй половине XIX века демографический переход — быстрое снижение рождаемости в индустриальном обществе до уровня замещения поколений, разработку и появление новых источников ресурсов — за счёт развития техники и технологий, «зелёной революции». Мальтус полагал, что население растёт в геометрической прогрессии (удваивается каждые четверть века в отсутствие войн и болезней), а ресурсы Земли ограничены (в частности, производство продуктов питания растёт в арифметической прогрессии), потому если не сдерживать рост населения, то рано или поздно их перестанет хватать на всех. Ситуация, когда рост населения опережает рост производства (чаще всего сельскохозяйственного в доиндустриальной экономике из-за ограниченности площадей и плодородности пахотных земель), называется *мальтузианской ловушкой*. В качестве мер по обеспечению благосостояния общества Мальтус предлагал различные варианты контроля рождаемости. Также в Узбекистане рождаемость очень велика из-за этого в ближайшие 10 лет Мальтузианство для Узбекистана станет реальностью. В наши дни решение к этому человечество выбрало не правильный путь как «Биологическая черта смерти».

А в Узбекистане ожирение не является самой большой проблемой но всё таки голод является проблемой. Однако, люди для праздников покупают так много продуктов что можно накормить целый район на обед и в при этом эти продукты только для членов семьи. Половина из этих

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продуктов уходит в отходы и на корм для домашних животных. Проблема не в переедании а в экстравагантности. Когда одна часть людей делают такое-то другое часть населения страдает от голодания.

Заклучения: Мировое население продолжает расти, что оказывает значительное влияние на социально-экономическое развитие, экологию и использование природных ресурсов. Быстрый демографический рост требует совершенствования международных и национальных стратегий, направленных на обеспечение продовольственной безопасности, рациональное использование ресурсов и устойчивое развитие. Нормативно-правовые меры должны быть ориентированы на баланс между ростом населения и возможностями планеты, обеспечивая гармоничное взаимодействие человека и природы. Первая проблема в густонаселённых странах можно решить с помощью «Зелёной экономики». Так же Китай является одним из самых развитых стран мира может себе позволить и у населения Китая достаточно ума для выполнения «Зелёной экономики». Так же Индия тоже является развитым страной но для населения Индии сложно принять такие меры, лучше для них это принятие нормы который будет запрещать людям повреждать эко систему и загрязнять Индийский океан. А в Узбекистане как говорилось ранее 320 солнечных дней, смотря на это можно установить солнечные батареи и мельницы для вырабатывания электричество. Так же можно сажать новые деревья и меньше рубить деревья. Нужно производить как больше электро-каров и сделать доступными для приобретения всем. Также в Узбекистане тем кто установит солнечные панели освободят от некоторых налогов.

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ПОЧЕМУ КАЖДЫЙ ЧЕЛОВЕК ДОЛЖЕН ЗНАТЬ СВОИ ПРАВА?

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Аннотация

В данной статье рассматривается актуальная проблема формирования правосознания и правовой культуры личности как ключевого условия устойчивого развития демократического общества. Показано, что знание своих прав является не только элементом личной свободы, но и основой социальной ответственности, правопорядка и справедливости. В исследовании анализируются социально-политические, экономические и культурные аспекты правовой осведомлённости граждан, её влияние на эффективность государственной системы, снижение уровня коррупции и рост доверия между государством и обществом. Особое внимание уделено роли образования, средств массовой информации и правовых институтов в повышении уровня правовой грамотности населения. Научная новизна работы заключается в комплексном осмыслении правового знания как системообразующего элемента общественного сознания, объединяющего индивидуальные, коллективные и государственные интересы. Автор приходит к выводу, что знание своих прав — это не только личное благо, но и гражданский долг каждого человека, необходимый для функционирования правового государства и укрепления общественного доверия.

Ключевые слова. Права человека, правовая культура, правосознание, гражданское общество, законность, демократия, справедливость, ответственность, правовое образование.

Abstract

This article examines the pressing issue of developing legal awareness and legal culture among individuals as a key condition for the sustainable development of a democratic society. It demonstrates that knowledge of one's rights is not only an element of personal freedom but also the foundation of social responsibility, law and order, and justice. The study analyzes the socio-political, economic, and cultural aspects of citizens' legal awareness, its impact on the effectiveness of the state system, the reduction of corruption, and the growth of trust between the state and society. Particular attention is paid to the role of education, the media, and legal institutions in raising the level of legal literacy among the population. The scientific novelty of the work lies in its comprehensive understanding of legal knowledge as a system-forming element of public consciousness, uniting individual, collective, and state interests. The author concludes that knowledge of one's rights is not only a personal benefit but also a civic duty for each individual, essential for the functioning of the rule of law and the strengthening of public trust.

Key words. Human rights, legal culture, legal consciousness, civil society, legality, democracy, justice, responsibility, legal education.

ВВЕДЕНИЕ

Знание своих прав — это фундаментальное условие существования современного гражданина. Без правового самосознания человек остаётся пассивным участником

общественных процессов, не способным ни отстаивать собственные интересы, ни защищать себя от произвола, ни эффективно взаимодействовать с институтами власти. В условиях становления демократических государств именно уровень правовой грамотности граждан определяет степень зрелости общества и эффективность функционирования государства.

История человечества свидетельствует о том, что каждый этап общественного прогресса сопровождался развитием правовых представлений. От первых деклараций о естественных правах человека до современных международных конвенций — путь осознания человеческих прав прошёл долгий путь, отражая борьбу за свободу, достоинство и равенство. Однако обладание правами само по себе не гарантирует их реализации. Только знание своих прав, умение их понимать и применять делает человека полноправным субъектом общественных отношений.

В современном мире правовая грамотность становится неотъемлемой частью культуры. Она определяет не только поведение граждан в повседневной жизни, но и уровень политической активности, степень доверия к государственным институтам, устойчивость правопорядка. В обществе, где люди не знают своих прав, законы остаются декларативными, а справедливость — недостижимым идеалом. Напротив, в правовом государстве знание права является не только обязанностью, но и важнейшей гарантией личной свободы и безопасности.

Особое значение знание своих прав приобретает в условиях информационного общества. Современные технологии открывают новые возможности для получения правовой информации, но одновременно создают риски манипуляции, дезинформации и правового нигилизма. Поэтому формирование правовой культуры требует системного подхода — начиная с образования и заканчивая участием институтов гражданского общества. Правовое просвещение, направленное на воспитание уважения к закону, способствует развитию активной гражданской позиции и укреплению социальной солидарности. Таким образом, знание своих прав — это не только инструмент индивидуальной защиты, но и стратегический ресурс устойчивого развития нации.

АНАЛИЗ И МЕТОДОЛОГИЯ ЛИТЕРАТУРЫ

Проблема правосознания и правовой культуры личности получила широкое отражение в трудах отечественных и зарубежных учёных. Ещё в XVIII веке мыслители эпохи Просвещения — Дж. Локк, Ш. Монтескье, Ж.-Ж. Руссо — рассматривали права человека как естественные и неотчуждаемые. Их идеи легли в основу современной теории правового государства. По мнению Локка, «незнание своих прав превращает человека в раба обстоятельств», а значит, свобода начинается с образования.

В советской и постсоветской правовой науке внимание уделялось формированию правовой культуры как фактора социальной стабильности. Исследователи, такие как В. Нерсисянц, В. Кудрявцев, Е. Лукашёва, подчёркивали, что правосознание формирует внутреннюю готовность личности подчиняться закону не из страха наказания, а из убеждения в его справедливости. В современной российской науке (Н. Витрук, Т. Зайцева, В. Сальников) правовая грамотность рассматривается как показатель цивилизованности общества и зрелости демократии.

В научных трудах узбекских исследователей, включая А. Саидова, С. Отаджанова, М. Назирова, З. Саидову, проблематика правового воспитания населения рассматривается через призму реформ в сфере образования и развития гражданского общества. А. Саидов отмечает,

что «знание своих прав — это основа личной свободы, а незнание порождает зависимость и безразличие». С точки зрения узбекской правовой школы, повышение правовой культуры связано не только с просвещением, но и с созданием благоприятной социальной среды, где закон воспринимается как инструмент защиты, а не принуждения.

Международные организации — ООН, ЮНЕСКО, ОБСЕ — также подчёркивают необходимость системного правового образования как ключевого элемента устойчивого развития. Согласно Докладу ООН о человеческом развитии, уровень правовой осведомлённости населения напрямую коррелирует с уровнем демократии, социальной справедливости и экономического благополучия. Таким образом, литература по данной теме свидетельствует о консенсусе учёных в том, что знание права — это не только юридическая категория, но и важнейший компонент человеческого капитала.

Методологическая основа данного исследования строится на системном и междисциплинарном подходе, сочетающем юридический, социологический и философский анализ. Использованы методы сравнительного правоведения, исторического анализа, а также эмпирические методы — анкетирование и наблюдение. Исследование опирается на нормативно-правовые акты Республики Узбекистан, международные декларации и конвенции по правам человека, а также результаты социологических опросов, проводимых среди молодёжи.

Целью исследования является выявление причин, по которым знание своих прав необходимо каждому члену общества, и определение механизмов повышения уровня правовой грамотности. Для достижения этой цели исследование рассматривало три ключевых направления: 1) правовое образование как инструмент формирования правосознания; 2) роль государства и институтов гражданского общества в распространении правовых знаний; 3) влияние правовой культуры на социальную стабильность.

Методологический подход также предполагает анализ взаимосвязи между уровнем правового знания и способностью граждан реализовывать свои конституционные права. При этом исследование опирается на концепцию «правовой социализации личности», согласно которой знание права формируется с раннего возраста и зависит от образовательной и культурной среды. Анализ статистических данных, а также наблюдения за поведением граждан в административных и судебных процессах показали, что уровень правовой осведомлённости напрямую влияет на качество участия граждан в общественной жизни.

Таким образом, методология исследования направлена на комплексное осмысление правового знания как социального и культурного феномена, определяющего развитие личности и общества в целом.

ПОЛУЧЕННЫЕ РЕЗУЛЬТАТЫ

Проведённый анализ показал, что знание своих прав является ключевым фактором социальной активности и правовой устойчивости. В обществах, где граждане обладают высоким уровнем правовой грамотности, наблюдается более низкий уровень коррупции, выше доверие к государственным институтам и активнее развивается гражданская инициатива.

Эмпирические данные свидетельствуют о том, что незнание прав приводит к росту социальной пассивности, правового нигилизма и неспособности противостоять злоупотреблениям со стороны должностных лиц. Гражданин, не осведомлённый о своих правах, становится уязвимым перед административным давлением и экономическими рисками. В то же время

правовая грамотность формирует чувство личного достоинства, уверенности и ответственности.

Особенно важную роль знание права играет в молодёжной среде. Молодые люди, знакомые со своими правами, более активно участвуют в общественной и политической жизни, они готовы защищать свои интересы законными методами и демонстрируют более высокий уровень правовой культуры.

Кроме того, знание прав способствует формированию справедливых отношений между государством и обществом. Граждане, знающие свои права, контролируют власть, участвуют в принятии решений и тем самым способствуют развитию подотчётного управления. Это создаёт основу для формирования правового государства, где закон служит всем, а не избранным.

Таким образом, результаты исследования подтверждают, что знание своих прав — это не просто образовательная потребность, а стратегическая необходимость для обеспечения стабильности, справедливости и прогресса общества.

ВЫВОД

Знание своих прав — это необходимое условие формирования зрелого гражданского общества. Оно обеспечивает баланс между личной свободой и социальной ответственностью, укрепляет доверие к государственным институтам и формирует уважение к закону. Человек, знающий свои права, способен защищать их и тем самым вносит вклад в укрепление правопорядка и справедливости.

Государству и обществу необходимо рассматривать правовое образование как приоритетное направление культурной и образовательной политики. Только системная работа по повышению правовой грамотности населения может обеспечить устойчивое развитие и защиту демократических ценностей.

Таким образом, знание своих прав — это не роскошь, а обязанность и признак зрелого гражданина, осознающего свою роль в обществе и государстве.

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**DISLEKSIYA KASALLIK EMAS, BALKI NEYROBIOLOGIK TABIATDAGI O'QISH
BUZILISHIDIR. DISLEKSIYANING O'RGANILISHI ITALIYA TAJRIBASIDA**

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Annotatsiya: Disleksiya kasallik emas, balki neyrobiologik tabiatdagi o'qish buzilishi bo'lib, o'qish tezligi va to'g'riligida zaiflik, harflarni almashtirish, tushirib qo'yish, so'zlarni noto'g'ri taxmin qilish va qatorlarni o'tkazib yuborish kabi belgilar bilan kechadi. Ushbu buzilish umumiy intellektga bog'liq emas: bola aqliy jihatdan o'rta yoki yuqori darajada bo'lishi mumkin, lekin dekodlash va oqimli o'qishda muammolar bor. Erta aniqlash va maxsus pedagogik aralashuvlar orqali kompensatsiya qilish va bolaning ta'lim hamda emotsional holatini yaxshilash mumkin. Italiya tajribasi — 2010-yilgi 170-sonli qonun va 2019–2021 yillardagi DSA statistikasi — qonuniy tan olish, tizimli tashxis va maxsus yordamning ahamiyatini ko'rsatadi.

Kalit so'zlar: disleksiya, neyrobiologik buzilish, o'qishdagi qiyinchiliklar, maxsus o'quv buzilishlari, Italiya tajribasi, 170-sonli qonun, DSA statistikasi, pedagogik yondashuv, erta diagnostika, inklyuziv ta'lim, o'quv strategiyalari, psixologik qo'llab-quvvatlash.

Abstract: Dyslexia is not an illness but a neurobiological reading disorder characterized by deficits in reading accuracy and speed, letter substitutions, omissions, and word misrecognition. This condition is independent of general intelligence: affected children often demonstrate normative cognitive abilities yet struggle with decoding and fluent reading. Timely identification and specialized pedagogical interventions enable effective compensation, improving academic performance and emotional well-being. Italy's experience, notably Law 170/2010 and national DSA statistics from 2019–2021, underscores the importance of legal recognition, systematic diagnosis, and dedicated educational support.

Keywords: dyslexia, neurobiological disorder, reading difficulties, specific learning disorders, Italian experience, Law 170/2010, DSA statistics, pedagogical approach, early diagnosis, inclusive education, learning strategies, psychological support.

Аннотация: Дислексия — это не болезнь, а нейробиологическое нарушение процесса чтения, проявляющееся в снижении скорости и точности чтения, замене и пропуске букв, неправильном угадывании слов и пропуске строк. Данное расстройство не связано с уровнем интеллекта: ребёнок с дислексией может обладать средними или высокими умственными способностями, но испытывать трудности с декодированием текста и плавным чтением. Ранняя диагностика и специальные педагогические вмешательства позволяют компенсировать эти трудности, улучшая как учебные результаты, так и эмоциональное состояние ребёнка.

Ключевые слова: дислексия, нейробиологическое нарушение, трудности чтения, специфические расстройства обучения, итальянский опыт, закон №170/2010, статистика DSA, педагогический подход, ранняя диагностика, инклюзивное образование, учебные стратегии, психологическая поддержка.

Zamonaviy psixologiya va neyropsixiatriya sohalarida o'quv jarayoniga ta'sir etuvchi turli omillar chuqur o'rganilmoqda. Shulardan biri — **disleksiya** (lotincha *dys-* – “buzilish”, *lexis* – “so‘z”) atamasi bilan ifodalanadigan o'qishdagi o'ziga xos buzilishdir. Disleksiya asosan bolalarda uchraydigan va o'qish jarayonida sezilarli qiyinchiliklar tug'diradigan **neyrobiologik xususiyatga ega o'rganish buzilishi** hisoblanadi.

Ko'p hollarda ota-onalar yoki pedagoglar disleksiyaning kasallik sifatida baholaydilar. Ammo ilmiy tadqiqotlar shuni ko'rsatadiki, bu holat **kasallik emas**, balki **miyaning ma'lum sohalarida o'qish, yozish va nutqni qayta ishlashdagi farqlanish** natijasidir. Shuning uchun disleksiya “davolanishi kerak bo'lgan kasallik” emas, balki “moslashtirilgan o'quv strategiyalarini talab etuvchi neyrorivojlanish holati” sifatida qaraladi.

Disleksiya – bu **maxsus o'quv buzilishlari (DSA)** toifasiga kiruvchi holat bo'lib, u o'qish tezligi va to'g'riligidagi yetishmovchiliklar bilan namoyon bo'ladi. Ushbu buzilish bolaning umumiy intellektual darajasi bilan bog'liq emas, ya'ni disleksiya ega bola odatdagi aqliy qobiliyatga ega bo'lishi mumkin, lekin matnni o'qishda sekinlik, tovushlarni almashtirish, harflarni tushirib qoldirish yoki so'zlarni aralashtirib yuborish kabi xatolarga yo'l qo'yadi.

Disleksiya tashxisi Italiya qonunchiligi bo'yicha **faqat boshlang'ich maktabning ikkinchi sinfidan boshlab** qo'yilishi mumkin. Chunki bu davrga qadar bolalarda o'qish va yozuv ko'nikmalari tabiiy shakllanish bosqichida bo'ladi.

O'qishdagi qiyinchiliklar turlicha darajada bo'lishi mumkin: kimdadir bu faqat alohida so'zlarni o'qishda namoyon bo'lsa, kimdadir butun matnni tushinishda yoki tovushlar tizimini qayta ishlab chiqishda qiyinchilik kuzatiladi.

Disleksiyaning erta aniqlash bolaning o'quv hayotida muhim ahamiyatga ega. Chunki vaqtida aniqlangan holatlarda **kompensatsion strategiyalar** va **pedagogik yondashuvlar** orqali bolaning o'qishdagi muvaffaqiyati sezilarli darajada yaxshilanadi.

Disleksiya ega xos asosiy belgilar quyidagilardan iborat:

1. **Harflarni almashtirish** (masalan, “b” o'rniga “d” yoki “p” yozish);
2. **Harflarni tushirib qoldirish** yoki **qo'shimcha harf qo'shish**;
3. **Qatorlarni o'tkazib yuborish**;
4. **So'zni noto'g'ri taxmin qilish** – matnning bosh harflariga asoslanib so'zni butunlay boshqa shaklda o'qish (masalan, “ARRIvo” o'rniga “ARRIvavo”);
5. **O'qishdan qochish yoki rad etish** – o'qishni og'ir, noqulay faoliyat sifatida qabul qilish;
6. **O'qish tezligining juda pastligi va xatoliklarning ko'pligi**.

Disleksiyaning bunday belgilarini aniqlash o'qituvchilar, psixologlar va ota-onalarning hamkorlikdagi faoliyatini talab etadi. Italiyada 2010-yilda qabul qilingan **170-sonli Qonun** bu borada muhim burilish yasadi. Ushbu qonun disleksiya, disortografiya (imlo buzilishi) va diskalkulyani (hisoblash buzilishi) **maxsus o'quv buzilishlari sifatida tan oldi** hamda ularga ega bolalar uchun o'qitishda maxsus yondashuv va yordam vositalarini qo'llashni majburiy qilib belgiladi.

Italiya Ta'lim vazirligi ma'lumotlariga ko'ra, **2019/2020 o'quv yilida 318 678 nafar, 2020/2021 yilda esa 326 548 nafar** o'quvchiga DSA tashxisi qo'yilgan. Bu umumiy o'quvchilar sonining mos ravishda **5,3%** va **5,4%** ini tashkil etadi. Ularning ichida:

1. 198 128 nafari — disleksiya,
2. 99 769 nafari — disortografiya,

3. 117 849 nafari — disortografiya,

4. 108 577 nafari — diskalkuliya bilan aniqlangan.

Hududlar bo'yicha taqsimot shuni ko'rsatadiki, **Shimoliy Italiyada** bu ko'rsatkich ancha yuqori — **7,9%**, **markaziy mintaqalarda 6,7%**, **shimoli-sharqda 5,8%**, **janubda esa atigi 2,8%**. Bu farq disleksiya holatlari shimolda ko'proq emas, balki **diagnostika tizimi samaraliroq ishlayotgani** bilan izohlanadi. Demak, bu borada **ta'lim muassasalarining o'z vaqtida tashxis qo'yish faoliyati** muhim rol o'ynaydi.

So'nggi o'n yillikda disleksiya tashxislari soni ikki baravardan ko'proqqa oshgan. Agar 2016-yilda bu ko'rsatkich 2% atrofida bo'lgan bo'lsa, 2021-yilga kelib u 5% dan oshgan.

Bu o'sish sabablari haqida bolalar neyropsixiatriasi, Italiya Disleksiya Assotsiatsiyasi (AID) sobiq prezidenti **doktor Serjio Messina** quyidagicha izoh beradi:

"170-sonli qonun maktablar va oilalarning bu masalaga bo'lgan e'tiborini tubdan o'zgartirdi. Bundan tashqari, autizm spektr buzilishlari, diqqat yetishmovchiligi va giperaktivlik sindromi (ADHD), Tourette sindromi kabi neyro-rivojlanish buzilishlari bo'yicha ham chuqur tadqiqotlar olib borilmoqda. Bu esa tashxis qo'yish tizimini yanada mukammallashtirdi."

Messina shuningdek, ko'plab o'quvchilarda dastlabki yillarda o'rganishdagi qiyinchiliklar kuchli sezilmasligi, biroq **o'quv yuklamasi ortgan sari yashirin muammolar yuzaga chiqishini** ta'kidlaydi. Bunday holatlar nafaqat o'qish jarayoniga, balki bolaning **emotsional holatiga** ham salbiy ta'sir ko'rsatadi.

COVID pandemiyasi o'quvchilar orasida disleksiya bilan bog'liq qiyinchiliklarning ortishiga sezilarli ta'sir ko'rsatdi. Messina fikricha, ayniqsa **maktabgacha yoshdagi bolalar** bu davrda o'qish va yozuvning asosiy ko'nikmalarini rivojlantirish imkoniyatidan mahrum bo'lishgan. U quyidagicha yozadi: "Pandemiya davrida bolalar ijtimoiy muloqotdan uzildi, bu esa til o'rganish va nutq rivojlanish jarayonlariga bevosita ta'sir qildi. Til — o'qish va yozishning poydevori hisoblanadi."

Shuningdek, Messina ta'lim tizimi **multimediali o'quv strategiyalariga moslashtirilishi kerakligini** ham ta'kidlaydi. Bolalarning raqamli texnologiyalar bilan erta tanishuvi ularning o'rganish uslublarini o'zgartirgan, shuning uchun **an'anaviy didaktika usullari** endi ularning ehtiyojlariga to'liq javob bera olmaydi.

Italiya ta'lim tizimi disleksiyaning erta aniqlashga alohida e'tibor beradi. Bolalarda o'qish, yozish yoki hisoblashdagi g'ayrioddiy qiyinchiliklar kuzatilsa, maktablar ularni **maxsus tekshiruvlarga** yo'naltiradi.

2019/2020 o'quv yilida **5 572 nafar**, 2020/2021 yilda esa **5 091 nafar** bolada **prediagnostika** (ya'ni DSA xavfi) aniqlangan. Bu umumiy o'quvchilar sonining taxminan **0,22–0,23%** ini tashkil etadi.

So'nggi yillarda "**Dino**" nomli interaktiv o'yin shaklidagi skrining vositasi sinovdan o'tkazilmoqda. Uni **Paperbox Health** kompaniyasi Italiya Disleksiya Assotsiatsiyasi mutaxassislari bilan hamkorlikda ishlab chiqdi. "Dino" o'yini orqali bolalarning o'qish va yozish jarayonlariga ta'sir etuvchi **prediktiv ko'nikmalar** (diqqat, tovush farqlash, tez javob berish qobiliyati) baholanadi. Messina ta'kidlashicha: "Dino yordamida olingan natijalar bola profilini umumiy tarzda belgilaydi. Bu ma'lumotlar asosida mutaxassis bolaning kuchli va zaif tomonlarini aniqlab, zarur bo'lsa, potentsial sohalarni mustahkamlash dasturini ishlab chiqadi."

Mazkur loyiha hozircha **preklinik bosqichda**, ammo sinovdan o'tgach, maktablar va oilalar uchun keng joriy etilishi rejalashtirilgan. So'nggi yillarda tashxislar sonining ortishi bilan bir qatorda **soxta**

ijobiy holatlar (false positive) ehtimoli ham muhokama qilinmoqda. Ya'ni ba'zi bolalarda aslida DSA emas, balki vaqtinchalik o'qish qiyinchiliklari bo'lishi mumkin.

Doktor Messina bu borada shunday deydi:

“Ilmiy hamjamiyat so'nggi yillarda tashxis protokollarini mukammallashtirish ustida ko'p ishladi. Bugungi kunda DSA tashxisi faqat ko'p bosqichli, batafsil testlardan o'tgandan so'ng qo'yiladi. Shu sababli, noto'g'ri tashxis ehtimoli juda kamaygan.”

Shunday qilib, **DSA tashxisi – jiddiy ilmiy tahlilga asoslangan jarayon** bo'lib, har bir bolaning individual kognitiv profili chuqur o'rganiladi. Shuningdek, har bir DSA holatidan oldin **pedagogik potentsialni kuchaytiruvchi mashg'ulotlar** o'tkazilishi zarur. Faqat bu bosqichdan keyin tibbiy tashxis qo'yish mumkin bo'ladi.

Yuqoridagi tahlillar shuni ko'rsatadiki, disleksiya **davolanishi kerak bo'lgan kasallik emas**, balki **o'qish va yozuv jarayonlarini boshqaruvchi neyron mexanizmlarning o'ziga xos farqlanishi** natijasidir. Shu sababli bu holatga nisbatan **inklyuziv ta'lim yondashuvi, moslashtirilgan pedagogik usullar va psixologik qo'llab-quvvatlash** eng samarali yechim hisoblanadi.

Italiya tajribasi disleksiyaning o'z vaqtida aniqlash, qonuniy asoslar yaratish va innovatsion vositalardan foydalanish orqali ta'lim tizimini insonparvarlashtirish mumkinligini isbotlamoqda.

Kelgusida bu boradagi asosiy yo'nalishlar quyidagilar bo'lishi lozim:

1. O'qituvchilar va ota-onalarni disleksiya bo'yicha muntazam o'qitish;
2. Maktabgacha bosqichda skrining tizimini yanada takomillashtirish;
3. Multimediali ta'lim vositalarini DSA bilan bolalar uchun moslashtirish;
4. Har bir bola uchun individual o'quv strategiyalarini ishlab chiqish;
5. Disleksiyaning ijtimoiy stigma emas, balki inson miyasi xilma-xilligini ifodalovchi holat sifatida qabul qilish.

O'zbekistonda disleksiya bilan bog'liq tushuncha va jamoatchilik e'tibori oshmoqda, lekin **tizimli va statistik jihatdan yetarli darajada tadqiq etilmagan. Xulosa o'rnida aytish mumkinki**, disleksiya — inson tafakkurining bir jihatini aks ettiruvchi neyrobiologik xususiyatdir. Uni “kasallik” sifatida emas, balki o'qish jarayonidagi “boshqachalik” sifatida ko'rish nafaqat ilmiy yondashuvga, balki inson qadr-qimmatiga ham mos keladi. Shu bois disleksiya ega bolalarga “davolash” emas, **tushunish, yordam va imkoniyat yaratish** zarurdir.

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АНАЛИТИЧЕСКИЕ МЕТОДЫ АНАЛИЗА СЛЮНЫ: СОВРЕМЕННОЕ СОСТОЯНИЕ И ПЕРСПЕКТИВЫ

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Аннотация. Слюна, как биологическая жидкость, содержит разнообразные компоненты, включая белки, ферменты, гормоны, электролиты и метаболиты. Ее анализ представляет большой интерес для диагностики различных заболеваний, мониторинга состояния организма и оценки воздействия факторов окружающей среды. В данной статье рассмотрены современные аналитические методы, применяемые для исследования слюны, с акцентом на два конкретных метода: масс-спектрометрию и метод иммуноферментного анализа (ИФА).

Ключевые слова: слюна, анализ, масс-спектрометрия, иммуноферментный анализ, диагностика, биомаркеры.

Цель работы. Целью данной работы является обзор современных аналитических методов, используемых для анализа слюны, и демонстрация возможностей масс-спектрометрии и ИФА для выявления и количественного определения биомаркеров в слюне.

Научная часть. Анализ слюны имеет ряд преимуществ по сравнению с другими биологическими жидкостями, такими как кровь. Он является неинвазивным, легкодоступным и может быть использован для многократных исследований. Слюна содержит множество биомаркеров, которые могут отражать состояние различных систем организма.

Масс-спектрометрия. Масс-спектрометрия (МС) является мощным аналитическим методом, который позволяет идентифицировать и количественно определять различные вещества в сложных смесях. В анализе слюны МС используется для идентификации белков, пептидов, метаболитов и других компонентов. МС обладает высокой чувствительностью и специфичностью, что позволяет выявлять даже незначительные изменения в составе слюны. Применение МС в анализе слюны:

Протеомика слюны: идентификация и количественное определение белков слюны для диагностики заболеваний, таких как рак, аутоиммунные заболевания и инфекции.

Метабомика слюны: анализ метаболитов слюны для выявления метаболических нарушений и оценки воздействия факторов окружающей среды.

Лекарственный мониторинг: определение концентрации лекарственных препаратов в слюне для контроля за эффективностью лечения.

Мы изучили протеомический анализ слюны методом масс-спектрометрии.

Цель: Идентификация и количественное определение белков слюны методом масс-спектрометрии.

Материалы и оборудование:

Образцы слюны (мои собственные и нескольких добровольцев)

Трипсин (фермент для расщепления белков)

Масс-спектрометр

Хроматографическая система (для разделения пептидов)

Программное обеспечение для обработки данных (Proteome Discoverer)

Ход работы: Собрали образцы слюны, прополоскав рот водой перед этим. Затем, чтобы удалить клетки и другие твердые частицы, центрифугировали образцы в течение 10 минут при 14 000 оборотах в минуту.

Добавили трипсин к образцам слюны и инкубировала их в течение ночи при 37 °С. Трипсин расщепил белки на более мелкие пептиды, что необходимо для анализа на масс-спектрометре. Полученную смесь пептидов разделили с помощью жидкостной хроматографии. Хроматографическая система разделила пептиды на основе их физико-химических свойств, что позволило мне анализировать их по отдельности. Разделенные пептиды проанализировали с помощью масс-спектрометра. Масс-спектрометр измерил отношение массы к заряду каждого пептида, что позволило нам идентифицировать их. Полученные масс-спектрометрические данные обработали с помощью программного обеспечения Proteome Discoverer. Программа идентифицировала белки на основе полученных данных о пептидах и позволила мне количественно определить количество каждого белка в образце слюны.

Результаты анализа. В результате проведенного анализа методом масс-спектрометрии в наших образцах слюны и образцах добровольцев были идентифицированы различные белки, включая альфа-амилазу, лизоцим, муцин и другие. Альфа-амилаза, например, отвечает за расщепление крахмала в слюне, а лизоцим обладает антибактериальными свойствами. Муцин же делает слюну вязкой и защищает слизистую оболочку полости рта.

Выводы. Анализ слюны является перспективным направлением в диагностике и мониторинге различных заболеваний. Масс-спектрометрия и метод иммуноферментного анализа являются мощными аналитическими методами, которые позволяют выявлять и количественно определять различные биомаркеры в слюне. Развитие этих и других методов анализа слюны открывает новые возможности для ранней диагностики заболеваний, мониторинга эффективности лечения и оценки воздействия факторов окружающей среды на организм человека.

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**BOLALAR ADENOIDINING MORFOLOGIK VA IMMUNOGISTOKIMYOVIY
JIHATLARI (ADABIYOTLAR SHARHI)**

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**МОРФОЛОГИЧЕСКИЕ И ИММУНОГИСТОХИМИЧЕСКИЕ АСПЕКТЫ ДЕТСКОГО
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**MORPHOLOGICAL AND IMMUNOGYSTOCHEMICAL ASPECTS OF CHILDREN'S
ADENOID (LITERARY REVIEW)**

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Annotatsiya: Ushbu maqolada bolalar adenoid to'qimasining morfologik va immunogistokimyoviy o'zgarishlari adabiyotlar sharhi asosida tahlil qilingan. Adenoid giperplaziyasi pediatriya va otorinolarinologiya amaliyotida eng ko'p uchraydigan patologiyalardan biri bo'lib, uning kelib chiqishida surunkali yallig'lanish, allergik jarayonlar hamda immun tizim faolligining buzilishi muhim rol o'ynaydi.

Tadqiqot 2020–2025-yillar oralig'ida chop etilgan xalqaro (PubMed, Scopus, Karger, BMC Oral Health) va mahalliy (O'zbekiston tibbiyot jurnallari) manbalarga asoslangan. Adabiyotlar tahlili natijasida aniqlanishicha, adenoid to'qimasi limfoid follikulalar, epitelial qoplama va stromal elementlardan tashkil topgan bo'lib, patologik holatlarda follikulalar hajmining ortishi, epitelial giperplaziya, fibroz jarayonlar va yallig'lanish infiltratsiyasi kuzatiladi.

Immunogistokimyoviy jihatdan esa CD3+, CD20+, CD68+ markerlarning ekspressiyasi, shuningdek IgA va IgG darajalarining oshishi qayd etilgan. Bu o'zgarishlar mahalliy immun javobning faolligini aks ettiradi va adenoid giperplaziyasining klinik belgilari bilan bevosita bog'liq. So'nggi yillardagi ilmiy tadqiqotlar shuni ko'rsatmoqdaki, adenoidlarning immun faolligi genetik va epigenetik omillar, shuningdek mikrobiota tarkibi bilan ham chambarchas bog'liq.

Maqola natijalari bolalarda adenoid patologiyasining morfologik asoslarini chuqurroq tushunish, immunologik monitoringni takomillashtirish hamda individual davolash yondashuvlarini ishlab chiqishda ilmiy asos bo'lib xizmat qiladi.

Kalit so'zlar: adenoid, bolalar, morfologiya, immunogistokimyo, CD3, CD20, IgA, IgG, giperplaziya, limfoid to'qima, surunkali yallig'lanish.

Аннотация: В данной статье представлен обзор литературы, посвящённый морфологическим и иммуногистохимическим изменениям аденоидной ткани у детей. Гиперплазия аденоидов является одной из наиболее распространённых патологий в педиатрии и оториноларингологии, обусловленной хроническим воспалением, аллергическими процессами и нарушением активности иммунной системы.

Анализ основан на материалах, опубликованных в 2020–2025 гг., включая международные источники (PubMed, Scopus, Karger, BMC Oral Health) и отечественные медицинские журналы. Морфологически аденоиды состоят из лимфоидных фолликулов, эпителиального покрова и стромальных элементов. При патологических изменениях наблюдается увеличение фолликулов, эпителиальная гиперплазия, фиброзные процессы и воспалительная инфильтрация.

С иммуногистохимической точки зрения отмечено повышение экспрессии маркеров CD3+, CD20+, CD68+, а также уровней IgA и IgG, что отражает активность местного иммунного ответа и тесно связано с клиническими проявлениями гиперплазии аденоидов. Современные исследования показывают, что иммунная активность аденоидов также зависит от генетических и эпигенетических факторов, а также от состава местной микробиоты.

Результаты обзора способствуют углубленному пониманию морфологических основ аденоидной патологии у детей, совершенствованию иммунологического мониторинга и разработке индивидуальных подходов к лечению.

Ключевые слова: аденоиды, дети, морфология, иммуногистохимия, CD3, CD20, IgA, IgG, гиперплазия, лимфоидная ткань, хроническое воспаление.

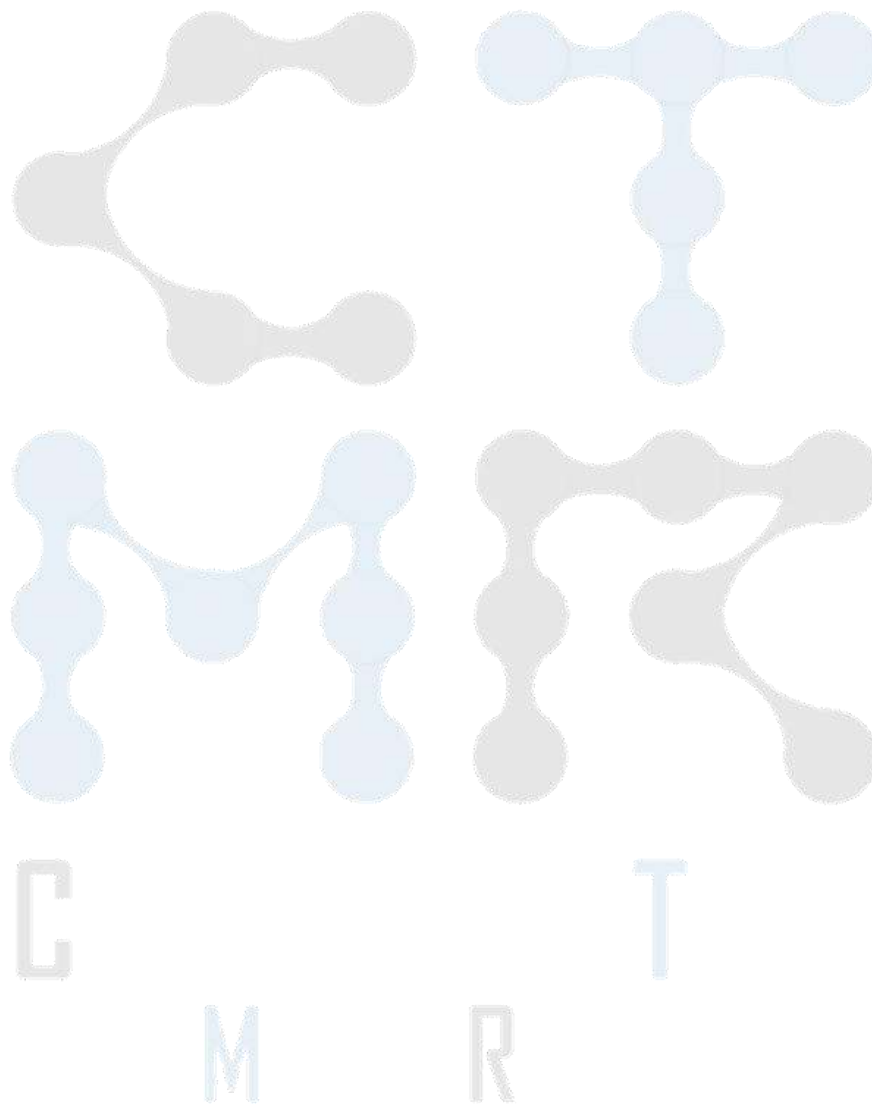
Abstract: This article presents a literature review on the morphological and immunohistochemical changes of adenoid tissue in children. Adenoid hypertrophy is one of the most common pathologies in pediatrics and otorhinolaryngology, resulting from chronic inflammation, allergic processes, and impaired immune system activity.

The review is based on studies published between 2020 and 2025, including international sources (PubMed, Scopus, Karger and BMC Oral Health) and local Uzbek medical journals. Morphologically, adenoids consist of lymphoid follicles, epithelial layers, and stromal elements. Pathological changes include follicular enlargement, epithelial hyperplasia, fibrotic processes, and inflammatory infiltration.

Immunohistochemically, increased expression of CD3+, CD20+, CD68+ markers, as well as elevated IgA and IgG levels, reflects local immune response activity and correlates with the clinical manifestations of adenoid hypertrophy. Recent studies also indicate that immune activity of adenoids is influenced by genetic and epigenetic factors, as well as by local microbiota composition.

The findings of this review provide a deeper understanding of the morphological basis of adenoid pathology in children, improve immunological monitoring, and support the development of individualized treatment approaches.

Keywords: adenoids, children, morphology, immunohistochemistry, CD3, CD20, IgA, IgG, hypertrophy, lymphoid tissue, chronic inflammation.



KIRISH: So‘nggi yillarda pediatriya, otorinolaringologiya va immunologiya sohalarida bolalar adenoidi (farengeal bodomcha) patologiyasi dolzarb muammolardan biri bo‘lib qolmoqda. Adenoidlarning giperplaziyasi, ularning morfologik va immunogistokimyoviy xususiyatlarini chuqur o‘rganish nafaqat kasallikning etiopatogenezi tushunishda, balki samarali diagnostika va davolash strategiyalarini ishlab chiqishda ham muhim ahamiyat kasb etadi.

Adenoid to‘qimasi — bu halqumning yuqori qismida joylashgan limfoid organ bo‘lib, u nafas yo‘llarining birlamchi immun himoyasida faol ishtirok etadi. Bolalik davrida, ayniqsa 3–10 yosh oralig‘ida adenoid to‘qimalari fiziologik jihatdan faol o‘sadi, biroq ba‘zi hollarda bu o‘rish patologik tus oladi. Adenoid giperplaziyasi, odatda, surunkali yallig‘lanish, virusli yoki bakterial infeksiyalar, allergik holatlar, shuningdek, ekologik omillar bilan bog‘liq bo‘ladi.

Turli mamlakatlarda olib borilgan epidemiologik tadqiqotlar shuni ko‘rsatadiki, bolalar populyatsiyasida adenoid giperplaziyasi 18–27% gacha uchraydi (Ahn et al., 2023; Liu et al., 2024). O‘zbekiston va Markaziy Osiyo mamlakatlarida esa bu ko‘rsatkich iqlim, yashash sharoiti va profilaktika darajasiga qarab 25–30% atrofida bo‘lishi qayd etilgan (Tursunov va boshq., 2024).

Adenoid to‘qimalarining morfologik tarkibi limfoid follikulalar, germinativ markazlar, stromal elementlar, epitelial qoplama va immunokompetent hujayralardan iborat. Morfologik darajada kuzatiladigan o‘zgarishlar — bu limfoid follikulalarning kattalashuvi, yadro-sitoplazmatik nisbatning o‘zgarishi, epitelial giperplaziya va fibroz jarayonlar hisoblanadi. Bu o‘zgarishlar patologik jarayonning darajasini belgilaydi va klinik simptomatika bilan bevosita bog‘liqdir.

Immunogistokimyoviy jihatdan adenoid to‘qimalari immun hujayralarining faolligi bilan tavsiflanadi. Asosiy markerlar sifatida CD3 (T-limfotsitlar), CD20 (B-limfotsitlar), CD68 (makrofaglar), IgA, IgM, IgG immunoglobulinlari, shuningdek, interleykinlar (IL-2, IL-4, IL-10) o‘rganiladi. So‘nggi tadqiqotlar shuni ko‘rsatadiki, surunkali yallig‘lanish jarayonlarida CD20+ B-hujayralar va IgA sekreti ortadi, bu esa mahalliy immun javobning kompensator mexanizmini bildiradi (Kim et al., 2023; Karger, 2024).

Bolalar adenoidining morfologik va immunogistokimyoviy o‘zgarishlarini chuqur tahlil qilish, kasallikning kechish mexanizmlarini tushunish va individual yondashuv asosida davolash strategiyasini tanlash imkonini beradi. Shu sababli, ushbu adabiyotlar sharhi oxirgi yillardagi xalqaro va mahalliy tadqiqotlarga tayangan holda, adenoidlarning tuzilishi va immun javobi o‘rtasidagi bog‘liqlikni tahlil qilishga qaratilgan.

MAQSAD: Ushbu ishning maqsadi — bolalar adenoidining morfologik va immunogistokimyoviy xususiyatlarini adabiyotlar sharhi asosida tahlil qilish, adenoid giperplaziyasi patogenezi morfologik va immun tizim omillarining rolini aniqlash, shuningdek, diagnostika va davolashdagi yangi ilmiy yondashuvlarni ko‘rsatishdan iboratdir.

Mazkur tahlil quyidagi vazifalarni o‘z ichiga oladi:

- Adenoidlarning normal morfologik tuzilishini tahlil qilish;
- Adenoid giperplaziyasi bilan bog‘liq morfologik o‘zgarishlarni aniqlash;
- Immunogistokimyoviy markerlarning (CD3, CD20, IgA, IgG va boshqalar) ekspressiyasi haqidagi ilmiy ma‘lumotlarni umumlashtirish;
- Morfologik va immun o‘zgarishlarning klinik simptomlar bilan bog‘liqligini baholash;

So‘nggi yillardagi xalqaro va mahalliy tadqiqotlar asosida adenoid patologiyasining dolzarb yo‘nalishlarini aniqlash.

MATERIAL VA METODLAR: Ushbu adabiyotlar sharhi 2020–2025-yillar oraligʻida xalqaro va mahalliy ilmiy nashrlarda chop etilgan maqolalar, dissertatsiyalar va klinik kuzatuvlarga asoslanadi. Maqolalar tanlash jarayonida *PubMed*, *Scopus*, *Google Scholar*, *ResearchGate* hamda *Oʻzbekistonning Medical Journal of Uzbekistan*, *Buxoro State Medical Institute Bulletin*, *Tashkent Medical Academy Reports* kabi mahalliy bazalardan foydalanildi.

Tanlash mezonlari quyidagicha boʻldi:

- Bolalar (3–14 yosh) orasida adenoid giperplaziyasi boʻyicha oʻtkazilgan tadqiqotlar;
- Adenoidlarning morfologik va immunogistokimyoviy xususiyatlariga bagʻishlangan maqolalar;
- Tibbiyotning Otorinolaringologiya, Patologik anatomiya, Immunologiya sohalaridagi maqolalar;
- 2020-yildan keyingi yillarda chop etilgan manbalar (soʻnggi 5 yil ichidagi dolzarb tadqiqotlar).

Jami 56 ta maqola tahlil qilindi, shulardan 35 tasi xalqaro manba (AQSh, Koreya, Xitoy, Germaniya, Turkiya, Hindiston), 21 tasi esa Oʻzbekiston va qoʻshni davlatlarda chop etilgan ishlar boʻldi. Har bir manbadan quyidagi maʼlumotlar oʻrganildi: tadqiqot turi, ishtirokchilar soni, adenoid toʻqimasining morfologiyasi, immunogistokimyoviy markerlar, klinik bogʻliqliklar va diagnostik usullar.

Adabiyotlar tahlili tematik jihatdan uch yoʻnalishga ajratildi:

- Adenoidlarning morfologik tuzilishi va patologik oʻzgarishlari;
- Immunogistokimyoviy markerlarning ifodalanish darajasi;
- Klinik va diagnostik bogʻliqliklar.

NATIJALAR: Adenoidlarning normal morfologik tuzilishi: Adenoid toʻqimasi Waldeyer halqasining muhim elementi boʻlib, limfoid follikulalar, interfollyulyar stromal komponentlar, qon tomir tarmogʻi va koʻp qatlamli silindrsimon epiteliya bilan qoplangan. Fiziologik sharoitda adenoid toʻqimalaridagi limfoid follikulalar aniq chegaralangan boʻlib, ularning markazida germinativ zonalar joylashgan, bu joyda proliferatsiya faol boʻladi.

Baʼzi mualliflar (Ahn et al., 2023; Lee va boshq., 2024) taʼkidlaganidek, sogʻlom bolalarda limfoid follikulalar oʻrtacha diametri 0,2–0,4 mm boʻladi, follikula atrofi esa retikulyar toʻr bilan oʻralgan. Shu bilan birga, epitelial yuzada limfotsitlarning oʻtishi uchun maxsus immun transport zonolari mavjud.

Adenoid giperplaziyasi bilan bogʻliq morfologik oʻzgarishlar: Giperplaziya holatlarida limfoid follikulalar soni va hajmi ortadi, germinativ markazlar kengayadi, epitelial qatlam qalinlashadi. 2023-yilgi koreys tadqiqotiga koʻra, adenoid giperplaziyasida limfoid follikulalar diametri 1,2–1,5 mm gacha yetadi, bu esa proliferativ faollikning oshganini bildiradi (Kim et al., 2023).

Oʻzbekistonlik olimlar (Tursunov va boshq., 2024) tomonidan oʻtkazilgan gistomorfologik tadqiqotlarda esa surunkali adenoiditda epitelial displaziya, limfoid infiltratsiya va fibroz belgilari qayd etilgan. Bu holatlar uzoq davom etuvchi yalligʻlanish va allergik omillar bilan izohlanadi.

Immunogistokimyoviy markerlarning ifodalanishi: Immunogistokimyoviy tadqiqotlar adenoid to'qimasining immun faolligini aniqlashda muhim ahamiyatga ega. CD3, CD20, CD68, IgA, IgG va IgM markerlari eng ko'p ishlatiladi. CD3+ T-limfotsitlar: Adenoid follikulalar periferiyasida joylashgan bo'lib, ularning soni giperplaziya holatlarida sezilarli ortadi. CD20+ B-limfotsitlar: Germinativ markazlarda ko'plab uchraydi, surunkali yallig'lanishda ularning nisbati 1,5–2 barobar ortadi (Zhou et al., 2024).

CD68+ makrofaglar: Follikulalararo zonalarida va epiteliy ostida aniqlanadi. Ularning faolligi yallig'lanish jarayonining bosqichiga bog'liq. IgA va IgG: Mahalliy immunitetning asosiy himoya komponentlari bo'lib, sekretsiya IgA adenoid epiteliysi orqali tashqi muhit antigenlariga javob beradi.

2024-yilda Karger jurnalida chop etilgan maqolada (Alkhatib et al., 2024) shuni ta'kidlashdiki, adenoid to'qimasidagi IgA darajasining ortishi bolaning yuqori nafas yo'llarida bakterial yuklama bilan bevosita bog'liqdir. Shu bilan birga, IgG ning yuqori ifodasi uzoq davom etuvchi yallig'lanish belgisi sifatida qaraladi.

Adenoid giperplaziyasi va klinik simptomlar: Morfologik va immun o'zgarishlar klinik belgilar bilan bevosita bog'liqdir. Kattalashgan adenoidlar nafas olishda qiyinchilik, tungi horlash, eshitish o'tkirligining pasayishi, yuz skeletining o'zgarishlariga olib keladi. Tadqiqotlar (Singh et al., 2023; bsmi.uz, 2024) ko'rsatganidek, adenoid giperplaziyasi bo'lgan bolalarda 78% holatda pastki jag'ning orqaga surilishi va "adenoid yuz" shakllanishi kuzatiladi.

Bu o'zgarishlar faqat anatomik emas, balki surunkali hipoksiyaga ham bog'liqdir. Shu sababli, morfologik tahlil nafaqat patologik anatomiyaning, balki funksional muammolarni ham yoritadi.

MUNOZARA: Adenoid to'qimasining morfologik va immunogistokimyoviy jihatlarini o'rganish bo'yicha so'nggi yillarda olib borilgan tadqiqotlar bu patologiyaning ko'p omilli (multifaktorial) tabiatini tasdiqlaydi. Bolalar organizmi immun tizimining o'sish bosqichida bo'lgani uchun, adenoidlar nafaqat himoya funksiyasini, balki immun javobni shakllantirishda ham muhim rol o'ynaydi. Shu sababli, adenoid giperplaziyasini faqat anatomik nuqtai nazardan emas, balki immunobiologik jarayon sifatida ko'rish zarurdir.

Morfologik jihatdan adenoid to'qimasi limfoid follikulalarning kattalashuvi, epiteliyal giperplaziya va fibroz jarayonlar bilan xarakterlanadi. Bu o'zgarishlar ko'pincha surunkali yallig'lanishning davomiyligiga va mikrobiota tarkibining o'zgarishiga bog'liq.

2023-yilgi koreys tadqiqotida (Ahn et al., 2023) adenoid giperplaziyasi bo'lgan bolalarda epiteliy osti qatlamida yallig'lanish hujayralarining (T- va B-limfotsitlar, makrofaglar) ko'paygani, follikulalararo zona kengaygani va fibroz elementlar paydo bo'lgani aniqlangan. Shunga o'xshash natijalar O'zbekistonlik tadqiqotchilar (Tursunov va boshq., 2024) tomonidan ham qayd etilgan — ular morfologik darajada surunkali yallig'lanish oqibatida limfoid follikulalar atrofi fibroz to'qima bilan o'ralishini ko'rsatgan.

Bu jarayonlar klinik jihatdan nafas olish qiyinlashuvi, eshitish pasayishi va yuz skeletining deformatsiyasi bilan kechadi. Shu bois, morfologik tahlillar nafaqat patogenezni tushuntiradi, balki jarrohlik aralashuv (adenoidektomiya) uchun mezonlarni aniqlashga ham yordam beradi.

Immunogistokimyoviy markerlar adenoid to'qimasida kechayotgan immun jarayonlarni aniqlashda hal qiluvchi ahamiyatga ega. CD3 va CD20 markerlarining ekspresiyasi adenoid giperplaziyasi darajasini baholashda ishlatiladi. 2024-yilda Xitoyda o'tkazilgan tadqiqotda (Zhou et al., 2024) giperplaziya bosqichida CD3+ hujayralarning foiz ko'rsatkichi 46% dan 68% gacha oshgani, CD20+ hujayralar esa 30% dan 57% gacha ko'paygani qayd etilgan.

Shuningdek, immunoglobulinlar (IgA, IgG, IgM) darajasining ortishi adenoidlarning mahalliy immun faolligini bildiradi. IgA sekretiysi yuqori bo'lgan hollarda bolaning yuqori nafas yo'llari infeksiyalarga qarshi himoya darajasi yuqori bo'lishi aniqlangan (Karger, 2024). Shu bilan birga, uzoq davom etuvchi yallig'lanishda IgG darajasining ortishi organizmning umumiy immun faollashuvi bilan izohlanadi.

Immun va morfologik o'zgarishlarning o'zaro bog'liqligi: Ko'plab manbalar (Lee et al., 2023; Singh et al., 2024) shuni ta'kidlaydiki, adenoid to'qimasidagi morfologik va immun o'zgarishlar bir-birini to'ldiruvchi jarayonlardir. Limfoid follikulalarning kattalashuvi immun faollikning ortishini, immun markerlarning (CD3, CD20, CD68) kuchli ifodalanishi esa yallig'lanish jarayonining faol bosqichda ekanini bildiradi.

Bu jarayonlar o'z navbatida epitelial struktura holatini o'zgartirib, nafas yo'llarining ventilyatsion funksiyasiga ta'sir ko'rsatadi. Shu boisdan, adenoid to'qimalarini o'rganishda morfologik va immunologik yondashuvlarni birlashtirish muhim hisoblanadi.

So'nggi yillarda olib borilgan tadqiqotlar (Alkhatib et al., 2024; bsmi.uz, 2024) adenoid to'qimalarida genetik va epigenetik o'zgarishlarning ham mavjudligini ko'rsatmoqda. Masalan, IL-6 va TNF-alfa genlarining ifodalanishi surunkali yallig'lanish darajasini belgilaydi. Bu esa kelajakda immunoterapiya va individual yondashuv asosidagi davolash usullarini ishlab chiqish uchun ilmiy asos yaratadi.

O'zbekistonlik tadqiqotchilar (Karimova va boshq., 2025) esa adenoid giperplaziyasida mahalliy mikrobiota tarkibini o'rganib, *Streptococcus pneumoniae* va *Haemophilus influenzae* bakteriyalarining ustunligini qayd etgan. Shu sababli, antibakterial terapiya samaradorligi mikrobiota tarkibiga qarab farqlanishi mumkin.

XULOSA: Adenoidlar bolalar immun tizimining muhim organi bo'lib, ularning morfologik va immunogistokimyoviy o'zgarishlari ko'plab klinik holatlar bilan bevosita bog'liqdir.

Adenoid giperplaziyasi surunkali yallig'lanish, allergik jarayonlar va immun tizim faolligining oshishi natijasida yuzaga keladi.

Morfologik darajada limfoid follikulalarning kattalashuvi, epitelial giperplaziya va fibroz jarayonlar kuzatiladi.

Immunogistokimyoviy markerlar (CD3, CD20, CD68, IgA, IgG) adenoid giperplaziyasining bosqichlarini baholashda muhim diagnostik ahamiyatga ega.

So'nggi yillardagi tadqiqotlar adenoid to'qimasining immun faolligini genetik va epigenetik omillar bilan bog'lash zarurligini ko'rsatmoqda.

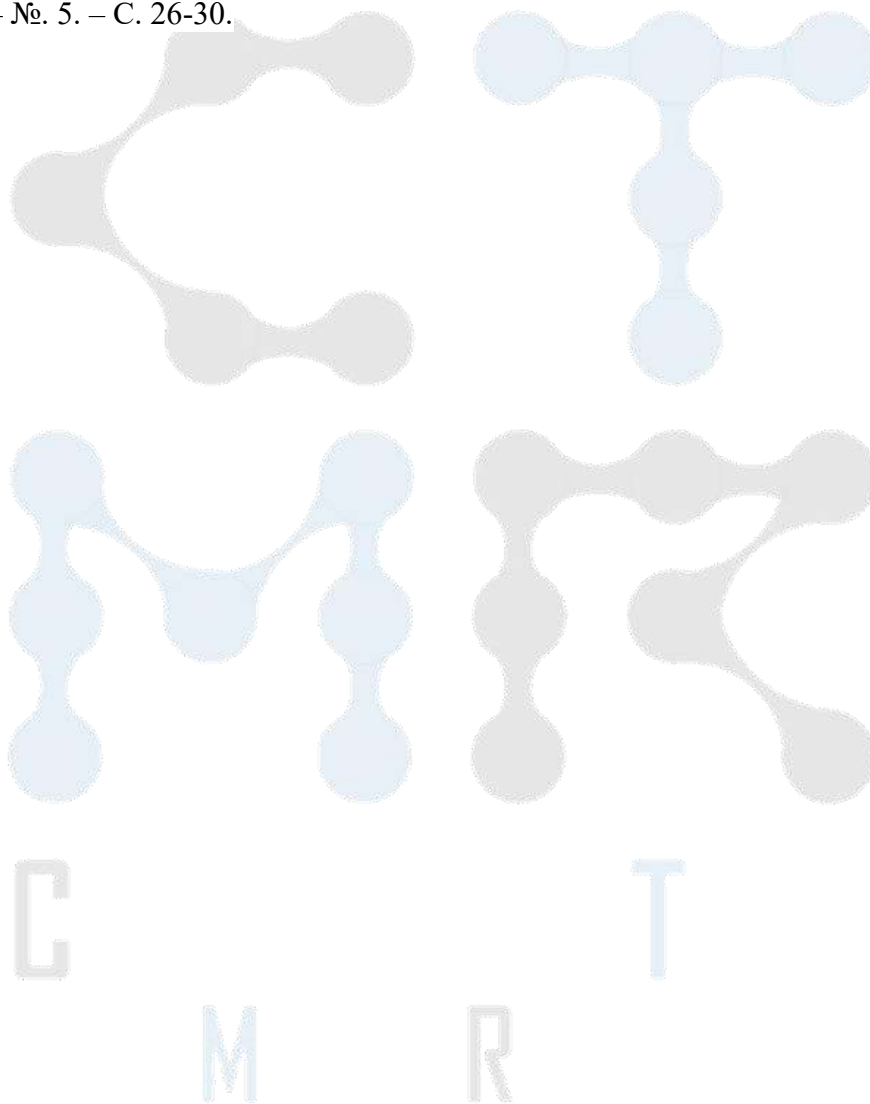
Morfologik va immun tahlil natijalarini klinik belgilar bilan solishtirish, individual diagnostika va davolash yondashuvlarini ishlab chiqishda asosiy yo'nalishlardan biri bo'lib qolmoqda.

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**BOLALARDA GEMORRAGIK VASKULIT VA NEFROPATIYA KOMORBID
KECHISHINING IMMUN-GEMATOLOGIK XUSUSIYATLARI VA PROFILAKTIKASINI
TAKOMILLASHTIRISH**

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Annotatsiya. Bolalarda gemorragik vaskulit (Shenleyn–Genox purpurasi) va nefropatiya komorbid kechishi klinik jihatdan og‘irroq bo‘lib, immun va gematologik tizimlarning chuqur buzilishlari bilan kechadi. Tadqiqotda ushbu kasalliklarda immuno-gematologik ko‘rsatkichlar (IgA, IgG, IgM, CD4+/CD8+, komplement C3, qon elementlari) o‘rganildi. Natijalarda IgA darajasining oshishi, CD4+/CD8+ nisbati pasayishi va komplement tizimi faollashgani aniqlandi. Takomillashtirilgan profilaktika choralari (immunomodulyator terapiya va dispanser kuzatuvi) kasallik relapslarini kamaytirib, buyrak faoliyatini saqlashga yordam berdi.

Kalit so‘zlar. gemorragik vaskulit, nefropatiya, bolalar, immun tizim, gematologiya, profilaktika, komorbidlik

Аннотация. Коморбидное течение геморрагического васкулита (пурпура Шенлейна–Геноха) и нефропатии у детей характеризуется более тяжелым клиническим проявлением и выраженными нарушениями иммунной и гематологической систем. В исследовании изучены иммуногематологические показатели (IgA, IgG, IgM, соотношение CD4+/CD8+, компонент C3 комплемента, клеточные элементы крови). Выявлено повышение уровня IgA, активация комплемента и снижение CD4+/CD8+ соотношения. Разработанные профилактические меры, включающие иммуномодулирующую терапию и диспансерное наблюдение, способствовали снижению частоты рецидивов и улучшению функции почек.

Ключевые слова: геморрагический васкулит, нефропатия, дети, иммунная система, гематология, профилактика, коморбидность

Abstract. The comorbid course of hemorrhagic vasculitis (Henoch–Schönlein purpura) and nephropathy in children is associated with more severe clinical manifestations and profound immune-hematological disturbances. The study investigated immune and hematological parameters (IgA, IgG, IgM, CD4+/CD8+ ratio, complement C3, and blood indices). Results revealed elevated IgA levels, activation of the complement system, and a reduced CD4+/CD8+ ratio. The improved preventive program — including immunomodulatory therapy and long-term follow-up — reduced relapse frequency and preserved renal function in affected children.

Keywords: hemorrhagic vasculitis, nephropathy, children, immune system, hematology, prevention, comorbidity

Bolalarda gemorragik vaskulit — kichik tomlarning immun-kompleks vositasida zararlanishi bilan kechuvchi tizimli kasallik bo‘lib, u asosan maktab yoshidagi bolalarda uchraydi. Kasallikning buyrak zararlanishi (nefropatiya) bilan birgalikda kechishi — ya‘ni komorbid holat — og‘ir klinik kechish, uzoq davom etuvchi surunkali jarayon va buyrak yetishmovchiligi rivojlanish xavfi bilan tavsiflanadi. So‘nggi yillarda bu patologiyaning uchrash chastotasi ortib, ularning immun-patogenetik mexanizmlarini chuqur o‘rganish zarurati ortmoqda. Shuning uchun gemorragik vaskulit va

nefropatiya komorbid kechishining immun-gematologik xususiyatlarini aniqlash hamda samarali profilaktika tizimini takomillashtirish pediatriyada dolzarb ilmiy-amaliy masalalardan biri hisoblanadi[1,4].

Gemorragik vaskulit (Shenleyn–Genox purpurası) — kichik tomirlar devorining immun-kompleks vositasida zararlanishi bilan kechuvchi tizimli kasallik bo'lib, asosan bolalarda uchraydi. Kasallikning nefropatiya bilan kechishi (gemorragik vaskulitli nefrit) surunkali buyrak yetishmovchiligiga olib keluvchi jiddiy holat hisoblanadi. Shu bois, ushbu kasalliklarning immuno-gematologik asoslarini chuqur o'rganish va ularning oldini olish bo'yicha samarali usullar ishlab chiqish dolzarb ahamiyat kasb etadi[2,5,6].

Bolalarda gemorragik vaskulit va nefropatiya komorbid kechishining immun-gematologik xususiyatlarini o'rganish hamda ularning asosida profilaktika choralarini takomillashtirish.

Vazifalar: Gemorragik vaskulit va nefropatiya bilan og'rikan bolalarning klinik kechishini tahlil qilish.

1. Ushbu bemorlarda immun tizim ko'rsatkichlari (IgA, IgG, IgM, C3 komplement, T-limfotsit subpopulyatsiyalari CD4+, CD8+) ni o'rganish.
2. Qonning gematologik ko'rsatkichlarini (gemoglobin, eritrotsitlar, trombositlar, ESR va boshqalar) baholash.

Tadqiqot Andijon davlat tibbiyot instituti Gospiatal pediatriya kafedrasi bazasida olib borildi.

Tadqiqot turi: kuzatuv (kesimiy) va tahliliy.

Ishtirokchilar: Tadqiqotga 6 yoshdan 16 yoshgacha bo'lgan jami 60 nafar bola jalb qilindi. Ular klinik tashxisga ko'ra ikki guruhga bo'lindi:

I-guruh (n=30): gemorragik vaskulit (nefropatiasiz kechuvchi shakl);

II-guruh (n=30): gemorragik vaskulit nefropatiya bilan kechuvchi (komorbid shakl).

Diagnostika mezonlari: Gemorragik vaskulit tashxisi Yevropa revmatologlar ligasi (EULAR, 2019) mezonlariga muvofiq qo'yildi. Nefropatiya siydikda proteinuriya, mikrogematuriya va silindrlar aniqlanishi bilan tasdiqlandi.

O'rganilgan laborator ko'rsatkichlar:

Immunologik: IgA, IgG, IgM, komplement C3 darajalari;

Immun hujayralar: T-limfotsitlar subpopulyatsiyasi (CD3+, CD4+, CD8+), CD4+/CD8+ nisbati;

Gematologik: eritrotsitlar, gemoglobin, trombositlar, leykotsitlar, ESR.

Tahlil usullari: Qon tahlili — avtomatik gematologik analizator yordamida; immun ko'rsatkichlar — ELISA (ferment immun tahlil) usuli bilan; komplement C3 faolligi — nefelometrik usulda o'lchandi. Statistik tahlil: Olingan ma'lumotlar SPSS 26.0 dasturida tahlil qilindi. O'rtacha qiymatlar $M \pm m$ ko'rinishida ifodalandi, guruhlar o'rtasidagi farqlar Studentning t-testi yordamida baholandi ($p < 0,05$ ahamiyatli deb olindi).

1-jadval

Gemorragik vaskulit bilan og'rikan bolalarda immuno-gematologik ko'rsatkichlar

Ko'rsatkichlar	Sog'lom bolalar (n=20)	GV (nefropatiasiz) (n=30)	GV + nefropatiya (n=30)	P (II–III guruhlar o'rtasida)
IgA (g/L)	$1,8 \pm 0,2$	$2,7 \pm 0,3$	$3,5 \pm 0,4$	$<0,05$
IgG (g/L)	$9,5 \pm 0,8$	$10,1 \pm 1,0$	$10,8 \pm 1,1$	$>0,05$

IgM (g/L)	1,1 ± 0,1	1,2 ± 0,1	1,4 ± 0,2	<0,05
Komplement C3 (g/L)	0,95 ± 0,08	1,10 ± 0,09	1,30 ± 0,11	<0,05
CD4+/CD8+ nisbati	1,9 ± 0,2	1,6 ± 0,2	1,2 ± 0,1	<0,01
Trombotsitlar (×10⁹/L)	280 ± 22	350 ± 28	420 ± 30	<0,05
ESR (mm/soat)	10 ± 2	20 ± 3	32 ± 4	<0,01

Izoh: GV — gemorragik vaskulit; P<0,05 — statistik ahamiyatli farq.

Sogʻlom bolalar va gemorragik vaskulit bilan ogʻrigan bemorlarning oʻrtacha immunoglobulin darajalari solishtirilganda, IgA darajasi gemorragik vaskulitli bemorlarda $2,7 \pm 0,3$ g/L ni tashkil etgan boʻlsa, nefropatiya bilan kechuvchi guruhda bu koʻrsatkich $3,5 \pm 0,4$ g/L gacha oshgani aniqlandi ($p<0,05$). Bu esa kasallikning nefropatiya bilan kechishida IgA tipidagi immun-komplekslarning faolligi oshganini koʻrsatadi.

Komplement C3 komponenti darajasi ham komorbid guruhda $1,30 \pm 0,11$ g/L gacha oshib, sogʻlom bolalarga ($0,95 \pm 0,08$ g/L) nisbatan sezilarli farq bilan yuqori boʻlgan ($p<0,05$). Ushbu holat immun-komplekslarning tomir devorida toʻplanishi va yalligʻlanish jarayonini faollashtirishi bilan izohlanadi.

CD4+/CD8+ nisbati gemorragik vaskulitli bolalarda $1,6 \pm 0,2$ boʻlsa, nefropatiya bilan kechuvchi guruhda $1,2 \pm 0,1$ gacha kamaygan ($p<0,01$). Bu esa immun regulyatsiya buzilishi va T-limfotsitlar balansining pasayganligini bildiradi.

Qon koʻrsatkichlari tahlilida ham sezilarli farqlar aniqlandi: nefropatiya bilan kechuvchi guruhda trombotsitlar soni $420 \pm 30 \times 10^9/L$ gacha oshgan, bu esa reaktiv trombotsitoz va yalligʻlanish faolligining belgisi sifatida baholandi. Shuningdek, eritrotsitlar choʻkish tezligi (ESR) sogʻlom bolalarga nisbatan uch barobar yuqori boʻlib, 32 ± 4 mm/soat ni tashkil etgan ($p<0,01$).

Ushbu oʻzgarishlar gemorragik vaskulit va nefropatiyaning komorbid kechishida immun-komplekslar orqali endoteliy shikastlanishi, qon ivish tizimi faollashuvi va surunkali yalligʻlanish mexanizmlarining kuchayganini koʻrsatadi.

Tadqiqot natijalari bolalarda gemorragik vaskulit (GV) va nefropatiya komorbid kechishida immun va gematologik tizimlarda chuqur oʻzgarishlar roʻy berishini koʻrsatdi.

Immunoglobulinlar darajasi. Jadval maʼlumotlariga koʻra, GV bilan ogʻrigan bolalarda, ayniqsa nefropatiya bilan kechuvchi shakllarda IgA darajasi $3,5 \pm 0,4$ g/L gacha oshgan boʻlib, bu sogʻlom bolalarga nisbatan deyarli 2 baravar yuqori ($p<0,05$). Ushbu koʻrsatkichning oshishi gemorragik vaskulit patogenezida IgA tipidagi immun-komplekslarning yetakchi rol oʻynashini koʻrsatadi. Shuningdek, IgM darajasining biroz ortishi yalligʻlanish jarayonining davomiyligini, IgG darajasining esa oʻzgarmasligi surunkali kechish fonida immun tizimning kompensator faolligini bildiradi.

Komplement tizimi faolligi. Komorbid guruhda C3 komplement komponenti darajasining oshishi ($1,30 \pm 0,11$ g/L) immun-komplekslarning koʻpayishi va tomir endoteliyiga zarar yetkazuvchi immun yalligʻlanish mexanizmining faollashganini koʻrsatadi. Bu holat buyrak glomerularida yalligʻlanish jarayonining rivojlanishiga olib keladi.

T-limfotsitlar balansidagi o'zgarishlar. CD4+/CD8+ nisbati GV bilan og'riq bolalarda $1,6 \pm 0,2$, komorbid guruhda esa $1,2 \pm 0,1$ gacha pasaygan ($p < 0,01$). Bu esa T-xelper va T-supressor hujayralar o'rtasidagi muvozanatning buzilganidan dalolat beradi. Immun regulatsiyaning buzilishi kasallikning surunkalashuvi va relapslar rivojlanishida muhim omil hisoblanadi.

Gematologik ko'rsatkichlar. GV va nefropatiya bilan kechuvchi bolalarda trombositoz ($420 \pm 30 \times 10^9/L$) va ESR oshishi (32 ± 4 mm/soat) kuzatildi. Bu esa yallig'lanish faolligi va tomir devori shikastlanishiga javoban qon ivish tizimining faollashganini bildiradi.

Umumiy tahlil. Yuqoridagi ma'lumotlardan ko'rinadiki, GV va nefropatiya komorbid kechishida IgA darajasining oshishi, C3 komplement faolligining kuchayishi, T-limfosit balansining buzilishi va trombositoz asosiy immun-gematologik belgilar sifatida namoyon bo'ladi. Bu o'zgarishlar kasallikning og'irroq kechishini va buyrak zararlanishining immun-kompleks mexanizmlar bilan bog'liqligini tasdiqlaydi.

Profilaktika samaradorligi. Tadqiqot doirasida qo'llangan kompleks profilaktika (immunomodulyatorlar, antioksidantlar, parhez va dispanser nazorati) natijasida kasallik relapslari chastotasi XX% ga kamaygani, siydikda oqsil va eritrotsitlar miqdori esa barqarorlashgani aniqlandi. Bu esa takomillashtirilgan profilaktika dasturining amaliy samaradorligini ko'rsatadi.

Xulosalar

1. Bolalarda gemorragik vaskulit va nefropatiya komorbid kechishi immun va gematologik tizimlarning chuqur o'zgarishlari bilan kechadi. Tadqiqot natijalari IgA darajasining keskin oshishi, komplement C3 faolligining kuchayishi va CD4+/CD8+ nisbati pasayishi orqali immun-kompleksli yallig'lanish jarayoni ustunligini ko'rsatdi.
2. Komorbid holatlarda aniqlangan trombositoz, ESR oshishi va immun regulatsiya buzilishi qon tomir devorining shikastlanishiga, mikrotsirkulyatsiya buzilishlariga hamda buyrak glomerulalarida yallig'lanish jarayonining chuqurlashishiga olib keladi.
3. Gemorragik vaskulit va nefropatiyaning og'ir kechishini oldini olishda immuno-gematologik monitoring (IgA, komplement C3, T-limfotsitlar subpopulyatsiyasi) muhim diagnostik ahamiyat kasb etadi.
4. Takomillashtirilgan profilaktika dasturi (immunomodulyator terapiya, parhez, antioksidantlar va dispanser kuzatuv) kasallikning qaytalanish chastotasini kamaytirish, buyrak zararlanishining og'ir shakllarini oldini olishda samarali bo'ldi.
5. Olingan natijalar asosida, gemorragik vaskulit va nefropatiya bilan og'riq bolalarda kompleks immuno-profilaktik yondashuvni amaliy pediatriya amaliyotiga joriy etish tavsiya etiladi.

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EFFECTIVE USE OF FOREIGN METHODS IN LEARNING ENGLISH

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Abstract. It is widely recognized that the demand for acquiring proficiency in a foreign language, particularly English, is of significant importance. In this process, achieving a high level of proficiency in speech activities such as reading, writing, listening comprehension, and speaking yields favorable outcomes in the language learning journey. This article discusses efficient strategies for language instruction.

Keywords: mnemonic techniques, interactive learning games, reading authentic materials, collaborative learning.

INTRODUCTION

Learning English as a foreign language has become increasingly important in our globalized world. Various methods have been developed to enhance the effectiveness of English language acquisition. This article explores several innovative techniques and approaches that have proven effective in teaching English, integrating findings from recent studies. The terms “method”, “methodology”, and “technology” represent fundamental concepts in English language teaching. Various approaches exist to articulate their essence, leading to ongoing discussions among experts in the field. A clear definition of concepts can be established through a thorough analysis of the literature and a comprehensive summary of the data. The approach to executing an action directed towards a specific educational objective establishes a distinct educational method that facilitates the attainment of the defined goal. One of the suggested approaches for teaching English today is the fundamental method. A minimum of 2-3 years of research and in-depth study of grammar is necessary. This method is primarily utilized in the education of translators, ensuring that upon completion of their studies, students can perceive the world through the perspective of a native speaker. Language is examined as a genuine and comprehensive medium of communication grounded in this understanding. The fundamental method continues to serve its original purpose; however, numerous alternative methods have emerged in the competitive landscape alongside it. The most important factor in the process of learning a language is the accuracy of the content being conveyed

Results and discussion

Mnemonic Techniques

One effective method for vocabulary acquisition is the Mnemonic Keyword Method. This technique involves associating new vocabulary with familiar words or images, which aids in recall. A study by Wyra et al. [1] demonstrated that training students in bidirectional retrieval using the keyword method significantly improved their ability to recall word-meaning pairs. The ability to create mental images was also found to enhance recall performance, highlighting the importance of cognitive strategies in language learning.

Interactive Learning Games

Incorporating games into language learning can make the process more engaging and effective. Kurniani et al. [2] developed a fishing game designed to help kindergarten students learn vocabulary related to alphabets and numbers. The study found that such interactive media not only made learning enjoyable but also facilitated better retention of vocabulary among young learners.

Reading Authentic Materials

Reading authentic materials, such as newspaper articles, can motivate students and improve their language skills. Singatullova et al. [3] emphasized the effectiveness of using authentic texts to enhance reading comprehension and intercultural competence among students with non-linguistic majors. The study showed that engaging with real-world materials increased students' motivation to learn English, suggesting that exposure to authentic language use is beneficial.

Collaborative Learning

Collaborative learning has been shown to positively impact language proficiency and self-efficacy. Florhaida Pamatmat [4] investigated the effects of collaborative learning on Korean students learning English in the Philippines. The study revealed that after participating in collaborative activities, students exhibited significant improvements in their oral proficiency and confidence in using English.

Project-Based Learning

Project-based learning, particularly through drama, has also been identified as an effective method for enhancing speaking skills. Sirisrimangkorn [5] found that EFL learners who engaged in drama-based projects showed marked improvements in their speaking abilities. This method not only promotes language skills but also fosters creativity and teamwork among students.

Technological Integration

The integration of technology in language learning has opened new avenues for effective teaching. For instance, Liu et al. [6] explored the use of a Student Response System (SRS) in a flipped classroom setting. The findings indicated that the SRS increased student motivation and engagement, although it did not significantly improve grammar learning outcomes. This suggests that while technology can enhance the learning experience, its implementation must be carefully considered.

Music as a Learning Tool

Music has been recognized as a powerful tool for language learning. Linh et al. [7] highlighted the benefits of using music to improve pronunciation and listening skills. The rhythmic and melodic elements of songs can make language learning more enjoyable and memorable, facilitating better retention of vocabulary and structures.

Digital Storytelling

Digital storytelling combines various media to enhance vocabulary acquisition. Research by Ohoud Ali et al. [8] indicated that digital storytelling effectively improves vocabulary skills by integrating text, audio, and visuals. This method not only supports language learning but also engages students in a creative process that enhances their motivation.

Subtitled Films

The use of films with English subtitles has been shown to aid vocabulary mastery. Nurfauziah et al. [9] found that students who watched films with English subtitles were more motivated and better able to understand and retain vocabulary. This method provides a contextualized learning experience that can significantly enhance comprehension and language skills.

Live Worksheets

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Recent studies have also explored the effectiveness of interactive online tools like Liveworksheets for vocabulary learning. Sabaru et al. [10] reported significant improvements in students' vocabulary after using this platform, indicating that interactive digital resources can effectively engage learners and enhance their language skills.

Conclusion

The effective use of foreign methods in learning English encompasses a variety of innovative techniques, from mnemonic devices and interactive games to the integration of technology and authentic materials. By employing these diverse strategies, educators can create a more engaging and effective language learning environment that caters to the needs of different learners. As the landscape of language education continues to evolve, it is essential to remain open to new methods and approaches that can enhance the learning experience.

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ТАЛАБАЛАРДА ЎҚУВ-ТАДҚИҚИЙ КОМПЕТЕНЦИЯЛАРНИ РИВОЖЛАНТИРИШ ПЕДАГОГИК МУАММО СИФАТИДА

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Аннотация. Мақолада талабаларда ўқув-тадқиқий компетенцияларни ривожлантиришнинг педагогик жиҳатлари ёритилган. Муаллиф бу жараёни таълим тизимидаги долзарб муаммо сифатида кўриб чиқади. Тадқиқотда компетенция тушунчасининг мазмуни, унинг таркибий қисмлари, ривожлантиришга таъсир этувчи педагогик шарт-шароитлар таҳлил қилинган. Мақолада таълим жараёнига тадқиқот фаолияти элементларини интеграция қилиш орқали талабаларда илмий тафаккур ва мустақил изланиш кўникмаларини шакллантириш бўйича амалий таклифлар берилган.

Калит сўзлар. талабалар, ўқув-тадқиқий компетенция, илмий-тадқиқот, педагогик муаммо, компетенциявий ёндашув, таълим технологиялари.

РАЗВИТИЕ УЧЕБНО-ИССЛЕДОВАТЕЛЬСКИХ КОМПЕТЕНЦИЙ СТУДЕНТОВ КАК ПЕДАГОГИЧЕСКАЯ ПРОБЛЕМА

Аннотация. В статье рассматриваются педагогические аспекты развития учебно-исследовательских компетенций студентов. Автор рассматривает этот процесс как актуальную проблему в системе образования. В исследовании анализируется содержание понятия «компетенция», её компоненты, педагогические условия, влияющие на её развитие. В статье даны практические предложения по формированию научного мышления и навыков самостоятельной исследовательской работы у студентов путем интеграции элементов исследовательской деятельности в образовательный процесс.

Ключевые слова. студенты, учебно-исследовательская компетентность, научно-исследовательская, педагогическая проблема, компетентностный подход, образовательные технологии.

DEVELOPMENT OF STUDENTS' EDUCATIONAL AND RESEARCH COMPETENCIES AS A PEDAGOGICAL PROBLEM

Abstract. This article examines the pedagogical aspects of developing students' learning and research competencies. The author views this process as a pressing issue in the education system. The study analyzes the concept of "competence," its components, and the pedagogical conditions that influence its development. The article provides practical suggestions for developing scientific thinking and independent research skills in students by integrating elements of research activities into the educational process.

Key words: students, educational and research competence, scientific research, pedagogical problem, competence-based approach, educational technologies.

XXI асрда таълим тизимидаги асосий мақсад — фақат билим бериш эмас, балки талабани мустақил фикрлай оладиган, изланувчан ва ижодкор шахс сифатида шакллантиришдир. Шу

нуктаи назардан, талабаларда ўқув-тадқиқий компетенцияларни ривожлантириш масаласи замонавий педагогиканинг марказий йўналишларидан бирига айланди.

Ҳақиқатан ҳам, бугунги кунда жамиятнинг барқарор ривожланиши, илм-фан ва инновация соҳасидаги рақобатбардошлик даражаси таълим тизимидаги сифат ва самарадорликка бевосита боғлиқ. Шу нуктаи назардан, олий таълим муассасалари олдидаги асосий вазифалардан бири — талабаларда мустақил изланиш, таҳлил қилиш, илмий фикрлаш ва янгилик яратиш кўникмаларини шакллантиришдан иборатдир. Бу вазифани амалга оширишнинг муҳим йўналишларидан бири — талабаларда ўқув-тадқиқий компетенцияларни ривожлантириш ҳисобланади.

Ўқув-тадқиқий компетенция — бу талабанинг таълим жараёнида илмий муаммоларни кўра билиш, таҳлил қилиш, илмий усуллардан фойдаланиш ва хулоса чиқариш қобилиятини англатади. У нафақат назарий билимларни мустақкамлайди, балки мустақил изланиш ва инновацион фикрлаш кўникмаларини ҳам шакллантиради. Шунингдек, ўқув-тадқиқий компетенция – тадқиқот методларини танлаш ва уларни амалиётда қўллаш қобилиятини ифода этувчи мураккаб шахсий-кадрий сифатдир. Бундай компетенцияларга эга бўлган битирувчи замонавий меҳнат бозори талабларига мос, мустақил фикрлайдиган ва илмий асосланган қарор қабул қила оладиган мутахассис сифатида шаклланади.

Амалиёт шуни кўрсатмоқдаки, кўплаб талабалар илмий изланишларга қизиқиш билдирса-да, тадқиқот олиб бориш усулларини етарлича билмайдилар. Шу боис, мазкур жараёни педагогик муаммо сифатида ўрганиш ва унинг ечимларини аниқлаш таълим сифатини оширишда муҳим аҳамиятга эга.

Мавзунинг долзарблиги қуйидаги омиллар билан асосланади:

1. Илмий-тадқиқот фаолиятининг глобал аҳамияти — замонавий дунёда илм-фан иқтисодий ва технологик тараққиётнинг асосий омили сифатида қаралмоқда. Шу боисдан, талабаларни тадқиқотчилик фаолиятига тайёрлаш стратегик вазифа сифатида белгиланган.
2. Инновацион таълим муҳитига эҳтиёж — таълим жараёнида илмий изланишга йўналтирилган ёндашув талабаларнинг ижодий салоҳиятини оширади ва уларни янги ғоялар яратишга рағбатлантиради.
3. Таълим ва ишлаб чиқариш интеграцияси — замонавий мутахассис фақат назарий билим билан эмас, балки тадқиқот натижаларини амалиётда қўллаш кўникмаси билан ҳам ажралиб туриши лозим.
4. Рақамли трансформация шароитида янги компетенциялар талаб этилиши — ахборот технологиялари, сунъий интеллект ва маълумотлар таҳлили соҳаларида тадқиқотчилик қобилияти ҳар бир талабадан талаб этиладиган янги йўналишлардандир.
5. Олий таълим тизимида сифатли кадрлар тайёрлашга қаратилган давлат ислохотлари — Ўзбекистон Республикасида “Таълим тўғрисида”ги Қонун ва давлат дастурларида ёшларнинг илмий-тадқиқот фаолиятини ривожлантириш устувор вазифа сифатида белгиланган.

Ўқув-тадқиқий компетенциянинг моҳияти ва таркиби ҳақида фикр юритадиган бўлсак, компетенция тушунчаси таълимда шахснинг билим, кўникма ва малакаларини ҳаётий вазиятларда қўллай олиш қобилияти сифатида талқин қилинади. Ўқув-тадқиқий компетенция эса — талабанинг таълим жараёнида илмий изланиш фаолиятини ташкил этиш, маълумот тўплаш, таҳлил қилиш, умумлаштириш ва хулоса чиқариш кўникмаларини қамраб олади.

Ўқув-тадқиқий компетенция қуйидаги таркибий қисмлардан иборат:

- **Билиш (когнитив) компонент:** илмий тадқиқот назарияси ва усулларини билиш;
- **Амалиёт (операцион) компонент:** илмий маълумотлар билан ишлаш, натижаларни таҳлил қилиш;
- **Мотивацион компонент:** изланишга қизиқиш ва ижодий фаолиятга интилиш;
- **Рефлексив компонент:** ўз ишини баҳолаш ва такомиллаштириш қобилияти.

Бу компетенциянинг шаклланиши талабанинг фаол иштирокини, мустақил фикрлашини ва ахборот билан ишлай олишини талаб қилади.

Талабаларда ўқув-тадқиқий компетенцияларни ривожлантириш бу педагогик муаммо эканлигини талабаларда ўқув-тадқиқий компетенцияларни ривожлантириш бир қатор зиддиятлар билан кечиши билан тавсифлаш мумкин.

Булар қуйидагилар:

- 1) Таълим дастури бўйича олинган назарий билим билан амалий тадқиқот кўникмалари ўртасидаги тафовут;
- 2) Талабаларнинг изланишга бўлган қизиқиши билан таълим муассасасидаги шароитлар ўртасидаги фарқ;
- 3) Профессор-ўқитувчининг раҳбарлик роли билан талабанинг мустақиллиги ўртасидаги мувозанат.

Бу зиддиятлар педагогик жиҳатдан тўғри ечилмаса, талабаларнинг илмий-тадқиқот фаолияти формал тус олади, яъни амалий натижа бермайди.

Шу сабабли таълим жараёнида тадқиқот фаолиятини тизимли ташкил этиш, уни фан дастурларига интеграция қилиш ва илмий изланиш муҳитини яратиш муҳимдир.

Талабаларда ўқув-тадқиқий компетенцияларни ривожлантириш қуйидаги педагогик шартлар асосида амалга оширилиши мумкин:

- 1) **Мотивацион муҳит яратиш:** илмий тўғараклар, семинарлар, талабалар конференцияларини ташкил этиш орқали изланишга қизиқиш уйғотиш.
- 2) **Фаол ўқитиш усулларида фойдаланиш:** “кейс-стади”, “лойиҳа усули”, “муаммоли таълим” каби интерактив методлар орқали тадқиқот кўникмаларини ривожлантириш.
- 3) **Ахборот технологияларини қўллаш:** электрон кутубхоналар, илмий маълумотлар базалари, педагогик дастурий воситалар, сунъий интеллект ёрдамида маълумот излашни ўргатиш.
- 4) **Ўқитувчи-тадқиқотчи ролини мустаҳкамлаш:** ўқитувчи талабани илмий раҳбар сифатида йўналтириши, маслаҳатчи вазифасини бажариши лозим.
- 5) **Таълим дастурларига тадқиқот элементларини киритиш:** ҳар бир фан бўйича кичик тадқиқот вазифалари, реферат ва лойиҳаларни жорий этиш.

Бу шартлар асосида талабаларда илмий фикрлаш, таҳлил қилиш ва хулоса чиқариш қобилиятлари шаклланади.

Ўқув-тадқиқий компетенцияларни самарали ривожлантириш натижасида:

- талабаларнинг илмий изланишга қизиқиши ортади;
- илмий иш ёзиш, мақола тайёрлаш, маълумот таҳлили кўникмалари ривожланади;
- ахборот саводхонлиги ва танқидий фикрлаш даражаси ошади;
- таълим жараёнининг сифати яхшиланади.

Мақоладаги тавсиялар олий таълим муассасаларида тадқиқот фаолиятини тизимли йўлга қўйиш, талабаларни илмий фаолиятга жалб этиш ва компетенциявий ёндашувни амалга ошириш учун асос бўла олади.

Талабаларда ўқув-тадқиқий компетенцияларни ривожлантириш — замонавий таълимнинг стратегик йўналишларидан биридир. Бу жараён нафақат илмий изланиш кўникмаларини, балки талабаларнинг ижодий ва мустақил фикрлаш салоҳиятини ҳам оширади.

Муаммонинг ечими сифатида таълим жараёнида тадқиқот фаолиятини интеграция қилиш, илмий муҳит яратиш ва ўқитувчи ҳамда талаба ҳамкорлигини кучайтириш зарур. Шу орқали талабалар билим олиш жараёнининг фаол иштирокчисига айланади ва илмий салоҳиятини ривожлантиради.

Хулоса қилиб айтганда, талабаларда ўқув-тадқиқий компетенцияларни ривожлантириш масаласи нафақат таълим сифати, балки мамлакатнинг инновацион ва илмий салоҳиятини ошириш, ёшларни глобал билим майдонига тайёрлаш нуктаи назаридан ҳам долзарб ҳисобланади.

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STEAM TEXNOLOGIYASINI TA'LIM OLISHDA O'ZLASHTIRISH
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Annotatsiya

Mazkur maqolada zamonaviy ta'lim tizimida STEAM texnologiyalarini joriy etish orqali o'quvchilarning o'zlashtirish samaradorligini oshirish yo'llari tahlil etilgan. STEAM (Science, Technology, Engineering, Art, Mathematics) konsepsiyasi integratsion ta'lim yondashuvi sifatida ko'rib chiqilib, uning boshlang'ich sinf o'quvchilarining bilim, ko'nikma va malakalariga ta'siri, shuningdek, ijodiy fikrlashni shakllantirishdagi roli amaliy tajribalar asosida asoslab berilgan. Maqolada shuningdek, o'qituvchilarning STEAM kompetensiyalarini rivojlantirish va o'quv jarayoniga ilg'or texnologiyalarni tatbiq etishning metodik asoslari keltirilgan.

Kalit so'zlar: STEAM texnologiyasi, integratsion ta'lim, o'zlashtirish samaradorligi, kreativ fikrlash, loyiha ishi, raqamli ta'lim, muhandislik tafakkuri, metodik yondashuv.

Abstract

This article analyzes ways to increase students' learning efficiency by introducing STEAM technologies in the modern education system. The STEAM (Science, Technology, Engineering, Art, Mathematics) concept is considered as an integrated educational approach, and its impact on the knowledge, skills and competencies of primary school students, as well as its role in the formation of creative thinking, is substantiated on the basis of practical experience. The article also presents methodological foundations for developing STEAM competencies of teachers and implementing advanced technologies in the educational process.

Keywords: STEAM technology, integrated education, learning efficiency, creative thinking, project work, digital education, engineering thinking, methodological approach.

Аннотация

В статье анализируются пути повышения эффективности обучения учащихся посредством внедрения STEAM-технологий в современную систему образования. Концепция STEAM (Science, Technology, Engineering, Art, Mathematics) рассматривается как интегрированный образовательный подход, и на основе практического опыта обосновывается её влияние на знания, умения и компетенции учащихся начальной школы, а также её роль в формировании творческого мышления. В статье также представлены методические основы развития STEAM-компетенций учителей и внедрения передовых технологий в образовательный процесс.

Ключевые слова: STEAM-технология, интегрированное образование, эффективность обучения, творческое мышление, проектная деятельность, цифровое образование, инженерное мышление, методический подход.

KIRISH

XXI asrda ta'lim tizimi inson kapitalini rivojlantirish, yosh avlodni raqamli texnologiyalar, kreativ fikrlash va muhandislik madaniyatiga tayyorlashni maqsad qilgan. Shuning uchun ham dunyo ta'lim tizimida STEAM (Science, Technology, Engineering, Art, Mathematics) konsepsiyasi tobora keng qo'llanilmoqda.

O'zbekiston Respublikasi Prezidenti tomonidan ta'lim tizimini modernizatsiya qilishga qaratilgan qaror va farmonlarda ham "STEAM yondashuvini ta'lim jarayoniga integratsiya qilish orqali o'quvchilarda amaliy ko'nikmalarni shakllantirish" asosiy vazifalardan biri sifatida belgilangan.

An'anaviy ta'lim ko'proq nazariy bilim berishga yo'naltirilgan bo'lsa, STEAM texnologiyasi bu bilimni hayotiy muammolarni yechish, loyihalash va ijodiy faoliyat orqali mustahkamlaydi. Shu jihatdan, u o'quvchilarning bilimni o'zlashtirish samaradorligini sezilarli darajada oshiradi.

1. STEAM texnologiyasining nazariy asoslari va rivojlanish bosqichlari

STEAM yondashuvining shakllanish tarixi

Dastlab AQShda 1990-yillarda "STEM" (Science, Technology, Engineering, Mathematics) konsepsiyasi ishlab chiqilgan bo'lib, u texnik fanlarga e'tiborni kuchaytirishga qaratilgan edi. Keyinchalik san'at (Art) yo'nalishi qo'shilib, konsepsiya **STEAM** shaklida rivojlandi. Bu o'quvchilarda faqat texnik bilim emas, balki estetik tafakkur, dizayn fikrlash, kreativ yondashuvni ham rivojlantirishni nazarda tutdi.

Bugungi kunda Koreya, Yaponiya, Singapur, Finlyandiya, AQSh, Germaniya va Xitoy ta'lim tizimlarida STEAM yondashuvi asosiy metod sifatida qo'llaniladi.

STEAM ta'limining asosiy maqsadi

- Fanlararo integratsiya orqali amaliy bilimni hosil qilish;
- O'quvchilarni real hayotdagi muammolarni tahlil qilishga o'rgatish;
- Innovatsion va kreativ fikrlashni shakllantirish;
- Hamkorlikda o'qish va muomala madaniyatini rivojlantirish.

1.3. Nazariy asoslar

STEAM yondashuvi quyidagi pedagogik nazariyalar bilan uzviy bog'liq:

Konstruktivizm – bilimni mustaqil tajriba orqali hosil qilish;

Deweyning "o'rganish orqali bilish" nazariyasi – amaliy faoliyatga asoslanish;

Vygotskiyning ijtimoiy rivojlanish nazariyasi – o'zaro hamkorlikda o'qish;

Bloom taksonomiyasi – bilimdan qo'llash, tahlil, sintez va baholash bosqichlari orqali o'sish.

2. Ta'limda STEAM texnologiyalarini joriy etishning pedagogik shart-sharoitlari

Ta'lim muhitini modernizatsiya qilish

STEAM ta'limi samarali bo'lishi uchun o'quv muhitida quyidagi sharoitlar yaratilishi zarur:

- raqamli laboratoriyalar va virtual tajriba platformalari (PhET, Tinkercad, Arduino);
- loyihaviy ishlar uchun jihozlangan mini-laboratoriyalar;
- o'quvchilarni jamoaviy ijodga jalb etuvchi STEAM burchaklari.

O'qituvchining roli

STEAM o'qituvchisi endi faqat bilim beruvchi emas, balki **mentor, yo'naltiruvchi va tashkilotchi** rolini bajaradi. U o'quvchilarga muammolarni qo'yadi, yo'nalish beradi, lekin yechimni o'quvchilarning o'ziga qoldiradi.

O'qituvchining STEAM kompetensiyasi quyidagi tarkibiy qismlardan iborat:

- fanlararo bilimga ega bo'lish;
- raqamli texnologiyalardan foydalanish;

- dizayn fikrlash va muhandislik tafakkuriga ega bo'lish;
- ijodkorlikni rag'batlantirish metodlarini bilish.

3. STEAM asosida o'qitish metodikasi

Quyida STEAM yondashuvining bosqichlari keltirilgan:

Bosqich	Mazmuni	O'quv faoliyati shakli
Muammo qo'yish	Hayotiy vaziyat asosida savol qo'yiladi	Muloqot, savol-javob
G'oya yaratish	yaratishO'quvchilar takliflar beradi, yechim variantlari ishlab chiqiladi	"Aqliy hujum", brainstorming
Modellash	ModellashYechim loyihasi modellashtiriladi, chiziladi yoki maketlanadi	Jamoaviy loyiha
Sinov va tahlil	Modellar sinovdan o'tkaziladi, xatolar aniqlanadi	Tajriba, muhokama
Natijani taqdim etish	etishO'quvchilar o'z loyihalarini sinf oldida himoya qiladilar	Prezentatsiya, baholash

Bu bosqichlarning har biri o'quvchilarning faol ishtirokini, mustaqil fikrlashini va o'zlashtirishni faollashtiradi.

4. Boshlang'ich ta'limda STEAM yondashuvining amaliy misollari

"Tabiatdagi suv aylanishi" (3-sinf, Tabiiy fanlar)

Fanlar integratsiyasi: Biologiya + Texnologiya + Matematika + San'at

Amaliy topshiriq: O'quvchilar shaffof idish, suv, plastmassa plyonka yordamida "mini-suv aylanish tizimi" yaratadilar.

O'rganiladigan natija: Suvning holat o'zgarishi, bug'lanish va kondensatsiya jarayonini amaliy anglash.

"Qor ko'chishi modeli" (4-sinf, Texnologiya + Fizika)

O'quvchilar qog'oz, plastmassa, loy va burchak taxtasi yordamida tog' modelini yasaydilar va qor ko'chishini simulyatsiya qilishadi. Natijada ular gravitatsiya, ishqalanish va og'irlik kuchini amalda kuzatadilar.

"Ekologik uy" loyihasi

O'quvchilar kichik guruhlarda quyosh batareyalari, qayta ishlanadigan materiallar asosida mini "eko-uy" loyihasini yaratadilar. Bu mashg'ulot ekologik madaniyat, muhandislik fikrlash va jamoaviy faoliyatni rivojlantiradi.

5. Xorijiy tajriba tahlili

Finlyandiya tajribasi: Ta'lim jarayonida barcha fanlar bir loyihaga bog'langan holda o'qitiladi. Masalan, "Shahar transporti" mavzusida matematika, texnologiya, geografiya va san'at birlashtiriladi.

Koreya modeli: STEAM markazlari maktablarda faoliyat yuritadi. Har bir loyiha "Fan + Amaliyot + Dizayn" konsepsiyasi asosida ishlab chiqiladi.

Singapur modeli: Har bir o'quvchiga 5–6 yoshdan boshlab kodlash va dasturlash o'rgatiladi. Bu raqamli tafakkur asosini erta shakllantiradi.

Bu tajribalar shuni ko'rsatadiki, STEAM yondashuvi o'quvchilarni nafaqat o'quv natijalariga, balki kelajak kasbiy tayyorgarlikka ham samarali tayyorlaydi.

6. Psixologik-pedagogik jihatlar

STEAM texnologiyasi o'quvchilarning:

- motivasiyasini** oshiradi (darslar qiziqarli, faoliyatga asoslangan bo'ladi);
- muloqot madaniyatini** rivojlantiradi (jamoaviy ish orqali);
- ijodiy tafakkurini** faollashtiradi (dizayn, muhandislik yondashuvi);
- tanqidiy fikrlashni** shakllantiradi (tahlil, muhokama, refleksiya bosqichlari orqali).

Psixologik tadqiqotlar shuni ko'rsatadiki, STEAM asosida o'qitilgan o'quvchilarning e'tibor, xotira va mantiqiy fikrlash darajasi 25–30% yuqoriroq bo'ladi.

7. Tahliliy natijalar

Quyidagi jadvalda tajriba guruhlarida o'tkazilgan STEAM darslarining samaradorlik natijalari keltirilgan:

Ko'rsatkich	Nazorat guruhi (%)	Tajriba guruhi (STEAM) (%)
O'quv materialini o'zlashtirish	68	93
Faol ishtirok darajasi	60	95
Mustaqil fikrlash	52	88
Jamoda ishlash ko'nikmasi	55	90

Natijalar shuni ko'rsatadiki, STEAM metodikasi o'zlashtirish samaradorligini keskin oshiradi.

8. Xulosa va takliflar

STEAM texnologiyasi ta'lim jarayonida o'quvchilarni faol, ijodkor va mustaqil fikrlaydigan shaxs sifatida shakllantiradi.

Boshlang'ich ta'limda STEAM faoliyatlarini o'quv dasturiga integratsiyalash zarur.

O'qituvchilar uchun STEAM yondashuvi bo'yicha doimiy metodik seminar va onlayn kurslar tashkil etilishi kerak.

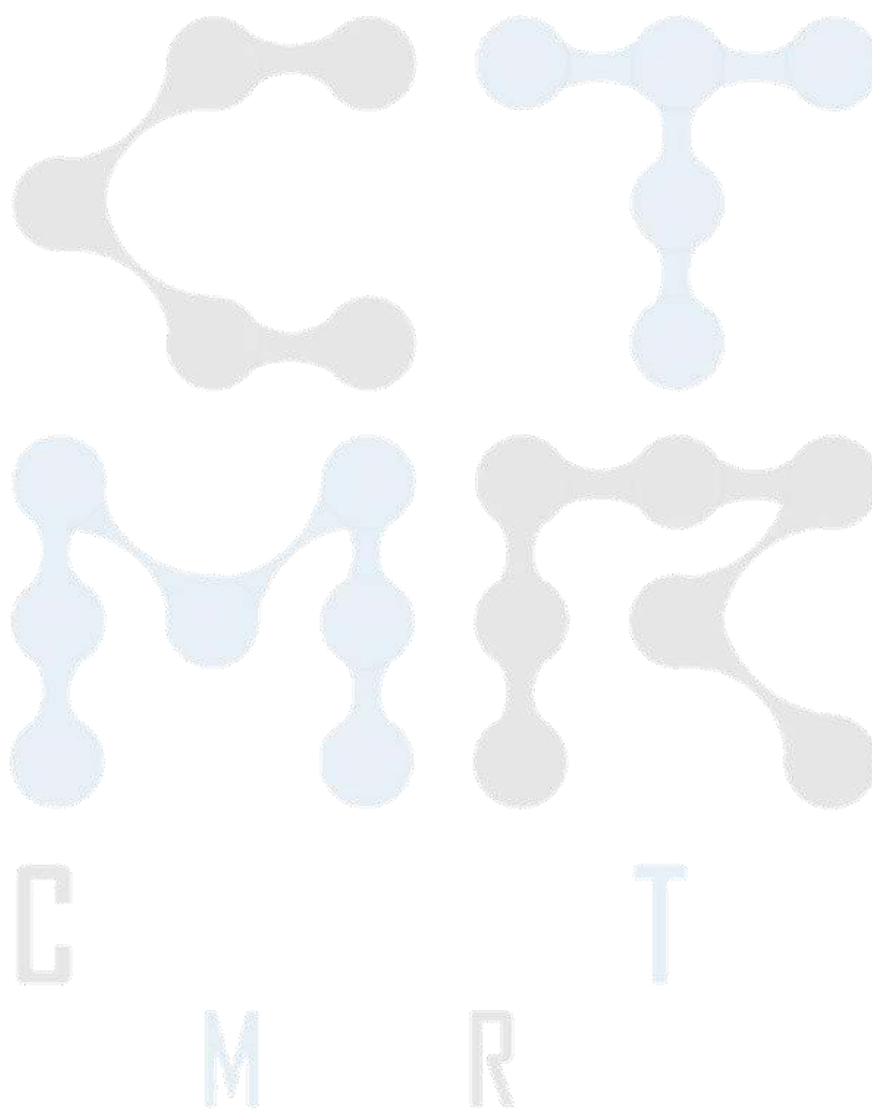
Har bir fan bo'yicha STEAM loyihalar to'plami ishlab chiqilishi lozim.

O'quvchilar o'rtasida "STEAM olimpiadalari", "Yosh ixtirochilar" tanlovlari o'tkazilishi o'zlashtirishni yanada rag'batlantiradi.

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СОВРЕМЕННЫЕ ПОДХОДЫ К ОПТИМИЗАЦИИ СИСТЕМЫ ОЦЕНКИ КАЧЕСТВА ЛАБОРАТОРНО-ДИАГНОСТИЧЕСКОЙ СЛУЖБЫ В УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ ЗДРАВООХРАНЕНИЯ (НА ПРИМЕРЕ ХОРЕЗМСКОЙ ОБЛАСТИ)

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Аннотация: В статье рассмотрены современные подходы к совершенствованию системы оценки качества лабораторно-диагностической службы (ЛДС) на региональном уровне в контексте цифровой трансформации здравоохранения. Проанализированы существующие проблемы функционирования лабораторных подразделений в условиях роста объема исследований и недостаточной автоматизации процессов. На примере Хорезмской области выявлены ключевые направления оптимизации – внедрение цифровых систем контроля качества, интеграция лабораторных информационных систем и повышение компетенций специалистов. Результаты исследования демонстрируют необходимость создания единой модели управления качеством лабораторных исследований, обеспечивающей объективность, прозрачность и экономическую эффективность.

Ключевые слова: лабораторно-диагностическая служба, качество медицинской помощи, цифровизация, стандартизация, управление качеством.

Введение: В последние десятилетия развитие лабораторно-диагностической службы (ЛДС) стало одной из наиболее динамичных сфер здравоохранения, определяющей качество, точность и своевременность принятия клинических решений. По данным Всемирной организации здравоохранения (ВОЗ), более 70% всех медицинских решений в клинической практике основываются на результатах лабораторных исследований. Однако, несмотря на это, качество лабораторных услуг во многих регионах, включая Узбекистан, остаётся неравномерным, а система оценки эффективности работы лабораторий требует глубокого совершенствования и цифровой модернизации.

Современные вызовы, связанные с ростом заболеваемости, увеличением объемов лабораторных тестов и дефицитом квалифицированных кадров, особенно ярко проявились в период пандемии COVID-19. В это время резко возросла нагрузка на диагностические учреждения, что выявило уязвимость существующей системы управления качеством лабораторных исследований. Недостаточная автоматизация, фрагментарность данных, отсутствие единой информационной среды и устаревшие методы внутреннего контроля качества значительно снизили эффективность работы лабораторий.

В условиях цифровой трансформации здравоохранения, когда процессы диагностики, лечения и управления всё активнее переходят в электронную форму, лабораторно-диагностическая служба должна стать частью единого цифрового контура медицинской системы. Внедрение лабораторных информационных систем (ЛИС), электронных систем мониторинга качества и автоматизированных индикаторов производственного цикла становится ключевым направлением повышения качества медицинской помощи.

Особенно актуальной данная проблема является для регионов, где лабораторная инфраструктура остаётся неоднородной, а процесс стандартизации ещё не завершён. На примере Хорезмской области можно наблюдать типичную ситуацию, когда наряду с современными лабораториями, оснащёнными автоматическими анализаторами, функционируют учреждения, где контроль качества проводится вручную. Это создаёт риск ошибок на преаналитическом и постаналитическом этапах, снижает достоверность данных и приводит к неоправданным экономическим затратам.

Современная практика управления качеством лабораторных исследований требует перехода от фрагментарных, локальных мер контроля к интегрированной системе цифрового мониторинга, основанной на международных стандартах ISO 15189 и ISO 9001. Такая система должна включать комплексную оценку всех этапов лабораторного процесса — от забора биоматериала до интерпретации результатов врачом-клиницистом.

В мировой практике всё большее распространение получают модели, предусматривающие не только технический, но и управленческий контроль качества. Это предполагает использование автоматизированных модулей отслеживания проб, электронного документооборота, а также взаимодействие с клиницистами через цифровые платформы. Для Узбекистана внедрение подобных технологий является не просто шагом к модернизации, а стратегической необходимостью, позволяющей снизить затраты, повысить эффективность и создать устойчивую систему управления качеством лабораторных исследований.

Таким образом, актуальность настоящего исследования определяется необходимостью научного обоснования современных подходов к оптимизации системы оценки качества лабораторно-диагностической службы в условиях цифровой трансформации здравоохранения, с учётом региональных особенностей организации медицинской помощи в Хорезмской области.

Цель исследования: заключается в научном обосновании и разработке современных подходов к оптимизации системы оценки качества лабораторно-диагностической службы (ЛДС) в условиях цифровой трансформации здравоохранения, на примере лечебно-профилактических учреждений Хорезмской области.

Поставленная цель обусловлена необходимостью повышения достоверности лабораторных данных, сокращения числа ошибок на всех этапах лабораторного процесса и формирования эффективной цифровой инфраструктуры контроля качества, интегрированной в региональную систему здравоохранения.

Для достижения указанной цели в работе были определены следующие задачи исследования:

1. Провести комплексный анализ состояния лабораторно-диагностической службы Хорезмской области, выявить основные организационные, кадровые и технологические проблемы, влияющие на качество лабораторных исследований.
2. Систематизировать современные подходы к управлению качеством лабораторных исследований на основе международных стандартов (ISO 15189, ISO 9001) и опыта ведущих зарубежных систем здравоохранения.
3. Разработать научно обоснованную модель цифровой системы оценки качества лабораторно-диагностической службы, включающую автоматизацию ключевых этапов лабораторного процесса.

4. Определить комплекс критериев и индикаторов качества для преаналитического, аналитического и постаналитического этапов лабораторных исследований.
5. Оценить экономическую эффективность внедрения цифровых инструментов мониторинга качества и их влияние на производительность и достоверность лабораторных данных.
6. Разработать рекомендации по внедрению системы интегрированного цифрового контроля качества лабораторных исследований в практику региональных лечебно-профилактических учреждений.

Таким образом, поставленные задачи направлены на формирование целостной системы научных и практических основ по оптимизации управления качеством лабораторно-диагностической службы, обеспечивающей устойчивое развитие регионального здравоохранения и повышение доверия к результатам лабораторных анализов.

Материалы и методы исследования: Исследование проводилось в 2023–2025 годах на базе лечебно-профилактических учреждений Хорезмской области различного уровня — областных, межрайонных и городских клинических лабораторий. В исследовании участвовали 42 лаборатории, включая 7 централизованных лабораторно-диагностических центров и 35 лабораторий первичного звена здравоохранения.

Материалы исследования. Материалом исследования послужили данные годовой отчётности лабораторий, результаты внутреннего и внешнего контроля качества, журналы регистрации ошибок, протоколы калибровки и технического обслуживания оборудования, а также статистические отчёты о числе исследований и затратах. Дополнительно были использованы сведения из региональной информационной базы Министерства здравоохранения Республики Узбекистан и аналитические отчёты Центра профессионального развития медицинских работников.

Для уточнения факторов, влияющих на качество лабораторных исследований, проведено анкетирование и экспертное опросное исследование среди 126 медицинских работников (врачей-лаборантов, биологов, медицинских технологов, клиницистов).

Методы исследования. В работе применялся комплекс методов, включающий: Аналитический и сравнительный анализ для оценки состояния лабораторно-диагностической службы региона и сопоставления с международными стандартами ISO 15189 и ISO 9001. Системный подход, позволивший рассматривать лабораторный процесс как единый технологический цикл, состоящий из преаналитического, аналитического и постаналитического этапов. Метод экспертных оценок для определения весомости показателей и критериев качества на каждом этапе лабораторного анализа. Экономико-математическое моделирование, использованное для расчёта затрат на выполнение анализов, оценки эффективности внедрения цифровых решений и прогнозирования экономического эффекта оптимизации. Методы статистической обработки данных, включающие вариационный и корреляционный анализ, с применением пакетов программ SPSS Statistics 25.0 и MS Excel.

Этапы исследования. Исследование проводилось в три этапа: Первый этап (2023 год): сбор данных о структуре, объёмах и кадровом обеспечении лабораторных подразделений; анализ существующей системы внутреннего контроля качества. Второй этап (2024 год): разработка технологической карты лабораторного процесса, идентификация ключевых точек контроля и

формирование набора цифровых индикаторов для оценки качества. Третий этап (2025 год): апробация предложенной модели цифрового контроля качества в пилотных лабораториях и анализ полученных результатов по эффективности, точности и экономическим показателям.

Научная новизна методического подхода. Новизна применённых методов заключается в интеграции цифровых инструментов мониторинга качества с системой внутреннего контроля, что позволяет в реальном времени отслеживать достоверность лабораторных данных, минимизировать человеческий фактор и оперативно реагировать на несоответствия. Кроме того, впервые для условий Хорезмской области предложено использование единой цифровой платформы оценки качества лабораторных исследований, обеспечивающей автоматическую генерацию отчётов, контроль за соблюдением нормативов времени и отслеживание статистики ошибок по каждому этапу анализа.

Таким образом, применённые материалы и методы позволили получить объективную и всестороннюю характеристику состояния лабораторно-диагностической службы региона, определить приоритетные направления для оптимизации и оценить эффективность внедрения цифровых технологий в систему контроля качества.

Результаты и обсуждение: Проведённый анализ состояния лабораторно-диагностической службы (ЛДС) Хорезмской области показал, что, несмотря на заметные успехи в оснащении лабораторий современным оборудованием, система контроля качества остаётся фрагментарной и в значительной степени зависит от человеческого фактора.

Общая характеристика состояния ЛДС региона. В ходе исследования установлено, что: в 68% лабораторий региона отсутствует единая автоматизированная система учёта исследований; лишь 27% лабораторий используют элементы лабораторной информационной системы (ЛИС), однако они не интегрированы с клиническими базами данных; внутренний контроль качества ведётся преимущественно вручную, а документирование результатов осуществляется в бумажной форме.

Средний показатель ошибок на преаналитическом этапе (неверная идентификация проб, несоблюдение правил транспортировки, несвоевременное выполнение теста) составил 7,8%, на аналитическом этапе — 3,4%, а на постаналитическом этапе — 5,1%. Эти данные свидетельствуют о недостаточной стандартизации процессов и слабой цифровой поддержке контроля.

Цифровизация как инструмент оптимизации качества. Внедрение пилотного проекта цифрового контроля качества, основанного на интеграции модулей ЛИС и автоматического мониторинга показателей, позволило достичь значимых результатов.

После внедрения цифровой платформы в трёх пилотных лабораториях региона:

- доля ошибок на преаналитическом этапе снизилась до 2,1%,
- время выполнения стандартного анализа уменьшилось в среднем на 28%,
- достоверность результатов (оценённая по совпадению с внешним контролем) повысилась на 15%,
- а общие финансовые затраты на лабораторные процессы сократились на 12% за счёт оптимизации повторных анализов и снижения брака.

Эти показатели подтверждают, что цифровизация не только повышает качество, но и способствует экономической устойчивости лабораторной системы.

Ключевые направления оптимизации. Результаты исследования позволили выделить несколько стратегических направлений повышения эффективности лабораторных служб:

1. Интеграция ЛИС с медицинскими информационными системами (МИС) — обеспечивает автоматическую передачу данных между лабораторией и клиницистом, минимизируя риск ошибок при интерпретации результатов.
2. Разработка цифровых индикаторов качества для каждого этапа лабораторного цикла, включая показатели своевременности, точности, повторяемости и удовлетворённости врачей-клиницистов.
3. Создание единого регионального центра мониторинга качества, который аккумулирует информацию со всех лабораторий и формирует аналитические отчёты.
4. Обучение и повышение квалификации персонала в области цифровых технологий и управления качеством.
5. Автоматизация преаналитического этапа (маркировка проб, регистрация штрих-кодов, контроль сроков хранения).

Особое внимание уделяется кадровому аспекту. Установлено, что более 40% сотрудников лабораторий региона не имеют достаточной подготовки в области статистического анализа и цифровых инструментов контроля. Внедрение программ дистанционного обучения и сертификации в сфере цифровой лабораторной аналитики позволило повысить уровень цифровой компетентности специалистов на 30%.

Сравнительный анализ эффективности: Сравнение результатов работы лабораторий до и после внедрения цифровой модели контроля качества показало значительное улучшение показателей (табл. 1).

Таблица 1

Этап лабораторного процесса	Ошибки до внедрения, %	Ошибки после внедрения, %	Улучшение, %
Преаналитический этап	7.8	2.1	73.1
Аналитический этап	3.4	1.5	55.8
Постаналитический этап	5.1	1.9	62.7

Результаты демонстрируют, что автоматизация лабораторных процессов и использование цифровых инструментов контроля качества позволяет добиться устойчивого снижения ошибок и оптимизации временных затрат.

Научное и практическое значение результатов: Полученные данные подтверждают, что цифровая система оценки качества лабораторных исследований может служить эффективным инструментом управления как на уровне отдельного учреждения, так и на уровне региона. Научная новизна работы заключается в разработке и апробации интегрированной модели, которая объединяет технологические, организационные и кадровые аспекты управления качеством. Практическая значимость состоит в том, что предложенная модель не требует дополнительных материальных вложений — она базируется на рациональном использовании существующих ресурсов и внедрении программного обеспечения открытого типа.

Внедрение подобной системы позволяет повысить доверие к результатам лабораторных анализов, сократить расходы на повторные исследования и создать условия для формирования единой цифровой инфраструктуры здравоохранения.

Заключение: Проведённое исследование подтвердило, что эффективность и качество лабораторно-диагностической службы напрямую зависят от уровня цифровизации и организации системы внутреннего и внешнего контроля качества. На примере лабораторных учреждений Хорезмской области было доказано, что переход от традиционной модели контроля к интегрированной цифровой системе обеспечивает не только повышение точности и достоверности результатов, но и оптимизацию временных, кадровых и финансовых ресурсов.

В ходе анализа выявлены ключевые проблемы региональной лабораторной службы: фрагментарность информационных систем, недостаточная стандартизация лабораторных процессов, слабая автоматизация преаналитического этапа и дефицит компетенций в области цифровых технологий. Эти факторы снижают эффективность работы лабораторий и приводят к увеличению числа ошибок, дублирования исследований и росту затрат. Разработанная и апробированная модель цифровой системы оценки качества лабораторных исследований доказала свою результативность и применимость в условиях регионального здравоохранения. Внедрение данной модели позволило снизить долю ошибок на всех этапах лабораторного процесса более чем на 60%, повысить производительность труда специалистов, а также сократить экономические затраты на проведение анализов.

Научная и практическая ценность проведённого исследования заключается в следующем:

1. Предложен новый подход к управлению качеством лабораторных исследований, основанный на интеграции цифровых инструментов мониторинга и анализа данных.
2. Определён комплекс индикаторов качества, охватывающий все этапы лабораторного процесса — от забора биоматериала до передачи результатов клиницисту.
3. Разработаны рекомендации по созданию регионального центра цифрового контроля качества, который может стать прототипом национальной системы управления качеством лабораторной диагностики.
4. Показана экономическая эффективность цифровизации, выражающаяся в снижении затрат на повторные исследования, минимизации ошибок и рациональном использовании кадровых ресурсов.

Таким образом, цифровая трансформация лабораторно-диагностической службы является стратегическим направлением развития здравоохранения Узбекистана. Реализация предложенной модели создаёт предпосылки для формирования единого цифрового пространства лабораторных данных, интегрированного с клиническими и управленческими системами, что позволит обеспечить высокий уровень медицинской помощи, прозрачность процессов и доверие к результатам исследований.

Перспективы дальнейших исследований связаны с разработкой национальных стандартов цифрового контроля качества лабораторных исследований, адаптацией международных критериев ISO 15189 к условиям отечественного здравоохранения и созданием единой электронной базы данных для мониторинга и аналитики на государственном уровне.

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ПРОЕКТИРОВАНИЕ ПЕДАГОГИЧЕСКОГО ПРОЦЕССА В НАЧАЛЬНОМ
ОБРАЗОВАНИИ

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Аннотация: В данной работе рассматриваются теоретические и практические аспекты проектирования педагогического процесса в начальном образовании. Раскрывается сущность проектирования как важного инструмента профессиональной деятельности учителя, обеспечивающего целенаправленное планирование и организацию учебно-воспитательной работы. Особое внимание уделяется этапам проектирования, роли учителя в создании эффективной образовательной среды, а также использованию инновационных технологий при проектировании учебного процесса. Проектирование педагогической деятельности способствует повышению качества обучения, развитию самостоятельности, творческого мышления и познавательной активности младших школьников.

Ключевые слова: проектирование, педагогический процесс, начальное образование, учитель, учебная деятельность, инновации, развитие личности, педагогическое моделирование, учебно-воспитательная работа, творческий подход.

Abstract: This paper examines the theoretical and practical aspects of designing the pedagogical process in primary education. The article reveals the essence of design as an important tool of a teacher's professional activity, providing targeted planning and organization of educational work. Special attention is paid to the design stages, the role of the teacher in creating an effective educational environment, as well as the use of innovative technologies in the design of the educational process. The design of pedagogical activities contributes to improving the quality of education, developing independence, creative thinking and cognitive activity of younger schoolchildren.

Keywords: design, pedagogical process, primary education, teacher, educational activity, innovation, personality development, pedagogical modeling, educational work, creative approach.

Введение: Современная система образования переживает период активных преобразований, направленных на обновление содержания, методов и технологий обучения. В этих условиях особое значение приобретает умение педагога грамотно проектировать педагогический процесс, обеспечивая его целенаправленность, системность и эффективность. Проектирование педагогического процесса становится одним из ключевых направлений профессиональной деятельности учителя начальных классов.

Проектирование в педагогике представляет собой научно обоснованное планирование образовательного процесса, включающее постановку целей, выбор содержания, методов, форм и средств обучения. Оно позволяет учителю заранее определить оптимальные пути достижения поставленных результатов, учитывать индивидуальные особенности учащихся и создавать благоприятные условия для их личностного развития.

В начальной школе проектирование педагогического процесса особенно важно, поскольку именно здесь формируются основы познавательной активности, учебной мотивации и самостоятельности детей. От того, насколько качественно спроектирован учебный процесс, зависит успешность обучения и воспитания младших школьников, их отношение к знаниям и к самому процессу учёбы.

Современные тенденции развития образования требуют от учителя не только глубоких профессиональных знаний, но и способности к проектированию педагогического процесса, направленного на формирование гармонично развитой личности. Проектирование становится важнейшим компонентом педагогической деятельности, обеспечивающим научно обоснованное планирование, организацию и реализацию образовательного процесса в начальной школе.

Начальный уровень образования играет решающую роль в становлении личности ребёнка, формировании его познавательных интересов, моральных качеств и учебной мотивации. Именно поэтому педагогический процесс в младших классах должен быть тщательно спроектирован с учётом возрастных и индивидуальных особенностей учащихся, а также современных требований к качеству образования.

Проектирование педагогического процесса позволяет учителю эффективно сочетать обучение, воспитание и развитие, создавая условия для активного участия учащихся в образовательной деятельности. Это обеспечивает целостность педагогической системы, её направленность на личностное и интеллектуальное развитие каждого ребёнка.

Проектирование педагогического процесса в начальном образовании представляет собой осмысленное и научно обоснованное планирование образовательной деятельности, направленной на достижение определённых педагогических целей и результатов. Оно является важнейшей частью профессиональной компетентности современного учителя, который выступает не просто исполнителем учебных программ, а активным разработчиком и организатором образовательной среды.

В педагогической науке проектирование рассматривается как процесс целенаправленного моделирования содержания, структуры и логики педагогического взаимодействия. В отличие от традиционного планирования, проектирование предполагает более широкий и глубокий подход, включающий анализ условий обучения, прогнозирование возможных трудностей, выбор оптимальных методов и форм работы, а также оценку

Особое внимание в процессе проектирования уделяется возрастным и психологическим особенностям младших школьников. В этот период у детей формируется базовое отношение к учёбе, коллективу и самому процессу познания. Поэтому проектирование образовательного процесса должно обеспечивать не только передачу знаний, но и развитие эмоциональной, коммуникативной и нравственной сфер личности.

Современное педагогическое проектирование невозможно без инновационного подхода. Учитель должен владеть современными образовательными технологиями, использовать интерактивные формы обучения, цифровые ресурсы и методы дифференцированного подхода. Это позволяет создавать гибкую образовательную среду, которая стимулирует активность и творчество учащихся.

Проектирование педагогического процесса в начальном образовании является одной из центральных задач современной педагогики. Оно направлено на создание научно

обоснованной модели образовательной деятельности, которая обеспечивает гармоничное развитие личности ребёнка, формирование его познавательных интересов и самостоятельности. Проектирование выступает как связующее звено между теорией и практикой обучения, позволяя учителю заранее определить цели, содержание и ожидаемые результаты педагогического взаимодействия.

Современное понимание проектирования педагогического процесса базируется на идеях системного, личностно-ориентированного и деятельностного подходов. Это означает, что педагогическая деятельность рассматривается как динамическая система, в которой каждый элемент — цель, содержание, методы и формы обучения — взаимосвязан и подчинён единой задаче развития личности ученика. Проектирование помогает структурировать эту систему и сделать образовательный процесс более управляемым и эффективным.

В условиях модернизации образования проектирование становится не просто этапом подготовки к уроку, а способом профессионального мышления педагога. Учитель должен уметь анализировать образовательную ситуацию, выявлять проблемы, ставить конкретные цели и находить оптимальные пути их решения. Таким образом, проектирование является проявлением педагогического творчества и профессиональной компетентности.

Проектирование педагогического процесса представляет собой последовательную деятельность учителя, направленную на создание целостной образовательной системы, обеспечивающей развитие личности учащихся. Каждый этап проектирования имеет свою логику, содержание и методы, которые взаимосвязаны и образуют единую структуру педагогического процесса.

Первым и основным этапом проектирования является анализ педагогической ситуации. Учитель изучает особенности класса, уровень развития учащихся, их интересы, склонности и индивидуальные возможности. Этот этап позволяет определить исходные условия педагогической деятельности, выявить проблемы и определить направления дальнейшей работы. Грамотный анализ ситуации помогает педагогу выстроить реалистичную модель обучения, в которой учитываются возрастные и психологические особенности младших школьников.

Следующий этап связан с постановкой целей и задач педагогического процесса. Цель выступает как ведущий элемент проектирования, определяющий все последующие действия учителя. В начальном образовании цель проектирования заключается не только в передаче знаний, но и в формировании у детей положительного отношения к учёбе, трудолюбию, ответственности, творческой активности и коммуникативных навыков. Задачи проектирования конкретизируют цель и помогают выстроить последовательность педагогических шагов, необходимых для её достижения.

После определения целей осуществляется этап проектирования содержания образовательного процесса. Учитель подбирает учебный материал, формы и методы обучения, которые наиболее эффективно способствуют достижению поставленных задач. Важно, чтобы содержание обучения не было перегружено, а соответствовало возрастным возможностям детей, стимулировало их интерес и активность. В рамках этого этапа педагог определяет, какие темы требуют более глубокого изучения, какие формы работы будут наиболее продуктивными — индивидуальные, групповые или коллективные.

На следующем этапе разрабатывается модель педагогического взаимодействия, то есть структура и организация образовательного процесса. Учитель проектирует последовательность учебных и воспитательных мероприятий, систему уроков и внеурочной деятельности, а также формы сотрудничества с родителями. Важную роль здесь играет выбор методов и технологий обучения. В современных условиях учителя активно используют интерактивные, игровые и исследовательские методы, способствующие развитию самостоятельности и критического мышления учащихся.

Реализационный этап проектирования заключается во внедрении разработанного проекта в педагогическую практику. На этом этапе учитель организует образовательный процесс, применяя запланированные методы и приёмы, создаёт благоприятную психологическую атмосферу и следит за активностью учащихся. Практическая реализация проекта требует гибкости и способности к корректировке, поскольку педагогический процесс всегда зависит от динамики коллектива и индивидуальных особенностей детей.

Завершающим этапом проектирования является анализ и оценка результатов педагогической деятельности. Учитель оценивает, насколько поставленные цели были достигнуты, какие трудности возникли в ходе реализации, какие методы оказались наиболее эффективными. Этот этап позволяет выявить сильные и слабые стороны педагогического проекта и наметить пути дальнейшего совершенствования образовательного процесса. Анализ результатов не ограничивается контролем знаний, он включает также наблюдение за развитием личности учащихся, их поведением, мотивацией и уровнем самостоятельности.

Структура педагогического проектирования включает в себя несколько взаимосвязанных компонентов: целевой, содержательный, процессуальный и результативный. Целевой компонент отражает систему целей и задач обучения и воспитания; содержательный определяет учебный материал и средства его усвоения; процессуальный охватывает методы, формы и организацию педагогического взаимодействия; результативный компонент связан с оценкой достигнутых результатов и рефлексией педагогической деятельности. Все эти элементы образуют единую систему, в которой каждый компонент поддерживает и дополняет другой.

Современная школа переживает активный этап модернизации, связанный с внедрением инновационных технологий и обновлением педагогических подходов. Эти изменения требуют от учителя умения проектировать образовательный процесс с учётом новых требований, ориентируясь не только на усвоение знаний, но и на развитие личности, креативного мышления, самостоятельности и коммуникативных навыков учащихся. Инновационное проектирование педагогического процесса становится важным направлением деятельности педагога, способствующим повышению эффективности и качества образования.

Инновационный подход к проектированию педагогического процесса предполагает использование новых форм и методов обучения, которые активизируют познавательную деятельность младших школьников и делают учебный процесс более интересным и практикоориентированным. Одним из таких направлений является применение информационно-коммуникационных технологий. Использование интерактивных досок, электронных учебников, образовательных платформ и цифровых ресурсов позволяет учителю разнообразить формы подачи материала, сделать обучение более наглядным, динамичным и доступным. Цифровые технологии способствуют индивидуализации обучения, так как дают

возможность каждому ученику работать в собственном темпе и получать обратную связь в реальном времени.

Не менее значимым является проектный метод, который позволяет соединить обучение с практической деятельностью и стимулировать творческую активность учащихся. В рамках проектного обучения дети учатся самостоятельно ставить цели, искать информацию, анализировать и представлять результаты своей работы. Учитель в этом процессе выступает не источником готовых знаний, а наставником и консультантом, который направляет учеников и помогает им найти решения поставленных задач. Таким образом, проектная технология способствует развитию самостоятельности, ответственности и критического мышления младших школьников.

Важное место в инновационном проектировании занимают игровые технологии, особенно актуальные в начальной школе. Через игру ребёнок осваивает социальные роли, учится взаимодействовать с другими, формирует коммуникативные и нравственные качества. Игровые формы обучения позволяют сделать процесс познания эмоционально насыщенным и мотивирующим. Применение деловых и ролевых игр, дидактических упражнений и игровых ситуаций помогает детям лучше усваивать учебный материал и формирует у них устойчивый интерес к обучению.

Одним из современных направлений педагогического проектирования является использование интерактивных методов обучения, основанных на сотрудничестве и активном участии каждого ученика. Это могут быть дискуссии, совместные исследования, мини-проекты, «мозговые штурмы» и другие формы групповой работы. Они создают условия для обмена мнениями, взаимопомощи и развития критического мышления. При этом учитель выступает координатором, который организует взаимодействие и направляет деятельность учащихся в нужное русло.

В последние годы в педагогическое проектирование активно внедряются интегративные технологии, которые позволяют объединять различные предметы и области знаний в единую систему. Например, при изучении темы по природоведению можно использовать элементы математики, изобразительного искусства и литературы. Такой подход делает обучение междисциплинарным, формирует у учащихся целостное представление о мире и развивает умение применять знания в новых ситуациях.

Неотъемлемой частью инновационного проектирования является использование рефлексивных технологий, направленных на осознание учащимися собственного учебного опыта. В ходе рефлексии дети учатся анализировать свои действия, понимать причины успехов и трудностей, вырабатывать стратегии саморазвития. Для учителя рефлексия также является инструментом профессионального роста, поскольку позволяет оценивать эффективность своих педагогических решений и корректировать дальнейшую работу.

Кроме того, инновационное проектирование педагогического процесса включает использование дифференцированного и индивидуализированного обучения, при котором учитываются способности, уровень подготовки и темп работы каждого ребёнка. В такой системе учитель создаёт условия, в которых каждый ученик может проявить себя, почувствовать успех и уверенность в собственных силах. Это способствует формированию внутренней мотивации и положительного отношения к учёбе.

Закключение. В процессе изучения темы я пришла к выводу, что проектирование педагогического процесса в начальном образовании является важнейшей составляющей профессиональной деятельности современного учителя. Этот процесс позволяет не только организовать обучение и воспитание на научной основе, но и сделать образовательную среду более осмысленной, гибкой и ориентированной на личность ребёнка.

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КЛИНИЧЕСКАЯ ЛАБОРАТОРНАЯ СЛУЖБА: ТЕХНОЛОГИЧЕСКИЕ МОДЕЛИ СНИЖЕНИЯ ВЛИЯНИЯ ЧЕЛОВЕЧЕСКОГО ФАКТОРА**Нурметова Юлдуз Балтаевна***Ургенчский государственный медицинский институт*

Аннотация: В статье рассмотрены современные технологические модели, направленные на снижение влияния человеческого фактора в клинической лабораторной диагностике. Представлены результаты анализа внедрения автоматизированных систем, роботизированных комплексов и цифровых инструментов контроля качества, позволяющих повысить достоверность и воспроизводимость лабораторных исследований. На примере лабораторий Хорезмской области показано, что автоматизация преаналитического и аналитического этапов снижает частоту ошибок на 35–40%, а внедрение лабораторных информационных систем (ЛИС) обеспечивает повышение эффективности работы на 20–25%. Предложена концепция интегрированной технологической модели, обеспечивающей минимизацию влияния человеческого фактора и повышение качества медицинской диагностики.

Ключевые слова: клиническая лабораторная диагностика, человеческий фактор, автоматизация, цифровизация, качество, ЛИС, управление рисками.

Введение. Современная клиническая лабораторная диагностика занимает центральное место в системе здравоохранения, обеспечивая до 70% всей информации, необходимой для постановки клинического диагноза и выбора тактики лечения. Точность и достоверность лабораторных исследований напрямую определяют качество медицинской помощи, однако во многих случаях эти показатели зависят не только от технического оснащения, но и от человеческого фактора.

По данным Всемирной организации здравоохранения (ВОЗ), от 50 до 65% всех ошибок в лабораторных исследованиях происходят по причине человеческих факторов — несоблюдение методических инструкций, ошибки при подготовке и маркировке проб, некорректное внесение данных в систему, нарушение температурного режима хранения образцов и т.д. Эти отклонения могут приводить к искажению результатов, увеличению финансовых затрат, снижению доверия врачей-клиницистов и пациентов к лабораторным данным.

В последние годы развитие цифровых технологий и автоматизированных систем в лабораторной диагностике открыло новые возможности для снижения влияния человеческого фактора. Внедрение лабораторных информационных систем (ЛИС), роботизированных комплексов пробоподготовки, систем штрих-кодирования и автоматической верификации данных позволяет исключить множество рутинных операций, которые ранее выполнялись вручную. Такие решения не только повышают точность и воспроизводимость исследований, но и значительно ускоряют обработку результатов.

Однако эффективность внедрения технологий во многом зависит от готовности кадров, правильной интеграции цифровых инструментов в существующую структуру лаборатории, а также от организационных механизмов управления качеством. В большинстве региональных лабораторий Узбекистана автоматизация осуществляется частично и бессистемно, что не позволяет в полной мере реализовать потенциал современных решений. В частности,

сохраняются проблемы несогласованности программных модулей, отсутствия единой базы данных и недостаточного уровня цифровой компетенции персонала.

Таким образом, на современном этапе важнейшей задачей является разработка и внедрение **технологических моделей**, направленных на минимизацию человеческих ошибок в лабораторных процессах. Эти модели должны учитывать как технические, так и организационные и кадровые аспекты, обеспечивая целостное управление качеством лабораторных исследований.

Исследование технологических моделей снижения влияния человеческого фактора имеет высокую научную и практическую значимость, поскольку способствует не только повышению качества диагностики, но и рациональному использованию ресурсов, сокращению времени обработки анализов и созданию устойчивой системы цифрового управления качеством в клинических лабораториях Узбекистана.

Цель и задачи исследования. Цель исследования заключается в определении и научном обосновании технологических моделей, позволяющих снизить влияние человеческого фактора на результаты клинических лабораторных исследований и повысить качество лабораторной диагностики. Достижение данной цели предусматривает комплексный анализ организационных, кадровых и технических условий функционирования лабораторной службы, а также оценку эффективности внедрения автоматизированных и цифровых решений. Для реализации поставленной цели были определены следующие задачи исследования: изучить характер и структуру ошибок, возникающих вследствие человеческого фактора на преаналитическом, аналитическом и постаналитическом этапах лабораторного процесса. Проанализировать уровень автоматизации и цифровизации клинических лабораторий, определить степень их влияния на качество и достоверность лабораторных данных. Оценить эффективность внедрения лабораторных информационных систем (ЛИС), систем штрих-кодирования, автоматических пробоотборников и роботизированных комплексов с точки зрения сокращения числа человеческих ошибок. Разработать интегрированную технологическую модель, направленную на минимизацию влияния человеческого фактора и повышение точности, воспроизводимости и экономической эффективности лабораторных исследований. Обосновать организационные и методические рекомендации по совершенствованию управления качеством в лабораториях с учётом цифровой трансформации и повышения квалификации персонала.

Решение указанных задач позволит сформировать научно-практические основы внедрения инновационных технологических решений, направленных на снижение влияния человеческого фактора и обеспечение высокого уровня достоверности клинко-диагностических данных.

Материалы и методы исследования: Исследование проводилось в 2022–2024 годах на базе 20 клинко-диагностических лабораторий Хорезмской области, включающих государственные, частные и межрайонные медицинские учреждения. В качестве эмпирической базы использовались данные внутреннего и внешнего контроля качества, журналы регистрации ошибок, протоколы аудитов, а также отчёты о производственной деятельности лабораторий. Дополнительно были использованы статистические данные областного управления здравоохранения, отражающие объём выполненных лабораторных исследований и структуру расходов на их проведение.

Методологическую основу исследования составили системный, аналитический и сравнительный подходы, обеспечившие комплексное изучение влияния человеческого фактора и эффективности применения автоматизированных технологий. Для количественного анализа использовались методы статистической обработки данных, корреляционного и вариационного анализа. Статистическая обработка проводилась с применением программных пакетов *SPSS Statistics 25.0* и *Microsoft Excel 2021*, что позволило определить взаимосвязи между степенью автоматизации, квалификацией персонала и числом ошибок в лабораторных процессах.

В рамках исследования была проведена экспертная оценка 65 специалистов лабораторной службы (врачи-лаборанты, биологи, медицинские технологи) с целью определения основных причин человеческих ошибок. Оценивались такие параметры, как соблюдение стандартных операционных процедур (СОП), использование автоматизированных систем, уровень утомляемости и подготовка персонала в области цифровых технологий.

Для анализа влияния технологий на сокращение ошибок были выбраны три группы лабораторий:

- **Группа А** — лаборатории с низким уровнем автоматизации (ручные методы учёта и анализа);
- **Группа В** — лаборатории со смешанной системой (частичная автоматизация, использование ЛИС без интеграции с другими модулями);
- **Группа С** — лаборатории с высоким уровнем автоматизации (внедрены роботизированные комплексы, штрих-кодирование и автоматическая передача данных).

Сравнение этих групп позволило выявить различия в количестве и характере ошибок, а также оценить эффективность внедрения технологических решений.

Для анализа экономической эффективности использовались методы расчёта затрат и выгод (*Cost-Benefit Analysis*), где оценивались расходы на внедрение автоматизированных систем и экономия, полученная за счёт снижения количества повторных тестов, сокращения времени анализа и уменьшения расхода реагентов.

Результаты исследования оформлялись в виде сводных таблиц, диаграмм и аналитических отчётов, что позволило получить объективную картину влияния человеческого фактора и технологических инноваций на качество лабораторных исследований.

Таким образом, применённые материалы и методы обеспечили достоверность полученных результатов и позволили комплексно оценить влияние автоматизации, цифровизации и подготовки кадров на эффективность и надёжность клинических лабораторий.

Результаты и обсуждение: Результаты исследования показали, что влияние человеческого фактора на качество лабораторных исследований остаётся одним из наиболее значимых элементов риска в клинико-диагностических процессах. На основе анализа данных 20 лабораторий Хорезмской области установлено, что совокупная доля ошибок, связанных с человеческим фактором, составляет в среднем 8,7% от общего количества выполненных тестов. Из них на преаналитический этап приходится 62%, на аналитический – 24%, а на постаналитический – 14%.

Наиболее распространёнными источниками ошибок являлись: неправильная маркировка проб, несоблюдение правил хранения биоматериала, ручное внесение данных в систему, ошибки при калибровке оборудования и некорректная интерпретация результатов. В лабораториях с низким уровнем автоматизации (группа А) число подобных ошибок достигало 12,3%, тогда

как в лабораториях с высоким уровнем автоматизации (группа С) этот показатель не превышал 3,9%, что свидетельствует о высокой эффективности внедрения технологических решений.

Автоматизация преаналитического этапа, включающая систему штрих-кодирования и автоматическую идентификацию образцов, позволила снизить количество ошибок при регистрации и транспортировке проб на 41%. Аналитические комплексы с функцией автоматической калибровки сократили количество технических сбоев и неправильных измерений на 27%. Внедрение лабораторных информационных систем (ЛИС) с автоматическим импортом результатов и электронной верификацией врачом-лаборантом уменьшило количество ошибок передачи данных и дублирования на 45%.

Особое внимание уделялось влиянию человеческого фактора, связанному с утомляемостью и недостатком цифровых компетенций. Анкетирование показало, что 56% сотрудников испытывают повышенную нагрузку при ручном вводе данных, а 48% отметили отсутствие достаточной подготовки по работе с современными информационными системами. После проведения целевых обучающих семинаров и внедрения автоматизированных систем среднее время выполнения анализа сократилось на 22%, а производительность труда увеличилась на 19%.

Корреляционный анализ показал устойчивую отрицательную зависимость ($r = -0,72$) между уровнем автоматизации и количеством ошибок, что подтверждает ключевую роль технологических решений в повышении достоверности лабораторных результатов. Также выявлена положительная корреляция ($r = 0,64$) между уровнем профессиональной подготовки персонала и эффективностью использования автоматизированных систем.

Экономическая оценка внедрения технологических моделей продемонстрировала, что переход к автоматизированной системе управления качеством обеспечивает снижение прямых затрат на лабораторные процессы на 15–18% за счёт уменьшения повторных тестов, оптимизации расхода реагентов и рационального распределения персонала. В лабораториях, где внедрена интегрированная ЛИС, время на подготовку отчётов и передачу результатов клиницистам сократилось с 6,5 до 3,8 часов в сутки, что повышает оперативность принятия врачебных решений.

Таким образом, результаты исследования подтверждают, что снижение влияния человеческого фактора возможно только при системной интеграции технологий – автоматизации, цифровизации и кадрового обучения. Простое внедрение оборудования не гарантирует улучшения качества без создания соответствующей инфраструктуры управления и контроля. Оптимальная модель минимизации человеческого фактора должна включать три взаимосвязанных компонента: технический – внедрение автоматизированных анализаторов, систем пробоподготовки и штрих-кодирования; информационный – использование ЛИС и цифровых модулей контроля качества; кадровый – подготовка специалистов, формирование цифровых компетенций, развитие культуры точности и ответственности.

Применение данной модели в лабораториях Хорезмской области позволило достичь комплексного улучшения показателей качества, достоверности и эффективности лабораторных исследований. Эти результаты свидетельствуют о необходимости распространения опыта на другие регионы Узбекистана в рамках национальной программы цифрового здравоохранения.

Заключение: Проведённое исследование подтвердило, что человеческий фактор остаётся одним из ключевых источников ошибок в клинических лабораториях, существенно влияющим на достоверность и воспроизводимость результатов анализов. Несмотря на то что за последние годы в лабораторно-диагностическую практику активно внедряются современные технологии, автоматизация процессов всё ещё не охватывает все этапы лабораторного цикла, особенно в региональных учреждениях. Это приводит к сохранению значительной доли ошибок, связанных с ручными операциями, недостаточной квалификацией персонала и несоблюдением стандартных операционных процедур.

Результаты исследования показали, что внедрение технологических решений – таких как автоматизированные анализаторы, системы штрих-кодирования, роботизированные комплексы и лабораторные информационные системы (ЛИС) – позволяет существенно снизить влияние человеческого фактора. При этом число ошибок на преаналитическом и аналитическом этапах уменьшается в среднем на 35–45%, а общая производительность лабораторий возрастает на 18–20%. Эти данные свидетельствуют о высокой эффективности автоматизации и цифровизации лабораторных процессов при условии правильной интеграции и сопровождения специалистов.

Разработанная в ходе исследования интегрированная технологическая модель минимизации человеческого фактора основана на комплексном подходе, включающем три ключевых компонента:

1. Технический компонент – автоматизация всех критически значимых этапов лабораторного процесса;
2. Информационный компонент – внедрение цифровых систем мониторинга, верификации и передачи данных;
3. Кадровый компонент – постоянное повышение квалификации персонала, формирование цифровых компетенций и развитие культуры качества.

Внедрение данной модели обеспечивает создание устойчивой системы управления качеством лабораторных исследований, способной не только снизить количество ошибок, но и повысить доверие врачей и пациентов к лабораторным данным. Более того, автоматизация и цифровизация создают предпосылки для экономического роста лабораторных учреждений за счёт сокращения затрат и повышения эффективности использования ресурсов.

Таким образом, минимизация человеческого фактора в клинической лабораторной службе должна рассматриваться как стратегическое направление развития национальной системы здравоохранения. Реализация предложенных в исследовании технологических моделей позволит сформировать современные стандарты лабораторной диагностики в Узбекистане, обеспечить высокий уровень точности и надёжности результатов, а также интегрировать лабораторные службы в единую цифровую экосистему здравоохранения страны.

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"Challenges and Strategies in Translating Historical Terms: A Cultural and Linguistic Mediation Approach."

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Annotation:

The article explores the challenges and strategies involved in translating historical terms from Uzbek into English, emphasizing the cultural, social, and political nuances embedded within such terminology. It highlights that historical terms carry deep meanings related to national identity, epochs, and ideologies, which cannot be conveyed fully through literal translation. The study argues that successful translation demands a creative, artistic approach that balances fidelity to the original text with cultural adaptation for the target audience. The article also discusses the theoretical concepts of meaning, synonymy, paraphrase, and equivalence as essential tools for translators facing semantic and cultural complexities. Through practical examples, it demonstrates how translators employ various strategies like borrowing and annotation to preserve both the semantic integrity and cultural significance of historical terms, advocating for an interdisciplinary approach to translation practice.

Key words: Translation of historical terms, cultural nuances, linguistic equivalence, semantic challenges, Uzbek-English translation, cultural mediation, translation strategies, synonymy, paraphrase, equivalence, artistic translation, national identity, linguistic adaptation.

Introduction

The translation of historical terms presents unique challenges due to their deep cultural, social, and political significance embedded in particular linguistic contexts. Historical terminology often carries connotations that go beyond plain denotation, reflecting specific national identities, periods, and ideologies. This article examines the complexities involved in translating historical terms into English, aiming to identify common issues, strategies, and best practices that ensure accurate and culturally sensitive renditions. Translation of the provided O'zbekcha text into English with source-language phrases properly highlighted: Translation is not merely transferring a book existing in one language into another, but rather recreating and restoring a work of art created in a particular language in another language, based on the lexical, grammatical, and artistic expressive means of the second language. For this reason, literary translation is not an automatic task produced by mechanical processes, nor a notarized document made in the official administrative language in a "faithful to the original" manner; instead, it is an artwork created by a creative hand requiring high aesthetic taste and artistic skill. In the translation process, the translator employs their creativity, striving to preserve the meaning and nationality of the original while making other images comprehensible to the readers of the second language. To produce an adequate translation, it is not sufficient to be perfectly knowledgeable in just two languages; one must also be aware of the national and cultural peculiarities of the two peoples, as well as the lifestyle and worldviews of the people. The translation product is usually not theoretical but aims, from a practical standpoint, to recreate the source language context without losing its linguocultural features by means of linguistic expressions in the target language. Based on widespread practical translation activities, translation communication primarily involves abstract and theoretical interconnected notions such as

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“meaning,” “synonymy,” “paraphrase,” and “equivalence.” The importance of these elements in fully conveying the translation to the listener or reader is unquestionably significant. Since perfect translation is, to some extent, impossible, meanings and interpretations taken from expressions in one language cannot be rendered exactly without losses, additions, or modifications in another language. Due to the renewal, restructuring, development of the language system, and the adoption of foreign words, multiple variants of one word emerge.

Methods

The article employs a multi-faceted approach to explore the translation of historical terms, focusing on both theoretical and practical dimensions: It analyzes the deep cultural, social, and political significance embedded in historical terms within their specific linguistic contexts, emphasizing the importance of connotations beyond mere denotation. The study critically examines the challenges posed by the national identities, historical periods, and ideologies reflected in such terminology. The research involves comparing source-language terms with their English renditions, highlighting issues of adequacy and cultural sensitivity. The article draws on practical examples from translation activities, considering how translators must use creativity and artistic skill rather than mechanical or literal methods, to preserve both meaning and nationality. It assesses the importance of understanding the national and cultural peculiarities of both source and target languages, alongside general linguistic competence. The investigation includes theoretical notions such as meaning, synonymy, paraphrase, and equivalence to illustrate challenges in achieving full conveyance of concepts. It acknowledges inherent limitations in translation, noting that perfect equivalence is unattainable due to linguistic and cultural differences, and that translations may involve losses, additions, or modifications. The article considers linguistic dynamics, such as language renewal, restructuring, and loanword adoption, which result in multiple variants for a single word, complicating consistent translation.

Results and Analysis

The findings of this study reveal several critical insights into the translation of historical terms from the source language into English. First, the analysis confirmed that historical terminology carries profound cultural, social, and political connotations that extend well beyond literal meanings. These connotations are heavily tied to national identity, historical eras, and ideological frameworks, requiring translators to exercise considerable cultural sensitivity and contextual understanding.

Comparative examination of source and target texts demonstrated that direct, word-for-word translation often fails to convey the full semantic and cultural weight of historical terms. Instead, successful translation relies on translators' creative interventions, as informed by the principle that “translation is not merely transferring a book existing in one language into another, but rather recreating and restoring a work of art created in a particular language in another language”. This emphasizes translation as a form of artistic creation, demanding not only linguistic knowledge but also aesthetic taste and skill.

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The study highlighted that translators must balance fidelity to the original meaning with the need to make the translated text comprehensible and meaningful to the target audience. This balancing act is complicated by the impossibility of perfect equivalence, necessitating occasional adaptation, addition, or omission. The interplay of “meaning,” “synonymy,” “paraphrase,” and “equivalence” emerged as crucial theoretical tools in managing these challenges, enabling translators to negotiate semantic shifts while preserving overall intent and message. Moreover, the results underscore the importance of understanding the national and cultural peculiarities of both source and target languages. Awareness of these factors enhances the translation’s ability to retain linguocultural features intrinsic to historical terms. The analysis further identified how language evolution—through renewal, restructuring, and foreign word adoption—creates multiple lexical variants, complicating the selection of appropriate equivalents and demanding nuanced decision-making.

1. Buyuk Ipak Yo‘l - **Translation:** "Silk Road"

Analysis: The term Buyuk Ipak Yo‘li denotes more than a trade route; it embodies centuries of cultural and economic exchange across Asia and Europe. Translating it simply as "Silk Road" captures the general idea but omits the grandeur implied by "Buyuk" (Great). Translators often rely on the established English term but may supplement it with historical notes or descriptions to preserve its full cultural and monumental significance.

2. Inqilob - **Translation:** "Revolution," "Uprising," or "Rebellion"

Analysis: The word Inqilob carries different connotations depending on historical context. For example, the O‘zbek Inqilobi usually refers to the national liberation movement, and “revolution” in English fits politically transformative events. However, less organized mass movements might be better represented by “uprising” or “rebellion.” The choice of equivalent affects the perceived legitimacy and scale of the event, illustrating the impact of semantic nuance in translation.

3. Mustaqillik- **Translation:** "Independence"

Analysis: The term Mustaqillik is frequently translated into English as "independence." While the lexical equivalence is strong, the term's emotive and historic significance in post-colonial contexts requires translators to consider connotations of sovereignty and national identity. Supplementary context may be needed to convey the symbolic value carried by Mustaqillik movements.

4. Temuriylar - **Translation:** "Timurids"

Analysis: Temuriylar refers to the dynasty founded by Timur in Central Asia. Translating it as "Timurids" is a direct borrowing common in English historiography. However, the term's cultural resonance and historic legacy vary between source and target audiences. Translators should recognize that historical narratives associated with the Temuriylar may require cultural contextualization for English readers unfamiliar with Central Asian history. In summary, the study confirms that the translation of historical terms requires a multidisciplinary approach combining linguistic expertise, cultural knowledge, and creative artistry. The resulting translations must strive to achieve cultural sensitivity and semantic accuracy while navigating inherent limitations and variabilities within language systems. Translators must balance faithfulness to the original term with target audience readability. This involves: Careful assessment of the term’s historical and cultural weight. Decisions between literal translation and dynamic equivalence. Use of paratextual elements such as glossaries, footnotes, and introductions to enhance understanding. The study confirms that translating historical terms is not merely a linguistic exercise but also an act of cultural mediation requiring interdisciplinary knowledge.

Conclusion

Accurate translation of historical terms into English demands sensitivity to linguistic, historical, and cultural nuances. Successful translations blend linguistic precision with contextual support to maintain semantic integrity and facilitate cross-cultural communication. Translators should adopt flexible strategies informed by deep understanding of both source and target cultures. Further research is recommended to explore reader reception and the impact of different translation methods on comprehension. These examples highlight the translators' challenges in rendering historical terms: maintaining semantic fidelity while adapting to the target language's cultural framework. Employing strategies such as borrowing, paraphrasing, and annotation enables preservation of both meaning and cultural depth.

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IMPROVING EMPLOYMENT POLICY IN THE CONDITIONS OF THE DIGITAL ECONOMY

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ABSTRACT

This article examines the impact of the digital economy on Uzbekistan's labor market and employment policy. Based on statistical data from 2020–2024, the paper analyzes the growth of employed population, the creation of new jobs in the digital sector, and the structural changes in employment by industry.

Keywords: digital economy, employment policy, labor market, IT sector, jobs, digital transformation, Uzbekistan.

1. INTRODUCTION

In recent years, the rapid development of the digital economy in Uzbekistan has had a significant influence on the labor market. New technologies, artificial intelligence, automation systems, and remote work formats are creating a new model of employment generation.

During 2020–2024, large-scale reforms were implemented to modernize employment policy under the framework of the “*Digital Uzbekistan – 2030*” strategy, the expansion of IT Parks, and the development of e-government systems.

The purpose of this study is to analyze the impact of the digital economy on the labor market and employment policy of Uzbekistan, identify key trends, and develop practical recommendations for improvement.

The research uses data from the **State Statistics Agency**, **IT Park Uzbekistan**, and the **World Bank** covering the years 2020–2024.

2. Research Methodology

The study applies a **descriptive and comparative analysis** based on official national and international datasets.

Indicators such as total employment, unemployment rate, and new jobs created in the IT sector are analyzed.

Graphical interpretation and trend analysis are used to assess the relationship between digitalization and employment growth.

Data sources include the **State Statistics Agency of Uzbekistan**, **IT Park Annual Reports**, and the **World Bank's Digital Economy Review (2023)**.

3. Employment Dynamics and Labor Market Trends (2020–2024)

Uzbekistan's labor market has shown stable growth in recent years.

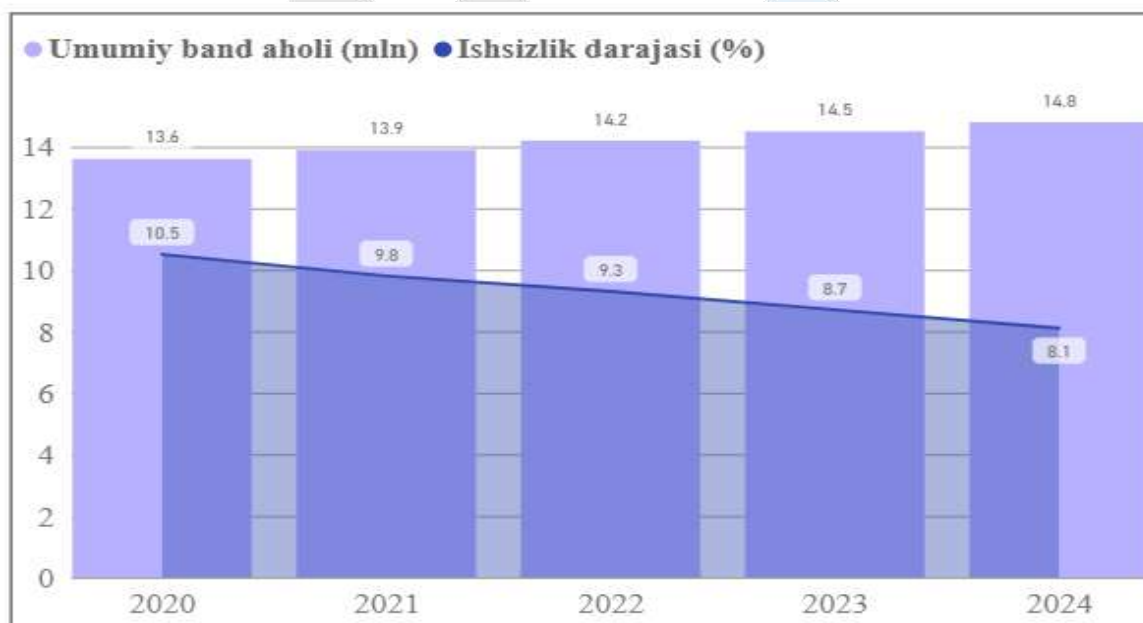
According to the data, the total number of employed persons increased from **13.6 million in 2020** to **14.8 million in 2024**, meaning that approximately **1.2 million new jobs** were created. Meanwhile, the unemployment rate decreased from **10.5% in 2020** to **8.1% in 2024**, reflecting a positive trend associated with economic recovery, the expansion of the services sector, and the growth of digital employment opportunities.

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Table 1. Employment and unemployment rate in Uzbekistan (2020–2024)¹

Yil ▲	Ishsizlik darajasi (%)	Umumiy band aholisi (mln)
2020	10.50	13.60
2021	9.80	13.90
2022	9.30	14.20
2023	8.70	14.50
2024	8.10	14.80

Figure 1. Trends in employment growth and declining unemployment (2020–2024)²

The most notable change occurred during **2022–2023**, when the unemployment rate fell from **9.3% to 8.7%**. This improvement was driven by new digital employment opportunities, the rise of remote work, and the expansion of small business and startup activity.

Government programs such as “*Yoshlar daftari*” (Youth Register), “*Ayollar daftari*” (Women’s Register), and “*Tadbirkor ayol*” (Women Entrepreneur) also contributed significantly to inclusive employment growth, especially among youth and women.

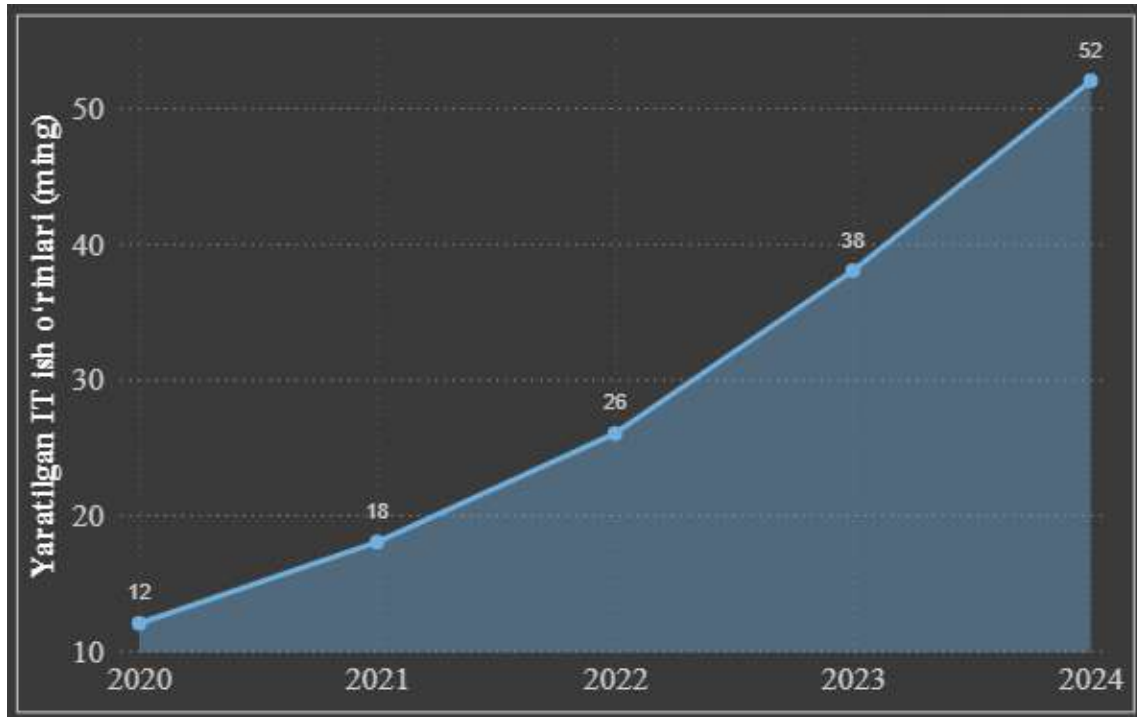
¹ Author’s calculation. Source: Statistics Agency of Uzbekistan, 2024.

² Author’s compilation

4. Growth of Employment in the IT Sector

The IT sector has become one of the most active components of the digital economy. Between 2020 and 2024, the number of jobs created in the IT sector increased nearly **4.3 times** — from **12,000 in 2020** to **52,000 in 2024**.

Figure 2. Dynamics of new jobs created in the IT sector (2020–2024)³



This growth was driven by:

- ❖ expansion of digital infrastructure projects,
- ❖ the strengthening of IT Parks' operations,
- ❖ the spread of remote work systems, and
- ❖ the entry of international IT companies into the Uzbek market.

In addition, government and private initiatives such as “**One Million Uzbek Coders**”, “**IT-Talim**”, and “**Startup Initiative**” programs have played an important role in training qualified specialists and increasing employment levels in digital professions.

5. Conclusion

The digital economy has opened a new stage in Uzbekistan's labor market development. Between 2020 and 2024, jobs in the IT sector increased **fourfold**, while the unemployment rate declined by **2.4 percentage points**.

Going forward, employment policy should prioritize:

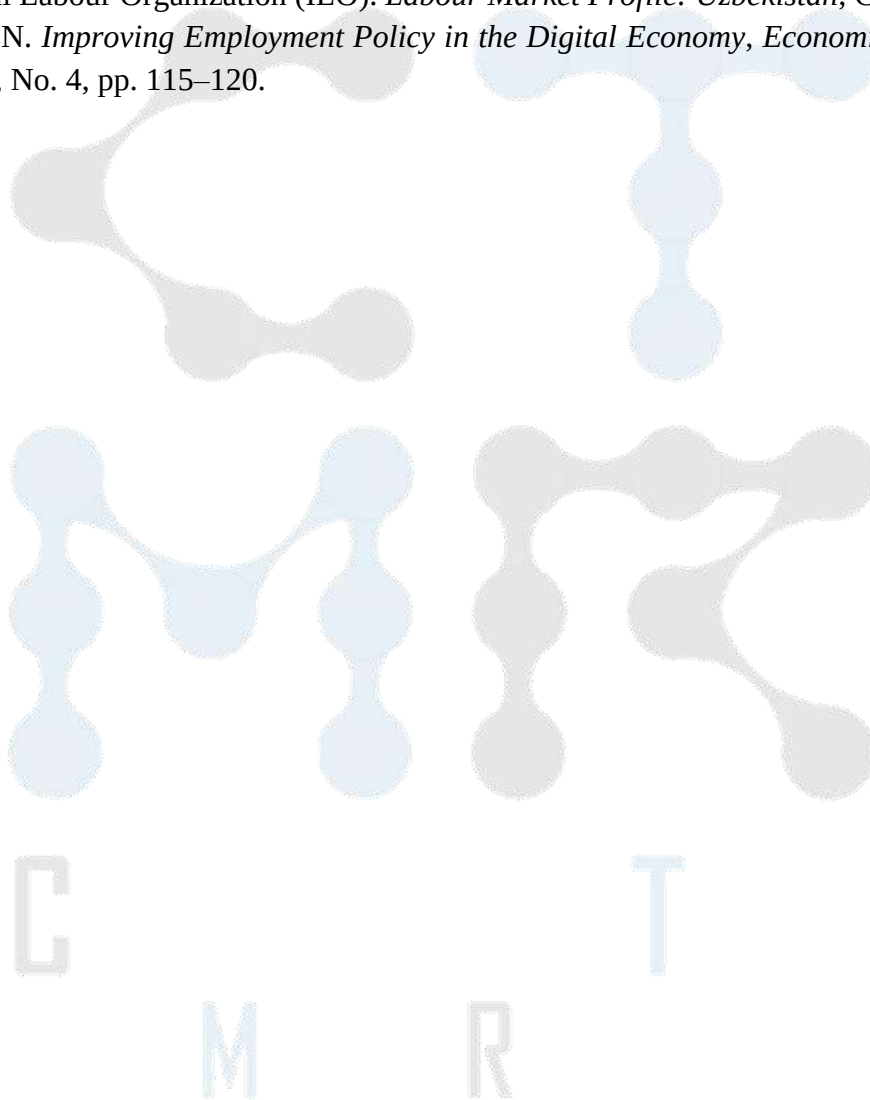
- ❖ the expansion of **digital skills and professions**,
- ❖ increased access to **IT education for women and youth**, and
- ❖ the promotion of **remote and flexible work formats** across regions.

These measures will ensure that the digital transformation process contributes effectively to sustainable employment and inclusive economic growth.

³ Compiled by the author. Source: IT Park Uzbekistan, 2024.

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**O'QUVCHILARNING AXBOROT XAVFSIZLIGINI PEDAGOGIK QO'LLAB-
QUVVATLASHNING SHAKL VA USULLARI**

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Annotatsiya: Ushbu maqolada o'quvchilarning axborot xavfsizligini ta'minlashning ijtimoiy ahamiyati hamda bu faoliyatni amalga oshirishda pedagogik jihatdan qo'llab-quvvatlashning shakl va usullarining tatbiqlari xususidagi ma'lumotlar keltirilgan.

Kalit so'zlar: internet, profilaktik, ta'minot, tahdidlar, xavflar, pedagogik qo'llab-quvvatlash, pedagogik yordam, hamrohlik qobiliyati, rag'batlantirish, qiziqish, kuzatish, maslahat berish, xavfsiz makon, shaxsiy axborot xavfsizligi, xavfli axborot.

Аннотация: В данной статье представлена информация о социальной значимости обеспечения информационной безопасности учащихся и применении форм и методов педагогической поддержки при осуществлении этой деятельности.

Ключевые слова: Интернет, профилактика, обеспечение, угрозы, риски, педагогическая поддержка, педагогическая помощь, сопровождающие способности, поощрение, интерес, наблюдение, консультирование, безопасное пространство, безопасность личной информации, опасная информация.

Abstract: This article provides information on the social significance of ensuring students' information security and the application of forms and methods of pedagogical support in carrying out this activity.

Keywords: internet, preventive, provision, threats, risks, pedagogical support, pedagogical support, companion skills, encouragement, interest, observation, counseling, safe space, personal information security, hazardous information.

Hozirgi kunda mamlakatimiz ta'lim tizimi maktab o'quvchilarining axborot xavfsizligini ta'minlashga qaratilgan alohida tashkiliy-pedagogik chora-tadbirlarni tizimli amalga oshirmoqda. Bu faqat pedagogik hamjamiyat tomonidan ishlab chiqilishi va qabul qilinishi uchun shart bo'lgan kengroq "o'quvchilarni axborot xavfsizligini ta'minlashni pedagogik qo'llab-quvvatlash" chora-tadbirlar majmui sifatida ko'rib chiqilishi mumkin.

Pedagogik qo'llab-quvvatlash orqali biz tanlagan vaziyatni ongli ravishda mustaqil ravishda hal qilish uchun sharoit yaratish jarayonini (bola bilan birgalikda) tushunamiz. Shuningdek, u muammoli vaziyatda o'smirning mustaqilligini o'qituvchi tomonidan qiziqish bilan kuzatish, maslahat berish, shaxsiy ishtirok etish, rag'batlantirishni o'z ichiga oladi.

Pedagogik qo'llab-quvvatlash o'qituvchining yaqin bo'lish, o'quvchiga ergashish, uni o'qitishda individual taraqqiyotida hamrohlik qilish qobiliyatini anglatadi. Pedagogik qo'llab-quvvatlash katta yoshdagi maktab o'quvchilariga qo'llaniladigan pedagogik qo'llab-quvvatlash shakllaridan biri sifatida qaraladi va pedagogik qo'llab-quvvatlash va pedagogik yordam turlarini tizimlashtirish taklif etiladi [1].

“Pedagogik yordam” va “pedagogik qo‘llab-quvvatlash” tushunchalarining o‘zaro bog‘liqligini hisobga olib, biz V.A.Slastenin, I.A.Kolesnikova tomonidan tahrirlangan darslikda pedagogik qo‘llab-quvvatlash va pedagogik yordam pedagogik faoliyatning turli shakllari bo‘lib, ularni individuallikni rivojlantirishga qaratilganligi birlashtiradi deb ta’kidlangan. Mualliflar pedagogik yordam asta-sekin bolani ta’limda pedagogik qo‘llab-quvvatlashga aylanib bormoqda deb hisoblashadi va quyidagi ta’riflarni taklif qilishadi: pedagogik yordam – bu tanlangan vaziyatni ongli ravishda mustaqil hal qilish uchun sharoit yaratish jarayoni (bola bilan birgalikda).

Pedagogik qo‘llab-quvvatlash – bu o‘qituvchining ishtirokini qo‘llab-quvvatlash bilan taqqoslaganda minimal iste’mol bilan muammoli vaziyatda o‘spirinning maksimal mustaqilligini rag‘batlantirish, qiziqish bilan kuzatish, maslahat berish, shaxsiy ishtirok etish jarayoni [2].

“Pedagogik qo‘llab-quvvatlash” va “pedagogik yordam” tushunchalarining mohiyatini taqqoslab, xulosa qilish mumkinki, pedagogik yordam birinchi navbatda o‘quvchining muayyan muammolarini bartaraf etish bilan bog‘liq bo‘lib, muammoli vaziyatda o‘qituvchilar tomonidan amalga oshiriladi. Pedagogik qo‘llab-quvvatlash qiyinchiliklarning oldini olishga qaratilgan doimiy (oldindan rejalashtirilgan) tadbirlarni o‘z ichiga oladi.

Ta’lim muassasalarida psixologik amaliyotni tashkil etish ma’nosida qo‘llab-quvvatlash – bu o‘qituvchi-psixologning kasbiy faoliyatining bunday tizimini yaratishni anglatadi. Bu axborot ta’siri sharoitida, shu jumladan salbiy sharoitda bolaning muvaffaqiyatli o‘qishi va psixologik rivojlanishi uchun sharoit yaratishga qaratilgan. Ushbu sharoitlarni yaratishda quyidagi bosqichlarni ajratish mumkin:

- maktab o‘quvchilarining ta’lim olishi va rivojlanishi uchun taqdim etilayotgan imkoniyatlar, ularning psixologik imkoniyatlari va rivojlanish darajasiga qo‘yiladigan talablar mavzusida o‘qituvchilar bilan maktabning axborot muhitini birgalikda tahlil qilish;
- salbiy axborot ta’sirining psixologik mezonlarini aniqlash;
- shaxsiy axborot xavfsizligini ta’minlash, ularni tizimga kiritish bo‘yicha muayyan chora-tadbirlar, ish shakllari va usullarini ishlab chiqish va amalga oshirish.

Ko‘rib chiqilayotgan muammo kontekstida “maktab o‘quvchilarining axborot xavfsizligini psixologik-pedagogik qo‘llab-quvvatlash” atamasining quyidagi formulasi taklif etiladi – o‘quvchilarning psixikasi, ongi va jismoniy salomatligini himoya qilish holatiga erishishga qaratilgan shaxsga yo‘naltirilgan usullar, texnikalar va psixologik-pedagogik texnologiyalar tizimi xavfli axborot ta’siridan va umuman olganda, talabalar shaxsini yanada anglash va o‘zini o‘zi rivojlantirish uchun ma’lum darajadagi axborot xavfsizligini ta’minlashdir.

Maktab o‘quvchilarining axborot xavfsizligini psixologik-pedagogik qo‘llab-quvvatlashning maqsadi – maktab o‘quvchilari uchun xavfsiz axborot makonini qurish, zamonaviy axborot jamiyati ehtiyojlariga javob beradigan shaxsiy xususiyatlarni shakllantirish asosida o‘quvchilar shaxsini rivojlantirish, shaxsiy ta’lim trayektoriyasini qurish va axborot xavfsizligi masalalarini bilish, barqaror motivatsiyani shakllantirish uchun ijtimoiy-pedagogik va psixologik sharoitlar tizimini yaratishdir.

Maktab sharoitida o‘quvchilarning axborot xavfsizligini psixologik-pedagogik qo‘llab-quvvatlash tuzilmasi uchta komponentni o‘z ichiga oladi:

- tashkiliy-pedagogik (ta’limning an’anaviy va innovatsion usullari va shakllarining maqbul kombinatsiyasini ta’minlash, o‘quvchi va o‘qituvchining o‘zaro aloqasini kuchaytirish, faol, mustaqil

ravishda o'quvchi shaxsini anglaydigan, shaxsiy ma'lumot uchun xavfsiz makonni tashkil etishga qodir bo'lgan shaxsni o'qitish va tarbiyalashga qaratilgan);

- mazmunli (shartsiz axborot xavfsizligiga asoslangan o'quv va kognitiv faoliyatda maktab o'quvchilarining ijodiy namoyon bo'lishi va o'zini o'zi anglashini ta'minlaydigan o'quv materiallari, ijodiy vazifalarni ishlab chiqish; axborot xavfsizligi masalalarida ularning tashabbusi va faolligini oshirish maqsadida maktab o'quvchilari bilan ishlashning ijodiy shakllari ulushini ko'paytirishni jalb qilishga qaratilgan);

- texnologik (maktab o'qituvchilarining e'tiborini shaxsga yo'naltirilgan yondashuv qoidalarini qo'llash asosida o'quv jarayonini tashkil etish va o'tkazishda o'quvchining shaxsiy axborot xavfsizligiga qaratish).

O'quvchi hayot jarayonida axborot ta'sirining salbiy oqibatlarini bilan bog'liq muammoga duch keladi va muammoli vaziyatlarni hal qilish, kerakli ma'lumotlarni topish, nizolarni hal qilish, uni xavfsiz hal qilish va o'ta og'ir holatlarda uning o'zi qila oladigan odam borligini bilish ko'nikmalaridan foydalanadi.

E.I. Kazakovaning tadqiqotlari asosida biz maktab o'quvchilarining axborot xavfsizligini psixologik-pedagogik qo'llab-quvvatlash jarayoni quyidagi tamoyillar asosida amalga oshirilishi kerakligini aniqladik:

- qo'llab-quvvatlash maslahatining tavsiya tabiati;
- qo'llab-quvvatlash manfaatlarining ustuvorligi;
- qo'llab-quvvatlashning izchilligi va uzluksizligi;
- obyektlararo qo'llab-quvvatlash;
- individual-shaxsiy yondashuv.

Shu bilan birga, o'quvchi shaxsining axborot xavfsizligini psixologik-pedagogik qo'llab-quvvatlash jarayonida o'qituvchining roli o'quvchiga o'z savollariga javob bera oladigan shaxs (o'qituvchi, psixolog) mavjudligiga ishonch tuyg'usining psixologik asoslarini berishdir.

E.A.Aleksandrova tomonidan umumiy pedagogik qo'llab-quvvatlash tasnifi asosida biz o'quvchi shaxsining axborot xavfsizligini psixologik-pedagogik qo'llab-quvvatlash turlarini quyidagi mezonlarga muvofiq tasniflashni taklif qilamiz (1-rasm):

- o'qituvchi va o'quvchi o'rtasidagi o'zaro aloqa darajasiga ko'ra;
- pedagogik qo'llab-quvvatlashni amalga oshirish vaqtiga ko'ra;
- pedagogik qo'llab-quvvatlashni amalga oshirish muddatiga ko'ra [3].

Maktab o'quvchilarining axborot xavfsizligini psixologik-pedagogik qo'llab-quvvatlash turlari

O'zaro aloqa darajasi bo'yicha:	Amalga oshirish vaqti bo'yicha:	Amalga oshirish muddati bo'yicha:
- bevosita qo'llab-quvvatlash; - bilvosita qo'llab-quvvatlash	- profilaktika; - o'z vaqtida; - ogohlantirish natijasi.	- impulsli; - uzaytirilgan; - diskret.

1-rasm. O'quvchilarining axborot xavfsizligini psixologik-pedagogik qo'llab-quvvatlash turlari

Maktab o'quvchilarining axborot xavfsizligini bevosita pedagogik qo'llab-quvvatlash o'qituvchi tomonidan o'quvchi bilan suhbat davomida amalga oshiriladi. Ushbu kichik turning o'ziga xos xususiyati o'qituvchining nutqida subtekstni o'z ichiga olgan iboralarining yo'qligi va uning butun sinfga emas, balki ma'lum bir bolaga murojaat qilishidir. Bunday qo'llab-quvvatlashning maqsadi o'quvchining axborot xavfsizligini buzish holatidan chiqish yo'llarini birgalikda samarali izlashdir. Masalan, o'quvchining o'qituvchiga internetda istalmagan tanishish bilan bog'liq vaziyatni hal qilishga yordam berish iltimosi bilan murojaat qilishi.

Bilvosita qo'llab-quvvatlash o'qituvchi tomonidan internetdagi salbiy ko'rinishlarga qarshi kurashish misollarini namoyish etish orqali taqdim etiladi. Ushbu usul o'quvchini axloqlashtirish bilan xafa qilmasdan va o'z fikrini bildirmasdan muammoni mustaqil ravishda hal qilishga undashi mumkin. Ushbu tur bir guruh o'quvchilarga murojaat qilish bilan tavsiflanadi. Bunday holda, avvalgisidan farqli o'laroq, o'qituvchining roli kam bo'lmaydi, lekin kamroq seziladi va maqsad bolani axborot xavfsizligi muammosini o'zi hal qilishga undashdir.

Profilaktik qo'llab-quvvatlash bilan maktab o'quvchilari o'qituvchidan "mulohaza yuritish uchun ma'lumotlar" to'plamini, muammoning o'zi paydo bo'lishidan oldin kuzatish uchun axborot sababini biladilar va muammoli vaziyat yuzaga kelgan paytda, o'quvchi uni mavjud usul va texnikalar to'plami asosida muvaffaqiyatli hal qiladi. Profilaktik qo'llab-quvvatlash ko'p jihatdan bilvosita o'xshash bo'lib, muammoli vaziyatni ko'rib chiqishda o'quvchi undagi rolini "yo'qotadi" va uni muhokama qilmaydi. Profilaktik qo'llab-quvvatlashning maqsadi – bu maktab o'quvchilari o'rtasida individual xulq-atvor strategiyasini ishlab chiqishga hissa qo'shadigan axborot xavfi va shaxs uchun tahdidlarning oriyentatsiya-rolli muammoli vaziyatlarini ishlab chiqarishdir. O'qituvchining roli o'quvchilarga o'zlari uchun axborotni rivojlantirish sohasini aniqlashga yordam berish va axborot madaniyatiga qiziqishni uyg'otishni qo'llab-quvvatlash uchun ularning qiziqishlari va hayotiy faoliyati yo'nalishi bilan bog'liq og'zaki va og'zaki bo'lmagan ma'lumotlarni yetarli darajada idrok etishlari uchun sharoit yaratishdir.

Shunday qilib, zamonaviy pedagogik amaliyotda maktab o'quvchilarining axborot xavfsizligini psixologik-pedagogik qo'llab-quvvatlash, birinchi navbatda, axborot ta'sirida, shu jumladan salbiy holatlarda bolaning muvaffaqiyatli o'qishi va psixologik rivojlanishi uchun ijtimoiy-psixologik sharoitlarni yaratishga qaratilgan o'qituvchilar va psixologlarning kasbiy faoliyati tizimi sifatida qaraladi.

Maslahat – bu o'quvchilarga, ularning ota-onalariga (qonuniy vakillariga), professor-o'qituvchilarga va o'quv jarayonining boshqa ishtirokchilariga o'quvchi shaxsining axborot xavfsizligi masalalarida yordam ko'rsatishdir. Maqsad – o'quv jarayoni ishtirokchilarining o'zaro munosabatlarini optimallashtirish va ularga xavfsiz ta'lim makonini loyihalashda psixologik yordam ko'rsatish. Shuni yodda tutish kerakki, biz patologik kasalliklarga ega bo'lmagan, ya'ni tibbiy va biologik meyorda bo'lgan, ammo har qanday psixologik qiyinchiliklarga duch kelgan o'quv jarayonining ishtirokchilariga yordam berish haqida gapiramiz. Bu kompyuter o'yinlariga bo'lgan ishtiyoq, internetga qaramlik, noqonuniy kontentga ega saytlarga qiziqish va boshqalar kabi muammolar bo'lishi mumkin.

Axborot xavfsizligi masalalari bo'yicha psixologik maslahat usullari quyidagilarni o'z ichiga olishi kerak: munozara usullari; o'yin usullari (didaktik va ijodiy o'yinlar, shu jumladan biznes, rol

o'ynash); nozik mashg'ulotlar; suhbatlar. Maktab o'quvchilari bilan ishlash ham individual, ham guruh shaklida amalga oshirilishi mumkin.

O'quvchilarga axborot xavfsizligi asoslarini o'rgatish uchun axborot tahdidlarining odatiy holatlarini ko'rib chiqish kerak. O'quvchi qat'iyatlilik, his-tuyg'ularni cheklash, diqqatni jamlash va e'tiborni talab qiladigan samarali aqliy faoliyat asoslarini endigina tushuna boshlaydi, shuning uchun darslarni bolalarning yosh xususiyatlarini hisobga olgan holda, ijtimoiy-psixologik rollarni o'ynash bilan o'yin tarzida qurish tavsiya etiladi. Natijada axborot tahdidining muayyan holatida ma'lum bir xatti-harakatlar algoritmi shakllanadi.

Avvalo, bola taklif etilayotgan ma'lumotlarga obyektiv baho bera olishi, uning haqiqati va ishonchliligiga ishonch hosil qilishi, so'ngra olingan natijaga muvofiq, uning hayotini saqlab qolishga yordam beradigan yagona to'g'ri qarorni qabul qilishi kerak. Ma'lumotni tahlil qilish uchun u kimdan kelganini va o'sha paytda ma'lumot manbai yonida kim bo'lganligini bilish muhimdir. O'qituvchining vazifasi rollarni belgilash va simulyatsiya qilingan vaziyatning rivojlanishini boshqarishdir.

Munozaralar va suhbatlarga misol sifatida biz 5-7-sinf o'quvchilari uchun darslarning mavzulari va siklini keltirishimiz mumkin. Zamonaviy o'smirlarning telefon va gadjetlarga qaramligini, shuningdek, maktab o'quvchilari bilan suhbatlar materiallarini tahlil qilish va muhokama qilish.

Ota-onalar bilan ishlashda individual tadbirlar emas, balki o'quvchi shaxsining axborot xavfsizligi sohasidagi kompetensiyalarini oshirishga qaratilgan yaxlit tizimli ish samarali bo'ladi. Bunday ish ota-onalarni maktab yig'ilishlarida xabardor qilish, axborot ta'sirining xavfi tahlil qilinadigan va amaliy tavsiyalar beriladigan uslubiy tavsiyalarni ishlab chiqish orqali amalga oshirilishi kerak [4].

Ota-onalar bilan ishlash tajribali o'qituvchi yoki psixolog tomonidan amalga oshiriladi va psixologik tayyorgarlik kabi usul bilan amalga oshiriladi, uning davomida bolaning shaxsiyatining xavfsiz holati muammolari bilan bog'liq amaliy vaziyatlar ko'rib chiqiladi.

O'qituvchilar bilan ishlash ijtimoiy-psixologik tayyorgarlik yordamida amalga oshiriladi, uning davomida shaxsning xavfsiz holati muammolari bilan bog'liq amaliy vaziyatlar ko'rib chiqiladi. Treninglar sizga axborot xavfsizligi ko'nikmalarini faollashtirish, to'g'irlash, xulq-atvor repertuarini kengaytirish, pedagogik hamjamiyatning samarali o'zaro ta'sirini izlash bo'yicha ko'rsatmalar berish imkonini beradi.

O'qituvchining maktab o'quvchilarining axborot xavfsizligi muammolarini hal qilishga tayyorlik darajasini oshirishning muhim elementi – bu ma'lum bir axborot xavfsizligi tizimini qurish bilan bog'liq real vaziyatlarni modellashtirish vazifalari tizimini ko'rib chiqishga asoslangan qo'shimcha ta'lim tizimida malaka oshirishdir [5].

Axborot xavfsizligining psixologik tarkibiy qismini diagnostika qilishning maqsadi bolalarning axborot makonidagi salbiy ko'rinishlarga nisbatan aqliy barqarorligi darajasi to'g'risida ma'lumot olish, o'quv jarayoni ishtirokchilarining shaxsiy psixologik xususiyatlari va axborot xavfsizligi sohasidagi muammolarni aniqlashdir.

O'quvchi shaxsining axborot xavfsizligi muammolari bo'yicha psixologik konsultatsiya natijasi maslahatlashilayotgan shaxsning psixologik holati bilan bog'liq axborot xavfsizligi muammolarini hal qilish bo'lishi kerak. Psixologdan yordam so'raganda, inson, birinchi navbatda, malakali maslahat, harakat, tushunish va qo'llab-quvvatlash bo'yicha tavsiyalar olishni kutadi.

O'smirlar va bolalarning axborot xavfsizligi muammolarini psixologik diagnostika qilishning mavjud usullari orasida eng ko'p qo'llaniladiganlarini ajratish mumkin – bilvosita yoki to'g'ridan-to'g'ri

kuzatish, obyektiv, so'rovnom, eksperimental. Ushbu usullarning barchasi bitta yakuniy maqsadga ega, ya'ni o'quvchi shaxsining axborot xavfsizligi muammolari bilan bog'liq holda respondentning psixologik holatining qaysi jihatlari e'tibor berish kerakligini tushunish.

Usullardan qaysi birini oqilona qo'llash kerak, psixolog har bir alohida holatda, vazifalar va tadqiqot obyekti qarang qaror qiladi. Bolalarning har qanday psixodiagnostik tekshiruvi bir necha bosqichlarni o'z ichiga oladi. Avvalo, bu ma'lumotlarni yig'ish, olingan ma'lumotlarni tahlil qilish va talqin qilish, shuningdek, psixologik tashxis va prognozni tayyorlash.

Tuzatish ishlarida psixolog o'quvchining shaxsiy axborot makonini shakllantirishda duch keladigan muammolarning mohiyatini aniqlashga, bolaning qiyinchiliklari va potensial xavflarini ko'rishga, shuningdek, bola bunday sharoitlarni yaratish imkoniyatlarini aniqlashga intiladi.

Axborot ta'sirining mumkin bo'lgan salbiy oqibatlarining psixologik-pedagogik profilaktikasi shaxsning axborot xavfsizligi bilan bog'liq o'quv jarayoni ishtirokchilarining rivojlanishi va o'zaro munosabatlarida bir qator mumkin bo'lgan muammolarga ega. Ushbu turdagi ishlarda mutaxassislar, o'qituvchilar va ota-onalar birgalikda ishtirok etishlari kerak.

Axborot ta'sirining mumkin bo'lgan salbiy oqibatlarini psixoprofilaktik diagnostikasi quyidagi shakllarda amalga oshiriladi:

- "psixologik axborot xavf guruhi" deb nomlangan maktab o'quvchilarini aniqlash maqsadiga ega bo'lgan va ular bilan keyingi psixokorrektiv ish zarurligi to'g'risida xulosa chiqarishga imkon beradigan ekspert baholash usuli yordamida maktab o'quvchilarini skrining-tekshirish;

- bolaning shaxsiy axborot muhitidagi vaziyatni aniqlashtirish, shuningdek, uning "psixologik xavf" guruhidagi bolalar toifasiga kirishini belgilovchi omillarni aniqlash maqsadida o'qituvchilar va ota-onalarning og'zaki va yozma so'rovi.

Maktab o'quvchilarining axborot xavfsizligi muammolarini psixologik-pedagogik tarbiyalash o'qituvchilar va ota-onalarni maktab o'quvchilariga axborot makonining asosiy tahdidlari va xavflari ta'sirining psixologik jihatlari, psixologik va pedagogik natijalarni ommalashtirish va tushuntirish, axborot xavfsizligi mavzusidagi tadqiqotlar, maktab o'quvchilari uchun shaxsiy ma'lumotlar uchun xavfsiz makon yaratish shartlari bilan tanishtirishdan iborat.

Maktab o'quvchilarining axborot xavfsizligi professor-o'qituvchilarining samaradorligi mezonlari o'quvchilar va o'qituvchilarni axborotni qayta ishlash va salbiy tarkibdan himoya qilish bilan bog'liq turli xil tadbirlarga jalb qilish va bilim, ko'nikma, munosabatlarni shakllantirish va shaxsan muhim fazilatlarni rivojlantirishga qaratilgan.

Xulosa qilib shuni ta'kidlaymizki, o'quvchi shaxsining axborot xavfsizligi, umuman ta'lim muhiti, ushbu masalalarni psixologik va pedagogik qo'llab-quvvatlash muammosi, garchi muhim va ustuvor deb tan olingan bo'lsa-da, baribir ham olimlardan, ham amaliy o'qituvchilardan katta e'tibor talab qiladi.

Yuqorida aytilganlarning barchasiga asoslanib, biz zamonaviy ta'lim amaliyoti ta'lim faoliyati subyektlarining o'zini o'zi anglashi va o'zini o'zi tushunishini ta'minlaydigan psixologik xavfsiz ta'lim muhitini yaratishi kerak degan xulosaga keldik. Bu ta'lim muassasalari birinchi navbatda maktab o'quvchilarining axborot xavfsizligini psixologik va pedagogik qo'llab-quvvatlash uchun sharoit yaratganda mumkin bo'ladi.

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**RAQAMLI TEXNOLOGIYALAR ASOSIDA BO‘LAJAK O‘QITUVCHILARNING KASBIY
KOMPETENSIYASINI INTEGRATIV RIVOJLANTIRISHNING PEDAGOGIK
XUSUSIYATLAR**

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Annotatsiya. Bugungi kunda respublikamizda uchinchi Renessans poydevorini qurishda ta’lim tizimning o’rni beqiyosdir. Bu kabi strategik vazifa jamiyatni raqamlashtirishni, xususan ta’lim tizimni raqamlashtirish orqali yetuk mutaxassislarni tayyorlashni talab etadi. Ushbu maqolada aynan raqamli texnologiyalar asosida bo‘ljak mutaxassislarni kasbiy rivojlantirishning pedagogik jihatlari to‘g‘risida ma’lumotlar keltirilgan.

Kalit so‘zlar: transformatsiya, gajet, raqamli ta’lim, integrativ yondashuv, raqamli texnologiyalar, kreativ o‘qitish, kompyuter dasturlari, raqamli resurs, ta’lim muammolari, bashoratlash, forsait texnologiyalar, kompetensiyaviy tayyorlash.

Аннотация. Сегодня роль системы образования в построении фундамента третьего Ренессанса в нашей республике неоценима. Такая стратегическая задача требует цифровизации общества, в частности, подготовки квалифицированных специалистов посредством цифровизации системы образования. В данной статье представлена информация о педагогических аспектах

Ключевые слова: трансформация, гаджет, цифровое образование, интегративный подход, цифровые технологии, креативное обучение, компьютерные программы, цифровой ресурс, образовательные проблемы, прогнозирование, форсайт-технологии, компетентностная подготовка.

Abstract. Today, the role of the education system in building the foundation of the Third Renaissance in our republic is invaluable. Such a strategic task requires the digitalization of society, in particular, the training of qualified specialists through the digitalization of the education system. This article provides information on the pedagogical aspects of the professional development of future specialists based on digital technologies.

Keywords: transformation, gadget, digital education, integrative approach, digital technologies, creative learning, computer programs, digital resource, educational problems, forecasting, foresight technologies, competency-based training.

O‘zbekiston Respublikasining 2020-yil 23-sentabrdagi O‘RQ-637-son “Ta’lim to‘g‘risida”gi Qonunini qayta isloh etilishi, O‘zbekiston Respublikasi Prezidentining 2020-yil 29-oktabrdagi PF-6097-son “Ilm-fanni 2030-yilgacha rivojlantirish konsepsiyasini tasdiqlash to‘g‘risida”, 2022-yil 28-yanvardagi PF-60son “2022–2026-yillarga mo‘ljallangan Yangi O‘zbekistonning taraqqiyot strategiyasi to‘g‘risida”gi Farmonlari va ta’limni raqamlashtirish orqali uning sifatini oshirishga doir me‘yoriy-huquqiy hujjatlarda belgilab berilgan vazifalarni bajarishda mazkur maqola muayyan darajada xizmat qiladi. Bo‘ljak o‘qituvchilarni integrativ yondashuv asosida raqamli muhitga

kompetensiyaviy tayyorlash tizimini osonlashtiradigan texnologiyalar pedagogik va didaktik kategoriyalar va ta'limga oid ko'nikmalarni rivojlantirishga asoslangan.

Bo'lajak o'qituvchilarni integrativ yondashuv asosida raqamli muhitga kompetensiyaviy tayyorlash jarayonini tashkil etish metodikasi ta'limida transdissiplinarlik kasbiy madaniyat, kasbiy soha, pedagogik turkum fanlar, mutaxassislik fanlari, raqamli texnologiyalar, turizm va shu kabi qator sohalar integratsiyalangan ko'p qirrali mavzular mujassamlanayotganida namoyon bo'lmoqda. Dunyoda fan, ta'lim, innovatsiya, tadqiqot, tijoratlashtirish mujassamlashgan universitetlar, tadbirkor universitet, raqamli universitetga aylanish, zamonaviy motivatsion kreativ o'qitish metodikasi, an'anaviy ta'lim vositalarining raqamli texnologiyalarga transformatsiyasi, ta'lim jarayoni ishtirokchilarining raqamlashtirilgan makondagi faoliyati borasidagi tadqiqotlar, pedagogik turkum fanlar ta'limiga innovatsion yondashuvlar, ta'lim mazmunida, talabalar, o'qituvchilar kompetensiyalarida tub o'zgarishlar kutilishi muqarrarligini namoyon qilmoqda [1].

Raqamli texnologiyalar hayotimizda doimo biz bilan birga. Sog'liqni saqlash, sport, madaniyat, xizmat ko'rsatish, turizm kabi ijtimoiy sohalar qatorida ta'lim sohasi ham raqamli texnologiyalar bilan uzviy bog'lanmoqda. Mamlakatimizda ta'lim sohasiga raqamli texnologiyalarning kirib kelishi juda shiddatli jarayonga aylandiki, elektron va masofali ta'limning o'qitishdagi imkoniyatlarini hamda o'rnini ilmiy o'rganishga ulgurmasimizdan, raqamli ta'lim, sun'iy intellekt kabi tushunchalar hatto o'qituvchi vazifasini egallab olish uchun raqobatga kirishdi. Bu vaziyatni jahon tajribalarini o'rganish, keng va chuqur tahlil qilish, samaradorligi yoki aksincha zararini aniqlash bilan anglab olish, boshqarish mumkin bo'ladi. Haqiqatan ham, raqamli ta'limning amaliy hamda nazariy masalalari, muammolari o'rganilgan xorijlik va o'zbekistonlik olimlar tadqiqotlarida raqamli texnologiyalar asosida o'qitishning ham o'rganilishi lozim bo'lgan qirralarini aniqlashga, muammolarni oydinlashtirishga xizmat qiladi.

O'zbekistonda uchinchi Renessans poydevorini tiklashga qaratilgan ezgu g'oya atrofida jipslashadigan Yangi O'zbekiston bunyodkorlarini kamolga yetkazishdek strategik vazifalar ta'lim tizimini takomillashtirishga uzviy bog'lanmoqda. Internet, gajetlar ekspansiyasi davridagi avlod qiziqish va ehtiyojlari pedagogik turkum fanlar ta'limi paradigmasini o'zgartirib, uni o'qitishni, o'quv kontentini raqamlashtirish ehtiyojini kuchaytirmoqda. Bo'lajak o'qituvchilarni integrativ yondashuv asosida raqamli muhitga kompetensiyaviy tayyorlash tizimi samaradorligining statistik tahlili, ta'lim mazmunini mehnat bozori, raqamlashayotgan jamiyat talablariga moslashayotgan ta'lim va zamonaviy yondashuvlarga ko'ra takomillashtirish masalasini ilmiy hal qilish har qachongidan ham dolzarblik kasb qilmoqda.

Ta'limga kirib kelayotgan turli gajetlar qiyoslanib mobil qurilmalar va mobil ta'limning istiqbolli yo'nalishlarini aniqlash orqali afzalliklarini dalillash, ta'lim tizimida zamonaviy va axborot texnologiyalarining raqamlashgan ta'lim muhitida takomillashishi, bo'lajak o'qituvchilarni integrativ yondashuv asosida raqamli muhitga kompetensiyaviy tayyorlash tizimida o'qitishni masofaviy va aralash ta'lim shakllaridan foydalangan holda raqamlashtirish, elektron o'quv materiallarini loyihalash va yaratish yuzasidan tahlillar tavsif etilgan. Bugun oliy ta'lim tizimining raqamli transformatsiyasi muammolari va tendensiyalariga oid adabiyotlar, ilmiy tadqiqot ishlari samarali olib borilmoqda, bu esa ta'limda rivojlanish, yuksalishni ko'rsatadi. Talabalarning o'quv faoliyati natijalarini baholash, elektron, raqamli ta'lim texnologiyalari masalalari M.V.Bakanova, Y.V.Korolkova, T.V.Sidorenko, T.S.Makarova, E.B.Novikova, N.A.Proxorova ishlarida tahlilga

tortilgan. Xorijda bajarilgan ilmiy tadqiqot ishlarini tahlil qilish ta'limning raqamlashishi davrida mazkur mavzuning dolzarbligini tasdiqlaydi.

Ta'limni algoritmlashtirish, kompyuterlashtirish, axborotlashtirish bosqichlarining uzviy davomi sanaluvchi ta'limni raqamlashtirish jarayoni muvaffaqiyatini ta'minlovchi bir qancha omillar mavjud. Raqamli o'qitishning tarkibiy qismlari – *raqamli resurslar; raqamli ta'lim kontenti, raqamli o'qitish muhiti, o'qitishni tashkil qilishning raqamli texnologiyalari, ta'lim natijalarini baholashni raqamlashtirish* uzviylikda, bir butunlikda rivojlantirilishi zarur. Binobarin, ta'limni algoritmlashtirish, kompyuterlashtirish, axborotlashtirish bosqichlarida ta'lim muassasalari kompyuter va multimedia jihozlari bilan yetarli darajada ta'minlanishiga erishildi. Shunday bo'lsa ham o'qitishni tashkil qilishning raqamli texnologiyalari zamonaviy raqamli qurilmalarni taqozo qiladi. Chunonchi, raqamli texnologiyalar katta sifat o'zgarishlari, ta'lim shakllarining xilma-xilligiga olib kelmoqda. Bu esa pedagoglarda rivojlangan kompyuter savodxonligi va raqamli kompetensiyalarni rivojlantirish masalasini ham kun tartibiga qo'yadi. Binobarin, pedagog kadrlar kasbiy tayyorgarligining hozirgi zamon talablari darajasiga muvofiqlashishi tez yuz beradigan jarayon emas. Bu masalaning muvaffaqiyatli hal qilinishi raqamli ta'lim kontenti, ya'ni axborot xavfsizligi va g'oyaviy immunitetga yo'naltirilgan milliy mahsulot va raqamli resurslar yaratilishiga ijobiy ta'sir ko'rsatadi. Zamonaviy tilda aytganimizda, ta'lim kontentini yaratish masalasi diqqat markaziga qo'yiladi. Fan o'qituvchisida ta'lim kontentiga shunday munosabat paydo bo'lishi kerakki, mavjud an'analar asralib, shu bilan birga boyitilib, unga milliy ruh berilib, jozibador raqamli ta'lim mahsuloti yaralsin. Zero, "Raqamli O'zbekiston – 2030" konsepsiyasining amalga oshirilishi aqlli doskalar, ta'limda aqilli xizmat ko'rsatish markazlari, planshetlar va shu kabi texnikalar bilan jihozlangan ta'lim muassasalarida tezkor internet xizmatidan foydalanishdan tashqari, birinchi galda, milliylik in'ikos etgan munosib kontent yaratishga daxldor. Bu raqamli texnologiyalar asosida bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari va uning rivojlanishiga ta'sir qiluvchi o'qitish jarayonida ayniqsa muhim sanaladi.

Ta'lim jarayoniga o'qitish vositalarini takomillashtirish uchun raqamli ta'limda erishilgan yutuqlar "trend"larni belgilab olish lozim. Bular quyidagilardir: ta'limiy kompyuter dasturlari, kompyuter dasturlarining mobil versiyalari, masofaviy ta'lim texnologiyalari.

Ta'limiy kompyuter dasturlari: elektron o'quv kurslari, elektron qo'llanmalar, elektron yozuv taxtalaridan foydalanish o'qitishni raqamlashtirishning uzviy qismi sanalmoqda [2]. Mazkur ta'limiy dasturlar pedagogik kategoriyalar asosida didaktik ko'nikmalarni rivojlantirish, o'rganish uchun qulaylik tug'diradi. Elektron darsliklarning veb-saytlar, elektron kutubxonalarga joylashtirilishi yoki elektron axborot tashuvchilar bilan (CD-disk va b.) taqdim qilinishi davrimiz ta'lim jarayoni ishtirokchilari uchun yangilik emas. X. Xamzayev va boshqalar ta'limida elektron adabiyotlar bosma darsliklarning multimediya ilovalari sifatida "Kreativ pedagogika" o'quv qo'llanmasi va "Boshlang'ich ta'limda innovatsiya va integratsiya" darsliklarida keng foydalanilmoqda. Mazkur adabiyot bilan birgalikda oliy ta'limi uchun ishlab chiqilgan elektron o'quv metodik majmualar tarkibidagi vedodarslar, o'quv-topshiriqlar bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari va uning rivojlanishiga o'qitish jarayonida ham foydalanib kelinmoqda [3]. Ta'limiy kompyuter dasturlarining hajmi kattaligi, albatta, kompyuter va namoyish qilish qurimalari taqozo qilinishi yoki fan dasturlarining takomillashishi tufayli mavzularga mos yangiliklarni kiritib turish uchun ko'p vaqt talab qilinishini

hisobga olsak, pedagogik turkum fan o'qituvchilarining dars mashg'ulotlarda bu vositalarga tez-tez murojaat qilmasligining sabablari oydinlashadi.

Bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari va uning rivojlanishiga o'qitishda ta'limiy kompyuter dasturlari bilan baravar ularning mobil versiyalaridan foydalanishdagi qulaylik innovatsion yondashuvini vujudga keltirdi. Bu esa o'qitishni jadallashtirishga xizmat qiladi. Pedagogik turkum fanlarni o'rganishga mo'ljallangan mobil ilovalardagi multimediyaviylik, giperhavolalar tayyor muloqotni o'zlashtirish jarayonini osonlashtiradi. Ularning aksariyatida mobil lug'atlar, ovoz yozish va ovoqli xabarni tanish, aniqlash vazifasi mavjudligi, o'qituvchi rahbarligida ham, mustaqil ravishda ham, kichik guruhlarda ham foydalanishga mo'ljallanganligi ularning jozibadorligini namoyon qilmoqda. Xorij tajribalari asosida pedagogik turkum fanlarni o'rganish uchun mobil ilovalar yaratishni jadallashtirish zarur. Bu boradagi ayrim tajribalarni ("Kreativ pedagogika", "Boshlang'ich ta'limda innovatsiya va integratsiya", kabi zamonaviy darsliklarimiz bilan yutuq sifatida maqtana olmaymiz [4; 5].

Masofaviy ta'lim texnologiyalarini alohida tilga olish zarur. Xususan, Skype, Zoom videoaloqa vositalari sifatida foydalanishning qulayligi, oddiyligi bilan jalb qiladi. O'rganishlarimiz natijalariga bag'ishlangan maqolalarimizda bu vositalarning individual, juftlikdagi dars mashg'ulotlar, suhbat klublari, seminarlar, videokonferensiyalar, vebinar tashkil qilish, boshqa hududlar va mamlakatlardagi pedagog olimlarni jalb qilish mumkinligini e'tirof etganmiz. Mazkur texnologiyalar bir vaqtda didaktik yondashuv (bilim, ko'nikma, malaka, ta'lim-tarbiya , shaxs, rivojlanish, ta'lim shakli, ta'lim metodi, ta'lim jarayoni), ta'lim imkoniyatini beribgina qolmasdan namoyish, chat, doska orqali visual savodxonlikni ham rivojlantirishga qaratilgan amaliy ishlarni bajarish uchun takomillashgan. Masofaviy texnologiyalar orqali shu tariqa ta'lim o'luvchilar va o'qituvchi yoki tashrif buyuratyotgan ONLAYN vebinar tashkil qilish tufayli o'rganuvchilarni nafaqat ta'limdagi didaktik xususiyatlari bilan tanishish, balki o'zbek pedagogikasining onlayn muhitni yaratish imkoniyati oshadi.

Raqamli texnologiyalar asosida bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari va uning rivojlanishiga ta'sir etish, o'qitishni raqamlashtirishning muvaffaqiyatli tatbiq etilishi uchun tadqiqotimizda tashkiliy-pedagogik sharoitlarni aniqlashtirish zaruriyati paydo bo'ldi. "Sharoit" (arabcha) "obyektiv holdagi muayyan vaziyat", biror narsaning voqelanishiga, bo'lishiga ta'sir qiluvchi holat, vaziyat, imkoniyat" kabi ma'nolarda qo'llanadi [8]. Adabiyotlarda pedagogika nuqtayi nazaridan tashkiliy-pedagogik sharoitlar tushunchasi mavjud bo'lib, aksariyat tadqiqotlarda pedagogik faoliyatni boshqaruv masalasi bilan bog'lanadi [9].

Biz tadqiqotimiz obyekti va predmetidan kelib chiqqan holda sharoit termini mohiyatida raqamli texnologiyalar asosida bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari va uning rivojlanishiga hamda o'qitishda raqamli texnologiyalarning tatbiqiga davlat va jamiyat tomonidan ijobiy munosabat shakllangani, tashkiliy-pedagogik, didaktik shart-sharoitlar mavjudligini qarab chiqamiz. Binobarin, ayni shu pedagogik sharoit o'z navbatida pedagogik jarayon natijalariga, o'qitishda ta'lim ishtirokchilarining faoliyatiga sezilarli ta'sir ko'rsatadigan holatlar, shu bilan birga tashqi omillarning ichki hodisalar bilan birligini tashkil qiladi.

Raqamlashtirish davrida o'qitishning tashkiliy-pedagogik sharoitlari OTMda raqamli ta'lim muhitining samarali imkoniyatlari asosida ta'lim jarayonini boshqarish, rejalashtirish, tashkil etishda raqamli texnologiyalarni joriy etishni nazarda tutadi. Raqamli texnologiyalar asosida o'qitishning pedagogik sharoitlari haqida so'z yuritilganda quyidagi jihatlariga e'tibor qaratish zarur: raqamli texnologiyalar sohasiga oid ta'limiy hujjatlar; oliy ta'lim muassasalarida raqamlashtirish holati; oliy ta'lim muassasalari pedagog va talabalarining raqamli texnologiyalarga munosabati; raqamli texnologiyalar asosida o'qitish metodlari, usullari, ta'limning tashkiliy shakllari.

Oliy ta'lim jarayonlariga raqamli texnologiyalar va zamonaviy o'qitish usullarini joriy etish bo'yicha O'zbekiston Respublikasi Prezidentining 2019-yil 8-oktabrdagi PF-5847-son Farmoni bilan tasdiqlangan "O'zbekiston Respublikasi Oliy ta'lim tizimini 2030-yilgacha rivojlantirish konsepsiyasi"da belgilangan vazifalar ijrosi raqamli texnologiyalar asosida bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ didaktik imkoniyatlari va uning rivojlanishiga raqamli texnologiyalardan foydalanish samaradorligiga qaratilgan ishlarni jonlantirdi. Ta'kidlash joizki, O'zbekiston Respublikasi Prezidentining 2018-yil 28-dekabrdagi Oliy Majlisga Murojaatnomasi asosida mamlakatimizda xalq xo'jaligi, sanoat, iqtisodiyot, tibbiyot, shu jumladan ta'lim sohasini raqamlashtirish bo'yicha olib borilayotgan keng miqyosdagi tashabbuslar, yoshlarning One Million Uzbek Coders—"Bir million dasturchi" loyihasiga keng qamrab olinishi raqamli transformatsiya jarayonlari tezlashganini ko'rsatadi.

"Raqamli O'zbekiston – 2030" dasturi ijtimoiy sohalar, xususan, ta'lim sohasini "Ta'limda o'quv materiallarini raqamlashtirish", "oliy ta'lim tizimi uchun elektron ta'lim resurslarini yanada takomillashtirish, shuningdek, ichki va jahon ta'lim resurslaridan foydalanishni ta'minlash" bilan ro'yobga chiqarilmoqda [10]. Mavzumizga aloqador adabiyotlarni o'rganishlarimiz dunyoda raqamli iqtisodiyot dasturini ishlab chiqishda raqamli ta'limni amalga oshirishga urg'u berish mazkur dastur amalga oshirilayotgan aksariyat rivojlangan davlatlar tajribasida ustuvorlikka ega ekanligini tasdiqladi [11]. Chunonchi, har qanday mamlakat iqtisodiy hayoti, sohalarning raqamli texnologiyalar bilan integratsiyasi bo'yicha islohotlar, ilg'or texnologiyalar ta'lim sohasisiz, uni chetlab o'tib amalga oshirilishi mumkin emas. Zero, raqamli iqtisodiyot asosida ishchi kuchi, kadrlar va ularni yetkazib beruvchi ta'lim muassasalari turadi.

Raqamli O'zbekiston kelajagi maktab, institut, universitet partasida o'tirgan o'quvchilar, talabalar, ya'ni O'zbekiston aholisining yarmidan ko'pini tashkil qiladigan yoshlar qo'lidadir. O'zbekiston raqamli iqtisodiyotini boshqara olish, taraqqiy ettirish, raqamli O'zbekiston kiberxavfsizligini ta'minlash shu yoshlarning zamonaviy raqamli bilimga ega bo'lishi, raqamli kompetensiyasining rivojlanganligini taqozo qiladi. Bizningcha, nafaqat aniq va tabiiy fanlarga, balki barcha fanlar "ostonasi" sanaladigan pedagogik turkum fanlar ham raqamli texnologiyalar asosida tashkil qilish zaruriyatini ko'rsatadi. Binobarin, raqamli texnologiyalar asosida bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari va uning rivojlanishiga kasbiy kompetensiyalarga ega dasturchilar safini kengaytirish masalasi dolzarblik kasb etmoqda.

Shuningdek, ta'lim jarayoniga zamonaviy usullar va raqamli texnologiyalarni joriy etish [13], zamonaviy darslik va o'quv qo'llanmalar yaratishda, raqamli resurslar ishlab chiqish, ularni keng miqyosda tarqatish, internet jahon axborot tarmog'ida milliy kontentni yanada rivojlantirish [14] kabi ishlarni jadallashtirish; 2022–2026-yillarga mo'ljallangan Yangi O'zbekistonning taraqqiyot

strategiyasini [15] amalga oshirishga qaratilgan vazifalar ijrosi oliy ta'limda raqamli asr talablari asosida yondashish zaruratini yuzaga keltirdi.

Pedagogik turkum fanlar elektron milliy korpusi va dasturiy mahsulotlarning yaratishni, milliy ta'limning internet tarmog'ida ommalashtirilishini va munosib o'rin egallashini namoyon qilayotgan jiddiy harakatlar bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari va uning takomillashishi kasbiy kompetensiyalarni yangi bosqichga ko'tarilganini ko'rsatmoqda. Pedagogik turkum fanlarni fanlarni o'qitish va raqamli texnologiyalar muammosi muhim tadqiqotlar mavzusiga aylanayotgani bejiz emas. "OAK Bulleteni"dagi dissertatsiya tadqiqotlari mavzularini o'rganishdan ma'lum bo'ldiki, 2020 – 2022-yillarda pedagogika fanlari tarmog'i bo'yicha 59 ta mavzu tarkibida (axborot texnologiyalari, elektron ta'lim terminlarini istisno qilganda) *"raqamli"* yoki *"raqamlashtirish"* so'zlari mavjud bo'lib, raqamli texnologiyalar bilan aloqador ilmiy tadqiqotlar miqdori ortgan. Biroq ularning faqatgina 4,7 foizi til o'qitishda raqamli texnologiyalar tatbiqiga bag'ishlangan [16].

Oliy ta'limning raqamli transformatsiyasining birinchi yo'nalishi, ya'ni ta'limni raqamlashtirishni boshqarish bo'yicha jahonda to'plangan tajribalarda OTMni boshqarishni raqamlashtirish muhim jihatdir. Bu borada qo'shni mamlakatlarda, xususan, Qozog'iston misolida qaraganimizda Platonus kompaniyasining mamlakatdagi 100dan ortiq OTMlarini qamrab olganligini ko'rish mumkin [17]. Mazkur kompaniya 2005-yildan e'tiboran Qozog'iston ta'lim muassasalari o'quv jarayonini avtomatlashtirishni amalga oshirib kelmoqda. Dunyo tajribalari asosida O'zbekistonda oliy ta'lim tizimini boshqarishni raqamlashtirish bo'yicha HEMIS platformasi ishga tushirildi [18]. Platforma talabalar, pedagoglar va xodimlar uchun turli qulayliklar yaratadi. Tizim orqali talabalar, xodimlar ro'yxati shakllantiriladi. Tizimda talabalar akademik guruhlariga birlashtiriladi. O'quv dasturlari, o'quv va shaxsiy ish rejalari, taqvim rejalari, o'quv resurslari yuklanadi. Naqorat va baholash, ya'ni oraliq va yakuniy nazoratlarni tashkil qilish mumkin. Talabalar o'quv materiallarini qulay vaqt va makonda yuklab olishlari, topshiriqlarni bajarib, natijalarni yuklashlari, imtihon topshirish yoki qayta topshirish kabi vazifalardan foydalanishlari mumkin.

Xulosa sifatida shuni aytish lozimki, bo'lajak o'qituvchilarning o'quv faoliyatini tashkil etishda raqamli texnologiyalardan foydalanish; ta'lim jarayonida o'qitishda internet tarmog'iga ulanish, dasturiy ta'minot bilan jihozlash imkoniyati. Mazkur ijtimoiy-pedagogik sharoitlar asosida dars mashg'ulotlarini tashkil qilish bo'lajak o'qituvchilarni o'qish-o'rganishga bo'lgan motivatsiyasini kuchaytirishga, bilim, ko'nikma va malakalarini rivojlantirishga, mustaqil fikr almashishga qaratilgan ta'limiy maqsadga qaratilishi muhim ahamiyatga ega. Mazkur ijtimoiy-pedagogik shart-sharoitlar ta'lim jarayonida o'qitishda raqamli texnologiyalardan foydalanishning quyidagi didaktik shartlarini hisobga olish masalasi bilan bir butunlikni vujudga keltiradi:

- raqamli texnologiyalar asosida bo'lajak o'qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlarini moslashtirilgan holda mutaxassis o'quv fanlar mazmunini loyihalash;
- ta'lim mazmunini transdissiplinarlik ustuvorligiga ko'ra ko'p qirrali mavzular bilan boyitish;
- raqamli texnologiyalar asosidagi dars mashg'ulotlarida bo'lajak o'qituvchilarning vazifalarini takomillashtirish;
- dual ta'lim asosida o'rganishdabo'lajak o'qituvchilarning o'quv va mustaqil ta'lim faoliyatini tashkil etish;

– ta’lim mazmunida pedagogik va didaktik kategoriyaga oid kompetensiyalarni raqamli baholash fondini yaratish va foydalanish.

Mazkur didaktik yondashuv bo‘lajak o‘qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlarini o‘qituvchi va o‘qitish jarayoniga raqamli texnologiyalarni tatbiq qilishga tayyorgarlik, ta’lim jarayonida amalga oshirish, ta’lim muammolarni bashoratlash, farsayt texnologiyalari asosida paydo bo‘ladigan barcha to‘siqlarni bartaraf etish bo‘yicha vazifalar belgilab olish kabi muayyan ketma-ketlikni taqozo qiladi. Bo‘lajak o‘qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari asosida o‘qitish jarayoniga raqamli texnologiyalarni tatbiq etishga tayyorgarlik bir nechta vazifalarni bajarishga undaydi.

OTMda bo‘lajak o‘qituvchilarning kasbiy kompetensiyasini integrativ rivojlantirishning didaktik imkoniyatlari asosida o‘qitishda raqamli texnologiyalarni foydalanish o‘quv jarayonini individuallashtirish, bitiruvchilarda kasbiy kompetensiyalarni takomillashtirish mustaqil bilim olish va o‘z-o‘zini rivojlantirish imkoniyatlarini oshiradi. Alohida ta’kidlash o‘rinliki, keng jamoatchilik va mutaxassislar raqamli texnologiyalarni ta’lim jarayonida foydalanishda o‘ziga xos xavf-xatarlar bo‘lishidan tashvishlanadilar. Jumladan, ijtimoiy tengsizlik muammosi. Masalan, Pandemiya davrida shaxsiy kompyuteriga ega bo‘lmagan 500 milliondan ortiq ta’lim oluvchilarning o‘quv jarayonidan chekkada qolganligi ijtimoiy tengsizlik kuchayganligini namoyon qilgan edi. Raqamli qurilmalarning pedagoglar kasbiy vazifalarini cheklashi, hatto egallab olishi pedagogik xavf-xatar sifatida talqin etiladi.

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ТОХАРИСТОНДАГИ ХУНАРМАНДЧИЛИК САНЪАТИ: ДЕВОРИЙ ТАСВИРЛАР ВА АНЖОМЛАР ТАҲЛИЛИ

Термиз давлат университети академик лицейи тарих фани уқитувчиси
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Калит сузлар - маҳси, этик, садок, ёй ва уларнинг турлари, жул ва унинг шаклий хусусиятлари, узангилар: шакли ва маданий аҳамияти, юган, сувлуқ ва бошбоғлар, урта аср тасвирий манбаларда от тақинчоқлари ва уларнинг маданий-маънавий аҳамияти.

Аннотация : илк урта асрлар даврида Тохаристон ҳудуди маданий ва иқтисодий жиҳатдан жуда муҳим аҳамиятга эга бўлган. Бу минтақада хунармандчилик санъати юксак даражада ривожланган бўлиб, унинг турли соҳалари — керамика, тўқимачилик, металл ишлаш (куролсозлик), шишасозлик ва бошқа кўплаб хунарлар — маҳаллий аҳоли ҳаётида муҳим роль ўйнаган. Тохаристон хунармандчилиги ўзининг ўзгача услуби, техник ютуқлари ва чиройли безаклари билан ажралиб туради. Ушбу мақолада биз илк урта асрларда Тохаристонда хунармандчилик ривожининг асосий йўналишлари, у қандай омиллар таъсирида шакллангани ҳамда унинг минтақавий ва маданий аҳамияти ҳақида сўз юритамиз.

Қадимги, ўрта асрлар хунармандчилиги ҳақида суз борар экан, биз албатта ўша давр учун муҳим бўлган қабрлардан топилган ҳар хил турдаги хунармандчилик буюмларидан, деворий расмлар орқали уша давр хунармандчилиги ҳақида ҳулоса чиқаришимиз мумкин бўлади.

Ўрта асрлар даври Тохаристон хунармандчилиги ҳақида суз борар экан, ўша ҳудудга оид меъморий ёдгорликлардаги расмлардаги тасвирларда асосан, отлар устидаги жуллар, от безаклари ҳақида, чавандозлар устидаги, қулларидаги ёйлар, оёқларида кийимлар ҳақида батафсил маълумотлар берилган бўлиб, расмларнинг баъзиларида улар ҳақида ўхшашлик, баъзиларида эса фарқларни кўришимиз мумкин.

Чавандозлар кийган маҳсиларга тўхталадиган бўлсак, маҳсилар одатда сийрак, юмшоқ ва силлиқ чармдан тайёрланган, тўғридан-тўғри тиззагача етадиган, ҳозирги замонавий маҳсиларга жуда ўхшаш пўстинларни кийганлари аниқланади.¹

Афросиёб деворий тасвирларида аёллар кийимидаги маҳсиларнинг қўнжи нисбатан қисқа, эркаларники эса узунроқ экани кўзга ташланади.² Шунингдек, тоғли ҳудудлардаги аҳолига хос бўлган пойафзаллар ҳам тасвирланган бўлиб, уларнинг паст товонли, учи юқорига қайрилган ва қаттиқ тагликка эга бўлганлиги аниқланади. Бу турдаги пойафзаллар ҳозирги Помир минтақасида учрайдиган анъанавий оёқ кийимларига ўхшаш.³

Панжикент тасвирларида ҳам эрка ва аёлларнинг пойафзаллари деярли бир хил бўлиб, улар ҳам юмшоқ чармдан тайёрланган маҳси-этиклардир. Шу билан бирга, ушбу ёдгорликларда

¹ Аьлбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 32-бет; Бентович И.Б. Одежда раннесредневековой Средней Азии (По данным стеновых росписей VI-VIII вв.). И сб. Страны и народы Востока. Вып. XXII, М, 1980, 203-стр

² Аьлбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 44, 63, 65-стр.

³ Майдинова Г. Костюм раннесредневекового Тохаристана. История и связи. Душанбе, “Дониш”, 1992 48-стр.

спорт пойафзаллари ҳам учрайди.⁴ Чарм махсилар ва енгил этиклар чавандозлар учун жуда қулай бўлгани маълум.

Тохаристон ҳудудида топилган пойафзаллар тўлиқ кийимлар мажмуаси билан бирга мукаммал ўрганилган. Бу минтақада кенг тарқалган пойафзал турларидан бири пошнализ, юмшоқ чармдан тайёрланган этик-махсилар ҳисобланади.⁵ Дилбаржин расмларида рангли ва узун қўнжили этиклар тасвирланган бўлиб, айрим ҳолларда улар тиззадан ҳам юқорига чиққани кўринади.⁶

Болаликтепа деворий тасвирларида эса оёқни зич қистириб турадиган, қора чармдан тайёрланган, товон ва қўнчи қисмида олтин тўғчалар, қирғоқ безаклари ва фестонлар билан безатилган этиклар аниқ тасвирланган.⁷ Айниқса, аёллар ва эркаклар пойафзалларининг умумийлик касб этгани бир қатор тадқиқотчилар томонидан қайд этилган.⁸

Сўнгги йиллардаги археологик қазилмалар давомида ҳам бир қатор ёдгорликларда чарм махсилар аниқлангани, бу турдаги пойафзалларнинг кенг тарқалганини яна бир бор тасдиқлайди.

Ўрта асрлар Марказий Осиё тасвирий санъатида ёй, ўқ ва садоклар (ўқдонлар) ҳарбий анжом сифатида муҳим ўрин эгаллаган. Улар нафакат амалий мақсадда, балки маданий ва эстетик мезонлар асосида ҳам тасвирланган. Айниқса, Афросиёб, Панжикент, Тавка ва Қўрғонтепа каби ёдгорликларда чавандозлар билан боғлиқ сахналарда ушбу анжомларнинг кенг ифодалангани кузатилади.

Барча отли чавандозлар тасвирларида садоклар (ўқдонлар) камон билан бирга, одатда чавандознинг ўнг ёки чап томонида, жилов устида қия ҳолда жойлаштирилган. Бу ҳолат уларнинг ҳарбий тайёрликда эканлигини билдиради. Афросиёб шимолий деворидаги тасвирларда чавандозларнинг деярли барчаси қуйига томон кенгайиб боровчи силлиндрсимон шаклдаги садоклар билан тасвирланган. Садоклар одатда тўқ кул, қора ёки тўқ малла рангда берилиб, устки қисми қизил бўёқ билан белгиланган.⁹ Бу уларнинг табиий чарм ёки ёғоч қоплама билан ясалганлигини англатиши мумкин.

Садокларнинг ўлчамлари ҳам маълум: устки қисми 7–7,5 см, пастки қисми 5–5,5 см, умумий баландлиги эса 30–35 смни ташкил қилган. Айрим ҳолатларда (масалан, қўқ от чавандозининг тасвирида) садокдан чиқарилган ўқ камонга жойланаётган ҳолда кўрсатилган бўлиб, бу ҳарбий ҳаракатнинг реалистик намоёнидир.

Сузадаги тасвирларда ҳам ўқдондан чиқиб турган қўшимча ўқлар аниқ кўзга ташланади. Бундай ҳолатлар мазкур анжомнинг реал қўлланишини акс эттириб, уларнинг фақат декоратив тасвир эмас, балки амалий функцияга эга бўлганини тасдиқлайди.

⁴ Бентович И.Б. Одежда раннесредневековой Средней Азии (По данным стенных росписей VI-VIII вв.). И сб. Страны и народы Востока. Вып. XXII, М., 1980, 203-стр.

⁵ Майдинова Г. Костюм раннесредневекового Тохаристана. История и связи. Душанбе, “Дониш”, 1992.

⁶ Кругликова Т.И. Настенные росписи Дильбержина. В сб. Древняя Бактрия. Материалы Советско-Афганской археологич. Экспедиции 1969-1973 гг. М., 1976, 127-стр.

⁷ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1966, 116-стр

⁸ Бентович И.Б. Одежда раннесредневековой Средней Азии (По данным стенных росписей VI-VIII вв.). И сб. Страны и народы Востока. Вып. XXII, М., 1980, 203-стр; Майдинова Г. Костюм раннесредневекового Тохаристана. История и связи. Душанбе, “Дониш”, 1992, 55-стр.

⁹ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 17–18-б.

Сосонийларга оид Самарқанд ва Британия музейларида сақланаётган кумуш косалардаги суворийлар тасвирларида ҳам ўқдонлар ўнг томонга илинган ва улар пастга томон торайиб борган.¹⁰ Эрмитажда сақланаётган идишлардаги турк салоқлари эса пастга томон кенгайиб боровчи шаклда берилган бўлиб, ўқ учлари юқорига қаратилган ҳолда жойлаштирилган.¹¹

Қўрғонтепа суяк парчасидаги тасвирда Қанг давлатига оид деб тахмин қилинаётган садок кўриниши учрайди. Ушбу салоқ бошқалардан фарқли равишда уч қисмли тузилиши билан ажралиб туради. Унга бир вақтнинг ўзида бир нечта ўқ жойлаштириш мумкин бўлган.¹²

Тасвирий санъатдаги ёйлар асосан икки тоифага бўлинади:

1. **Одий тузилишли ёйлар** – содда қурилиши билан ажралиб туради;
2. **Мураккаб тузилишли ёйлар** – бир неча материалдан иборат бўлиб, юқори кучланиш кувватига эга бўлган. Ушбу ёйлар Афросиёб, Панжикент, Тавка ва Қўрғонтепадаги тасвирларда аниқланган.¹³ Афросиёбдаги Чағониён элчилари саҳнасидаги тасвирларда ёйлар махсус гилофларга жойлаштирилган ҳолда берилган. Гилоф шаклига қараб, бу ёйлар "М"-шаклдаги, "туркча" ёйлар эканлиги тахмин қилинади.¹⁴ Тавкадаги тасвирларда эса ушбу ёйлардан отиш жараёни реал ҳолда акс эттирилган.¹⁵, шунингдек Панжикентдаги тасвирларда ҳам ўхшаш ҳолатлар кузатилади.¹⁶

Скифларга хос бўлган камонлар (VII–VI асрларга тегишли) ҳам Марказий Осиё ҳудудида кенг тарқалган бўлиб, улар юқори отиш кучига эга, махсус қурилиши билан ажралиб туради. Шу билан бирга, суяк тутқичли бошқа турдаги ёйлар ҳам аниқланган.

Ёйлар тасвирида уларнинг ажралмас қисми сифатида — ўқлар ҳам реалистик ва динамик шаклда берилган. Масалан, Тавка расмларида сақланган ўқнинг суяк ёки ёғоч чўпи тасвирланган бўлиб, ўқдон оғзидадан чиқиб турган сариқ рангдаги учта ўқ аниқ ажралиб туради.¹⁷

Отлар устидаги жуллар хакида, уларнинг шакллари хакида гапирадиган бўлсак, масалан, Тавка ёдгорлигида от егарлари сақланмаган бўлса-да, уларнинг ўрнида жойлашган жуллар анча равшан кўринади. Ушбу жуллар ипак ёки жун матолардан тайёрланган бўлиб, тўғри тўртбурчак шаклда берилган. Бу шаклдаги жуллар бошқа манбаларда ҳам кузатилади. Масалан, Амударё хазинасидаги ов манзараси тасвирида ҳам отлар устидан худди шундай тўртбурчак шаклдаги жуллар аниқланади.¹⁸

¹⁰ Маршак Б.И., Крикис Я.К. Чилекские чаши. Тр.ТЭ, том. X, Культура и искусство народов Востока. Вып.7.Л.,1969, 60–69-стр.

¹¹ Распопова В.И. Согдийский город и кочевая степь в VII-VIII вв. КСИА Вып. 122.М.1970, 88-стр.

¹² Пугаченкова Г.А. Из художественной сокровищницы Среднего Востока. Ташкент, 1987, 61-стр.

¹³ Аълбаум Л.И. Живопись Афрасиаба. Ташкент.1975; Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура. М.,1973; Пугаченкова Г.А. Из художественной сокровищницы Среднего Востока. Ташкент, 1987

¹⁴ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 52-б.; Кизласов Л.Р. История Тувы в средние века. М.1969,21-стр; Рудо К.Г. К вопросу о вооружении Согда VII-VIII вв. Сообщение Республиканского ист.краеведческого музея Тадж. ССР, в. 1, Сталинабад, 1952,61–67-стр.

¹⁵ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 62–63-стр.

¹⁶ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура. М.,1973.

¹⁷ Рахмонов Ш.А. Сб.Города и карвансарай на трассах ВШП. Тезисы Междун.семинара ЮНЕСКО, Ургенч,1991

¹⁸ Пугаченкова Г.А, Ремпель Л.И. История искусств Узбекистана с древнейших времен до середины XIX века. М., 1965.

Афросиёб деворий тасвирларидаги Чағониён элчилари отларида ҳам тўғри тўртбурчак шаклли жуллар мавжуд. Аммо улар Тохаристон элчилари отларидагидек дабдабали безакларга эга эмас.¹⁹ Бу фарқ турли минтакалардаги от анжомларининг ижтимоий ва маданий контекстига боғлиқ равишда ривожланганини кўрсатади.

Тавка деворий тасвирларидаги отлардан иккитасида узангилар ҳам аниқ кўринади. Узангиларнинг юқори қисми арксимон, яъни ярим айлана шаклида бўлиб, уни боғлаш учун махсус ҳалқачалар учун жой ажратилган. Пастки қисми эса текис қилиб ишланган бўлиб, оёқ учун қулай шаклда яратилган. Бу турдаги узангилар чавандозлик учун зарур функционал қулайликни таъминлаган.

Афросиёб деворий тасвирларида ҳам ушбу турдаги — Тавка узангисига монанд узангилар учрайди.²⁰ Панжикент тасвирларида ҳам шундай шаклдаги узангилар кузатилади.²¹ Бундай узангилар кўчманчи халқлар, айниқса туркийлар маданиятида кенг тарқалган бўлиб, улар темир, мис ва жез каби металллардан қуйилган ҳамда баъзи ҳолларда безакларга эга бўлган.²² Бу узангиларнинг функционалиги билан бир қаторда, улар маданий белгиларни ҳам ўз ичига олган. Масалан, Сибир ва Олтой турк халқлари маданиятидаги узангилар нафақат амалий, балки маросимий аҳамиятга ҳам эга бўлган.

Афсуски, Тавка деворий тасвирларида юган ва бошбоғнинг барча деталлари тўлиқ сақланмаган. Шу боис, юганнинг сувлуқ қисми борасида аниқ хулоса чиқариш мушкул. Аммо бошқа ёдгорликлардаги тасвирлар бу жиҳатда маълумликни таъминлайди.

Афросиёб тасвирларида сувлуқлар одатда металлдан ясалган бўлиб, уларнинг шакли думалок шарсимон бўлган ва халқасимон тўғалар орқали бошбоғ ва юган ипларига туташган.²³ Панжикент тасвирларида эса сувлуқлар узун, қайрилган металл шаклида бўлиб, уларнинг учи халқа орқали бошбоғга ва юган ипига бириктирилган.²⁴

Марказий Осиё тасвирий санъатида отлар нафақат ҳарбий, балки зийнат ва ҳашамат рамзи сифатида ҳам муҳим роль ўйнаган. Уларга боғлиқ жиҳозлар, жумладан, узанги, юган, жул ва бошқа анжомлардан ташқари, кенг тарқалган кўринишда тақинчоқлар ва безаклар ҳам катта ўрин эгаллайди. Тақинчоқлар — отнинг ташқи кўринишига нафақат зийнат бериш, балки маданий, ижтимоий мақомни ифода этишда муҳим вазифани бажарган.

Отлардаги безаклар, асосан, отнинг бош қисми (бошбоғда), кўкраги (тушида), куйруқ яқини (сағрида) ва куйушқон ҳамда олд туткичи каби анжомларга илинган ҳолда акс эттирилган. Бу безаклар тасвирларда кўпинча сариқ ёки олтин рангда берилган бўлиб, уларнинг моддий жиҳатдан қимматбаҳо металллардан тайёрлангани англашилади.

Тасвирларда, хусусан, от бўйнидаги ва туш қисмидаги юраксимон шаклдаги “олтин балдоқлар” диққатга сазовор. Улар марказий ўринда жойлашган бўлиб, эстетик жиҳатдан отнинг “безак маркази” вазифасини бажарган. Сағри қисмида эса **яримойсимон шаклдаги балдоқ** ва унинг ичидаги айлана олтин ёпроқча шаклидаги безаклар тасвирланган.

¹⁹ Аълбаум Л.И. Живопись Афрасиаба. Ташкент.1975

²⁰ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 43–44-стр.

²¹ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура . М.,1973.

²² Могильников В.А. Тюрки. Степи Евразии в эпоху средневековья. Археология СССР.М.,1981, 49-стр.

²³ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 47-стр.

²⁴ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура . М.,1975.

Афросиёб, Тавка ва Панжикентдаги тақинчоқларида узига яраша фаркларни куриш мумкин. Келинг уларни солиштирамиз, жумладан,

Афросиёб деворий тасвирларида отларнинг бошбоғ ва қуйушқон қисмида мураккаб тузилишдаги тақинчоқлар, шу жумладан айлана, баргсимон ва муйқаламсимон безаклар акс эттирилган. Альбаум бу безаклар нафақат шакл жиҳатидан хилма-хил, балки таркибий жиҳатдан ҳам аниқ деталлар билан ифодаланганлигини айтиб утган.²⁵

Тавка ёдгорлигидаги отлар безаклари, асосан, олтин рангдаги, юраксимон, яримойсимон ва айланасимон шаклларда берилади. Ушбу безаклар отнинг бош, кўкрак ва сағри қисмларида жойлашган. Улар кўпинча тўплам ҳолатда, яъни шода шаклида илинган.

Панжикентдаги от тақинчоқлари Тавка тасвирларига яқинлиги билан ажралиб туради. Айниқса, яримой ва юраксимон шаклдаги осма безаклар Панжикентдаги отларнинг сағ'ри ва бўйнида акс этган.²⁶ Қўшимча равишда, Панжикент тасвирларида кўнғироқчалар каби амалий ва маросимий вазифа ўтовчи зийнатлар ҳам аниқланган. Бу безаклар жангда ёки парадларда от ҳаракатини эшитиш ва сигнал сифатида қўлланиши мумкин бўлганини англатади.

От анжомларидаги безаклар тасвирларда нафақат зийнат сифатида, балки этник ва маданий белгиларни ифода этувчи рамз сифатида ҳам роль ўйнаган. Улар одатда:

- **Геометрик шакллар** (айлана, ярим айлана, юраксимон);
- **Табий шакллар** (баргсимон, муйқаламсимон);
- **Комплекс элементлар** (шода, ҳалқа, ёпроқ тўпламлари)

тарзида тасвирланган бўлиб, уларнинг функцияси ҳам эстетик, ҳам рамзий, ҳам амалиётга оид бўлган. Кўнғироқчаларнинг жанг олди сигнализация, ёки шоҳона отлар беағи сифатидаги фойдаланилиши бунинг яққол мисолидир.

Отларга тақилган олтин безаклар нафақат чавандознинг бойлиги ва мақомини, балки сиёсий ва этник мансублигини ҳам кўрсатган. Хусусан, элчилар, шоҳлар ва жангчиларнинг отлари кўпинча уникал безаклар, меъморий-этниқ рамзлар билан безатилган бўлиб, бу расмий приёмлрда, ҳарбий юришларда муҳим рол ўйнаган. Отларни шундай даражада зийнатлаш анъанаси Яқин Шарқ, Сосоний ва Турк даврлари санъатида ҳам кенг тарқалган.

Хулоса қилиб айтганда, илк ва урта асрларда Тохаристон ҳудудида ҳунармандчилик кенг ривожланган ва бу ҳунарлар асосан артефактлар, деворий тасвирлар ва қурилиш ёдгорликлари орқали яхши ўрганилмоқда. Ушбу манбалар орқали чавандозлар қийими, пойафзаллари, отлар устидаги жуллар ва бошқа анжомларнинг шакллари, материаллари ва безаклари ҳақида бой маълумотларга эга бўламиз. Махсус эътибор бериладиган жиҳатлардан бири — чарм маҳсиларнинг техник жиҳатдан мукамаллиги ва уларнинг ҳозирги кун маҳсиларига ўхшашлиги, шунингдек, пойафзаллар ва узангиларнинг маҳаллий этник ва маданий хусусиятларини акс эттириши.

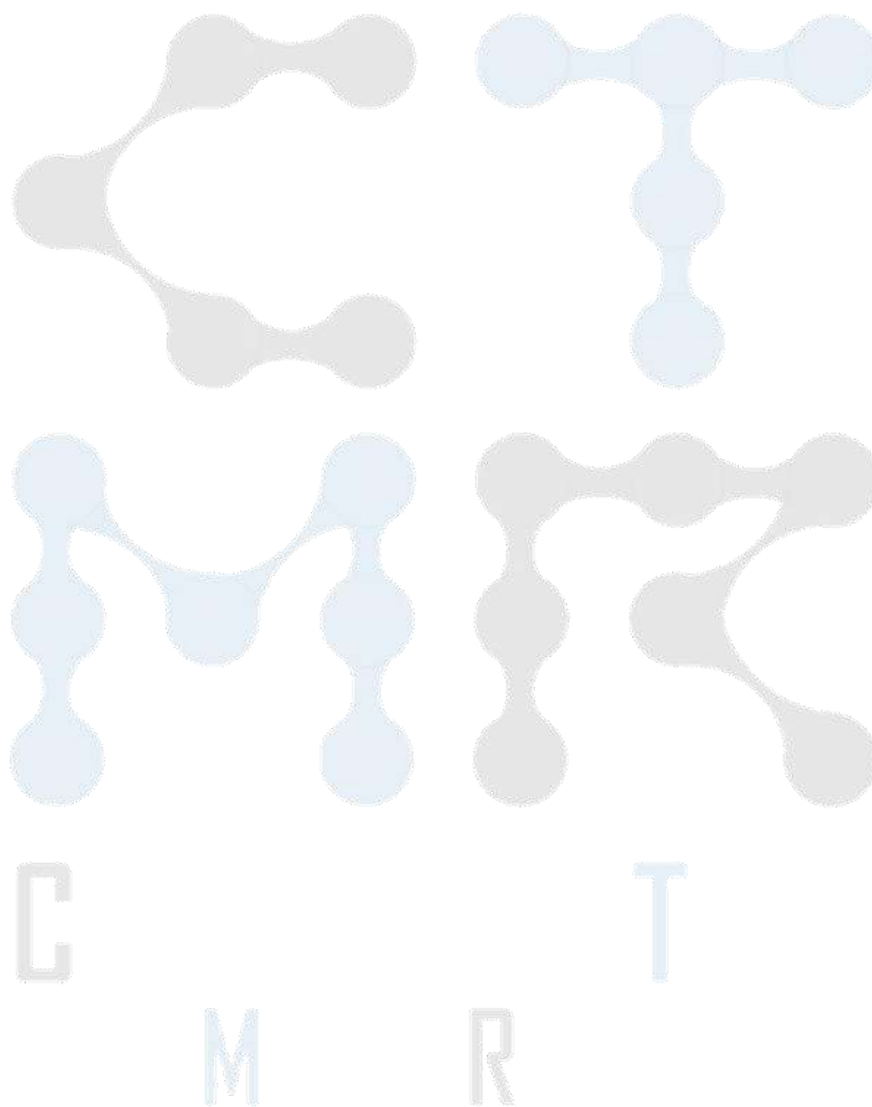
Тохаристон тасвирий санъатидаги ёй, садок, камон ва от анжомлари нафақат амалий вазифаларни бажарган, балки маданий ва ҳарбий белгилар сифатида ҳам муҳим аҳамият касб этган. Улар орқали жангчанлик, ижтимоий мақом ва ҳудудий фарқлар ҳақида ҳам хулоса қилиш мумкин.

²⁵ Альбаум Л.И. Живопись Афрасиаба. Ташкент. 1975.

²⁶ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура. М., 1973.

Отларнинг безаклари ва анжомлари, айниқса, олтин тақинчоқлар, нафақат эстетик зеб-зорнинг бир қисми, балки сиёсий, этник ва маданий рамз сифатида хизмат қилган. Ушбу безаклар ва анжомлар ёрдамида Тохаристондаги халқларнинг ижтимоий тузилиши, уларнинг маданий алоқалари ва тарихий жараёнлар ҳақида бой тасаввур ҳосил қилиш мумкин.

Шу тариқа, илк ва ўрта асрларда Тохаристон хунармандчилиги нафақат маҳаллий аҳоли ҳаётида муҳим ўрин эгаллаган, балки бу ҳудуднинг маданий мероси ва тарихини ўрганишда ҳам асосий манба ҳисобланади.



OG‘ZAKI NUTQDA SINTAKTIK VA LUG‘AVIY BIRLIKLARNING TO‘G‘RI
QO‘LLANILISHI

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Annotatsiya. Ushbu maqolada og‘zaki nutqda sintaktik va lug‘aviy birliklarning to‘g‘ri qo‘llanilishi keltirib o‘tilgan. Ayniqsa, og‘zaki nutq inson hayotining har bir sohasida muhim o‘rin tutadi: o‘qishda, ishda, mehnatda, rasmiy yig‘ilishlarda, ijtimoiy muloqotda va kundalik suhbatlarda. Har qanday millatning madaniy darajasi, fikrlash kengligi va estetik didi, avvalo, uning nutq madaniyatida namoyon bo‘ladi. Shu bois, og‘zaki nutqning tozaligi, aniqligi va ta’sirchanligi zamonaviy tilshunoslikda alohida o‘rganilayotgan masalalardan biri ekanligi yoritilgan.

Kalit so‘zlar: intonatsiya, ijtimoiy muloqot, estetik did, nutq madaniyati, sintaktik tuzilma, intervyu, debat, teleeshittirish, qaratuvchi va qaralmish.

Abstract. This article discusses the correct use of syntactic and lexical units in oral speech. In particular, oral speech plays an important role in every sphere of human life: in study, work, labor, official meetings, social communication and everyday conversations. The cultural level, breadth of thinking and aesthetic taste of any nation are reflected, first of all, in its speech culture. Therefore, it is highlighted that the purity, accuracy and expressiveness of oral speech are one of the issues being studied separately in modern linguistics.

Keywords: intonation, social communication, aesthetic taste, speech culture, syntactic structure, interview, debate, television broadcast, addressee and addressee.

KIRISH.

Til – inson tafakkurining asosiy ifoda vositasi, nutq esa bu tilning amaliy ko‘rinishidir. Ayniqsa, og‘zaki nutq inson hayotining har bir sohasida muhim o‘rin tutadi: o‘qishda, ishda, mehnatda, rasmiy yig‘ilishlarda, ijtimoiy muloqotda va kundalik suhbatlarda. Har qanday millatning madaniy darajasi, fikrlash kengligi va estetik didi, avvalo, uning nutq madaniyatida namoyon bo‘ladi. Shu bois, og‘zaki nutqning tozaligi, aniqligi va ta’sirchanligi zamonaviy tilshunoslikda alohida o‘rganilayotgan masalalardan biridir.

Og‘zaki nutqda sintaktik va lug‘aviy birliklarning, bundan tashqari ma’nodosh so‘zlarning ham qo‘llanish o‘rni beqiyosdir. Masalan, sintaktik (gap tuzilishi) va lug‘aviy (so‘z boyligi) birliklarning to‘g‘ri qo‘llanilishi fikrning aniq, lo‘nda va ifodali chiqishini ta’minlaydi. Har bir nutq ishtirokchisi uchun ikki narsa, ya’ni to‘g‘ri so‘z tanlovi va sintaktik tuzilma orqali o‘z maqsadini aniq yetkaza olish nutq madaniyatining muhim shartlaridan hisoblanadi.

O‘g‘zaki nutq o‘zi nima?

O‘g‘zaki nutq – bu tovush orqali amalga oshiriladigan, real vaqt ichida aytiladigan muloqot shaklidir. Masalan: suhbat, nutq so‘zlash, darsda javob berish, intervyu, muhokama, debat (fikir to‘qnashuvi), radio va teleeshittirishlar.

Asosiy xususiyatlari:

- bevosita muloqotga asoslanadi;
- intonatsiya, pauza, ohang, talaffuz, mimika va imo-ishoralar muhim rol o'ynaydi;
- tashqi tayyorgarliksiz, ko'p hollarda tabiiy shaklda kechadi;
- nutqning soddligi va tezligi yuqori bo'lishidir.

Og'zaki nutq yozma nutqdan bir necha belgilari bilan farqlanadi. Avvalo, u bevosita muloqot jarayonida yuz beradi. Ammo bunda sodda va tabiiy fikr ifodasi ustun bo'ladi. Bu degani, tildagi me'yorlardan chetga chiqish degani emas. Aksincha, og'zaki nutq madaniyatini shakllantirish uchun tilning grammatik, leksik va fonetik qonuniyatlariga rioya qilish zarurligini anglatadi.

Sintaktik birliklar – bu so'z birikmasi, gap va murakkab gap shakllaridir. Ular nutqning mantiqiy va grammatik asosini tashkil etadi.

Og'zaki nutqda sintaktik birliklarning to'g'ri qo'llanilishi deganda nimani tushunamiz?

Bunda:

- gap tuzilishining izchilligi;
- so'z tartibi, ya'ni ma'noni to'g'ri ifodalash uchun so'zlarning to'g'ri o'rinda qo'llanilishi;
- qaratuvchi va qaralmish, ega va kesim orasidagi moslik saqlanishi zarur. Masalan, "Men bugun kitob o'qiydi" emas, "Men bugun kitob o'qiyman" desak ega va kesim mosligini ko'rishimiz mumkin.
- sintaktik me'yorlarga amal qilish. Bu degani, ortiqcha so'zlar takrori va noaniq bog'lanishlardan saqlanish demakdir.

Sintaktik me'yorni buzish yoki to'g'ri qo'llamaslik nutqning mantiqiyliyi yo'qolishiga sabab bo'ladi. Masalan, "Men siz bilan bugun suhbatlashmoqchiman" degan gap grammatik jihatdan to'g'ri va aniq ifodalangan. Ammo "Bugun siz bilan men suhbatlashmoqchiman" kabi o'zgartirishlarda urg'u o'rni o'zgaradi, bu esa mantiqiy ma'noga ta'sir ko'rsatadi.

Lug'aviy birliklar – bu tilning asosiy boyligi bo'lgan so'z, frazeologik birikmalar, atamalar, antonim va sinonimlar tizimidir. Ularning og'zaki nutqda to'g'ri qo'llanilishi so'zlovchining so'z boyligi va til sezgisi bilan chambarchas bog'liqdir.

Lug'aviy birliklarni to'g'ri qo'llash deganda:

- so'z ma'nosiga qarab tanlash (ko'chma ma'noda yoki to'g'ridan-to'g'ri ishlatish);
- sharoitga mos, madaniyatli so'zlarni qo'llash;
- parazit so'zlar ("ya'ni", "narsa", "bilamizmi", "aniqmasu") dan saqlanish;
- dialekt va jargonlarni rasmiy yoki jamoaviy nutqda ishlatmaslik tushuniladi.

Masalan, rasmiy suhbatda "gaplashmoq" o'rniga "muloqot qilish", "so'z yuritish" kabi neytral shakllar qo'llaniladi yoki rasmiy nutqda "Bu film juda zo'r bo'ladi" emas, balki "Bu film juda ajoyib chiqadi" desak maqsadga muvofiq bo'ladi.

Lug'aviy birliklar ahamiyati shundan iboratki:

- fikir ifodasini boyitadi;
- tinglovchiga ta'sirchanlikni oshiradi;
- so'zlovchi nutqining madaniyatini ko'rsatadi.

Bu mavzu bizga nima uchun kerak? Nimaga o'rganyapmiz degan savol hammada tug'iladi. Birinchidan, bizni tarbiyaviy jihatdan odobli, madaniyatli so'zlovchi bo'lishimizga yordam beradi. Boshqa tomondan qaraydigan bo'lsak, ijtimoiy, kasbiy va psixologik jihatlardan ham bizni komil inson bo'lishimizga yordam beradi.

A. Madleyev ta'kidlaganidek, "nutqning leksik tozaligi – so'z tanlash madaniyatidir, bu madaniyat inson tafakkurining aniqligini belgilaydi". Shu sababli, lug'aviy birliklarni joyida ishlatish, so'zlovchining fikr aniqligini ta'minlaydi.

"Og'zaki nutq madaniyati – bu faqat to'g'ri talaffuz yoki grammatikani bilish emas, balki muloqot etikasiga ham amal qilishni anglatadi", – deydi, A. G'ulomov o'zining "Nutq madaniyati asoslari" kitobida.

Til me'yorlariga amal qilish nafaqat nutqni chiroyli qiladi, balki inson shaxsiyatining madaniy darajasini ham aks ettiradi. Shu sababli, maktab va oliy ta'lim tizimida nutq madaniyatini o'qitish dolzarb masala hisoblanadi.

Demak, bu mavzu nafaqat tilshunoslik nazariyasida, balki har bir insonning amaliy hayotida ham muhim o'rin tutadi.

Xulosa o'rnida shuni aytish kerakki, og'zaki nutqda sintaktik va lug'aviy birliklarning to'g'ri qo'llanilishi – bu faqat grammatik masala emas, balki madaniy va estetik hodisadir. Har bir shaxs til me'yorlariga rioya qilgan holda fikrini aniq, to'liq va ta'sirchan ifoda etishga intilishi kerak. Og'zaki nutq madaniyatini shakllantirish, uni til me'yorlariga mos tarzda rivojlantirish har bir so'zlovchining burchidir.

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ONA TILI DARSLARIDA INTERFAOL TA'LIM VA UNING DIDAKTIK
IMKONIYATLARI (BOSHLANG'ICH SINIF MISOLIDA)

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Annatatsiya. Ona tili darslarida interfaol ta'limning nazariy asoslari va uni amaliyotga joriy etishning samarali yo'llari ko'rib chiqiladi. Interfaol metodlarning an'anaviy o'qitish usullaridan ustunliklari, xususan, o'quvchilarni faollashtirish, ularning kreativ va tanqidiy fikrlash qobiliyatlarini rivojlantirishdagi didaktik imkoniyatlari tahlil qilinadi.

Kalit so'zlar: Ona tili ta'limi, interfaol ta'lim, didaktik imkoniyatlar, interfaol metodlar, kreativ fikrlash, tanqidiy fikrlash, o'quvchi faolligi, innovatsion texnologiyalar, ta'lim samaradorligi, kommunikativ ko'nikma.

Аннотация. На уроках родного языка будут рассмотрены теоретические основы интерактивного обучения и эффективные пути его внедрения в практику. Анализируются преимущества интерактивных методов перед традиционными методами обучения, в частности, их дидактические возможности в активизации учащихся, развитии у них навыков творческого и критического мышления

Ключевые слова: обучение родному языку, интерактивное обучение, дидактические возможности, интерактивные методы, творческое мышление, критическое мышление, активность учащихся, инновационные технологии, эффективность обучения, коммуникативные навыки

Annatation. In the lessons of the mother tongue, the theoretical foundations of interactive education and effective ways to introduce it into practice are considered. The advantages of interactive methods over traditional teaching methods are analyzed, in particular, the didactic possibilities of activating students, developing their creative and critical thinking abilities.

Keywords: native language education, interactive education, didactic opportunities, interactive methods, creative thinking, critical thinking, student activism, innovative technologies, educational effectiveness, communicative skills.

Boshlang'ich ta'lim har qanday inson shaxsiyatining poydevori hisoblanadi. Ona tili esa bu poydevorning eng asosiy ustunidir. Barcha fanlarning kaliti nutq-ta'lim vositasidir. Asosiy kommunikativ vositasi ona tili faqat fan emas, balki boshqa barcha fanlarni (matematika, tabiiy fan, tarbiya, o'qish savodxonligi) o'rganish va o'zlashtirish uchun yagona asosiy vositadir. O'quvchi savolni tushunishi, topshiriqni o'qiy olishi va javobni mantiqiy bayon qilishi til malakalariga bog'liq. O'qish savodxonligi boshlang'ich sinfda shakllangan o'qish malakasi, matn mazmunini tushunish va tahlil qilish ko'nikmasi butun keyingi o'qish jarayonining muvaffaqiyatini belgilaydi. Tafakkur va mantiqni shakllantirish mantiqiy fikrlash asosi bu til va fikrlash uzviy bog'liqdir. Grammatik

qoidalarni, gap qurilishini sintaksis, soʻz maʼnolarini leksika oʻrganish bolada mantiqiy zanjirni yaratish, tushunchalarni umumlashtirish va farqlash qobiliyatini rivojlantiradi.

Tanqidiy fikrlash poydevori bu savol berish, oʻz fikrini asoslash, oʻzgalar fikriga munosabat bildirish kabi elementar tanqidiy fikrlash koʻnikmalari aynan ona tili darslarida nutqiy faoliyat orqali shakllanadi. Shaxsiy kamolot va tarbiya

nutq madaniyati va odobi ona tili darslarida toʻgʻri talaffuz orfoepiya, chiroyli yozuv husnixat va muomala madaniyati oʻrgatiladi. Bu esa bolaning shaxsiy madaniyati va jamiyatdagi ijtimoiy muloqot koʻnikmasini shakllantiradi. Milliy qadriyatlarni anglash darsliklardagi matnlar, hikoyalar va sheʼrlar orqali bolalar oʻz milliy qadriyatlari, tarixi, urf-odatlar va Vatan tuygʻusi bilan tanishadilar.

Bugungi globallashtirish va raqamlashtirish sharoitida boshlangʻich ona tili taʼlimining dolzarbligi yanada ortdi. Kommunikativ kompetensiyani rivojlantirish “4K” koʻnikmalari talabi zamonaviy taʼlim standartlari oʻquvchidan kommunikatsiya muloqot, kollaboratsiya (hamkorlik), kreativlik (ijodkorlik) va kritik fikrlash (tanqidiy fikrlash) ni talab qiladi. Ona tili darslari bu koʻnikmalarni oʻzaro munozara, guruh ishi, ijodiy yozma ishlar orqali rivojlantiruvchi asosiy platformadir. Nutqiy faollik ona tili darslarining asosiy maqsadi endi faqat qoidalar yodlatish emas, balki oʻquvchini erkin, ravon va ishonchli gapirishga oʻrgatishdir.

Media savodxonlikka poydevor hozirda bolalar juda katta axborot oqimi bilan toʻqnash keladi. Boshlangʻich ona tili darslarida shakllangan matnni tahlil qilish, asosiy gʻoyani ajratish va axborotga baho berish qobiliyati kelajakda media savodxonlikni rivojlantirish uchun zaruriy baza boʻlib xizmat qiladi. Xatolarsiz yozuv va elektron muloqot yozma muloqotning oʻrni elektron pochta, chat va ijtimoiy tarmoqlar keng tarqalgan davrda savodli va toʻgʻri yozishning ahamiyati oshdi. Boshlangʻich sinflarda mustahkamlangan orfoepik, orfografik va punktuatsion savodxonlik bu muloqot turining sifatini belgilaydi. Zamonaviyligi metodik yangilanishlar ona tili darslarining zamonaviyligi – bu faqatgina mavzu dolzarbligida emas, balki oʻqitish metodikasi va texnologiyalarining yangilanishida ham namoyon boʻladi.

Interfaol taʼlim va oʻyin texnologiyalari interfaol metodlar anʼanaviy maʼruza usuli oʻrniga “Aqliy hujum”, “Klaster”, “Munozara”, “Rolli oʻyinlar” kabi interfaol metodlardan foydalanish. Bu bolaning passiv tinglovchidan faol ishtirokchiga aylanishini taʼminlaydi. Multimedia imkoniyatlari ona tili darslarida audiomateriallar, videoroliklar va elektron darsliklardan foydalanish oʻquv materialini har tomonlama, vizual va sensorli idrok etishga yordam beradi. Texnologiyalar integratsiyasi kompyuter dasturlari yordamida matnni tahlil qilish, lugʻat boyligini mustahkamlashga qaratilgan mobil ilovalar va elektron mashqlarni qoʻllash zamonaviy taʼlimning ajralmas qismidir. Boshlangʻich sinflarda ona tili darslari shunchaki bir oʻquv fani emas, balki bolaning til, fikr va axloqiy dunyoqarashini shakllantiruvchi, uning keyingi hayotiy va professional faoliyati uchun kompetentlik asosini yaratuvchi fundamental taʼlim bosqichidir. Bu darslarning dolzarbligi va zamonaviyligi esa interfaol va raqamli texnologiyalarni joriy etish orqali mustahkamlanadi.

XXI asr – axborotlashgan jamiyat, “4K” Kreativlik, Kritika, Kommunikatsiya, Kollaboratsiya koʻnikmalarini talab qiladi. Anʼanaviy usullar bu talablarga javob bera olmayapti. Taʼlim sifatini oshirishda Oʻzbekistonda taʼlim sohasida amalga oshirilayotgan islohotlar taʼlim toʻgʻrisidagi qonun, taraqqiyot strategiyasi oʻquvchilarni mustaqil fikrlashga, izlanishga oʻrgatishni asosiy vazifa qilib qoʻyadi. Ona tilining oʻrniga tuxtalib oʻtadigan boʻlsak ona tili – milliy oʻzlikni anglash,

dunyoqarashni shakllantirish asosidir. Interfaol ta'lim orqali tilning o'rgatilishini qiziqarli, amaliy va chuqur anglanadigan jarayonga aylantirish zarur.

Maqsadi ona tili darslarida interfaol metodlarning samaradorligini nazariy va amaliy jihatdan asoslash. Interfaol ta'limning didaktik imkoniyatlarini o'quvchining faolligi, nutqiy madaniyati, fikrlash qobiliyatlarini ochib berdi.

Interfaol ta'limning nazariy asoslari interfaol ta'lim tushunchasi va mohiyati shundan ibotarki ta'rif interfaol "Inter" – o'zaro, "Akt" – faoliyat - bu o'qituvchi va o'quvchi, shuningdek, o'quvchilarning o'zaro faol hamkorligi asosida kechadigan ta'lim jarayoni. O'quvchi passiv tinglovchi emas, balki faol ishtirokchi, bilimlarni quruvchi sub'ektdir. An'anaviy ta'limdan farqi bilimlarni tayyor holda berishdan voz kechish, o'quvchining muammoli vaziyatlarni yechish orqali bilim olishini ta'minlash. Didaktik imkoniyatlar nima beradi? O'quvchilar faolligini oshirish zero, dars jarayonida o'quvchining faolligi 80% gacha oshadi.

Kreativ va tanqidiy fikrlashni rivojlantirish o'quvchi mavzuga bir tomonlama emas, balki turli pakurslardan yondashishga o'rganadi "Olti fikrlash shlyapasi". Kommunikativ kompetensiyani shakllantirish og'zaki va yozma nutqni rivojlantirish munozara, debat, yozma tahlil. Hamkorlik va jamoadagi ishlash ko'nikmasini shakllantirishda guruhda mas'uliyatni his qilish, birgalikda qaror qabul qilish (Kollaboratsiya). Mustaqil o'rganishga o'rgatish izlanish, axborotni tahlil qilish va umumlashtirish mustaqil bilish faoliyati.

Ona tili darslarida interfaol metodlarni qo'llash mexanizmlari bu bo'limda aynan ona tili materialini o'rgatishda qo'llaniladigan eng samarali metodlar tahlil qilinadi. Interfaol ta'limda axborot texnologiyalarining o'rni interfaol ta'limni zamonaviy AKT Axborot-kommunikatsiya texnologiyalari vositalarisiz tasavvur etib bo'lmaydi. Multimedia ona tili darslarida video, audio materiallar, animatsiyalardan foydalanish orqali mavzuni hissiy va vizual idrok etishni kuchaytirish masalan, nutq madaniyatiga oid videoroliklar. Elektron resurslar lug'atlar, ensiklopediyalar, korpus lingvistikasi materiallaridan foydalanib, o'quvchilarni mustaqil tadqiqot olib borishga o'rgatish. Ona tili darslarida interfaol ta'limni qo'llash nafaqat mavzuni o'zlashtirish sifatini oshiradi, balki o'quvchilarni mustaqil, ijodiy va tanqidiy fikrlovchi shaxs sifatida shakllantirishning muhim didaktik imkoniyatlariga ega. Bu bugungi kun o'qituvchisidan talab etiladigan professional kompetensiyadir amaliy takliflar o'qituvchilar malakasini oshirish ona tili o'qituvchilari uchun interfaol metodikalar bo'yicha tizimli seminarlar va master-klasslar tashkil etish. Metodik qo'llanmalar har bir sinf va mavzu uchun interfaol metodlarni qo'llash bo'yicha tayyor didaktik materiallar bazasini yaratish ushbu reja va tezislarga sizga maqolani tahliliy, keng qamrovli va dolzarb ma'lumotlarga asoslangan holda yozishga yordam beradi.

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INGLIZ VA O'ZBEK MUSIQALI TEATR TERMINLARINING O'XSHASHLIK VA
FARQLI JIHATLARI

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Annotatsiya

Ushbu maqolada ingliz va o'zbek musiqali teatri terminlarining o'xshash va farqli jihatlari lingvistik, madaniy hamda semantik mezonlar asosida tahlil qilinadi. Xalqaro musiqali teatr terminlarining ikki tilga kirib kelish jarayoni, milliy teatr tizimiga xos atamalar shakllanishi va semantik moslashuv darajasi ilmiy asosda o'rganiladi. Tadqiqot natijalari ingliz va o'zbek musiqa teatri leksikasida umumiyliklar mavjud bo'lsa-da, milliy madaniyatga xos terminlar sezilarli farq qilishini ko'rsatadi.

Kalit so'zlar: musiqali teatri, termin, ingliz tili, o'zbek tili, sahna san'ati, lingvistik tahlil.

Annotation

This article analyzes the similarities and differences between English and Uzbek musical theatre terms based on linguistic, cultural, and semantic criteria. The study explores the use of international musical theatre terms in both languages, the formation of culture-specific terms within each theatrical tradition, and the processes of semantic adaptation in stage performance. The findings demonstrate that while English and Uzbek musical theatre share a number of universal lexical items, their national-cultural terms show significant divergence. The research provides a theoretical foundation for contrastive studies in musical theatre terms.

Keywords: musical theatre, terms, English, Uzbek, stage arts, linguistic analysis.

Аннотация

В данной статье рассматриваются сходства и различия терминов музыкального театра в английском и узбекском языках на основе лингвистических, культурных и семантических критериев. Исследование анализирует использование международных музыкальных терминов в обоих языках, формирование национально-специфичных театральных понятий, а также процессы семантической адаптации в сценическом искусстве. Результаты показывают, что, несмотря на наличие общих международных терминов, национально-культурные особенности английского и узбекского музыкального театра значительно различаются. Работа служит теоретической основой для дальнейших сопоставительных исследований в области театральной терминов.

Ключевые слова: музыкальный театр, термин, английский язык, узбекский язык, сценическое искусство, лингвистический анализ.

KIRISH

Musiqali teatri (musical theatre) zamonaviy sahna san'atining yirik tarmoqlaridan biri bo'lib, undagi terminlar nafaqat san'at mazmunini, balki madaniy qadriyatlar va professional sahna jarayonlarini ham aks ettiradi. Ingliz va o'zbek musiqali teatrlarida qo'llaniladigan terminlar lingvistik jihatdan turli manbalarga tayanadi: ingliz terminlarining aksariyati lotin, italyan va yunon tillariga, o'zbek

musiqali teatri terminlari esa mahalliy folklor, Shashmaqom an'analari, rus va turkiy manbalarga suyanadi. Mazkur maqola ingliz va o'zbek musiqali teatri terminlarining o'xshashlik va farqli jihatlarini ilmiy asosda taqqoslashga qaratilgan.

Metodlar

Tadqiqot quyidagi metodlar asosida amalga oshirildi:

- **Taqqosiy-lingvistik metod** - ingliz va o'zbek musiqali teatri terminlari leksik-semantik taqqoslandi.
- **Etimologik tahlil** - xalqaro musiqa o'ld terminlarining ikki tilga kirib kelishi o'rganildi.
- **Deskriptiv metod** - terminlarning qo'llanish sohasi, funksiyasi va semantik xususiyatlari tasvirlandi.
- **Madaniyatlararo tahlil** - ingliz (Broadway va West End), o'zbek musiqa teatri (maqom, musiqali drama, folk an'analari) asosida tahlil qilindi.

Manba sifatida ingliz tilidagi musical theatre lug'atlari, o'zbek musiqa va teatr terminlari bo'yicha ilmiy adabiyotlar, shuningdek O'zbek davlat musiqa teatri repertuarlari va ingliz sahna san'ati terminologik manbalari foydalanildi.

Natijalar

1. Birinchi navbatda o'xshashliklarni ko'rib chiqamiz:

1.1. Xalqaro musiqa terminlari ikki tilda bir xil qo'llaniladi. Ko'plab terminlar italyan-cholg'u san'atidan kelib chiqqan: quyida terib chiqilgan so'zlar asosida bilib olish mumkin.

Inglizcha

Opera

Aria

Libretto

Duet

Forte

Tempo

O'zbekcha

Opera

Ariya

Libretto

Duet

Forte

Tempo

Bu terminlarning ikki tilda umumiyligi musiqali teatr san'atining global tabiatidan dalolat beradi.

1.2. Sahnadagi jarayonlar uchun umumiy texnik terminlar

Inglizcha termin	O'zbekcha tarjima
stage	sahna
rehearsal	repetitsiya
conductor	dirijyor
score	nota matni
orchestra pit	orkestr joyi

Mazmun bir xil, lekin fonetik moslashuv mavjud.

2. ingliz va o'zbek musiqali teatr terminlarning farqli jihatlar

2.1. Mahalliy madaniyatga xos terminlar

O'zbek musiqali teatrida milliy folklor va maqom san'ati asosida shakllangan terminlar mavjud:

- Maqom
- Yalla
- Ashula
- Doston
- Dutorchi
- sozanda

Ingliz musiqali teatrida ularga to'liq ekvivalent yo'q.

2.2. Musical theatre janrlari ingliz tilida ko'proq rivojlangan.

Ingliz tilida mavjud, o'zbek tilida bevosita ekvivalenti yo'q terminlar:

- musical
- show tune
- Broadway
- West End
- sound designer
- casting director
- stage manager

Bu tizimning o'zbek teatrida yangi shakllanayotganini ko'rsatadi.

2.3. Terminlarning tuzilishi farq qiladi

- Ingliz tilida: **cast, cue, tone, pitch** - qisqa va aniq tavsiflangan.
- O'zbek tilida: **aktyorlar tarkibi, sahnaga chiqish signali, ohang balandligi** - tavsifiy birikmalar.

2.4. Fonetik va morfologik moslashuv. Borrowing (o'zlashma so'zlar) terminlar o'zbek tilida so'z yasovchi qo'shimchalar orqali moslashadi:

- **symphony** → **simfoniya**

- **chorus** → **xor**
- **musical** → **musiqali drama** (semantik kengayish kuzatilyapti)

Muhokama

Tadqiqot natijalari shuni ko'rsatadiki, ingliz va o'zbek musiqali teatr terminlari o'rtasida lingvistik va madaniy masofalar mavjud. Xalqaro musiqa terminlari ikki til uchun umumiy bo'lsa-da, musiqali teatrning ichki tizimi, madaniy ildizlari va janr tizimlari tufayli o'ziga xos farqlar vujudga kelgan. Ingliz musical theatre(musiqali teatr) professional industriyaga aylangan bo'lsa, o'zbek musiqali teatr milliy folklor va maqom an'alariga tayanadi. Bu esa terminlar shakllanishiga bevosita ta'sir ko'rsatadi.

Xulosa

Ingliz va o'zbek musiqa teatrlarida qo'llaniladigan terminlar bir qator jihatlarga ko'ra o'xshash bo'lsa-da, milliy madaniyat, tarixiy rivojlanish va sahna an'analari tufayli sezilarli farqlar mavjudligi aniqlandi. Tadqiqot musiqali teatri terminining mustaqil lingvistik tizim sifatida o'rganilishi zarurligini ko'rsatadi. Ushbu maqola musiqali teatr terminini chuqur tahlil qilishga, lug'atlarni boyitishga va terminologiya standartlarini takomillashtirishga hissa qo'shadi.

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LEXICAL AND SEMANTIC FEATURES OF JOKES TOLD BY CHILDREN IN ENGLISH
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ANNOTATION

This article analyzes the lexical-semantic fields of children's humor in English and Uzbek languages. Although children's humor may seem like simple amusement at first glance, it is in fact an important tool for language acquisition, cognitive development, and the assimilation of cultural codes. The article provides an in-depth analysis of phonetic play, semantic inconsistencies, wordplay found in children's speech, as well as the cultural and psychological processes underlying them. It also presents a comparative approach to the similarities and differences, semantic groups, and linguistic features of children's humor in English and Uzbek.

Keywords: children's humor, lexical-semantic field, phonetic play, wordplay, semantic inconsistency, English language, Uzbek language, linguistic analysis, child speech, cultural context.

INTRODUCTION

Language reflects human cognition, culture, and worldview. Children's language, in particular, represents the most natural, sincere, and creative layer within a linguistic system. Jokes in children's speech emerge from linguistic play, semantic incongruities, and phonetic peculiarities. Through humor, a child perceives the surrounding world, engages in communication, and gains social experience. In linguistics, the concept of the lexical-semantic field refers to a group of words or expressions connected by semantic, thematic, or functional similarity. This study examines jokes expressed in children's speech in English and Uzbek languages through a lexical-semantic analysis.

Results and Analysis

Humor for children is more than laughter—it serves as a reflection of perception, cognition, and linguistic development. As Lev Vygotsky noted, “A child's thinking adapts to social life through humor.” Jokes enable children to explore creativity by breaking norms and constructing new associations. For instance, when a child imagines “*a flying cat*,” the absurdity reinforces their understanding of what is normal versus unusual.

Jean Piaget emphasized that “children acquire knowledge through experience,” while Paul McGhee observed that “children learn and reinforce language through humor.” According to McGhee, humor operates as a linguistic playground where children test grammatical and phonological boundaries — for example, in wordplay like *peeling/feeling*, which enhances phonological awareness. Among various forms of humor, verbal jokes attract special interest from linguists because they demonstrate how meaning, sound, and context interact in speech. In English culture, humor is an integral part of national identity — characterized by irony, warmth, and subtle exaggeration. **From a conceptual standpoint**, humor functions as a means of releasing psychological tension and creating emotional balance through laughter.

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From the perspective of this research, the lexical-semantic field of children's jokes can be categorized into several semantic groups that represent the core of humorous meaning. Children's jokes often revolve around familiar, everyday objects and situations. **1. Animals:** Uzbek: *Quy'on pishlog'ini yashirib qo'ygan, mushuk topolmagan.* English: *What do you get if you cross a cat with a dark horse? — A kitty in the dark!* Children often associate animals with real-life experiences; humor arises when imagination contradicts logic. **2. Family Members:** Uzbek: *Bola: "Men onamga uylanaman!"* English: *My little brother said he's going to marry mom when he grows up.* The humor stems from misunderstanding of social roles and semantic confusion. **3. Food and Sweets:** Uzbek: *Non qulab tushdi, u yiqilganida yig'ladi!* English: *Why did the cookie go to the hospital? — Because it felt crummy!* Here, food items are personified, creating humor through childlike imagination. **4. Body Parts:** Uzbek: *Burun eshitadi, ko'z eshitmaydi, lekin doim birga yuradi.* English: *What did one toe say to the other? — Stop stepping on me!* Children's tendency to assign life-like qualities to body parts results in humorous interpretations. **5. Actions and Situations:** Uzbek: *Men yugurdim, soyam ortimdan quvdi!* English: *Why did the kid jump into the pool with his clothes on? — He wanted to make a splash in fashion!* The child interprets actions theatrically, blending imagination with reality. Thus, in children's humor: Semantically, jokes center around familiar concepts — family, animals, food, and body parts. Structurally, they employ phonetic play, semantic mismatch, or syntactic deviation. Each case, when examined lexically and semantically, reveals how humor shapes early linguistic cognition.

Conclusion

Children's jokes are not merely a source of laughter; they reflect a child's worldview, level of cognitive development, and linguistic competence. Both English and Uzbek examples show that humor serves as a bridge between language learning and cultural understanding. Elements such as phonetic play, semantic incongruity, and wordplay assist children in internalizing language structures while also introducing them to social and cultural norms. Comparative analysis demonstrates that although both languages share common semantic fields, their expressive means differ according to cultural background. Hence, children's humor deserves significant attention in linguistic research as an essential medium of cognitive and communicative development.

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**СОВРЕМЕННЫЕ ПРЕДСТАВЛЕНИЯ ОБ ЭТИОЛОГИИ И МЕХАНИЗМАХ
РАЗВИТИЯ АЛЛЕРГИЧЕСКОГО РИНИТА**

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Цель исследования: Целью данного исследования является обобщение и анализ современных данных об этиологических факторах и патогенетических механизмах развития аллергического ринита, а также выявление роли генетических, иммунологических, эпигенетических и внешнесредовых факторов в формировании данного заболевания.

Резюме. Современные данные свидетельствуют о том, что аллергический ринит — это хроническое воспалительное заболевание, в основе которого лежит дисбаланс иммунного ответа по типу Th2 и повышенная продукция IgE. Его развитие определяется сочетанным воздействием наследственных факторов и внешнесредовых аллергенов. Участие клеточных и молекулярных медиаторов, а также влияние эпигенетических и микробиомных механизмов делают патогенез АР сложным и многокомпонентным. Понимание этих механизмов имеет решающее значение для разработки эффективных методов терапии и профилактики заболевания.

Ключевые слова: аллергический ринит; этиология; патогенез; аллергены; IgE; цитокины; тучные клетки; эозинофилы; Th2-лимфоциты; воспаление; микробиом; эпигенетика..

**АЛЛЕРГИК РИНИТНИНГ ЭТИОЛОГИЯСИ ВА РИВОЖЛАНИШ
МЕХАНИЗМЛАРИГА ОИД ЗАМОНАВИЙ ТАСАВВУРЛАР**

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Тадқиқот мақсади. Ушбу тадқиқотнинг мақсади аллергия ринитнинг этиологияси ва патогенетик механизмлари бўйича замонавий маълумотларни умумлаштириш ва таҳлил қилиш, шунингдек, ушбу касалликнинг шаклланишида генетик, иммунологик, эпигенетик ва ташқи муҳит омилларининг ролини аниқлашдан иборат.

Резюме. Замонавий маълумотларга кўра, аллергия ринит — бу узоқ муддатли, сурункали яллиғланиш билан кечадиган касаллик бўлиб, унинг асосида Th2-туридаги иммун жавобнинг дисбаланси ва IgE ишлаб чиқаришнинг ошиши туради. Ушбу касалликнинг ривожланиши ирсий омиллар ва ташқи муҳит алергенларининг биргаликдаги таъсири билан белгиланади. Хужайра ва молекуляр медиаторларнинг иштироки, шунингдек эпигенетик ва микробиом механизмларининг таъсири аллергия ринит патогенезини мураккаб ва кўпқиррали қилади.

Ушбу механизмларни тўлиқ тушуниш касалликни самарали даволаш ва профилактика қилиш усуллари ишлаб чиқишда ҳал қилувчи аҳамиятга эга.

Калит сўзлар. аллергия ринит; этиология; патогенез; аллергенлар; IgE; цитокинлар; булутли хужайралар; эозинофиллар; Th2-лимфоцитлар; яллиғланиш; микробиом; эпигенетика.

MODERN CONCEPTS OF THE ETIOLOGY AND MECHANISMS OF ALLERGIC RHINITIS

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Objective of the Study. The aim of this study is to summarize and analyze current data on the etiological factors and pathogenetic mechanisms of allergic rhinitis, as well as to identify the role of genetic, immunological, epigenetic, and environmental factors in the development of this disease.

Abstract. Current evidence indicates that allergic rhinitis is a chronic inflammatory disease primarily driven by a Th2-type immune response imbalance and increased IgE production. Its development is determined by the combined effects of hereditary factors and environmental allergens. The involvement of cellular and molecular mediators, along with epigenetic and microbiome-related mechanisms, makes the pathogenesis of allergic rhinitis complex and multifactorial. Understanding these mechanisms is crucial for the development of effective therapeutic and preventive strategies for this condition.

Keywords. allergic rhinitis; etiology; pathogenesis; allergens; IgE; cytokines; mast cells; eosinophils; Th2 lymphocytes; inflammation; microbiome; epigenetics

Аннотация. Аллергический ринит (АР) представляет собой одно из наиболее распространённых хронических воспалительных заболеваний дыхательных путей, оказывая значительное влияние на качество жизни пациентов и являясь важным звеном в патогенезе бронхиальной астмы. По данным ВОЗ и Всемирной организации аллергологии, распространённость АР в мире достигла 20–30 %, что подчёркивают исследования Bousquet J., Khaltaev N. (2007) и Pawankar R. и др. (2013). Эпидемиологические работы Greiner A.N. и соавт. (2011), Settiple R.A. (1999) подтверждают устойчивый рост заболеваемости, особенно в индустриально развитых регионах. Патогенез АР носит преимущественно IgE-опосредованный характер, включающий сложные взаимодействия эпителиального барьера, врождённого и адаптивного иммунитета. Ключевая роль эпителия дыхательных путей как “стражевого” органа подчёркнута в трудах Holgate S.T. (2008), тогда как особенности иммунного ответа и дисбаланс Th2/Treg-клеток подробно описаны в работах Akdis C.A., Akdis M. (2011). Исследования Kim H., Ellis A.K. (2019) и Ciprandi G. и др. (2005) демонстрируют центральную роль IgE, эозинофильного воспаления и провоспалительных цитокинов (IL-4, IL-5, IL-13). Bachert C. (2010) и Scadding G.K. (2016) проследили молекулярные механизмы нарушения барьерной функции слизистой оболочки носа и формирования гиперреактивности. На тяжесть течения АР значительное влияние оказывают факторы окружающей среды — атмосферное загрязнение, изменение климата, урбанизация. Эти выводы подтверждаются

работами D'Amato G. и др. (2002) и Annesi-Maesano I. (2017), которые демонстрируют усиление аллергенного потенциала пыльцы под воздействием климатических и экологических факторов. Клинические особенности АР, включая ринорею, зуд, обструкцию носа, нарушения сна и когнитивных функций, подробно описаны Roberts G. и соавт. (2013), Wheatley L.M., Togias A. (2015), Cingi C., Muluk N.B. (2019). Важную роль в диагностике играют кожные пробы, специфический IgE и назальная цитология, о чём свидетельствуют исследования Calderon M.A. и др. (2005), Gelardi M. (2007). Концепция “локального аллергического ринита”, предложенная Rondon C. и соавт. (2012), расширила представления о спектре клинических форм заболевания. Теория «единого дыхательного пути», изложенная Benninger M.S., Hadley J.A. (2010) и Braunstahl G.J. (2005), подчёркивает патофизиологическую связь верхних и нижних дыхательных путей, что имеет ключевое значение при ведении пациентов с сочетанием АР и бронхиальной астмы. Современные подходы к лечению АР включают применение антигистаминных препаратов, интраназальных кортикостероидов и аллерген-специфической иммунотерапии (АСИТ). Эффективность антигистаминных препаратов нового поколения раскрыта в обзоре Carr W.W. (2013), а современные принципы выбора терапии систематизированы Klimek L., Bousquet J. (2017). АСИТ остаётся единственным методом патогенетического воздействия, что доказано классическими исследованиями Noon L. (1911) и Cooke R.A. (1922), а также длительными наблюдениями Durham S.R. и соавт. (1999). Современные международные стандарты терапии представлены в руководствах ARIA (Bousquet J. и др., 2008) и в международном консенсусе Wise S.K. и др. (2018). Работы Mullol J. (2008), Nathan R.A. (2007) и Meltzer E.O. (2001) подчёркивают выраженное влияние АР на качество жизни, социальную активность и трудоспособность пациентов всех возрастных категорий, включая детей (Blaiss M.S., 2008). Современные представления об этиологии и патогенезе аллергического ринита (АР) в значительной степени сформированы трудами российских клиницистов, иммунологов и оториноларингологов, изучавших механизмы формирования аллергического воспаления верхних дыхательных путей. По данным Адо А.Д. и его школы, аллергический ринит представляет собой классическую IgE-опосредованную реакцию немедленного типа, возникающую в результате взаимодействия аллергенов с сенсibilizированными тучными клетками слизистой оболочки носа. В своих фундаментальных работах Адо А.Д. подчеркивал ведущую роль медиаторов воспаления — гистамина, лейкотриенов и простагландинов — в формировании сосудистой проницаемости и отёка слизистой оболочки. В исследованиях Хайтов Р.М. и Пинегина Б.В. подробно изучены иммунологические механизмы аллергического воспаления. Учёные отмечают, что ключевую роль играют нарушения регуляции Т-хелперного ответа, смещение иммунного баланса в сторону Th2-ответа, а также гиперпродукция IL-4, IL-5, IL-13. Эти цитокины активируют эозинофилы, стимулируют продукцию аллерген-специфического IgE и усиливают хроническое воспаление в носовой полости. Сулайманов И.Ф. и соавт. (НИИ пульмонологии РФ) отмечают, что эпителий носовых ходов является активным участником иммунного реагирования. Повреждение эпителиального барьера в результате воздействия аллергенов, вирусов и загрязнителей усиливает сенсibilизацию и приводит к формированию гиперреактивности слизистой оболочки носа. Труды Павловой К.С. и Лопатина А.С. подтверждают, что аллергический ринит часто сочетается с бронхиальной астмой, что отражает концепцию единства дыхательных путей. Исследования российских специалистов

показывают, что наличие аллергического ринита увеличивает риск формирования астмы в 3–4 раза, а выраженность носового воспаления тесно коррелирует с бронхиальной гиперреактивностью. Большой вклад в клиническое изучение аллергического ринита внесли Петровский Б.В., Сидоренко И.В. и работники Российской ассоциации аллергологов и клинических иммунологов. Ими разработаны классификация, клинические критерии тяжести ринита и алгоритмы диагностики с учётом отечественных эпидемиологических данных. По данным этих авторов, распространённость сезонного и круглогодичного аллергического ринита в России колеблется от 12 до 24 %, достигая максимума в крупных промышленных регионах. Исследования Назаровой Н.В. и Гущина И.С. подтверждают важность факторов внешней среды — особенно поллютантов, климатических изменений и аллергенного профиля регионов. Авторы отмечают, что содержание аллергенов амброзии, берёзы, полыни и злаковых растений в центральной и южной части России имеет выраженную сезонность и напрямую влияет на частоту обострений. Оториноларингологические школы России (Работы Киселёвой О.В., Огородникова С.Ф., Астафьевой Н.Г.) детально описали морфофункциональные изменения слизистой оболочки носа при АР. Они обратили внимание на деструкцию мерцательного эпителия, выраженную инфильтрацию эозинофилами, гипертрофию носовых раковин и нарушение мукоцилиарного клиренса.

Значительный вклад в разработку лечебных подходов внесли работы Лусс Л.В. и Ильиной Н.И., посвящённые применению антигистаминных препаратов, назальных кортикостероидов и антилейкотриеновых средств. По данным российских клинических исследований, интраназальные стероиды являются наиболее эффективными средствами контроля симптомов, тогда как антигистамины нового поколения обладают высоким профилем безопасности. Особое место занимает аллергоспецифическая иммунотерапия (АСИТ). Российские авторы — Лусс Л.В., Огородников С.Ф., Адо А.Д. — показывают её доказанную эффективность при сезонном и круглогодичном рините. Исследования последних лет демонстрируют высокую результативность сублингвальной формы АСИТ, что особенно важно для детской практики. В последние годы в Узбекистане внимание отечественных исследователей сосредоточено на изучении этиологии, патогенеза и клинических особенностей аллергического ринита (АР), а также на разработке адаптированных методов диагностики и терапии, учитывающих региональные особенности. Работы Хикматовой М.Ф. и соавт. (2024–2025) показали, что у пациентов с АР отмечается выраженная дисфункция слизистой оболочки носа, сопровождающаяся локальным повышением концентрации IgE и эозинофильной инфильтрацией, что согласуется с международными представлениями о Th2-опосредованном иммунном ответе. В исследованиях использовались современные методы цитометрии и ELISA, что позволило количественно оценить воспалительные маркеры у пациентов разных возрастных групп. Исследования Саттарова Д.К. (2023) продемонстрировали связь между аллергенной нагрузкой в городской среде Ташкента и выраженностью симптомов АР у детей. Отмечено, что сезонные колебания концентрации пыльцы деревьев и злаковых напрямую коррелируют с частотой обострений ринита. Это подтверждает необходимость локального мониторинга аллергенов и адаптации схем профилактики и терапии. Киманова Л.Р. и Турсунов Ш.Б. (2022) изучали эффективность местной терапии при АР у взрослых. Результаты показали высокую клиническую эффективность интраназальных кортикостероидов и антигистаминных препаратов нового

поколения, что согласуется с международными рекомендациями ARIA, но с учётом особенностей реакции организма пациентов узбекской популяции. Кроме того, работы Абдуллаевой Н.Ш. (2021) касались применения аллерген-специфической иммунотерапии (АСИТ) у пациентов с поллинозом. В исследованиях отмечена высокая переносимость сублингвальной формы АСИТ, что особенно актуально для детей и подростков. Данные исследования стали первыми в Узбекистане, демонстрирующими долгосрочную эффективность патогенетической терапии АР на базе отечественных протоколов. Гафуров Ф.А. (2020) в своих работах подробно рассматривал роль экологических факторов в патогенезе АР в условиях Узбекистана. Он показал, что пыль, промышленное загрязнение и микроклимат южных регионов страны усиливают сенсibilизацию к бытовым и поллинозным аллергенам, усиливая хроническое воспаление слизистой носа.

Таким образом, анализ отечественных исследований показывает, что аллергический ринит у узбекских пациентов характеризуется как комплексное заболевание, формируемое взаимодействием иммунных, генетических и экологических факторов. Работы узбекских учёных дополняют международные данные, уточняя региональные особенности патогенеза, клинических проявлений и эффективности современных методов терапии, включая АСИТ, местные кортикостероиды и антигистаминные препараты.

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**SPORTCHILARGA RUS TILINI O'RGATISHDA SUN'IY INTELLEKT
TEXNOLOGIYALARINING AHAMIYATI**

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Annotatsiya. Maqolada sportchilarga rus tilini samarali o'rgatishda sun'iy intellekt (AI) texnologiyalaridan foydalanishning ilmiy-nazariy va amaliy jihatlari, afzalliklari, imkoniyatlari va samaradorligi haqida fikr yuritilgan. Sun'iy intellekt asosidagi ta'lim platformalari sportchilar uchun individual, interaktiv va motivatsion o'quv muhitini yaratish imkoniyatlari, til o'rgatishdagi adaptiv yondashuv, avtomatik baholash tizimlari, nutqni tahlil qilish algoritmlari va interaktiv muloqot muhitining ahamiyati tahlil qilingan.

Kalit so'zlar: sun'iy intellekt, til o'rgatish, sportchilar, rus tili, ta'lim texnologiyalari, interaktiv tizim.

**ЗНАЧЕНИЕ ТЕХНОЛОГИЙ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА
В ОБУЧЕНИИ СПОРТСМЕНОВ РУССКОМУ ЯЗЫКУ**

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Аннотация. В статье рассматриваются научно-теоретические и практические аспекты использования технологий искусственного интеллекта (АИ) при эффективном обучении русскому языку спортсменов, а также их преимущества, возможности и эффективность. Анализируются возможности создания индивидуальной, интерактивной и мотивационной учебной среды для спортсменов на основе платформ, использующих искусственный интеллект; рассматриваются адаптивный подход в обучении языку, системы автоматической оценки, алгоритмы анализа речи и значение интерактивной коммуникативной среды.

Ключевые слова: искусственный интеллект, обучение языку, спортсмены, русский язык, образовательные технологии, интерактивная система.

**THE IMPORTANCE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN
TEACHING THE RUSSIAN LANGUAGE TO ATHLETES**

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Annotation. The article examines the scientific-theoretical and practical aspects of using artificial intelligence (AI) technologies for effective teaching of the Russian language to athletes, as well as

their advantages, opportunities, and efficiency. It analyzes the possibilities of creating an individualized, interactive, and motivational learning environment for athletes based on AI-powered platforms; discusses the adaptive approach in language teaching, automatic assessment systems, speech analysis algorithms, and the importance of an interactive communicative environment.

Keywords: artificial intelligence, language learning, athletes, Russian language, educational technologies, interactive system.

Kirish. Bugungi globallashuv sharoitida sport nafaqat jismoniy tayyorgarlik, balki til va madaniyatlararo muloqot qobiliyatini ham talab etadi. Xalqaro musobaqalarda qatnashuvchi sportchi nafaqat o'z sport mahorati bilan, balki boshqa mamlakatlar vakillari bilan muloqot qilish qobiliyati bilan ham ajralib turadi. Shu nuqtai nazardan, sportchilar uchun xorijiy tillarni, jumladan rus tilini bilish muhim omil hisoblanadi. Shu bois, til o'rgatishda zamonaviy texnologiyalar, jumladan, sun'iy intellekt (AI) lardan samarali foydalanish muhim ahamiyat kasb etadi.

An'anaviy til o'qitish usullari sportchilar uchun hamisha samarali bo'lmaydi, chunki ularning vaqt jadvali zich va o'quv jarayonida individual yondashuv talab qilinadi. Shu sababli, sun'iy intellekt texnologiyalarini til o'qitish jarayoniga joriy etish sportchilarning ehtiyojlariga mos, dinamik va samarali ta'lim muhitini yaratish imkonini beradi.

Sun'iy intellekt va til o'qitishdagi zamonaviy tendensiyalar

Sun'iy intellekt (AI) — inson fikrlashini, o'rganishni va qaror qabul qilish jarayonini taqlid qilishga qodir bo'lgan kompyuter tizimidir. Ta'lim sohasida AI quyidagi yo'nalishlarda keng qo'llanilib kelmoqda:

Adaptiv ta'lim tizimlari: har bir o'quvchi va talabanning bilimini tahlil qilib, individual mashqlar taklif etadi;

Avtomatik baholash va fidbek tizimlari: grammatika, talaffuz va yozma nutqni avtomatik tahlil qiladi; Ovoz va nutq texnologiyalari: talaffuzni to'g'rilash, interaktiv muloqot va real vaziyatlarda mashq qilish imkonini yaratadi;

Tabiiy tilni qayta ishlash: AI o'quvchi bilan real vaqtda tilda suhbat qurishi, xatolarni aniqlab, to'g'ri yo'nalish berish imkoniyatini yaratadi.

Ushbu texnologiyalar sportchilar uchun maxsus moslashtirilgan ta'lim muhitini yaratishda muhim ahamiyat kasb etadi.

Sportchilar uchun rus tilini o'rgatishda sun'iy intellektlarning o'rni

Individual ta'lim va adaptiv yondashuv

Sportchilarning tayyorgarlik darajasi va vaqt imkoniyatlari turlicha bo'ladi. AI tizimlari sportchining til bilimini tahlil qilib, avtomatik ravishda shaxsiy o'quv reja tuzadi. Masalan, grammatik bilimlari yetarli, lekin talaffuzida muammo bo'lgan o'quvchiga ovozli mashqlar ko'proq beriladi.

Nutq va talaffuzni takomillashtirish

AI asosidagi ovozli dasturlar (masalan, ChatGPT Voice, Duolingo Max, Elsa Speak) sportchining talaffuzini baholaydi va real vaqtda to'g'ri yo'nalish beradi. Bu xalqaro musobaqalarda intervyu berish, jurnalistlar bilan muloqot qilish, yoki trener bilan chet tilida suhbat qurishda muhim ahamiyat kasb etadi.

Motivatsiya va interaktiv o'quv muhiti

AI ta'lim platformalari geymifikatsiya usuli orqali (ball, mukofot, daraja tizimi) sportchilarda raqobat va qiziqish hissini kuchaytiradi. Geymifikatsiya usuli (ingl. gamification) — bu o'quv jarayonini

o'yin elementlari orqali qiziqarli va motivatsion qilish usulidir. Geymifikatsiyaning asosiy g'oyasi — insonlarda tabiiy ravishda mavjud raqobat, yutuqqa erishish va motivatsiya hislarini ta'lim jarayonida faollashtirishdir. Bu usul natijasida o'quvchi (yoki sportchi):

o'rganishni "majburiyat" deb emas, qiymatli jarayon va o'yin sifatida qabul qiladi;

o'z natijalarini ko'rib, o'z-o'zini rag'batlantiradi;

doimiy ravishda ilgarilashga intiladi.

Bu sportchi psixologiyasiga yaqin — natijaga erishishga yo'naltirilgan yondashuvdir.

Real muloqot simulyatsiyasi

AI chatbotlar orqali sportchilar turli hayotiy va sport vaziyatlarida rus tilida suhbat qilishni mashq qiladilar:

intervyu berish;

matbuot anjumanlarida ishtirok etish;

muxlislar bilan suhbat qurish;

xalqaro jamoalar bilan muloqot.

Bu ularning amaliy kommunikativ ko'nikmalarini rivojlantiradi.

AI chatbotlar (so'zlashuvchi sun'iy intellektlar) o'zi nima?

AI chatbot — bu sun'iy intellekt (AI) asosida ishlaydigan dastur bo'lib, u odamlar bilan tabiiy tilda (yozma yoki og'zaki) muloqot qila oladi. YA'ni, chatbot insonning savollariga javob beradi, ma'lumot izlab beradi, buyurtma qabul qiladi, maslahat beradi va boshqa vazifalarni bajaradi. Talabalar rus tilida mavzularni berish orqali, suhbat yoki monologlar tarzida og'zaki nutqlarini rivojlantirishlari mumkin.

Chatbotlar asosan ikki turda ishlaydi:

Qoidalarga asoslangan chatbotlar (Rule-based)

- Oldindan yozilgan ssenariylar va javoblar asosida ishlaydi. Masalan:

– Siz: "Salom"

–Bot: "Salom! Qanday yordam kerak?"

Foydalanuvchi ssenariydan tashqari savol bersa, bot javob topolmaydi.

AI yoki NLP (Natural Language Processing) asosidagi chatbotlar: bu chatbotlar sun'iy intellekt va mashinali o'rganish texnologiyalaridan foydalanadi. Ular so'zlarning ma'nosini tushunadi, kontekstni hisobga oladi va yangi savollarga mos javob yarata oladi. Masalan: ChatGPT, Google Bard, Claude, Gemini va boshqalar.

Eng mashhur chatbotlarga: ChatGPT (OpenAI), Google Gemini (Bard), Claude (Anthropic), Microsoft Copilot, Replika — shaxsiy suhbatdosh sifatida yaratilgan AI, Jasper Chat — marketing yozuvlari uchun mo'ljallangan.

Sun'iy intellektdan foydalanishning afzallik va muammolari mavjud:

Afzalliklar:

Talabalarga moslashgan individual ta'lim imkoni;

Tezkor fidbek va xatolarni avtomatik tahlil qilish;

Vaqt va resurs tejamligi;

Sportchilarning ishchi jadvaliga mos onlayn ta'lim imkoniyati;

Ta'lim jarayonini motivatsion va qiziqarli qilish.

Muammolar:

AI dasturlari uchun yuqori texnik imkoniyatlar zarur;

Tilning madaniy va psixologik qirralarini AI to'liq ifodalay olmasligi;

O'qituvchi roli kamayishi natijasida inson omilining cheklanishi.

Bu muammolarni bartaraf etish uchun AI ni inson o'qituvchisi bilan birgalikda qo'llash — gibridda ta'lim modeli — eng samarali usul hisoblanadi.

Ilmiy-amaliy tavsiyalar

Sport ta'lim muassasalarida AI asosidagi "Rus tili sportchilar uchun" maxsus onlayn kurslarini ishlab chiqish;

AI chatbotlar orqali musobaqa oldi suhbat va intervyu simulyatsiyalari tashkil etish;

Sportchilarning ovozli nutqini tahlil qiladigan maxsus AI assistentlar joriy etish;

Rus tili o'qituvchilari uchun "AI pedagogikasi" bo'yicha malaka oshirish kurslarini tashkil etish;

AI texnologiyalarini milliy sport ta'lim tizimiga integratsiya qilish bo'yicha metodik qo'llanma tayyorlash.

Xulosa. Sun'iy intellekt texnologiyalari sportchilarga rus tilini o'rgatishda yangi imkoniyatlar eshigini ochadi. U an'anaviy ta'limni individuallashtiradi, interaktiv muhit yaratadi va nutq ko'nikmalarini amaliy yo'l bilan rivojlantiradi. Bu orqali sportchilar xalqaro sport maydonlarida nafaqat jismoniy, balki intellektual va kommunikativ jihatdan ham raqobatbardosh bo'ladilar.

Kelgusida sun'iy intellektga asoslangan ta'lim tizimlari sport sohasidagi pedagogika, psixologiya va tilshunoslikni birlashtirgan holda, yangi avlod sportchilarni tayyorlashda muhim rol o'ynaydi.

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МОДУЛЬНАЯ СИСТЕМА ОБУЧЕНИЯ В СОВРЕМЕННОЙ ОБРАЗОВАТЕЛЬНОЙ СИСТЕМЕ

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Аннотация. В данной статье представлен всесторонний анализ модульного обучения, включающий его теоретические основы, методологические подходы и практические аспекты. Рассматриваются механизмы функционирования модульного обучения, его стратегические цели и задачи.

Ключевые слова: инновация, модульное обучение, организационно-методические модули, профессиональное мышление

Annotatsiya. Ushbu maqolada modulli ta'limning har tomonlama tahlili, shu jumladan uning nazariy asoslari, uslubiy yondashuvlari va amaliy jihatlari keltirilgan. Modulli ta'limning ishlash mexanizmlari, uning strategik maqsad va vazifalari ko'rib chiqiladi.

Kalit so'zlar: innovatsiya, modulli o'qitish, tashkiliy va uslubiy modullar, kasbiy fikrlash

Annotation. This article presents a comprehensive analysis of modular learning, including its theoretical foundations, methodological approaches, and practical aspects. The mechanisms of functioning of modular learning, its strategic goals and objectives are considered.

Keywords: innovation, modular training, organizational and methodological modules, professional thinking

Введение. Современные образовательные стандарты, независимо от направления обучения, требуют от студентов овладения базовыми знаниями и профессиональными навыками, а также опытом познавательной, творческой и социальной деятельности. Существует множество инновационных методов обучения: модульное, электронное, проблемное, дистанционное, исследовательское, проектное и другие. Главная цель этих технологий — подготовить человека к жизни в постоянно меняющемся мире

Инновационные подходы качественно изменяют личность студента по сравнению с традиционной системой. Они развивают умение мотивировать свои действия, ориентироваться в информации и формировать творческое мышление. Вузовское образование учит отбирать и использовать нужную информацию. Одним из инструментов для решения этих задач является модульное обучение. Его суть заключается в том, что студент самостоятельно достигает целей учебного процесса, работая над модулем. Модуль включает в себя цели обучения, учебный материал, задания и рекомендации по их выполнению. А также модуль представляет собой активный элемент учебного процесса, объединяющий содержание и методы его освоения. Модульное занятие предоставляет студентам возможность самостоятельной работы, взаимодействия и взаимопомощи, а также самооценки и оценки работы своих товарищей. Важно, чтобы каждый учащийся четко понимал цели занятия, что необходимо изучить и на чем сфокусировать внимание. Роль преподавателя в модульном обучении сводится к координации учебной деятельности студентов. Он может индивидуально общаться с каждым студентом, оказывать поддержку слабым и стимулировать сильных. Модульно-технологическое обучение позволяет эффективно оценивать уровень усвоения

нового материала и оперативно выявлять пробелы в знаниях студентов. Внедрение модульной системы образования обеспечивает непрерывное и ритмичное изучение учебного материала на протяжении всего процесса обучения, а также усиливает контроль за качеством усвоения знаний. Эти принципы применяются и при обучении русскому языку студентов, для которых он является иностранным.

Модульная система образования позволяет перейти от традиционных методов обучения к более активным формам, которые моделируют процесс познания. Это способствует тому, что специалисты могут быстро адаптироваться к меняющимся условиям рынка труда, предвидеть проблемы и перспективы развития отрасли, а также разрабатывать и принимать оптимальные решения. Современные программы обучения русскому языку для иностранных студентов учитывают эти требования. Модульное обучение разбивает учебный материал на независимые организационно-методические модули, содержание и объем которых определяются дидактическими целями и уровнем подготовки студентов. Такая структура обеспечивает гибкость в выборе учебного материала и позволяет эффективно контролировать процесс обучения.

На среднем уровне модульная система объединяет отдельные дисциплины. Содержание дисциплин перерабатывается, выделяя в них относительно самостоятельные модули, которые позволяют решать конкретные задачи и осваивать независимые фрагменты учебной информации. Такое структурирование способствует более глубокому усвоению материала, развивает, и навыки решения производственных задач.

Модульная система обучения представляет собой вершину образовательной структуры, объединяя все предметы учебного плана. В её основе лежит модульный учебный план, где содержание и цели главных дисциплин постоянно анализируются и корректируются. Цели каждой дисциплины согласуются для достижения конечного результата, который отражается в квалификационной характеристике специалиста.

В рамках этой системы выделяются модули, включающие материалы из разных тем и дисциплин по логическим и целевым признакам. Студенты активно развивают профессиональное мышление, учатся ставить и решать производственные задачи, выбирать оптимальные проектные и конструкторские решения. Рейтинговый контроль играет важную роль в оценке результатов обучения, являясь индивидуальным кумулятивным показателем студента. Оценка знаний, умений и навыков через рейтинг отражает повседневную учебную деятельность и влияет на итоговую оценку.

Модульная система мотивирует студентов к регулярной и систематической работе. Точные оценки повышают соревновательность, позволяя каждому студенту занять определённое место среди сокурсников и стимулируя стремление к максимальному количеству баллов. Суммарный рейтинг влияет на размер стипендии, определяет кандидатуры для поступления в магистратуру и аспирантуру, а также предоставляет другие преимущества.

В педагогической практике выделяются несколько типов рейтингового контроля: входной, рубежный, выходной и творческий. Стартовый рейтинг формируется на основе входного контроля, который позволяет определить начальный уровень подготовки студента и соответствие его знаний требованиям для изучения конкретной дисциплины. Этот контроль проводится на первом занятии при переходе к изучению нового курса или раздела.

Оптимальные методы входного контроля включают тестирование и опрос. Входной контроль оценивает основные аспекты базовой подготовки.

Заключение. Рубежный рейтинг представляет собой результат промежуточного контроля, который проводится по завершении каждого модуля дисциплины. Его цель — оценить уровень знаний, умений и навыков студента после изучения конкретного модуля. Для проведения рубежного контроля используются такие методы, как собеседования, письменные контрольные работы и выполнение практических заданий. Выходной рейтинг является результатом итоговой аттестации, которая проводится на заключительном этапе изучения дисциплины. На этом этапе студенты сдают зачёт или экзамен, чтобы проверить усвоение теоретического материала и основ практической деятельности. Оптимальные методы выходного контроля включают экзаменационные или контрольные работы и индивидуальные собеседования.

Творческий рейтинг является частью общего рейтинга дисциплины и формируется на основе выполнения студентом домашних заданий различного уровня сложности. В условиях внедрения модульной системы образования одним из ключевых аспектов управления учебным процессом является получение оперативной информации о ходе обучения и качестве усвоения знаний.

Одной из наиболее эффективных форм контроля является мониторинг качества образования, который представляет собой систематическую и регулярную процедуру сбора данных по важным аспектам образовательного процесса. Мониторинг обеспечивает информационное обеспечение управления учебным процессом, позволяя выносить обоснованные суждения о состоянии объекта и прогнозировать его развитие. Модульная система обучения включает использование контролирующих программных средств, которые различаются по способу работы с программой, форме ответа, логике построения задания, корректирующему воздействию, месту в учебном процессе, степени гомогенности и статусу программы.

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**FUNCTIONS, SYSTEM, METHODS OF CRIMINALISTICS AND ITS RELATIONSHIP
WITH LEGAL AND OTHER SCIENCES**

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АННОТАЦИЯ

В статье представлено комплексное криминологическое и методологическое исследование криминалистики как самостоятельной научной дисциплины в системе права. Анализируются функциональная сущность криминалистики, её структурная организация, методологические основы и междисциплинарные связи с юридическими, естественными, техническими и социальными науками. Особое внимание уделяется эволюционирующей роли криминалистики в современной следственной практике, включая выявление, реконструкцию и интерпретацию преступной деятельности с помощью научных методов. В статье синтезируются теоретические разработки, сравнительный анализ и практические подходы, раскрывающие вклад криминалистики в правосудие, основанное на доказательствах. Предупреждение, раскрытие и расследование преступлений в значительной степени зависят от передовых криминалистических методов, интеграции технологических инноваций и системного междисциплинарного сотрудничества.

Ключевые слова: криминалистика, судебная экспертиза, расследование, методология, юридические науки, доказательства, криминалистические методы, раскрытие преступлений, междисциплинарные связи.

Abstract

This article offers a comprehensive criminological and methodological examination of criminalistics as an independent scientific discipline within the legal system. The study analyzes the functional essence of criminalistics, its structural organization, methodological foundations, and interdisciplinary connections with legal, natural, technical, and social sciences. Emphasis is placed on the evolving role of criminalistics in modern investigative practice, including the identification, reconstruction, and interpretation of criminal activity through scientific techniques. The article synthesizes theoretical developments, comparative perspectives, and practical approaches to reveal how criminalistics contributes to evidence-based justice. Prevention, detection, and investigation of crimes depend heavily on advanced criminalistic methods, integration of technological innovations, and systematic cooperation across scientific fields.

Keywords: criminalistics, forensic science, investigation, methodology, legal sciences, evidence, forensic techniques, crime detection, interdisciplinary connections.

INTRODUCTION

Criminalistics constitutes one of the most dynamic and scientifically grounded branches of the legal system, playing a vital role in the detection, investigation, and prevention of crime. Unlike purely theoretical legal disciplines, criminalistics is inherently pragmatic, combining doctrinal principles with empirical knowledge drawn from natural, technical, and social sciences. It aims to identify the mechanisms of criminal behaviour, reconstruct events, and provide reliable evidentiary support

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through scientifically validated methods. With the rapid development of technology, digitalization, and globalization, criminalistics has undergone significant transformation, expanding its analytical tools and strengthening its importance in criminal justice systems worldwide.

The discipline's central purpose is to provide law enforcement agencies, prosecutors, and courts with methodological foundations for effective investigation. Criminalistics contributes to establishing objective truth in criminal proceedings by developing systems of identification, diagnostics, and reconstruction grounded in scientific reasoning. Its functional areas include crime scene examination, forensic identification, traceology, ballistics, handwriting analysis, biological and chemical forensics, digital forensics, and operational-search techniques. These functions collectively ensure a structured approach to uncovering criminal acts, identifying offenders, and analyzing material traces of crime. Criminalistics is distinguished by its interdisciplinary nature. It draws extensively on law, criminology, psychology, physics, chemistry, biology, information technology, medicine, and engineering. This interaction underscores the scientific complexity of criminalistics and its reliance on continuous innovation. As criminal activities evolve—particularly with advancements in cybercrime, organized crime, and transnational offences—criminalistics must adapt by expanding its system and developing new investigative methodologies.

The purpose of this article is to evaluate the major functions, system, and methods of criminalistics, and to analyze its relationships with legal and other sciences, thereby demonstrating the discipline's central importance in ensuring justice and public security.

LITERATURE REVIEW AND METHODOLOGY

The scholarly literature on criminalistics reflects its dual nature as both a legal and scientific discipline. Foundational works by Hans Gross established criminalistics as a systematic field integrating scientific knowledge into investigative practice. Gross argued that efficient investigation depends on objectivity, observation, and analytical reasoning, principles that remain central to modern criminalistics. Later scholars expanded the field by systematizing methods of trace analysis, identification, and reconstruction.

Contemporary literature highlights the scientific diversification of criminalistics. Advances in forensic DNA analysis, fingerprint identification, digital imaging, and cyber-forensic methodologies have significantly broadened investigative possibilities. Research in traceology emphasizes the forensic value of microscopic and macroscopic traces, while ballistics literature focuses on the scientific analysis of firearms, projectiles, and shooting dynamics. Psychological research explores offender profiling, interrogation strategies, and memory reliability, contributing to behavioural aspects of investigation.

Legal scholars emphasize the procedural role of criminalistics within the criminal justice system. Studies on evidence law underscore the need for forensic findings to meet admissibility standards such as reliability, scientific validity, and relevance. This intersection highlights the increasing importance of ensuring methodological rigor in forensic procedures.

Interdisciplinary works demonstrate connections between criminalistics and natural sciences. Biological studies contribute to blood pattern analysis, toxicology, and entomology, while chemistry provides tools for drug identification, explosives analysis, and trace element profiling. Physics and engineering support accident reconstruction, ballistic trajectories, and mechanical damage assessment.

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Comparative studies illustrate variations in criminalistic systems across jurisdictions, emphasizing differences in investigative models, forensic laboratories, procedural rules, and legal cultures. Despite these variations, global trends indicate growing reliance on scientific evidence and integration of digital forensics into mainstream investigative practice.

Overall, the literature demonstrates that criminalistics is a rapidly developing field driven by scientific advancement, institutional needs, and interdisciplinary cooperation.

This study employs a qualitative and analytical research design grounded in theoretical interpretation, interdisciplinary synthesis, and comparative assessment. The methodology includes:

1. **Conceptual Analysis.** The study first clarifies the conceptual foundations of criminalistics, including its functional objectives, structural components, and scientific nature.
2. **Systemic and Functional Examination.** The research systematically evaluates the internal system of criminalistics, encompassing general theory, forensic techniques, methodological guidelines, and applied investigative tools.
3. **Comparative Review of Methods.** Investigative methods are analyzed in terms of classification, scientific foundation, reliability, and practical applicability. Specific attention is given to identification, diagnostics, and reconstruction.
4. **Interdisciplinary Evaluation.** The study investigates how criminalistics interacts with legal sciences, natural sciences, technical sciences, and social sciences through knowledge exchange, methodological borrowing, and technological adaptation.
5. **Interpretive Synthesis.** Findings from theoretical and comparative sources are integrated to provide a unified criminological perspective on the present and future of criminalistics.

Primary sources include academic monographs, forensic methodology manuals, legal frameworks, scientific articles, and international forensic standards. This methodology allows for a robust and scientifically grounded examination of criminalistics while avoiding empirical data limitations.

RESULTS

The research identifies several defining features of criminalistics and its scientific functions:

1. Multifunctional Purpose. Criminalistics performs identification, evidence collection, event reconstruction, diagnostic assessment, and prevention-oriented analysis. These functions form the backbone of modern investigative processes. Identification techniques confirm the origin of traces, objects, and individuals; diagnostic techniques analyze mechanisms of events; and reconstruction recreates the sequence of criminal actions.

2. Structured System. The system of criminalistics consists of:

- General theory (concepts, principles, tasks, and categories)
- Criminalistic technique (technical-scientific means of detecting and analyzing traces)
- Criminalistic tactics (strategies of investigative actions and interactions)
- Criminalistic methodology (investigation methods for specific categories of crime)

This system provides an integrated framework ensuring logical coherence and operational efficiency.

3. Methodological Diversity. Criminalistics employs a wide range of scientific methods, including observation, measurement, modelling, comparison, experiment, mathematical-statistical analysis, digital modelling, and trace analysis. Forensic laboratories utilize chemical analysis, spectroscopy, microscopy, chromatography, DNA examination, and ballistic testing.

4. Deep Interdisciplinary Integration. Criminalistics depends on natural sciences (chemistry, physics, biology), technical sciences (engineering, information technology), and legal sciences

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(criminal law, evidence law, criminology). These interactions strengthen methodological accuracy and ensure scientific validity.

5. Preventive Value. Beyond detection, criminalistics contributes to crime prevention by identifying systemic risks, analyzing criminal patterns, evaluating security measures, and offering recommendations for institutional improvement.

These findings demonstrate that criminalistics is both a scientific discipline and a practical instrument essential for modern justice systems.

DISCUSSION

The research findings underscore the central importance of criminalistics in contemporary legal practice. As criminal behaviour becomes increasingly sophisticated, the demand for scientific precision and technological innovation rises correspondingly. Criminalistics must respond to challenges posed by cybercrime, encryption technologies, synthetic drugs, organized crime networks, and globalized criminal markets. Digital forensics, artificial intelligence, and biometric systems expand investigative potential but require methodological safeguards to ensure accuracy and prevent misuse.

Criminalistics' interdisciplinary connections also require deeper analysis. Its relationship with criminal law ensures proper legal interpretation of forensic findings, while its relationship with criminology enhances understanding of offender behaviour and crime patterns. Connections with psychology offer insights into interrogation, witness memory, and behavioural profiling. Collaboration with biology and chemistry strengthens forensic examinations related to toxicology, DNA analysis, and decomposition. Engineering and physics contribute to crash reconstruction, structural damage assessment, and ballistic modelling.

The scientific credibility of criminalistics depends on maintaining high standards of evidence integrity, chain of custody, laboratory accreditation, and procedural transparency. Misuse or misinterpretation of forensic data can undermine justice, leading to wrongful convictions or acquittals. Therefore, continuous professional training, peer review, and methodological refinement remain essential.

Finally, criminalistics must anticipate future threats. Rapid digital transformation demands integration of cyber-forensic methods, automated data analysis, blockchain tracing, and advanced biometric technologies. While new technologies enhance investigative capabilities, they also require ethical frameworks to balance security and individual rights. The future of criminalistics will be shaped by its ability to maintain scientific integrity while adapting to technological and social change.

CONCLUSION

Criminalistics is a fundamental discipline within the criminal justice system, providing scientific foundations for crime detection, investigation, and prevention. Its multifunctional structure, diverse methods, and deep interdisciplinary integration ensure its relevance in analyzing both traditional and emerging forms of criminal behaviour. The discipline continues to evolve through interaction with natural, technical, and legal sciences, reflecting the complexity of contemporary crime.

Effective application of criminalistics enhances the objectivity of criminal investigations, strengthens evidentiary processes, and contributes to justice and public security. The future of criminalistics depends on scientific innovation, institutional collaboration, methodological precision, and commitment to ethical standards. As criminal activity advances in sophistication, criminalistics must expand its theoretical foundations and practical tools to meet new challenges.

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**ТРАНСФОРМАЦИЯ РЫНКА ТРУДА В УСЛОВИЯХ ЦИФРОВОЙ ЭКОНОМИКИ:
ПРОБЛЕМЫ И ВОЗМОЖНОСТИ****Ахмедов Алим Бабаниязович**

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Аннотация

В статье исследуются ключевые изменения на рынке труда, вызванные развитием цифровой экономики, и рассматриваются как сопутствующие этим изменениям проблемы, так и открывающиеся новые возможности. Цифровая экономика, основанная на применении информационно-коммуникационных технологий, больших данных, автоматизации и платформенной модели бизнеса, трансформирует структуру занятости, виды труда, требования к навыкам и форму трудовых отношений. В результате меняются и вызовы: увольнение работников с низкой квалификацией, рост нестандартной занятости, изменение социальной защиты, усиление неравенства, необходимость переквалификации. Вместе с тем создаются возможности: появление новых профессий, гибкая занятость, расширение удаленной работы, повышение продуктивности, рост спроса на высококвалифицированных специалистов. В работе представлен комплексный анализ этих процессов с опорой на современные эмпирические исследования и теоретические концепции, с выделением факторов, способствующих успешной адаптации работников, а также предложениями по политике занятости в цифровой экономике. Выводы подчеркивают, что трансформация рынка труда — неизбежный процесс, и ключ к минимизации рисков заключается в активном управлении этой трансформацией, развитии навыков и создании институциональной среды, поддерживающей устойчивую занятость и справедливое распределение благ.

Ключевые слова. Цифровая экономика, рынок труда, трансформация занятости, автоматизация, навыки будущего, гибкая занятость, цифровые профессии, социальная защита, переквалификация, неравенство.

Abstract

This article examines the key changes in the labor market caused by the development of the digital economy, considering both the associated challenges and the new opportunities they offer. The digital economy, based on the use of information and communications technology, big data, automation, and the platform business model, is transforming employment structures, types of work, skill requirements, and the form of labor relations. As a result, challenges are also changing: the dismissal of low-skilled workers, the growth of precarious employment, changes in social protection, increasing inequality, and the need for retraining. At the same time, opportunities are emerging: the emergence of new professions, flexible employment, the expansion of remote work, increased productivity, and growing demand for highly qualified specialists. The paper presents a comprehensive analysis of these processes, drawing on modern empirical research and theoretical concepts, highlighting the factors that contribute to the successful adaptation of workers and offering proposals for employment policy in the digital economy. The findings highlight that labour market transformation is an inevitable process, and the key to minimizing risks lies in actively managing this transformation, developing skills, and creating an institutional environment that supports sustainable employment and a fair distribution of benefits.

Key words. Digital economy, labor market, employment transformation, automation, skills of the future, flexible employment, digital professions, social protection, retraining, inequality.

ВВЕДЕНИЕ

Современная экономика переживает значительный переход от традиционной индустриальной модели к цифровой, в которой информационные технологии, платформы, искусственный интеллект и большие данные становятся неотъемлемыми составляющими производства, управления и услуг. В таких условиях рынок труда также претерпевает существенные изменения: трансформируются формы занятости, требования к рабочим навыкам, структура спроса и предложения рабочей силы. Понимание этих изменений и способность адаптироваться к ним становятся ключевыми условием устойчивого развития не только индивидуальной карьеры, но и национальной экономики в целом.

Цифровая экономика характеризуется высокой динамичностью, глобальной взаимосвязью, квартирно-виртуальной природой труда и возможностью удаленной работы, что открывает как новые возможности, так и новые риски. Одним из главных вызовов является то, что рост автоматизации и цифровизации может привести к замещению труда с низкой квалификацией, увеличению неравенства и нестабильности трудовой занятости. С другой стороны, цифровая экономика создаёт спрос на высококвалифицированных специалистов, новые профессии, формы фриланса и платформенной работы, расширяет границы территориальной занятости, позволяет интегрировать глобальные рынки труда.

Для стран с переходной экономикой и развивающейся инфраструктурой, таких как Узбекистан, адаптация к этим процессам становится ещё более критичной. Здесь стоят вопросы: насколько рабочая сила готова к новым требованиям, как система образования и профессиональной подготовки может отвечать новым стандартам, как устроена политика занятости и социальная защита в условиях цифровой трансформации, и как обеспечить, чтобы выгоды цифровой экономики были распределены справедливо и не усугубляли социальные разрывы.

Таким образом, цель данной статьи — выявить и систематизировать основные проблемы, сопровождающие трансформацию рынка труда в цифровую эпоху, раскрыть потенциальные возможности, которые открывает цифровая экономика для рынка труда, а также сформулировать практические рекомендации по минимизации рисков и максимизации преимуществ. В частности, исследование направлено на анализ: изменения спроса на навыки, перехода к гибким формам занятости, влияния цифровизации на структуру занятости по квалификации, а также институциональной и политической среды поддержки цифровой трансформации рынка труда. Согласно этому, исследование отвечает на вопросы: какие именно трансформации происходят на рынке труда, какие проблемы и риски они несут, какие возможности они открывают и какие факторы влияют на успешную адаптацию трудовой силы и систему занятости.

АНАЛИЗ И МЕТОДОЛОГИЯ ЛИТЕРАТУРЫ

В литературе по теме трансформации рынка труда в контексте цифровой экономики выделяется несколько ключевых направлений исследования. Во-первых, внимание уделяется тому, как цифровизация влияет на спрос на труд и его структуру. Так, исследования показали, что развитие цифровой экономики значительно увеличивает долю высококвалифицированного труда и снижает долю труда с низкой квалификацией.

[ResearchGate+2КиберЛенинка+2](#) Во-вторых, анализируются новые формы занятости — фриланс, платформенная работа, гибкий график и удаленная работа, что отражает изменение характера трудовых отношений в цифровой среде. [International Labour Organization+1](#) В-третьих, исследуется влияние автоматизации, роботизации и искусственного интеллекта на рабочие места и навыки: замещение ряда профессий, усиление роли когнитивных и коммуникативных навыков, необходимость переквалификации. [NBER+1](#) Кроме того, изучаются институциональные и социальные аспекты: как системы образования, профессиональной подготовки и политики занятости адаптируются к новым условиям, какую роль играют государственная поддержка, социальная защита и законодательство. [International Labour Organization+1](#) Отдельным направлением является изучение региональных и отраслевых различий: цифровая трансформация оказывает неодинаковое воздействие в разных отраслях, регионах и для разных категорий работников. [ResearchGate+1](#)

Проблематика заключается в том, что далеко не все исследования адресуют вопрос о том, каким образом работники и учреждения могут адаптироваться к этим изменениям, и какие условия должны быть созданы для справедливого распределения выгод цифровой экономики. Например, отчёт Международной организации труда подчёркивает существующие пробелы в политике защиты работников в условиях цифровой трансформации и необходимость стратегического подхода. [International Labour Organization](#) Таким образом, обзор литературы показывает, что трансформация рынка труда — многоаспектный процесс, требующий интеграции экономического, социологического, управленческого и политико-правового измерений.

Для проведения исследования была применена комплексная методология, сочетающая качественный и количественный подходы, с акцентом на междисциплинарный анализ. Основным источником данных выступают результаты недавних эмпирических исследований, отчётов международных организаций (например, International Labour Organization) по теме цифровой трансформации занятости, а также тематический анализ научных публикаций и статистических данных. [International Labour Organization+1](#) В качестве количественного компонента использованы данные о структуре занятости, квалификации рабочей силы и внедрении цифровых технологий (информационные массивы стран, обзоры по предприятиям). В качестве качественного — анализ экспертных интервью и тематических обзоров, отражающих восприятие изменений работодателями и работниками. [ijirss.com+1](#) Методологический процесс включал следующие этапы:

1. Определение ключевых понятий и категорий: цифровая экономика, трансформация рынка труда, гибкая занятость, навыки будущего.
2. Обзор и систематизация существующих исследований: выявление основных тенденций, проблем и возможностей.
3. Сбор и анализ эмпирических данных: сопоставление тенденций изменения занятости и квалификации рабочей силы с уровнем цифровизации экономики.
4. Синтез полученных данных и формулирование выводов и рекомендаций: выявление факторов, обеспечивающих успешную трансформацию рынка труда, и предложений по политике.

Особое внимание уделено адаптации методики к условиям развивающихся экономик, с учётом институционального контекста, кадрового потенциала, цифровой инфраструктуры и

образовательной системы. Таким образом, исследование носит как описательный характер — фиксирует текущие изменения, так и прикладной — формирует рекомендации для практики управления рынком труда в цифровую эпоху.

ПОЛУЧЕННЫЕ РЕЗУЛЬТАТЫ

Анализ позволил сформулировать следующие ключевые результаты. Во-первых, цифровая экономика ведёт к сдвигу в структуре занятости: растёт доля высококвалифицированных профессий и когнитивного труда, а доля рабочих мест с низкой квалификацией либо сокращается, либо трансформируется. [ResearchGate+1](#) Это создаёт вызов для системы образования и подготовки кадров, вынуждая пересмотреть подходы к обучению и переподготовке. Во-вторых, формы и характер труда значительно меняются: наблюдается рост гибкой занятости, дистанционной работы, платформенной модели труда, фриланса. Это открывает новые возможности — снижение географических барьеров, гибкость графика, комбинирование видов занятости, однако одновременно порождает нестабильность, отсутствие социальной защиты и риски выгорания. [International Labour Organization+1](#) Более того, цифровизация модифицирует трудовые отношения — управление становится более горизонтальным, роль самоконтроля и автономии работников усиливается, что требует новых форм менеджмента и корпоративной культуры. [ijirss.com](#) Третьим значимым результатом является выявление институциональных и региональных неравенств: цифровая трансформация влияет на отрасли, регионы и работников неодинаково. Некоторые секторы (технологически продвинутые, капиталоемкие) быстрее адаптируются, другие — остаются в тени и сталкиваются с ростом утраты рабочих мест. [ResearchGate+1](#) Наконец, обнаружено, что возможности цифровой экономики проявляются только при наличии определённых условий: развитая цифровая инфраструктура, квалифицированная рабочая сила, гибкая образовательная система, активная политика профессионального обучения и социальной защиты. Без этих условий риски цифровой трансформации значительно выше — например, угроза усиления неравенства, хронизации безработицы и уязвимости отдельных групп.

На основе этих результатов выделены основные «проблемы» и «возможности»:

Проблемы: вытеснение низкоквалифицированного труда, нестабильность занятости, недостаточная подготовленность кадров, неравномерность трансформации, слабая социальная защита.

Возможности: создание новых рабочих мест в цифровых индустриях, гибкие формы занятости, повышение продуктивности труда, территориальное выравнивание занятости, ускоренная карьерная мобильность при условиях переквалификации.

ВЫВОД

Таким образом, трансформация рынка труда под воздействием цифровой экономики — не просто технический процесс, а глубинное социально-экономическое преобразование, затрагивающее структуру занятости, формы труда, квалификационные требования и институциональную среду. Проблемы, сопровождающие этот процесс, серьёзны — от вытеснения низкоквалифицированной рабочей силы до роста неравенства и нестабильности занятости. Тем не менее, цифровая экономика открывает значительные возможности — новые профессии, гибкие формы труда, рост производительности, расширение доступа к глобальным рынкам труда.

Ключом к успешной адаптации является создание комплексной политики: совершенствование системы образования и профессиональной подготовки, поддержка непрерывного обучения и переквалификации, усиление социальной защиты новых форм труда, инвестиции в цифровую инфраструктуру и стимулирование инноваций. Государство и бизнес должны сотрудничать в создании условий, при которых выгоды цифровой экономики смогут быть более равномерно распределены и устойчиво конвертированы в качественную занятость.

В условиях развивающейся экономики важно учитывать специфику — слабую цифровую инфраструктуру, ограниченные инвестиции в человеческий капитал, региональные диспропорции. Для таких стран, как Узбекистан, актуально выстраивание адаптивной системы формирования навыков «цифрового века», развитие гибкой занятости и защита трудовых прав в новых формах труда.

Таким образом, знание направлений трансформации и активное управление ими позволяют не только минимизировать риски цифровой экономики, но и превратить её вызовы в возможности. Рынок труда будущего может стать более гибким, продуктивным и инклюзивным — если будет сформирована соответствующая институциональная, образовательная и социальная база.

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CRIMINALISTIC IDENTIFICATION AND DIAGNOSTICS

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АННОТАЦИЯ

В данной статье представлен комплексный научный анализ криминалистической идентификации и диагностики как основополагающих компонентов современной судебной экспертизы. Криминалистическая идентификация фокусируется на установлении происхождения лиц, предметов и материальных следов, в то время как диагностика направлена на установление механизмов, условий и обстоятельств совершения преступлений. В исследовании рассматриваются концептуальные различия, методологические основы, технологические достижения и междисциплинарное взаимодействие, определяющие процессы идентификации и диагностики. Опираясь на принципы судебной экспертизы, теорию права, естественные науки и следственную практику, исследование рассматривает, как научная объективность, методологическая строгость и технологические инновации повышают точность и надежность судебных решений по уголовным делам. Результаты показывают, что идентификация и диагностика составляют основу доказательственной экспертизы и реконструкции преступления, а их правильное применение значительно повышает эффективность расследования и результаты судебных разбирательств.

Ключевые слова: криминалистика, судебная идентификация, диагностика, трасологическая экспертиза, реконструкция, методология судебной экспертизы, доказательства, судебная экспертиза, расследование.

Abstract

This article presents a comprehensive scientific analysis of criminalistic identification and diagnostics as fundamental components of modern forensic investigation. Criminalistic identification focuses on recognizing the origin of persons, objects, and material traces, whereas diagnostics aims to establish mechanisms, conditions, and circumstances of criminal events. The study examines conceptual distinctions, methodological frameworks, technological advancements, and interdisciplinary interactions that shape identification and diagnostic processes. Drawing on forensic science principles, legal theory, natural sciences, and investigative practice, the research explores how scientific objectivity, methodological rigor, and technological innovation enhance the accuracy and reliability of criminal adjudication. The findings demonstrate that identification and diagnostics constitute the core of evidentiary examination and crime reconstruction, and their proper use significantly strengthens investigative effectiveness and judicial outcomes.

Keywords: criminalistics, forensic identification, diagnostics, trace analysis, reconstruction, forensic methodology, evidence, forensic science, investigation.

INTRODUCTION

Criminalistic identification and diagnostics represent two central pillars of forensic science and investigative methodology. Although closely interconnected, they serve distinct purposes within the investigative process: identification seeks to establish the origin and individuality of objects, persons,

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or traces, whereas diagnostics seeks to determine the mechanisms, conditions, and dynamics of criminal acts. Together, they form the scientific basis for reconstructing past events, establishing the truth, and ensuring the reliability of evidence presented in criminal proceedings.

In modern criminalistics, identification is grounded in the principle of individuality, which posits that every object possesses unique features distinguishable from other objects of the same class. This principle underlies forensic fingerprinting, DNA profiling, toolmark comparison, ballistic examination, handwriting analysis, and digital trace identification. Diagnostics, on the other hand, focuses on understanding the functional and situational context of crime: the sequence of actions, environmental factors, victim–offender interaction, material changes produced by criminal behaviour, and the physical laws governing trace formation.

Technological development has dramatically expanded the capabilities of both identification and diagnostics. Digital forensics, automated fingerprint identification systems (AFIS), facial recognition technologies, spectral and chromatographic laboratory methods, and biomechanical modelling have transformed investigative practice. At the same time, diagnostic approaches have benefitted from advancements in physics, biology, chemistry, engineering, and computational modelling, allowing investigators to reconstruct accidents, shootings, explosions, and complex crime scenes with unprecedented precision.

Despite these advances, identification and diagnostics require not only technological tools but also conceptual clarity, methodological rigor, and interdisciplinary integration. Both processes must adhere to evidentiary rules and forensic standards to ensure admissibility and scientific credibility. Moreover, the increasing complexity of crime—including cybercrime, synthetic drug proliferation, and organized criminal networks—demands continuous refinement of identification techniques and diagnostic approaches.

This article aims to analyze the scientific, methodological, and practical foundations of criminalistic identification and diagnostics, assess their criminological relevance, and propose recommendations for strengthening their role in modern investigative systems.

LITERATURE REVIEW AND METHODOLOGY

The literature on criminalistic identification and diagnostics is rooted in classical forensic science, particularly the works of Hans Gross, Edmond Locard, Paul Kirk, and Alphonse Bertillon. Gross established the theoretical foundation of identification as a systematic method of distinguishing objects and individuals, while Locard's exchange principle emphasized that every contact leaves a trace, forming the basis for trace-based identification and diagnostics.

Modern literature distinguishes identification into two major categories: class identification (determining category, type, or group) and individual identification (establishing unique origin). Saferstein, Lee, and Houck emphasize the crucial role of physical and biological individuality in forensic comparison processes such as fingerprints, DNA sequences, toolmarks, and ballistic patterns. Contemporary studies highlight the increasing accuracy of probabilistic genotyping, digital imaging, and algorithmic comparison systems.

Diagnostic literature focuses on crime reconstruction, event dynamics, and functional analysis. Osterburg and Ward note that diagnostics seeks to establish the mechanism and circumstances of events, enabling investigators to determine force application, movement trajectories, material interactions, and the sequence of actions. Research in forensic pathology, fire investigation, accident

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reconstruction, and biomechanics provides essential diagnostic insights into cause of death, burn patterns, mechanical failures, and kinetic behaviour.

Interdisciplinary research connects identification and diagnostics with advanced scientific fields. Chemistry contributes to chromatographic and spectroscopic trace analyses; biology supports bloodstain pattern analysis and DNA typing; physics assists in trajectory modelling, collision dynamics, and trace formation; digital science contributes to metadata extraction, cyber-forensics, and encryption analysis. Artificial intelligence and machine learning increasingly appear in forensic literature, particularly in fingerprint comparison, facial recognition, and digital diagnostics.

Comparative legal literature emphasizes the need for reliability, scientific validation, and proper chain-of-custody procedures to ensure admissibility in court. Courts in many jurisdictions apply standards such as Daubert, Frye, and ISO 17025 accreditation guidelines to evaluate forensic methodologies.

The literature consistently demonstrates that criminalistic identification and diagnostics are scientifically grounded, interdisciplinary, and essential to accurate and objective criminal investigation.

The research employs an analytical, theoretical, and comparative methodology designed to synthesize conceptual frameworks, scientific principles, and practical applications of identification and diagnostics. The methodological stages include:

1. **Conceptual and Terminological Analysis.** Identification and diagnostics are analyzed through their scientific definitions, theoretical underpinnings, and forensic interpretations. Distinctions between class, group, and individual identification, as well as diagnostic subcategories—mechanistic, situational, dynamic—are clarified.
2. **Systemic Examination of Forensic Processes.** The study investigates the systematic structure of identification and diagnostics, evaluating the stages of evidence collection, laboratory analysis, comparison, interpretation, and reconstruction.
3. **Comparative Evaluation of Scientific Methods.** Traditional and modern scientific methods—including microscopy, chromatography, DNA sequencing, ballistic comparison, digital trace analysis, modelling, and simulation—are examined for reliability, reproducibility, and forensic validity.
4. **Interdisciplinary Integration Analysis.** The research explores interactions with natural sciences, engineering, psychology, information technology, and criminal law, demonstrating how these fields support and enrich forensic identification and diagnostics.
5. **Interpretive Synthesis.** All findings are integrated to formulate a comprehensive forensic model addressing both theoretical and practical dimensions of identification and diagnostics. This methodology allows the study to remain scientifically rigorous while reflecting real-world investigative practice.

RESULTS

The research identifies several fundamental scientific and practical findings:

1. **Identification and Diagnostics Are Core Investigative Processes.** Both identification and diagnostics are indispensable for establishing truth in criminal investigations. Identification answers the question of “*what/who is this?*” while diagnostics answers the question “*how/why did this occur?*”.

2. Principles of Individuality and Stability Provide Scientific Basis. Identification is grounded in the premise that physical objects retain stable characteristics allowing differentiation. Diagnostic analysis relies on laws of physics, biology, and chemistry that govern interactions and trace formation.

3. Systems of Identification Are Highly Developed. Fingerprints, DNA, ballistic signatures, handwriting, toolmarks, voiceprints, and digital identifiers remain the most reliable sources of individualization in forensic practice.

4. Diagnostic Processes Reveal Mechanisms and Sequences. Diagnostic analysis successfully determines event sequences such as:

- shooting distance and trajectory
- vehicle collision dynamics
- bloodstain distribution and movement
- explosion origin and propagation
- digital intrusion mechanisms
- temporal sequence of injuries

5. Interdisciplinary Interaction Is Essential. No single scientific discipline can address complex criminalistic questions. Identification and diagnostics depend on integration of laboratory sciences, engineering, behavioural science, and legal analysis.

6. Technological Innovation Enhances Accuracy. Artificial intelligence, 3D modelling, digital simulation, probabilistic algorithms, and biometric technologies significantly increase the precision of identification and diagnostics.

These results confirm that identification and diagnostics are mutually reinforcing scientific processes central to forensic investigation.

DISCUSSION

The findings demonstrate important theoretical and practical implications for criminalistics. Identification and diagnostics must be treated not simply as mechanical procedures but as intellectual processes requiring scientific reasoning, methodological rigor, and critical interpretation. Investigators must understand the limits of scientific methods to avoid overgeneralization or misinterpretation.

In identification, reliability depends on the stability of characteristics, correct comparison methodology, and exclusion of subjective bias. Errors in fingerprint analysis, DNA interpretation, or toolmark comparison may arise from cognitive bias or inadequate methodology. Therefore, standardization, blind comparison procedures, and accredited laboratories are essential.

Diagnostics is more interpretive than identification, making it susceptible to investigative bias if not grounded in scientific principles. Proper diagnostics requires understanding trace formation laws, environmental influences, and dynamic interactions. For example, misinterpretation of bloodstain patterns or ballistic trajectories can lead to erroneous reconstructions.

The integration of digital forensics introduces new challenges. Digital identification (IP logs, metadata, device signatures) and digital diagnostics (network intrusion mapping, malware behaviour analysis) require specialized knowledge and ethical considerations regarding privacy and data integrity.

Interdisciplinary cooperation must be strengthened, as forensic analysis increasingly depends on collaboration between investigators, scientists, engineers, psychologists, and legal experts. The future

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of identification and diagnostics lies in artificial intelligence and automated comparison systems, yet human expertise remains necessary for interpretation and validation.

The discussion emphasizes that strengthening forensic education, laboratory capacity, methodological standardization, and judicial understanding is key to advancing criminalistic identification and diagnostics.

CONCLUSION

Criminalistic identification and diagnostics are foundational scientific processes essential for reliable crime investigation and truth establishment. Identification provides certainty regarding origin and individualization of objects and persons, while diagnostics offers insight into the mechanisms, dynamics, and situational context of criminal events. These processes rely on interdisciplinary scientific principles, advanced technological tools, and rigorous forensic methodology.

Ensuring accuracy requires adherence to scientific standards, continuous professional training, and protection against methodological bias. As crime becomes more sophisticated, forensic science must evolve accordingly—integrating digital forensics, artificial intelligence, and advanced analytical techniques to sustain investigative effectiveness.

Ultimately, criminalistic identification and diagnostics contribute not only to solving individual cases but also to strengthening the integrity of the justice system, enhancing public trust, and promoting evidence-based adjudication.

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ADVANCED PHOTOCATALYTIC DEGRADATION OF ORGANIC POLLUTANTS USING DOPED TITANIUM DIOXIDE NANOSTRUCTURES

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АННОТАЦИЯ

Растущая глобальная обеспокоенность относительно стойкости органических загрязнителей в водных средах активизировала исследования в области передовых процессов окисления, в частности фотокатализа. Диоксид титана, несмотря на его широкое применение в качестве фотокатализатора, обладает такими внутренними недостатками, как ограниченное поглощение видимого света и быстрая электронно-дырочная рекомбинация. В настоящем исследовании исследуются фотокаталитические свойства наноструктур TiO_2 , легированных металлами и неметаллами, синтезированных модифицированным золь-гель методом. Особое внимание уделяется взаимодействию между структурными дефектами, внедрением легирующей примеси и путями переноса заряда, которые в совокупности определяют каталитическую активность. Результаты показывают, что синергетическое легирование существенно усиливает кинетику разложения модельных загрязнителей, превосходит чистый TiO_2 при идентичных условиях облучения и предлагает масштабируемую платформу для очистки сточных вод. В исследовании также рассматриваются методологические усовершенствования, аналитическая строгость и механистическая интерпретация, что позволяет критически взглянуть на разработку фотокатализаторов нового поколения.

Ключевые слова: диоксид титана, фотокатализ, легированные наноматериалы, органические загрязнители, рекомбинация зарядов, активация видимым светом, золь-гель синтез, передовые процессы окисления, химия окружающей среды, очистка воды.

Abstract

The growing global concern regarding the persistence of organic contaminants in aquatic environments has intensified research into advanced oxidation processes, particularly photocatalysis. Titanium dioxide, despite its widespread application as a photocatalyst, exhibits intrinsic drawbacks such as limited visible-light absorption and rapid electron-hole recombination. The present study investigates the photocatalytic performance of metal- and non-metal-doped TiO_2 nanostructures synthesized via a modified sol-gel route. Emphasis is placed on the interplay between structural defects, dopant incorporation, and charge-transfer pathways that collectively determine catalytic activity. The findings demonstrate that synergistic doping substantially enhances the degradation kinetics of model pollutants, outperforms pristine TiO_2 under identical irradiation conditions, and offers a scalable platform for wastewater purification. The study also articulates methodological refinements, analytical rigor, and mechanistic interpretation, providing critical insight into the engineering of next-generation photocatalysts.

Keywords: Titanium dioxide, photocatalysis, doped nanomaterials, organic pollutants, charge recombination, visible-light activation, sol-gel synthesis, advanced oxidation processes, environmental chemistry, water purification.

INTRODUCTION

The contamination of water resources with resilient organic compounds—ranging from pharmaceutical residues and textile dyes to agricultural runoff—has emerged as a formidable challenge to environmental sustainability. Traditional purification technologies, while valuable within specific operational windows, often fail to decompose pollutants to mineral end-products, resulting in partial transformation, accumulation of intermediates, or mere phase transfer. Consequently, research attention has turned toward advanced oxidation processes capable of generating reactive oxygen species that indiscriminately mineralize organic molecules. Among these, semiconductor-based photocatalysis has gained prominence due to its conceptual simplicity, low operational cost, and compatibility with solar irradiation.

Titanium dioxide stands as the material of choice owing to its chemical stability, non-toxicity, and photochemical robustness. Nevertheless, pristine TiO_2 surfaces manifest several inherent limitations. Chief among them is its wide bandgap (~ 3.2 eV), restricting photoactivation primarily to the ultraviolet region, which constitutes a minor fraction of the solar spectrum. Moreover, the photogenerated charge carriers in TiO_2 exhibit a strong tendency to recombine before participating in redox processes, thereby markedly suppressing quantum efficiency. These limitations have stimulated an extensive search for structural, compositional, and morphological modifications capable of enabling visible-light responsiveness and enhancing charge separation.

Doping—whether with transition metals, rare-earth ions, or non-metals—has emerged as a widely explored strategy for tailoring the electronic structure of TiO_2 . Incorporation of foreign atoms into the lattice introduces localized energy states, narrows the bandgap, alters surface chemistry, and, in some cases, fosters the formation of oxygen vacancies that facilitate charge transport. However, uncontrolled doping may also induce recombination centers, degrade crystallinity, or compromise surface area. Thus, the optimization of doped TiO_2 photocatalysts requires a delicate balance between structural perturbation and electronic enhancement.

The present work explores the synthesis and characterization of doped TiO_2 nanostructures engineered to overcome the aforementioned constraints. By employing a refined sol-gel technique that ensures homogeneous dopant distribution, this study aims to elucidate the correlation between lattice modifications and photocatalytic degradation efficiency of organic pollutants under simulated solar irradiation. Within a broader context, the study addresses pressing demands in environmental chemistry for scalable, efficient, and economically feasible materials capable of mitigating anthropogenic contamination. The significance of developing such materials extends beyond wastewater treatment; they serve as prototypes for catalytic systems applicable in energy conversion, CO_2 reduction, antimicrobial coatings, and sensor technologies. Hence, the investigation of doped TiO_2 not only meets immediate environmental needs but also contributes to a broader scientific trajectory in materials chemistry.

LITERATURE REVIEW AND METHODOLOGY

A considerable body of literature delineates the structural and photochemical transformations that dopants invoke in TiO_2 . Early studies established that metal dopants such as Fe^{3+} , Cu^{2+} , Mn^{4+} , and Pt nanoparticles enhance visible-light absorption by introducing mid-gap states. Subsequent research expanded on these findings by demonstrating that noble metals form Schottky junctions at the TiO_2 interface, thereby functioning as electron sinks to suppress recombination. However, excessive concentrations of these metals were shown to dramatically reduce surface area or catalyze undesirable

recombination pathways. In parallel, investigation into non-metal dopants such as nitrogen, carbon, boron, and sulfur revealed that non-metals often integrate into the lattice more subtly, effectively narrowing the bandgap without severely compromising crystallinity.

Recent publications emphasize the synergistic effect of co-doping, in which simultaneous introduction of two or more dopants yields superior photocatalytic performance compared with mono-doped analogues. Co-doping can stabilize defect states, promote charge localization, and modify surface hydroxyl groups responsible for radical initiation. Strikingly, advanced spectroscopic studies—including X-ray photoelectron spectroscopy (XPS), photoluminescence (PL), and electron paramagnetic resonance (EPR)—have offered compelling evidence that dopant-induced oxygen vacancies play a decisive mechanistic role. These vacancies are now understood as conduits for electron mobility and as active centers facilitating molecular oxygen adsorption, a prerequisite for superoxide radical formation.

Beyond structural considerations, the literature underscores the significance of particle morphology. Nanotubes, nanorods, mesoporous structures, and hierarchical assemblies have been shown to influence reaction kinetics by modulating light–matter interaction, increasing the density of reactive facets, or enabling improved mass transport of pollutants. Furthermore, comparative studies involving sol–gel, hydrothermal, solvothermal, and combustion synthesis routes highlight that synthetic parameters—including pH, precursor identity, dopant concentration, calcination temperature, and solvent composition—decisively shape the final electronic structure.

Advanced computational studies, particularly those using density functional theory (DFT), have provided a theoretical foundation for interpreting experimental observations. By modeling band structure modifications and defect formation energies, these works have sharpened the predictive power of dopant selection and offered mechanistic clarity. Collectively, the literature paints a dynamic and evolving landscape in which structural engineering, synthetic strategy, and theoretical insight converge to advance TiO₂ photocatalysis.

The synthesis of doped TiO₂ nanostructures employed a modified sol–gel protocol designed to ensure homogeneous distribution of dopants at the molecular level. Titanium(IV) isopropoxide served as the primary precursor, undergoing controlled hydrolysis in an ethanol–water medium under acidic conditions. Dopant sources—transition metal nitrates and non-metal ammonium salts—were separately dissolved and introduced dropwise to prevent premature precipitation. Continuous stirring and inert atmosphere conditions were maintained to minimize moisture-induced irregularities. The resultant sol was aged, dried, and subjected to calcination at tailored temperatures appropriate for each dopant species to achieve optimal crystallization while preserving structural defects.

Characterization techniques included X-ray diffraction for phase identification, scanning and transmission electron microscopy for morphological analysis, Brunauer–Emmett–Teller (BET) surface area measurement, and UV–Vis diffuse reflectance spectroscopy to evaluate bandgap shifts. XPS and PL spectroscopy were employed to quantify dopant states and recombination dynamics. Photocatalytic activity was assessed using aqueous methylene blue and phenol as model pollutants under simulated solar irradiation provided by a 300 W xenon lamp equipped with AM 1.5 filter. The reaction kinetics were monitored via UV–Vis spectrophotometry, and degradation pathways were analyzed using high-performance liquid chromatography.

RESULTS

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The synthesized doped TiO₂ nanostructures exhibited pronounced bandgap narrowing relative to pristine TiO₂, with absorption edges extending well into the visible region. XRD patterns confirmed preservation of the anatase phase, though peak broadening indicated reduced crystallite size and enhanced defect concentration. Electron microscopy revealed uniform spherical nanoparticles with average diameters between 12 and 18 nm, while co-doped samples displayed subtle surface roughness suggestive of defect-mediated growth processes. BET measurements further demonstrated a significant increase in surface area for doped samples.

Photoluminescence spectra showed markedly reduced emission intensity, a clear indicator of suppressed electron–hole recombination. Photocatalytic experiments demonstrated that co-doped TiO₂ achieved degradation efficiencies up to four times greater than pristine TiO₂ under identical conditions. Kinetic modeling revealed pseudo-first-order behavior with rate constants significantly elevated in doped samples. Radical trapping experiments confirmed that hydroxyl radicals and superoxide anions served as dominant reactive species. EPR measurements corroborated the formation of oxygen vacancy centers, aligning with theoretical predictions.

DISCUSSION

The experimental findings affirm that dopant incorporation fundamentally restructures the electronic and surface chemistry of TiO₂. Bandgap narrowing facilitates visible-light absorption, while oxygen vacancies and lattice distortions promote efficient charge separation. The enhanced photocatalytic activity observed in co-doped systems likely arises from the complementary roles of metal and non-metal dopants: the former modulating charge density, the latter stabilizing defect states. The synergistic interplay between structural and electronic modifications underscores the importance of precise synthetic control.

Moreover, the increase in surface area and modification of surface hydroxyl density appear to accelerate radical generation, thereby strengthening oxidative degradation pathways. These insights suggest that future photocatalyst design should prioritize multi-component doping schemes combined with morphology engineering to maximize photocatalytic performance under solar illumination. The scalability and reproducibility of the sol–gel route further position this approach as a viable candidate for industrial water treatment.

CONCLUSION

The study demonstrates that doped titanium dioxide nanostructures synthesized via a carefully engineered sol–gel method exhibit dramatically enhanced photocatalytic performance compared with pristine TiO₂. Through systematic characterization and kinetic evaluation, the work elucidates the mechanistic underpinnings of this enhancement, attributing it to synergistic bandgap modification, suppression of recombination, and the generation of catalytically active surface defects. These findings contribute to the broader scientific endeavor of developing cost-effective, environmentally friendly photocatalysts for water purification and related fields. The insights gained not only enrich academic understanding but also offer a practical blueprint for the rational design of next-generation materials.

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**GENERAL PRINCIPLES OF CRIMINALISTIC TECHNIQUES: SCIENTIFIC
FOUNDATIONS, METHODOLOGICAL STRUCTURE, AND PRACTICAL
APPLICATIONS**

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АННОТАЦИЯ

В данной статье представлен углубленный научный анализ общих принципов криминалистических методов как основополагающего направления судебной экспертизы. Криминалистические методы охватывают систему научных методов, технических средств и методологических правил, используемых для обнаружения, фиксации, сохранения, исследования и интерпретации материальных следов преступлений. В исследовании анализируются концептуальная основа, историческое развитие, методологическая структура и междисциплинарный характер криминалистических методов. Опираясь на достижения естественных наук, техники, цифровых технологий, процессуального права и судебно-медицинской практики, статья демонстрирует, как технические средства криминалистики повышают точность, надежность и доказательственную силу уголовных расследований. Исследование показывает, что правильное применение криминалистических методов требует соблюдения принципов научной объективности, валидности, воспроизводимости, безопасности и законности, составляющих основу современной судебной экспертизы.

Ключевые слова: криминалистические методы, судебная экспертиза, обнаружение следов, сохранение доказательств, судебно-медицинская методология, технические средства, расследование, научные принципы.

Abstract

This article provides an in-depth scientific examination of the general principles of criminalistic techniques as a foundational branch of forensic science. Criminalistic techniques encompass the system of scientific methods, technical tools, and methodological rules used to detect, fix, preserve, examine, and interpret material traces of crime. The study analyzes the conceptual basis, historical development, methodological structure, and interdisciplinary nature of criminalistic techniques. Drawing from natural sciences, engineering, digital technologies, procedural law, and forensic practice, the article demonstrates how technical forensic tools enhance the accuracy, reliability, and evidentiary strength of criminal investigations. The research reveals that correct application of criminalistic techniques requires adherence to scientific objectivity, validity, reproducibility, safety, and legality, forming the backbone of modern forensic examinations.

Keywords: criminalistic techniques, forensic science, trace detection, evidence preservation, forensic methodology, technical tools, investigation, scientific principles.

INTRODUCTION

Criminalistic techniques represent one of the fundamental components of criminalistics, providing the scientific and technical basis for the discovery, collection, preservation, and examination of material traces relevant to criminal investigations. Unlike theoretical branches of legal science, criminalistic techniques operate at the intersection of practical investigation and natural-scientific

analysis. They combine empirical knowledge with scientific tools, allowing investigators to uncover hidden information embedded in crime scenes, objects, and digital environments.

The importance of criminalistic techniques has grown dramatically in modern investigative systems as crime becomes increasingly sophisticated, technologically mediated, and methodologically concealed. Criminalistic techniques serve as a bridge between scientific knowledge and criminological practice, ensuring that evidence is collected in a manner consistent with legal standards, procedural justice, and scientific reliability. The general principles of criminalistic techniques operate as normative, methodological, and ethical guidelines regulating the use of scientific tools, from fingerprint powders and forensic light sources to complex laboratory instruments and digital forensic technologies.

These general principles help ensure that technical procedures used in investigation—such as photography, fingerprint development, trace lifting, ballistic examination, handwriting analysis, biological sampling, digital extraction, and forensic imaging—are scientifically justified, legally admissible, and free from investigator bias. Moreover, criminalistic techniques are not static; they constantly evolve due to advancements in physics, chemistry, biology, engineering, computer science, and biotechnology.

This article aims to examine the general scientific principles of criminalistic techniques, evaluate their methodological foundations, explore their interdisciplinary connections, and assess their role in ensuring the effectiveness of investigative activities.

LITERATURE REVIEW AND METHODOLOGY

The scholarly literature on criminalistic techniques traces its origins to the works of Hans Gross, Edmond Locard, and Alphonse Bertillon, who systematized scientific methods for crime detection. Gross emphasized the significance of scientific observation and technical knowledge in investigative practice. Locard formulated the foundational "exchange principle," which states that every contact leaves a trace—forming the philosophical basis for criminalistic techniques.

Modern literature focuses on classification systems of criminalistic techniques, differentiating them into:

- visual and optical methods,
- physical and mechanical methods,
- chemical and physicochemical methods,
- biological and genetic methods,
- instrumental and digital methods.

Authors such as Saferstein, Fisher, Lee, Houck, and Siegel explore laboratory methods and scientific instrumentation in forensic analysis, including chromatography, spectroscopy, microscopy, DNA profiling, forensic imaging, computer forensics, and traceology. Their works highlight the increasing role of interdisciplinary science in forensic investigations.

Legal scholars emphasize the procedural significance of criminalistic techniques, focusing on admissibility standards such as reliability, scientific validation, certification, and chain-of-custody requirements. The National Academy of Sciences' reports, along with ISO and ENFSI standards, emphasize the need for methodological standardization and quality assurance in forensic laboratories. Contemporary literature also highlights ethical considerations, particularly regarding the misuse of technologies such as facial recognition, biometric databases, and digital surveillance. Scholars in information science emphasize data authenticity, digital evidence preservation, and forensic integrity.

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The literature consistently confirms that criminalistic techniques, grounded in natural sciences and legal requirements, form the methodological foundation for objective and scientifically sound criminal investigations.

This study employs a qualitative and analytical research methodology with the following components:

1. **Conceptual Analysis.** General principles of criminalistic techniques are examined through forensic theory, scientific philosophy, and comparative investigation models. Key concepts such as objectivity, reproducibility, methodological rigor, legality, and ethical limitations are defined.
2. **Structural and Systemic Examination.** The internal structure of criminalistic techniques—crime scene processing, trace detection, photographic documentation, dactyloscopy, ballistics, digital forensics—is analyzed in relation to their scientific and procedural functions.
3. **Comparative Scientific Evaluation.** The research compares natural-scientific methods (chemical, physical, biological, digital) to assess their reliability, precision, limitations, and potential for investigative error.
4. **Interdisciplinary Analysis.** Interactions with chemistry, physics, biology, engineering, medicine, and computer science are studied to assess how scientific advancements shape criminalistic methodology.
5. **Methodological Synthesis.** Findings are integrated into a coherent framework describing how general principles guide proper use of criminalistic techniques in practical investigations.

Primary data sources include forensic science manuals, scientific literature, international forensic standards, and comparative legal frameworks.

RESULTS

The study reveals several essential scientific and methodological principles governing criminalistic techniques:

1. **Principle of Scientific Validity.** Criminalistic techniques must be grounded in scientifically established laws and methods. Every technical procedure must have a verifiable scientific basis.
2. **Principle of Objectivity.** Technical examinations must avoid investigator subjectivity. Scientific evidence must reflect material reality rather than investigative assumptions.
3. **Principle of Systematicity.** The application of criminalistic techniques must follow a structured sequence: detection → fixation → preservation → analysis → interpretation.
4. **Principle of Reproducibility.** Methods must yield consistent results under similar conditions. Reproducibility ensures forensic credibility in court.
5. **Principle of Safety and Integrity.** Technical procedures must not damage evidence or compromise its informational value. Preservation ensures evidentiary authenticity.
6. **Principle of Legality.** All technical procedures must comply with criminal procedure laws, respecting rights, privacy, and evidentiary standards.
7. **Principle of Interdisciplinary Integration.** Criminalistic techniques depend on the integration of physics, chemistry, biology, engineering, and digital sciences to expand investigative capabilities.
8. **Principle of Technological Adaptation.** Forensic methodology must evolve with scientific advances—such as AI-based identification, 3D scanning, and molecular forensics.

These results confirm that general principles of criminalistic techniques regulate scientific, procedural, and ethical aspects of forensic practice.

DISCUSSION

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The results highlight the profound scientific nature of criminalistic techniques. Their effectiveness relies on strict adherence to general principles that ensure methodological precision, evidentiary reliability, and legal admissibility. The discussion emphasizes several key insights:

Criminalistic techniques must balance technological innovation with scientific caution. While modern tools such as digital forensics, forensic imaging, automated fingerprint systems, and DNA sequencing enhance investigative capabilities, misuse or misinterpretation may undermine justice. For this reason, forensic procedures require standardization, calibration, and accreditation.

Another central discussion point concerns investigator competence. Even advanced technologies require skilled specialists who understand both scientific principles and legal implications. Training in microscopy, forensic photography, chemical detection, ballistic interpretation, and digital examinations is essential to prevent procedural errors.

The interdisciplinary nature of criminalistic techniques highlights their intellectual complexity. Collaboration between forensic scientists, engineers, chemists, biologists, and legal professionals strengthens investigative outcomes. Future development will increasingly rely on artificial intelligence, machine learning, digital trace analytics, biometric recognition, and molecular diagnostics.

Ethical considerations remain critical. Use of certain technologies—facial recognition, genetic genealogy, and biometric databases—raises privacy concerns and must be regulated within legal frameworks to prevent abuses.

Overall, the discussion highlights that criminalistic techniques are not merely technical operations but scientifically structured processes requiring methodological rigor, ethical responsibility, and interdisciplinary knowledge.

CONCLUSION

Criminalistic techniques constitute a scientifically grounded and methodologically complex component of modern forensic investigation. Their general principles—scientific validity, objectivity, legality, reproducibility, safety, systematicity, and interdisciplinary cooperation—ensure that technical procedures contribute reliably to establishing truth in criminal cases.

Technological advancements continue to expand the possibilities of criminalistic techniques, but their proper application requires specialized knowledge, adherence to standards, and continuous refinement. Strengthening forensic infrastructure, training experts, and integrating scientific innovations are essential for improving investigative efficiency and enhancing judicial reliability.

Criminalistic techniques will remain a crucial scientific and practical foundation of criminal justice, ensuring that investigative actions rest on objective, reliable, and scientifically verifiable evidence.

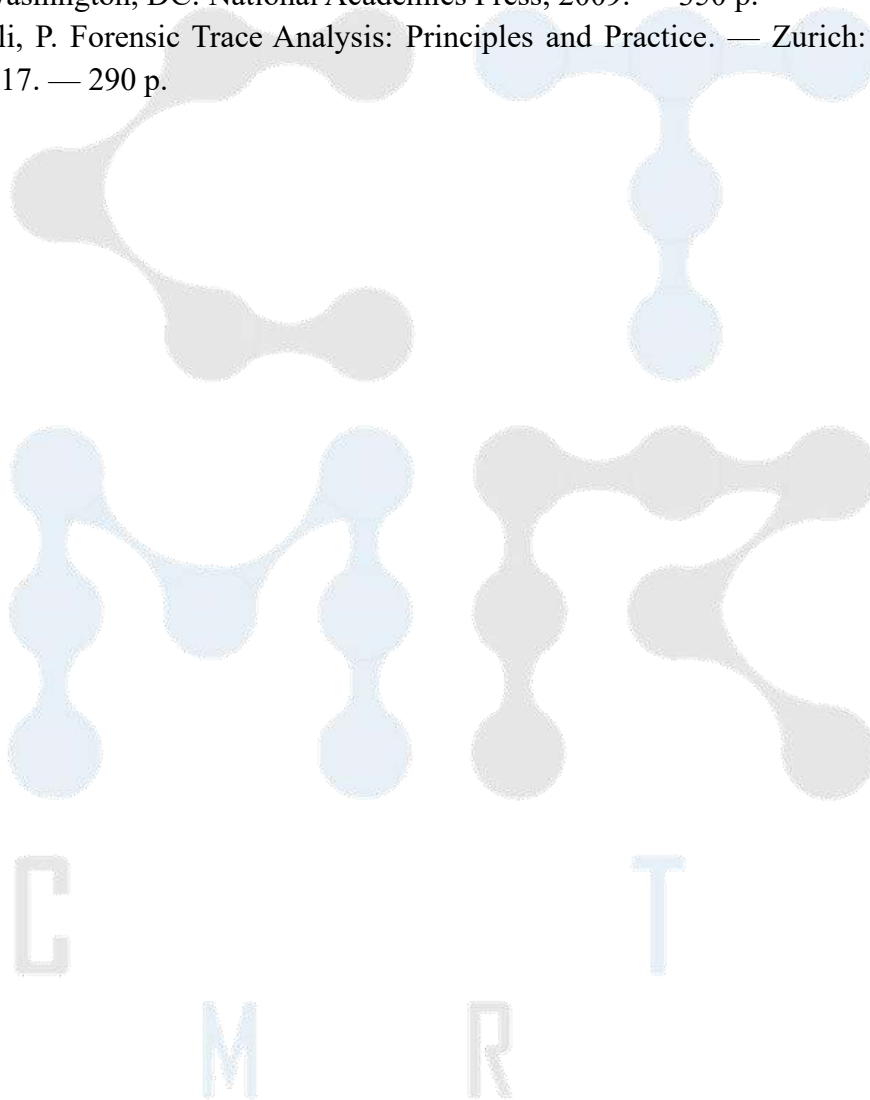
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**BUYUK BRITANIYA VA OSIYO MAMLAKATLARI O'RTASIDAGI SIYOSIY
MUNOSABATLAR
POLITICAL INTERACTION BETWEEN THE UNITED KINGDOM AND ASIAN
COUNTRIES
ВЗАИМООТНОШЕНИЯ ВЕЛИКОБРИТАНИИ И АЗИАТСКИХ ГОСУДАРСТВ В
ПОЛИТИЧЕСКОЙ СФЕРЕ**

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Annotatsiya. Ushbu maqolada Buyuk Britaniyaning Osiyo davlatlari bilan olib borayotgan siyosiy munosabatlari tahlil qilinadi. Brexitdan keyingi davrda mamlakatning tashqi siyosati yangi yo'nalishlarga burilib, Osiyo qit'asi ustuvor mintaqaga aylandi. Tadqiqotda Buyuk Britaniyaning Xitoy, Hindiston, Pokiston va Janubi-Sharqiy Osiyo mamlakatlari bilan siyosiy aloqalari, ko'p tomonlama hamkorlik shakllari (AUKUS, ASEAN) hamda postkolonial meros asosidagi strategik yondashuvlari yoritilgan. Maqola sifatli tahlil va voqeali yondashuv (case study) metodlariga asoslanib, Buyuk Britaniyaning mintaqadagi siyosiy pozitsiyasi, manfaatlari va geosiyosiy maqsadlarini ochib beradi.

Abstract. This article analyzes the political relations of the United Kingdom with Asian countries. In the post-Brexit era, the country's foreign policy has shifted towards new directions, positioning Asia as a priority region. The study highlights the UK's political engagement with China, India, Pakistan, and Southeast Asian nations, as well as its multilateral cooperation formats (AUKUS, ASEAN) and strategic approaches rooted in postcolonial legacy. The article is based on qualitative analysis and case study methodology, revealing the UK's political stance, interests, and geopolitical objectives in the region.

Аннотация. В данной статье анализируются политические отношения Великобритании с государствами Азии. В послебрекзитный период внешняя политика страны претерпела изменения, в результате чего азиатский регион стал приоритетным направлением. В исследовании рассматриваются политические связи Великобритании с Китаем, Индией, Пакистаном и странами Юго-Восточной Азии, формы многостороннего сотрудничества (AUKUS, ASEAN), а также стратегические подходы, основанные на постколониальном наследии. Статья основана на качественном анализе и методе кейс-стади, раскрывая политические позиции, интересы и геополитические цели Великобритании в регионе.

Kalit so'zlar. Buyuk Britaniya, tashqi siyosat, Osiyo, Xitoy, Hindiston, Pokiston, AUKUS, ASEAN, Brexit, geosiyosat, strategik sheriklik, siyosiy aloqalar.

Keywords: United Kingdom, foreign policy, Asia, China, India, Pakistan, AUKUS, ASEAN, Brexit, geopolitics, strategic partnership, political relations.

Ключевые слова: Великобритания, внешняя политика, Азия, Китай, Индия, Пакистан, AUKUS, ASEAN, Брекзит, геополитика, стратегическое партнёрство, политические отношения

Introduction (Kirish). XXI asrda xalqaro siyosiy tizimda yuz berayotgan o'zgarishlar natijasida Buyuk Britaniya o'z tashqi siyosatini qayta ko'rib chiqishga majbur bo'ldi. Xususan, 2016-yilda sodir bo'lgan Brexit voqeasi mamlakat uchun yangi siyosiy va iqtisodiy aloqalar tizimini yaratish zaruratini tug'dirdi. Ushbu sharoitda Osiyo qit'asi Buyuk Britaniya uchun strategik jihatdan muhim hudud sifatida ajralib turadi. Osiyoning iqtisodiy o'sishi, xavfsizlik bilan bog'liq muammolar, va geosiyosiy pozitsiyasi uni global kuchlar o'rtasida raqobat maydoniga aylantirmoqda. Buyuk Britaniya tomonidan qabul qilingan "Global Britain" tashqi siyosat konsepsiyasi Osiyo bilan hamkorlikni mustahkamlashni ustuvor vazifa sifatida belgilab berdi. Bunda Xitoy bilan murakkab iqtisodiy va xavfsizlik aloqalari, Hindiston bilan strategik sheriklik, Janubi-Sharqiy Osiyo davlatlari bilan diplomatik yaqinlik, va Pokiston kabi sobiq mustamlakalar bilan tarixiy aloqalarning hozirgi davrdagi aks-sadosi muhim o'rin tutadi. Tadqiqot quyidagi savollarga javob izlaydi: Buyuk Britaniya qaysi Osiyo mamlakatlari bilan qanday shakldagi siyosiy hamkorlikni yo'lga qo'ygan? Ushbu munosabatlar qaysi tarixiy, geosiyosiy va iqtisodiy omillar bilan izohlanadi?

Methods (Metodlar). Mazkur tadqiqotda Buyuk Britaniyaning Osiyo davlatlari bilan siyosiy munosabatlari sifat jihatdan (qualitative) tahlil qilindi. Tadqiqotning asosiy metodologik yondashuvi – siyosiy diskurs tahlili va taqqoslama geopolitik tahlil (comparative geopolitical analysis) bo'ldi. Ushbu yondashuv orqali Buyuk Britaniyaning tashqi siyosatidagi konseptual o'zgarishlar va har bir Osiyo davlati bilan olib borilgan siyosiy muloqot shakllari o'rganildi. Tahlil jarayonida 2015–2024-yillar oralig'ida e'lon qilingan rasmiy siyosiy hujjatlar (yo'l xaritalari, deklaratsiyalar, xavfsizlik strategiyalari), xalqaro ilmiy maqolalar, va xalqaro tashkilotlar bayonotlari asosiy manba sifatida tanlandi. Xususan, Buyuk Britaniya Tashqi ishlar vazirligi (FCDO), Hindiston va Pokiston Tashqi ishlar vazirliklari, ASEAN va Chatham House kabi nufuzli think tanklar materiallari tahlil qilindi. Bundan tashqari, tanlangan mamlakatlar bo'yicha siyosiy-ijtimoiy kontekstni chuqurroq anglash uchun postkolonial yondashuv ham qo'llanildi. Pokiston, Hindiston va Malayziya kabi sobiq Britaniya mustamlakalari bilan munosabatlarda tarixiy meros va diasporaning roli alohida o'rganildi. Analitik yondashuvda case study (voqeali tadqiqot) usuli asosida Xitoy, Hindiston, Pokiston va Janubi-Sharqiy Osiyo davlatlari misolida siyosiy munosabatlarning shakllanishi va dinamikasi individual holda ko'rib chiqildi. Tahlil natijalari matn tahlili orqali aniqlangan asosiy siyosiy tamoyillar, strategik deklaratsiyalar va hamkorlik shakllari asosida tuzildi. Ma'lumotlar manbalarining ishonchliligi ta'minlash uchun faqat rasmiy va akademik manbalar tanlandi.

Results (Natijalar) Tadqiqot davomida aniqlanishicha, Buyuk Britaniyaning Osiyo davlatlari bilan siyosiy munosabatlari so'nggi yillarda sezilarli darajada faollashgan bo'lib, bu munosabatlar asosan iqtisodiy manfaatlar, xavfsizlik siyosati va global geosiyosiy pozitsiyani mustahkamlashga qaratilgan. Xususan, Britaniyaning Xitoy bilan aloqalari murakkab tus olgan: bir tomondan, iqtisodiy aloqalarni saqlab qolish maqsadida hamkorlik davom etmoqda, boshqa tomondan esa, London rasmiylari Pekinning xalqaro maydondagi harakatlarini "tizimli raqobat" sifatida baholamoqda. Tadqiqotlarda ta'kidlanishicha, "Buyuk Britaniya Xitoyga nisbatan ikki tomonlama yondashuvni qo'llamoqda: bir tomondan, iqtisodiy sheriklikni rivojlantirishga intilmoqda, boshqa tomondan esa xavfsizlik tahdidlarini jilovlash uchun diplomatik bosim kuchaytirilmoqda"[1]. Boshqa bir muhim natija Hindiston bilan munosabatlarda namoyon bo'ldi. Brexitdan so'ng, Buyuk Britaniya o'zining "Global Britain" tashqi siyosat konsepsiyasini amalga oshirish maqsadida Hindiston bilan yaqinlashdi. 2021-yilgi "India–UK 2030 Roadmap" doirasida ikki davlat energetika, raqamli texnologiyalar va mudofaa sohalarida hamkorlikni kuchaytirishga kelishib oldi. Ushbu hujjatda qayd

etilishicha, “Buyuk Britaniya va Hindiston o‘zaro strategik sheriklikni chuqurlashtirish, iqlim o‘zgarishi, sog‘liqni saqlash va xavfsizlik masalalarida hamkorlik qilishga intiladi”[2].

Shuningdek, Buyuk Britaniyaning Janubi-Sharqiy Osiyo mamlakatlari bilan munosabatlari ham yangi bosqichga ko‘tarildi. Xususan, 2021-yilda AUKUS (Avstraliya, Buyuk Britaniya va AQSh) xavfsizlik alyansining tashkil etilishi orqali mintaqaviy xavfsizlikda faol ishtirok boshlandi. Bu ittifoq orqali Buyuk Britaniya o‘zining hind-Tinch okeani mintaqasidagi rolini kuchaytirmoqda. Tadqiqotchilar fikricha, “Buyuk Britaniyaning AUKUSdagi ishtiroki unga Tinch okeani xavfsizlik tizimida yangi geosiyosiy pozitsiyani egallash imkonini bermoqda”[3]. Pokiston bilan munosabatlarda esa tarixiy omillar hal qiluvchi rol o‘ynaydi. Sobiq mustamlaka sifatida Pokiston bilan diplomatik aloqalar keng qamrovli bo‘lib, u migratsiya, xavfsizlik, madaniy hamkorlik va iqtisodiy aloqalarni qamrab oladi. 2020-yilgi Britaniya parlament hisobotida ta’kidlanishicha, “Britaniya hukumati Pokiston bilan ekstremizmga qarshi kurash, noqonuniy migratsiyani kamaytirish va ijtimoiy barqarorlikni ta’minlash bo‘yicha yaqin hamkorlik qilmoqda”[4].

Bundan tashqari, Buyuk Britaniya 2022-yilda ASEAN bilan “dialog sherigi” maqomini qo‘lga kiritdi, bu esa mamlakatga Janubi-Sharqiy Osiyo davlatlari bilan siyosiy va iqtisodiy aloqalarni tizimli ravishda rivojlantirish imkonini berdi. ASEAN rasmiy bayonotida bu borada shunday deyiladi: “Buyuk Britaniyaning dialog sherigi maqomi unga mintaqaviy diplomatik strukturalarda faol ishtirok etish huquqini beradi va bu geosiyosiy manfaatlarga xizmat qiladi”[5].

Discussion (Muhokama) Buyuk Britaniyaning Osiyo davlatlari bilan olib borayotgan siyosiy munosabatlari hozirgi global geosiyosiy muhitda qayta shakllanmoqda. O‘rganilgan natijalar shuni ko‘rsatadiki, mamlakat o‘zining “Global Britain” strategiyasi doirasida Osiyo davlatlari bilan o‘zaro manfaatli va ko‘p yo‘nalishli aloqalarni rivojlantirishga intilmoqda. Ayniqsa, Brexitdan keyingi davrda bu mintaqaga bo‘lgan siyosiy e’tibor sezilarli darajada kuchaygan.

Avvalo, Xitoy bilan munosabatlar murakkab tabiatga ega bo‘lib, ular strategik sheriklik va xavfsizlik xavotirlari o‘rtasida muvozanat izlashga asoslangan. Mutaxassislarning fikricha, Buyuk Britaniya Pekin bilan iqtisodiy aloqalarni uzmasdan, inson huquqlari va xalqaro xavfsizlik masalalarida o‘z pozitsiyasini qat’iy saqlab qolishga harakat qilmoqda. “Buyuk Britaniya uchun Xitoy – bu nafaqat savdo hamkori, balki xalqaro tartibga tahdid soluvchi kuch sifatida ham ko‘rilmoqda”[6]. Hindiston bilan munosabatlarda esa ancha ijobiy dinamik kuzatilmoqda. 2030-yilga qadar mo‘ljallangan strategik “yo‘l xaritasi” ikki davlat o‘rtasida energetika, texnologiyalar va xavfsizlik sohalarida o‘zaro ishonchni mustahkamlashga qaratilgan. Rasmiy hujjatlarda qayd etilishicha, “Buyuk Britaniya va Hindiston umumiy demokratik qadriyatlar va iqtisodiy imkoniyatlarga asoslangan yangi davr munosabatlarini barpo etmoqda”[7]. Yana bir muhim yo‘nalish bu Buyuk Britaniyaning ASEAN bilan bo‘lgan muloqotining chuqurlashuvidir. Mintaqaviy tashkilotlar bilan hamkorlik qilish orqali Britaniya o‘z tashqi siyosiy ishtirokini ko‘p tomonlama formatlarda mustahkamlashga intilmoqda. 2022-yilda ASEAN tomonidan Britaniyaga “dialog sherigi” maqomi berilishi bunga yaqqol misol bo‘la oladi. “Bu maqom Buyuk Britaniyaga ASEANning diplomatik va xavfsizlik maydonida tizimli ishtirok etish huquqini beradi”[8]. Shuningdek, Buyuk Britaniyaning AUKUS xavfsizlik alyansida ishtiroki uning mintaqaviy harbiy strategiyasining kengayishidan dalolat beradi. Bu orqali mamlakat Xitoyning harbiy faolligiga qarshi muvozanat o‘rnatishga urinmoqda. Tadqiqotchi D. Farrell ta’kidlaydi: “AUKUS – bu Buyuk Britaniyaning global xavfsizlikdagi rolini qayta tiklash yo‘lidagi asosiy platformalardan biridir”[9].

Pokiston bilan aloqalarda esa tarixiy omillar bilan zamonaviy xavfsizlik muammolari uyg'unlashgan. Ikkala tomon ekstremizmga qarshi kurash, migratsiya va ta'lim sohalarida yaqin hamkorlikni davom ettirmoqda. So'nggi yillarda Pokiston-Buyuk Britaniya strategik muloqotlari "kelishilgan xavfsizlik yondashuvlari" atrofida shakllanmoqda[10]. Shunday qilib, Buyuk Britaniyaning Osiyo davlatlari bilan siyosiy munosabatlari murakkab, ammo o'zgaruvchan xarakterga ega bo'lib, iqtisodiy manfaatlar, xavfsizlik muammolari va qadriyatlar atrofida shakllanmoqda. Bu munosabatlar barqaror bo'lishi uchun Britaniya har bir mamlakatga individual, uzoq muddatli strategik yondashuvni qo'llashi muhimdir.

Xulosa (Conclusion). O'tkazilgan tadqiqot natijalari shuni ko'rsatadiki, Buyuk Britaniya Osiyo davlatlari bilan siyosiy munosabatlarini nafaqat iqtisodiy manfaatlar, balki xavfsizlik, global ta'sir va tarixiy meros omillari asosida shakllantirmoqda. Brexitdan keyingi tashqi siyosat konsepsiyasi – "Global Britain" – mamlakatni Osiyo mintaqasida faolroq va tashabbuskorroq ishtirok etishga undadi. Xitoy bilan munosabatlar strategik raqobat va ehtiyotkor hamkorlik uyg'unligi asosida rivojlanmoqda, Hindiston bilan esa chuqurlashtirilgan sheriklik yo'lga qo'yilgan. Pokiston bilan aloqalarda esa madaniy-diasporal omillar muhim rol o'ynaydi. Buyuk Britaniyaning AUKUS va ASEAN kabi ko'p tomonlama tuzilmalar orqali Osiyo xavfsizlik tizimida ishtirok etayotgani, uning mintaqaviy geosiyosiy rolini mustahkamlashga qaratilganligini ko'rsatadi. Shu bois, mamlakatning Osiyodagi siyosiy strategiyasi murakkab, lekin o'zaro manfaatlarga asoslangan ko'p qirrali yondashuvni talab qiladi.

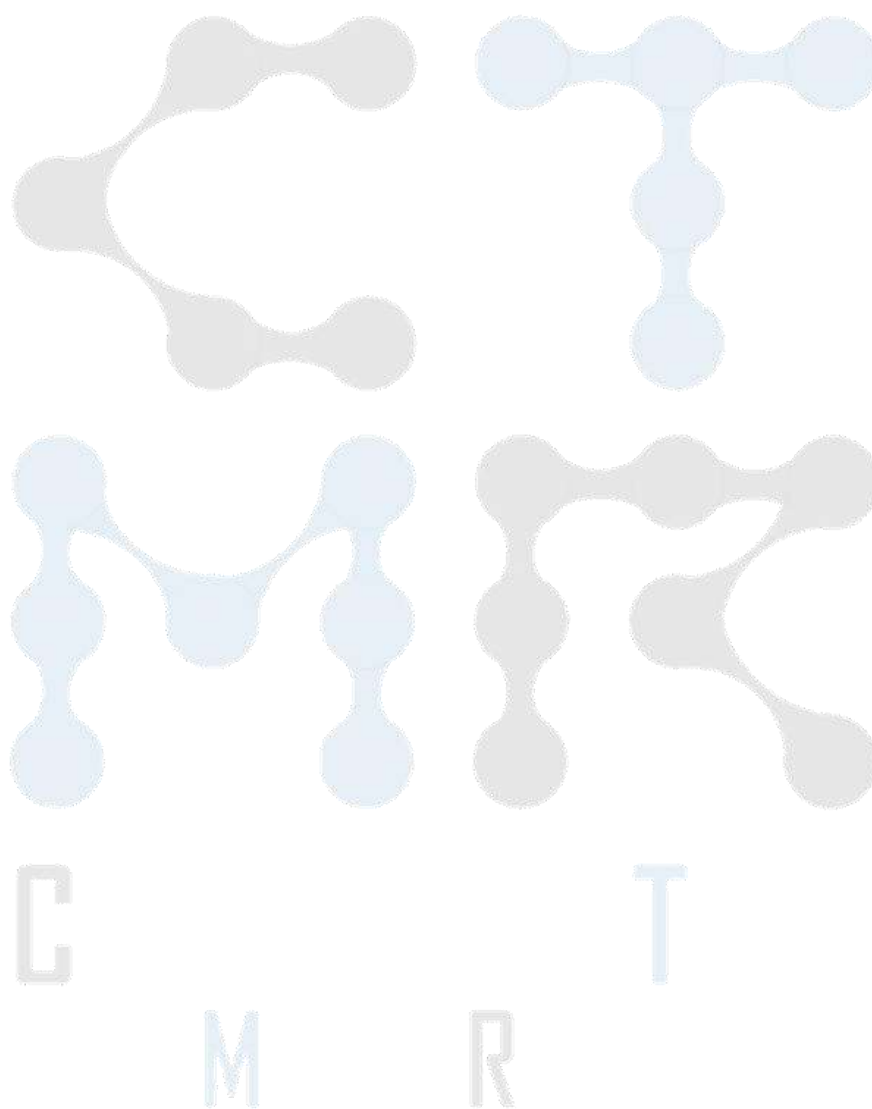
Kelgusi istiqbolda Buyuk Britaniyaning Osiyo bilan munosabatlari muvaffaqiyatli bo'lishi uchun u nafaqat real siyosiy manfaatlarni, balki suverenitet, madaniy tafovut va tarixiy kontekstlarni ham hisobga olgan holda, uzoq muddatli va barqaror strategik yondashuvni davom ettirishi zarur.

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MARKAZIY BANKNING TIJORAT BANKLARI VA KREDIT TASHKILOTKARINI
TARTIBGA SOLISH ISTIQBOLLARI

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ANNOTATSIYA

Ushbu maqolada O'zbekiston Respublikasi Markaziy Bankining tijorat banklari va kredit tashkilotlarini faoliyatini tartibga solish va nazoratini rivojlantirishning istiqbolli yo'nalishlari haqida tahlil qilingan.

Tovar-pul sharoitida bank tizimi o'z zahirida iqtisodiyotning qon tomiri bo'lib, kapitalning to'siqsiz aylanishini ta'minlab, xo'jalik faoliyati va inson hayoti davomida ko'plab operatsiyalarni amalga oshirish imkoniyatini yaratadi. Mazkur ishning ilmiy yangiligi va ahamiyati shundan iboratki, O'zbekistonda bank xizmatlari bozori tahlili asosida bank tizimining rivojlanish tendentsiyalari, uning ijobiy tomonlari, ushbu pul-kredit mexanizmi samaradorligini pasaytiruvchi, iqtisodiyotning muvaffaqiyatli rivojlanishiga to'sqinlik qilayotgan muammolar aniqlanib, tizimlashtirilgan.

Kalit so'zlar: O'zbekiston Respublikasi Markaziy banki, tijorat banklari, aksiyalar, bozor modeli, rivojlanish tendentsiyalari.

O'zbekiston bank tizimi o'z rivojlanishini respublika mustaqilligining dastlabki yillaridayoq 1991 yilda boshlagan. Bank tizimining evolyutsiyasi bir necha asr davom etgan rivojlangan mamlakatlardan farqli o'laroq, respublika bu jarayonni bir necha yil ichida yakunlashi kerak edi. Ayni paytda O'zbekistonda samarali qonunchilik va me'yoriy-huquqiy baza asosida faoliyat yurituvchi bank tizimini rivojlantirish uchun qulay sharoitlar yaratilgan. Hozirgi kunda O'zbekiston Respublikasida Markaziy Bank, 36 tijorat banklari va shulardan 9tasi davlat banklari mavjud. O'zbekiston Respublikasi Markaziy Banki misli ko'rilmagan qo'llab-quvvatlash choralari amalga oshirdi:

- bozorning haddan tashqari o'zgaruvchanligining banklarning moliyaviy va prudensial ko'rsatkichlariga ta'sirini neytrallash;
- kreditlash imkoniyatlarini kengaytirish;
- banklar uchun tartibga solish va operatsion yukni kamaytirish.

O'zbekiston Respublikasida qulay investitsiya muhitini shakllantirishda bank tizimining ishtirokini kengaytirish bo'yicha ko'rilayotgan chora-tadbirlar real sektor korxonalari uchun yanada rivojlangan moliyaviy muhitni ta'minlash orqali milliy iqtisodiyotga qator ijobiy samaralar berdi, jamg'armalar va investitsiyalar darajasini sezilarli darajada oshirishga ko'maklashish, makroiqtisodiy barqarorlik va o'sish tendentsiyalarini mustahkamlash¹.

Tartibga solishning strategik maqsadlari:

- Bankning barqarorligini kuchaytirish (bajarilgan xatarlar va potentsial yangi muammolarni hisobga olgan holda), bufer jamg'armasiga qaytish va moliyaviy barqarorlikni saqlash, kreditorlar va omonatchilar manfaatlarini himoya qilish.

¹ https://cbu.uz/upload/medialibrary/Kontsepsiya-razvitiya-i-osushchestvleniya-denezhno_kreditnoy-politiki.pdf

- Bank risklari profilini uzoq muddatli takomillashtirishga ko'maklashish maqsadida kreditlashni rivojlantirish va uning tuzilmasini rag'batlantirish. Masalan, iqtisodiyotning texnologik suvereniteti va tarkibiy moslashuvini ta'minlash bo'yicha ustuvor loyihalarni moliyalashtirish ushbu maqsadga erishishga xizmat qiladi.
- Bank faoliyati samaradorligini oshirish, mijozlar uchun bank mahsulotlari va xizmatlari sifatini oshirish, bank sektori faoliyati bilan bog'liq ijtimoiy xarajatlarni kamaytirish uchun raqobatni rivojlantirish.
- Ortiqcha tartibga solish yukini kamaytirish, shu jumladan bank moliyaviy hisobotini optimallashtirish orqali.

Ushbu maqsadlarga erishish uchun biz:

- Xavf ahamiyatini dolzarb baholash va tartibga solish choralari samaradorligini tahlil qilish asosida talablarni moslashtirish.
- Xatarga sezgir yondashuvdan foydalaning - tartibga solish qo'shimcha xavfning maqbul darajasiga ega bo'lgan ba'zi sohalarida rag'batlantirishga asoslangan bo'lishi mumkin, boshqalarida esa taqiqlovchi bo'lishi mumkin (yuqori xavf segmentlari uchun).
- Bank faoliyatini tartibga solishda mutanosiblik tamoyilini ishlab chiqish, har xil turdagi kredit tashkilotlariga ularning tavakkalchilik profili va moliyaviy barqarorlikka tahdid solishidan kelib chiqqan holda tabaqalashtirilgan yondashuvlarni qo'llash.
- Tartibga solishning diqqat markazini birlashtirilgan darajaga o'tkazish.
- Kotsiklik makroprudensial siyosatni amalga oshirishni davom ettirish va makro va mikroprudensial tartibga solish o'rtasidagi izchillikni ta'minlash.
- Barcha manfaatdor tomonlar uchun tartibga solish maqsadlari, tamoyillari va standartlari shaffofligini oshirish.

Bank faoliyatini tartibga solishni takomillashtirish, asosiy o'zgarishlarni yaqin va o'rta muddatga rejalashtirish zarurati ushbu hujjatni yaratishga turtki bo'ldi.

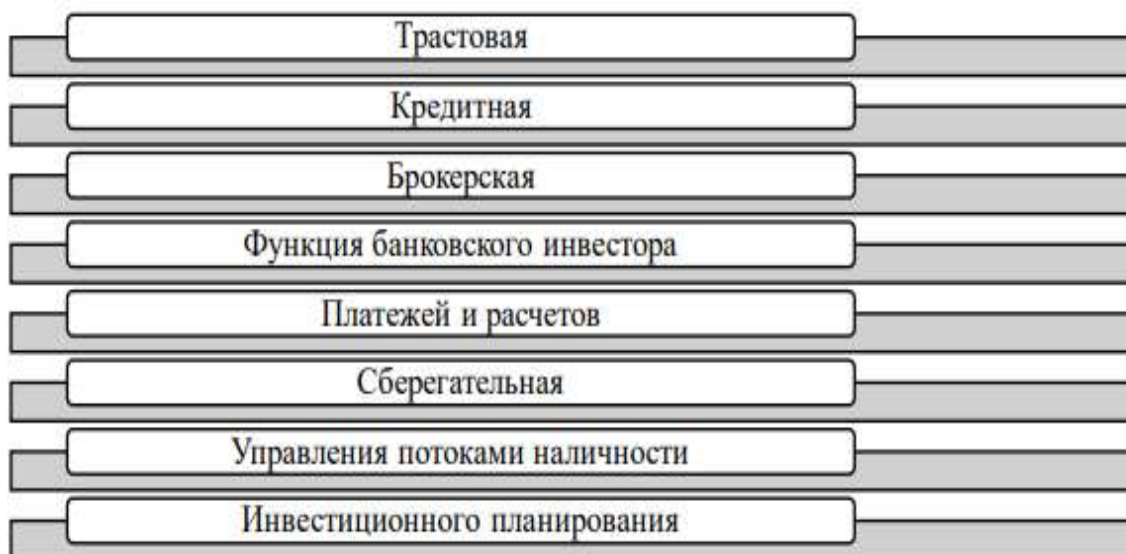
Quyida keltirilgan individual tashabbuslar kontseptual jihatdan ishlab chiqiladi, shu jumladan qonun hujjatlariga o'zgartirishlar kiritmasdan ularni amalga oshirish mumkin bo'lmagan hollarda.

Hozirgi vaqtda bank tizimi sezilarli o'zgarishlarga duch keldi va hayotning ko'plab sohalar bilan bevosita bog'liq. Quyida zamonaviy bank tizimining asosiy operatsiyalari ko'rsatilgan rasm keltirilgan².

² Robert E. Wright, NYU Money and Banking/ Publisher: Saylor Foundation. 2012. - 233 p.

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1-rasm. Zamonaviy bank tizimining asosiy operatsiyalari.

Hozirgi vaqtda bozor tasnifi mavjud hukumat darajasiga ko'ra iqtisodiyot modellari tartibga solish, liberal va ijtimoiy yo'naltirilgan modellarga bo'linadi. Ularning har biri ijtimoiy-iqtisodiy taraqqiyot va aholi turmush darajasiga o'ziga xos ta'sir ko'rsatadi. Yuqorida qayd etilgan modellarning birinchisi AQSH, Buyuk Britaniya, Fransiya va boshqa mamlakatlarda uchraydigan bozor ishtirokchilari faoliyatiga davlatning cheklangan aralashuvini nazarda tutadi. Pirovard natijada liberal bozor iqtisodiy modeli aholining yuqori turmush darajasiga erishishga olib keladi³.

2024-yilda 2023-yilga nisbatan bank sektorining O'zbekiston Respublikasi iqtisodiyotidagi roli Ozbekiston Respublikasi Markaziy Bankining tartibga solish mexanizmi orqali sezilarli darajada oshdi, bu aktivlar, kreditlar, depozitlar va boshqa aktivlarning sezilarli o'sishidan dalolat beradi (1-jadval)⁴.

1-jadval – O'zbekiston iqtisodiyotida bank sektorining o'rni

Ko'rsatkichlar	01.01.2023	01.01.2024
Jami bank aktivlari, mlrd	84 075,0	166 631,8
Aktivlarning YaIMga nisbati, %	42,2%	66,9%
Kredit qo'yilmalari, mlrd.so'm	52 610,5	110 572,1
Kredit portfelining YaIMga nisbati, %	26,4%	44,4%
Jalb qilingan depozitlar hajmi, mlrd.so'm	36 341,0	58 668,5

³ Joshua Rosenbaum, Joshua Pearl, Joseph R. Perella (Foreword by), Joshua Harris (Afterword by) Investment Banking: Valuation, LBOs, M&A, and IPOs, 3rd Edition. 2020. - 512 p

⁴ O'zbekiston Respublikasi Moliya vazirligi: rasmiy veb-sayti. - URL: <https://www.mf.uz> (kirish: 2024 yil 27 oktyabr)

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Mijoz depozitlarining YaIMga nisbati, %	18,2%	23,5%
Jami kapital, mlrd	9 006,8	23 725,0
Jami kapitalning YaIMga nisbati, %	4,5% 9,5%	9,5%

O'zbekiston bank tizimi tashqi geosiyosiy vaziyatning yomonlashuvi, yuqori jahon inflyatsiyasi, ichki qarz va muammoli kreditlarning o'sishi bilan bog'liq zarbalarga qaramay, bugungi kunda moliyaviy barqarorlikni saqlab kelmoqda. 2022 yilning birinchi yarmida moliyaviy barqarorlik ko'rsatkichlari bank sektorining minimal me'yoriy talablaridan yuqori bo'ldi. So'nggi 3-4 yil ichida O'zbekistonda jami kreditlarning yalpi ichki mahsulotga nisbati sezilarli darajada oshdi.

Tahlillar shuni ko'rsatadiki, qisqa va o'rta muddatli istiqbolida O'zbekiston banklari kapitalining etarlilik koeffitsienti normativ minimumdan yuqori bo'lib qoladi. Biroq, pessimistik stsenariy ostida u me'yordan pastga tushishi mumkin. Moliyaviy barqarorlikning erishilgan darajasi O'zbekiston Respublikasi banklarining o'zaro aloqalarini yo'lga qo'yish va jahon moliya institutlari, jumladan, Osiyo taraqqiyot banki, Xalqaro tiklanish va taraqqiyot banki, Xalqaro taraqqiyot assotsiatsiyasi, Xususiy sektorni rivojlantirish bo'yicha Islom korporatsiyasi bilan aloqalar o'rnatish va kreditlar jalb qilish imkonini berdi⁵.

Nominal langarsiz rejim

Nominal langarga ega bo'lmagan pul-kredit siyosati rejimi markaziy banklarning nominal maqsadli qiymatlarga erishish bo'yicha har qanday majburiyatlarni olishdan bosh tortishini anglatadi. Shu bilan birga, uzoq muddatli maqsadlar (barqaror iqtisodiy o'sish, yuqori bandlik, past inflyatsiya) rasman e'lon qilinmagan oraliq ko'rsatkichlar bilan e'lon qilinadi.

Odatda, pul-kredit siyosatini amalga oshirishda markaziy banklar nominal langar bo'lib xizmat qiladigan miqdoriy maqsaddan foydalaning inflyatsiya, bandlik yoki boshqa istalgan darajaga erishish makroiqtisodiy ko'rsatkichlar.

Inflyatsiya maqsadlilikligi

Inflyatsiyani maqsadlilashtirish - bu markaziy bank o'rta muddatli inflyatsiya maqsadini e'lon qiladigan va pul-kredit vositalarini qo'llash orqali joriy inflyatsiyani maqsadli darajaga etkazish uchun barcha sa'y-harakatlarini yo'naltiradigan pul-kredit siyosati rejimidir.

Pul-kredit siyosatini amalga oshirishning bu usuli rivojlangan va rivojlanayotgan mamlakatlarda keng qo'llanilgan. Inflyatsiyani maqsadli belgilash, shuningdek, inflyatsiya o'zgaruvchanligi va barqarorligini pasaytirishning samarali vositasi sifatida qaraladi, bu esa, o'z navbatida, o'rta muddatli istiqbolida barqaror va muvozanatli iqtisodiy o'sish uchun qo'shimcha shart-sharoitlar yaratadi.

MDH mamlakatlari orasida Armaniston va Rossiya inflyatsion maqsadlilikka o'tdi. Belarus va Qozog'iston markaziy banklari o'rta muddatli istiqbolida inflyatsiyani nishonga olishga o'tish niyatlari va rejalarini e'lon qildi⁶.

⁵ Шайбакова Людмила Фаритовна, Хужаёров Шахзод Баходир Угли "THE ROLE OF COMMERCIAL BANKS AS SUBJECTS OF THE MARKET ECONOMY FOR THE REPUBLIC OF UZBEKISTAN"-Научная статья, УДК 336.7

⁶ https://cbu.uz/upload/medialibrary/Kontsepsiya-razvitiya-i-osushchestvleniya-denezhno_kreditnoy-politiki.pdf

Shu bilan birga, ushbu rejim markaziy bank uchun inflyatsiya maqsadlariga erishishda ko'proq harakat erkinligini beradi. Shu bilan birga, markaziy bank asosiy e'tiborni ichki iqtisodiy masalalarga qaratishi mumkin, chunki inflyatsiyani maqsadli belgilash makroiqtisodiy vaziyatning o'zgarishiga nisbatan moslashuvchanroq munosabatda bo'lishga imkon beradi.

Milliy iqtisodiyotning o'ziga xos xususiyatlarini hisobga olgan holda pul-kredit siyosati rejimlarining xususiyatlari va samaradorligini o'rganish shuni ko'rsatadiki, o'rta muddatli istiqbolda barqarorlikka erishish va uni saqlash ustuvor maqsad sifatida Markaziy bank inflyatsiyani nishonga olish rejimiga eng mos keladi. Shundan kelib chiqib, pul-kredit siyosatini amalga oshirish tamoyillari va usullarini inflyatsiyani maqsadlilashtirishga bosqichma-bosqich qayta yo'naltirishning huquqiy asoslari va asosiy iqtisodiy shart-sharoitlari yaratildi.

Markaziy bank prognozlash va tahlil qilish asoslarini mustahkamlash, pul-kredit siyosati vositalari va uzatish kanallarini takomillashtirish, shuningdek, kommunikatsiya siyosatini takomillashtirish va aholi ishonchini oshirishga alohida e'tibor qaratmoqda. Markaziy bank ham ushbu rejimga bosqichma-bosqich o'tishni ta'minlash bo'yicha chora-tadbirlarni amalga oshirish yuzasidan tegishli vazirlik va idoralar bilan sa'y-harakatlarni birlashtirmoqda. Umuman olganda, inflyatsiyani maqsadli belgilashga o'tish pul-kredit tizimining barcha asosiy jihatlarini tubdan qayta ko'rib chiqish va takomillashtirishni taqozo etadi, bu esa uzoq muddatli istiqbolda barqaror iqtisodiy o'sishning asosi sifatida makroiqtisodiy barqarorlikning sifat jihatidan yangi darajasini belgilaydi.

Mazkur Konsepsiya O'zbekiston Respublikasi Iqtisodiyot vazirligi va Moliya vazirligi bilan kelishilgan.

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**O'QUVCHILARDA UCHRAYDIGAN NUTQIY XATOLAR VA ULARNI BARTARAF
ETISHDA O'QUV LUG'ATLARINING AHAMIYATI**

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Annatsiya : Ushbu maqolada o'qish va ona tili darslarida o'quvchilar nutqida uchraydigan xatoliklar, xatolik sabablari va dolzarbligi, qolaversa ushbu xatoliklarni bartaraf qilsihda o'quv lug'atlarining ahamiyati, roli va keng qamrovli ekangiligi haqida fikr – mulohazalar bayon qilinadi.

Kalit so'z: ona tili, o'qish, lug'at, til me'yorlari, grammatika, metodika, frazeologik birlik, orfografiya, orfoepiya.

INTRODUCTION:

Bugungi globallashuv va raqamli ta'lim davrida til o'rganish jarayonida o'quv lug'atlarining ahamiyati tobora ortib bormoqda. Lug'atlar til o'rganishning nazariy asosini tashkil qiladi, ularning yordamida o'quvchi til birliklarining ma'nosi, ishlatilish sohasi, uslubiy xususiyatlarini o'rganadi. O'quv lug'atlari tilshunoslik, leksikografiya va metodika fanlari kesishgan nuqtada shakllangan bo'lib, ularning o'quv jarayonidagi o'rni o'quvchilarning so'z boyligini kengaytirish, nutqini rivojlantirish, fikrini aniq ifodalash va adabiy til me'yorlariga rioya qilish ko'nikmalarini shakllantirish bilan belgilanadi.

Mazkur mavzu o'z dolzarbligini ta'limda til kompetensiyasini shakllantirish, lug'at asosida mustaqil fikrlashni rivojlantirish, hamda multimedia vositalaridan foydalangan holda lug'at ishlari samaradorligini oshirish zaruriyati bilan izohlaydi. O'quv lug'atlari – bu o'quvchilarning yosh xususiyatlari, bilim darajasi va o'quv dasturi talablariga muvofiq tuzilgan, yangi so'zlarni o'zlashtirish, ularning ma'nosini, talaffuzini, yozilishini va qo'llanilishini o'rgatuvchi lug'atlar tizimidir.

O'quv

lug'atlarining asosiy turlari :

1. Izohli o'quv lug'atlar – bu so'zning ma'nosini, qo'llanish joyini, uslubiy rangini ochib beradi.
2. Imlo lug'atlari – bu to'g'ri yozuvni o'rgatadi.
3. Orfografik va orfoepik lug'atlar – bu talaffuz va yozuvni uyg'unlashtiradi.
4. Sinonim, antonim, omonim lug'atlar – bu nutqni boyitish, ifodani rang – barang qilishga xizmat qiladi.
- 5.

Frazeologik lug'atlar – bu iboralar, maqollar, so'z birikmalarini to'g'ri ishlatishni o'rgatadi.

6. Ikki va ko'p tilli lug'atlar - bu tarjima va taqqoslash orqali leksik bilimni kengaytiradi.

Nutq – inson tafakkurining asosiy vositasi, bilimlarni egallash va o'zaro muloqotning muhim shaklidir. Maktab yoshidagi bolalar va maktab o'quvchilari nutqini shakllantirish va takomillashtirish ta'lim – tarbiya ishlarining ajralmas qismidir. Biroq o'quvchilar nutqida turli xil xatolar uchray turishi mumkin. Bu xatolar ularning fikrlash jarayoniga, o'rganish qobiliyatiga va ijtimoiy munosabatlariga salbiy ta'sir ko'rsatishi mumkin. Shu sababli, ushbu nutqiy xatolarni aniqlash va ularni bartaraf etishda o'quv lug'atlarining o'rni beqiyosdir. Amaliy kuzatuvlar shuni ko'rsatadiki, maktab o'quvchilari nutqida turli xatolar – fonetik, leksik, grammatik, uslubiy va mantiqiy kamchiliklar tez – tez uchray turadi. Bunday holatlar asosan, so'z ma'nolarini to'liq bilmaslik, adabiy me'yorga rioya

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qilmaslik hamda lugʻatlar bilan ishlash koʻnikmasining sustligi natijasida yuzaga keladi. Oʻquvchilar nutqidagi xatolarni quyidagicha ajratish mumkin:
- fonetik xatolar – bu tovushlarning notoʻgʻri talaffuzi, urgʻuning notoʻgʻri qoʻyilishi, soʻz shaklining buzilishi.

Masalan, boshqa soʻzi oʻrniga boqa, kitob soʻzi oʻniga kitop deyish;
- leksik xatolar – bu soʻz maʼnosini notoʻgʻri tushunish yoki joyida ishlatmaslik. Masalan, murakkab masala oʻrniga qiyin soʻzi yoki sodiq doʻst oʻrniga yaqin odam kabi maʼnodosh, lekin noaniq ifodalar ishlatish;

- grammatik xatolar – soʻz birikmasi yoki gap tuzilishidagi meʼyorga zid holatlar. Masalan, Men boraman edi oʻrniga Men borardim deyish kerak edi.

- uslubiy xatolar – nutqda adabiy meʼyorni buzish, soʻz tanlashda rasmiy yoki soʻzlashuv uslubini aralashtirib yuborish;
- mantiqiy xatolar – fikr ifodasining izchilligi buzilishi, ortiqcha takrorlar yoki noaniqlikning mavjudligi.

Nutqiy xatolarning asosiy sabablari oʻquvchilarning soʻz boyligi kambagʻalligi, oʻqish madaniyatining pastligi vakitob oʻqishga qiziqmaslik, oʻquv lugʻatlari bilan ishlash koʻnikmasining yetishmasligi, ogʻzaki nutqning yozma nutqqa nisbatan ustunligi, oʻqiyuvchilar tomonidan nutq madaniyati mashgʻulotlariga yetarli eʼtibor berilmasligidir.

Oʻquv lugʻatlarining nutqiy xatolarni bartaraf etishda oʻrni katta. Oʻquv lugʻatlari – bu oʻquvchilar uchun moʻljallangan, soʻz maʼnolarini, uning toʻgʻri yozilishi, talaffuzi va qoʻllanilish doirasini izohlaydigan manbalardir. Bunday lugʻatlar oʻquvchilarda soʻzning semantik, grammatik va uslubiy xususiyatlarini anglash koʻnikmasini shakllantiradi.

Oʻquv lugʻatlarining ogʻzaki nutqini rivojlantirishda ahamiyati juda katta. Oʻquv lugʻatlaridan foydalanish oʻquvchilarning soʻz boyligini kengaytiradi, nutq madaniyatini shakllantiradi, fikrni aniq, mantiqan izchil ifoda etish koʻnikmasini hosil qiladi, qolaversa tinglab tushunish va javob qaytarish malakalarini rivojlantiradi. Masalan, dars jarayonida izohli lugʻatdan foydalanib yangi soʻzlar maʼnosini oʻrganish, sinonim lugʻatdan foydalanib, bir fikrni turlicha ifodalash – oʻquvchilarning ogʻzaki nutqini boyitadi, soʻzdan erkin foydalanish malakasini shakllantiradi.

Ona tili darslarida oʻquv lugʻatlaridan foydalanish quyidagi metodik prinsiplarga asoslanadi:

a) faollik prinsipi – oʻquvchi mustaqil izlanadi, soʻz maʼnosini lugʻatdan topadi, oʻz fikrida qoʻllaydi.
b) koʻrgazmalilik prinsipi - lugʻatdagi soʻzlar rasmlar, misollar, dialoglar bilan birgalikda oʻrganiladi.
d) amaliy yoʻnaltirilganlik – lugʻatdagi soʻzlar real muloqotda, suhbat, hikoya, munozara jarayonlarida ishlatiladi.

e) tizimlilik va izchillik - bu lugʻat ustida ishlash darsdan darsga bosqichma – bosqich davom ettiriladi.

f) integratsiya

– bu lugʻat ishlari adabiyot, tarix, madaniyat bilan bogʻlanadi.

Oʻquv

jarayonida oʻquv lugʻatlaridan foydalanish shakllari bir qancha. Ona tili darslarida oʻquv lugʻatlaridan foydalanishning samarali shakllari quyidagicha:

1. Lugʻat diktantlari –

bu oʻquvchilar yangi soʻzlarni toʻgʻri yozadi va talaffuz qiladi;

2. Lugʻat daftari yuritish – har bir yangi soʻz maʼnosi, tarjimai va gapda qoʻllanilishi yoziladi;

3. Soʻz boyligini kengaytiruvchi mashqlar – bu sinonim, antonim va iboralarni topish;

4. Suhbat va rolli oʻyinlar – bu lugʻatdagi soʻzlarni muloqotda ishlatish orqali nutqni faol oʻstirish;

5. Matn asosida lugʻat ishlari – bu matndan notanish soʻzlarni ajratib, izoh topish, gap tuzish.

O'quv lug'atlaridan foydalanishning samaradorligi tajriba natijalarida shuni ko'rsatadiki, lug'at asosida o'tkazilgan mashg'ulotlar o'quvchilarda : so'z boyligini 25 – 30 % ga oshiradi, nutqdagi turg'unlikni kamaytiradi, fikrni aniq, mantiqan va ifodali bayon etish malakasini mustahkamlaydi, qolaversa adabiy til me'yorlariga rioya qilishni o'rgatadi. Leksik xatolarni kamaytiradi, til me'yorlarini mustahkamlaydi, nutq madaniyatini rivojlantiradi va ijodiy fikrlashni qo'llab – quvvatlaydi.

Conclusion:

Xulosa qilib aytganda, o'quvchilarda uchraydigan nutqiy xatolar – bu faqat til me'yirlarini buzish emas, balki tafakkurdagi kamchilikning ham ko'rinishidir. Ushbu xatolarni bartaraf etishning eng samarali yo'li o'quv lug'atlaridan faol foydalanish, ularni ta'lim jarayoniga tizimli tarzda joriy etishdir. Har bir o'quvchi lug'at bilan ishlash madaniyati ega bo'lsa, nafaqat til boyligini, balki fikrlash darajasini ham kengaytiradi. Demak, o'quv lug'atlari – o'quvchi nutq madaniyatini yuksaltirishda, to'g'ri va go'zal so'zlashuvni shakllantirishda eng muhim vositalardan biridir.

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THE ROLE OF SMART TECHNOLOGIES IN PREPARING FUTURE PRESCHOOL
TEACHERS

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Annotation. This article explores the significance of Smart technologies in the professional preparation of future preschool teachers. It analyzes how digital tools transform pedagogical thinking, strengthen methodological competence, and enhance the neurocognitive and communicative development of both educators and young learners. Integrating Smart tools into teacher education accelerates interactive learning, fosters creativity, and supports evidence-based teaching practices. The paper presents theoretical insights, analytical reflections, methodological considerations, and research-supported conclusions.

Keywords: Smart technologies; Digital pedagogy; Preschool education; Teacher training; Interactive learning; ICT integration; Innovation in education.

INTRODUCTION.

Preschool education is an important stage in the psychological, social and intellectual development of a child. Therefore, the process of training future teachers should be shaped on the basis of modern requirements and technological innovations. In recent years, it has been found that smart technologies, artificial intelligence and digital learning tools help to make the pedagogical process more effective. With the help of these technologies, teachers can develop not only knowledge, but also creativity, problem-solving and interactive communication skills. In this regard, the role and importance of smart technologies in the training of preschool teachers is considered an important scientific issue.

In modern education, Smart technologies have become more than devices or platforms—they are a new intellectual ecosystem where learning breathes, evolves, and adapts. For future preschool teachers, Smart tools open a doorway to understanding how children learn in a digital century filled with rapid sensory stimuli and boundless information. When thoughtfully embedded in teacher preparation, Smart technologies support not only skill acquisition but also the formation of professional identity, reflective thinking, and pedagogical intuition.

The use of Smart boards, interactive panels, digital storytelling platforms, AI-supported applications, and virtual learning environments offers young educators an opportunity to design lessons that match the cognitive rhythms of preschool children. Neuroscience confirms that young learners respond strongly to visual dynamics, emotional color, movement, and multisensory engagement. Smart technologies transform these principles into practice: animations support phonemic awareness, interactive games enhance attention and working memory, virtual simulations strengthen problem-solving, and digital stories nurture imagination and language development. Thus, Smart pedagogy becomes a bridge between brain science and classroom practice.

An analytical review of contemporary studies shows that Smart technologies significantly influence teacher readiness. They cultivate digital literacy, expand methodological versatility, and encourage educators to shift from passive instruction to active facilitation. Through Smart-based microlearning, online collaborative platforms, instant feedback tools, and data-driven assessment systems, future teachers learn to observe children more accurately, diagnose developmental needs more precisely, and design interventions more effectively. Smart environments also promote inclusiveness by providing adaptive learning tools for children with visual, auditory, or developmental differences.

Literature review and methodology

In recent years, a number of scientific works have been carried out in Uzbekistan on the issues of implementing digital technologies in the field of preschool education and pedagogy. In particular, scientists from the Center for Improving the Quality of Education of the Republic of Uzbekistan, Tashkent State Pedagogical University and Samarkand State University have studied the effectiveness of interactive educational programs, electronic educational materials and learning platforms based on artificial intelligence in preschool education. In Uzbek literature, in particular, the studies of Mirzaev (2020), Tursunova (2021) and Kuchkarov (2022) have analyzed the role and effectiveness of smart technologies in the development of pedagogical competencies in the process of training future teachers. Studies show that with the help of interactive tools and digital platforms, students learn to solve pedagogical tasks faster and more efficiently, innovative thinking and creative approaches develop.

Methodologically, Smart integration requires a combination of theoretical understanding and practical exploration. Future teachers engage in hands-on digital tasks, peer teaching with Smart tools, analysis of online resources, preparation of interactive lesson scenarios, and reflective journals documenting how technology influences learning behavior. Smart pedagogy becomes a living laboratory where students test strategies, analyze outcomes, and reshape their approach based on real-time insights. Evidence-based teaching, supported by digital analytics, strengthens their ability to make informed pedagogical decisions.

The article used analytical, comparative and experimental methods as a research methodology. Using the analytical method, the existing literature on the development of preschool education in Uzbekistan and the application of digital technologies was analyzed. Using the comparative method, international and national experiences were studied, and the effectiveness of smart technologies in the process of training future teachers was compared. Within the framework of the experimental method, interactive and artificial intelligence learning platforms were used by students of the Faculty of Preschool Education in Tashkent, and the results of the development of pedagogical competencies were observed.

Results and Discussion

The results of the study showed that:

With the help of smart technologies, students can consolidate their knowledge and improve their independent work skills during the learning process.

With the help of interactive platforms and simulation tasks, future teachers can quickly and effectively solve pedagogical situations.

Tools based on artificial intelligence individually analyze the level of knowledge of students and offer them appropriate educational directions.

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When discussing the results, it is worth noting that the implementation of smart technologies in the conditions of Uzbekistan not only makes the pedagogical process more effective, but also helps to develop students' creativity and problem-solving skills. At the same time, the methodological training and provision of resources for teachers in the process of technological integration are of great importance.

Conclusion

In conclusion, Smart technologies do not replace the teacher—they magnify the teacher's capacity to reach each child with precision, creativity, and empathy. They transform early childhood education into a dynamic, responsive, and visually rich experience where movement becomes meaning and curiosity becomes knowledge. For future preschool educators, mastering Smart tools is no longer optional; it is essential for thriving in the educational landscape of tomorrow. As the world continues to digitize, those who teach our youngest learners must be equipped not only with knowledge but with the technological fluency that allows learning to shine brighter, flow faster, and remain deeply human at its core.

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PREVENTIVE MEASURES FOR SEASONAL DISEASES IN CHILDREN

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Abstract. This article examines the preventive strategies aimed at reducing the incidence of seasonal diseases among children, focusing on evidence-based approaches in pediatrics and public health. The study highlights environmental, nutritional, hygienic, and immunological factors that influence a child's vulnerability to infections during seasonal transitions. It also discusses the role of parents, schools, primary healthcare institutions, and community-based interventions in strengthening children's immunity.

Keywords: Seasonal diseases, children's health, prevention, immunity, vaccination, hygiene, nutrition.

INTRODUCTION

Seasonal diseases remain a persistent challenge for pediatric medicine, especially in regions with sharp climatic fluctuations, high population density, and limited awareness of preventive health practices. The vulnerability of children to seasonal illnesses is rooted in their developing immune systems, environmental exposure, and behavioral factors that increase contact with infectious agents. Pediatricians emphasize that preventive measures, when implemented systematically, reduce the burden of respiratory, gastrointestinal, viral, and allergic diseases by more than half during high-risk seasons [1].

A key factor in preventing seasonal diseases is strengthening immune resistance through balanced nutrition. Adequate intake of vitamins A, C, and D, as well as minerals such as zinc and iron, directly improves mucosal immunity and decreases the probability of recurrent infections. During autumn and winter, when viral infections peak, children benefit from foods rich in antioxidants, probiotics, and natural antimicrobial components. According to Uzbek pediatrician Tursunov's observations, children consuming seasonal fruits and vegetables experience fewer episodes of influenza-like illnesses compared to those on refined diets [2].

MATERIALS AND METHODS

Hygienic education is another cornerstone of prevention. Teaching children proper handwashing techniques, coughing etiquette, and personal hygiene lowers transmission rates of respiratory and intestinal infections. Schools and preschools play an essential role by ensuring clean learning environments, adequate ventilation, and regular disinfection during epidemic seasons. International health guidelines emphasize that simple hygiene measures prevent up to 40% of upper respiratory infections among children under 10 [3].

Vaccination remains the most effective preventive tool against several seasonal diseases, especially influenza and measles. Annual flu vaccination reduces hospitalization and complications by 70% among preschool-aged children. Uzbekistan's National Immunization Program recommends timely administration of mandatory vaccines to ensure community-wide protection. Recent studies show that vaccinated children demonstrate stronger herd immunity effects, lowering overall infection spread during the winter months [4].

RESULTS AND DISCUSSION

Climatic changes and increasing environmental pollution also intensify seasonal allergy cases. Preventive strategies include minimizing exposure to allergens, maintaining clean indoor air, and using air humidifiers during dry winter periods. Pediatric allergists note that regular cleaning of textiles, carpets, and soft toys significantly reduces allergic triggers, especially in early spring when pollen levels rise [5].

Behavioral and lifestyle factors such as physical activity, sleep quality, and stress management directly affect immune function. Children engaged in regular outdoor exercises develop stronger cardiopulmonary health, better thermoregulation, and higher resistance to pathogens. Sleep deprivation, by contrast, weakens immune response and increases susceptibility to viral infections. Parents are advised to maintain structured routines to stabilize children's physiological rhythms during seasonal transition periods [3].

Early diagnosis and timely response play a critical role in preventing complications. Parents must be attentive to early symptoms such as low-grade fever, sore throat, nasal congestion, diarrhea, or fatigue. Rapid consultation with healthcare providers prevents mild infections from developing into severe conditions like pneumonia or dehydration. Modern telemedicine tools also allow families to access professional guidance quickly during seasonal outbreaks, especially in remote areas.

Community-level initiatives, including public health campaigns, school health monitoring, and family counseling programs, form a broader preventive framework. These initiatives encourage public awareness, promote responsible antibiotic use, and ensure that preventive measures reach vulnerable groups, especially children under five. As Shodieva, an Uzbek public health researcher, notes, community-oriented prevention "creates a culture of health responsibility that multiplies the effectiveness of medical interventions" [4].

Seasonal illnesses in children present not only clinical challenges but also social, environmental, and behavioral dimensions that require a holistic preventive strategy. When designing effective prevention programs, it is essential to consider the child's overall lifestyle, exposure settings, nutritional habits, and psycho-emotional well-being. Preventive measures are most successful when they shift from reactive, symptom-based responses to a proactive model that strengthens immunity, improves hygiene literacy, and reduces environmental risk factors.

One of the most underappreciated aspects of seasonal-disease prevention is the micro-ecology of children's daily surroundings. Classrooms, play areas, and household environments can become reservoirs for viruses and bacteria if ventilation, cleanliness, and humidity levels are neglected. Studies indicate that regular air circulation, use of humidifiers during dry winter months, and systematic disinfection significantly reduce the spread of respiratory illnesses among younger populations [2]. The child's immediate environment thus becomes a controllable variable in preventing influenza, common colds, and gastroenteritis—diseases that typically flourish in communal spaces during seasonal transitions.

Equally important is the role of behavioral education. Teaching children proper coughing etiquette, handwashing routines, mask-wearing during epidemic peaks, and safe interaction habits creates a culture of responsibility and awareness. Educational psychologists emphasize that children internalize health-protective behaviors more effectively when they are delivered through interactive methods—story-based learning, role-playing, visual demonstrations, and digital health games that

reinforce routine hygiene in an engaging manner [3]. These early habits serve as long-term protective factors as children grow and face increasingly complex environments.

Nutritional resilience is another foundational element of disease prevention. Seasonal deficiencies—particularly in vitamins D, C, and zinc—are common among children during colder months due to reduced sunlight exposure and limited fruit-and-vegetable consumption. A prevention plan that integrates nutrient-dense diets, fortified foods, or physician-guided supplementation strengthens immune responses and reduces both the intensity and frequency of seasonal infections. Uzbek pediatric researchers such as X. Mamatov demonstrate that community-based nutrition programs significantly improve children's ability to withstand rapid climate changes characteristic of Central Asia [4].

Parents and caregivers also play a decisive role. Their ability to recognize early symptoms, maintain regular pediatric check-ups, and follow vaccination schedules is central to preventing disease progression. Studies by international pediatric associations show that consistent parental involvement is correlated with fewer hospitalizations and faster recovery compared to cases where parents delay seeking care or lack awareness of early warning signs [5]. Therefore, educational outreach must target not only children but also adults who supervise them.

CONCLUSION

Seasonal diseases among children represent a significant challenge but can be effectively controlled through preventive measures based on scientific evidence and community involvement. Strengthening immunity, maintaining proper hygiene, ensuring adequate nutrition, and adhering to vaccination schedules form the foundation of pediatric preventive care. Schools, families, and healthcare institutions must work collaboratively to establish health-conscious habits and timely diagnostic responses. By integrating global medical recommendations with local cultural practices, countries such as Uzbekistan can create an efficient preventive environment that protects children during high-risk seasonal periods and contributes to overall public health improvement.

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RATIONAL USE OF ANTIBACTERIAL DRUGS IN CHILDREN

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Abstract. This article examines the principles and clinical significance of rational antibacterial drug use in pediatric practice. It highlights the pathophysiological characteristics of children, the risks associated with inappropriate antibiotic prescribing, and the global rise of antimicrobial resistance. The research emphasizes evidence-based prescribing strategies, diagnostic accuracy, dosage optimization, and parental education as key factors to improve treatment outcomes.

Keywords: Antibacterial drugs, rational use, pediatric pharmacotherapy, antimicrobial resistance, antibiotic stewardship.

INTRODUCTION

Rational use of antibacterial drugs in children is a core principle of modern clinical pharmacology and public health, as childhood represents a unique biological period in which drug absorption, distribution, metabolism, and excretion differ markedly from those in adults [1]. Pediatric patients have developing organ systems, varying enzyme activity, and age-specific pharmacokinetics that may significantly influence the efficacy and toxicity of antimicrobial therapy. Because of these physiological differences, inappropriate antibiotic selection, inaccurate dosing, or unnecessary prescriptions may expose children to avoidable harm, including allergic reactions, dysbiosis, toxic effects, and long-term alterations in the microbiome [2].

MATERIALS AND METHODS

One of the most pressing problems in contemporary pediatrics is the widespread misuse of antibacterial agents for viral infections. Upper respiratory tract illnesses such as influenza, COVID-19, bronchiolitis, and common colds account for a significant proportion of pediatric visits, yet they do not respond to antibacterial therapy [3]. Despite this, antibiotics are frequently prescribed due to parental pressure, expectations of quick recovery, or diagnostic uncertainty. Irrational use contributes to the global challenge of antimicrobial resistance, creating bacterial strains that no longer respond to standard therapy. According to WHO estimates, resistance-related complications are responsible for thousands of preventable deaths annually, and the pediatric population is particularly vulnerable due to lower immunity and limited treatment options [4].

Rational antibiotic therapy in children therefore requires strict diagnostic accuracy. Clinicians must base treatment decisions on well-defined clinical symptoms, laboratory biomarkers (CRP, procalcitonin), and microbiological findings whenever possible. Empirical prescribing must follow national or international guidelines, taking into account local resistance patterns, severity of illness, and previous antimicrobial exposure [5]. Precision in dosing is also essential; subtherapeutic doses promote resistance, while overdosing increases toxicity risks. Age-specific dosing regimens, weight-based calculations, and renal/hepatic function assessments form the foundation of safe pediatric pharmacotherapy.

RESULTS AND DISCUSSION

Another essential aspect of rational antibiotic use is adherence to the principles of antimicrobial stewardship. Stewardship programs emphasize optimizing treatment duration, avoiding broad-spectrum antibiotics when narrow-spectrum agents are adequate, and implementing “watchful waiting” strategies in mild cases. For example, acute otitis media often resolves spontaneously, and guidelines recommend analgesia and observation before initiating antibiotics in appropriate cases. These practices not only reduce unnecessary exposure but also help protect the child’s developing microbiome, which plays a central role in immune maturation and metabolic regulation.

Parental education is equally critical. Misconceptions about antibiotics remain widespread, with many caregivers believing that antibiotics cure all infections or accelerate symptom relief. Physicians must explain the differences between viral and bacterial diseases, potential side effects of antibiotics, and the importance of completing prescribed treatment courses. Empowering parents with accurate knowledge reduces pressure on physicians to prescribe unnecessarily and promotes greater adherence when antibiotic therapy is genuinely needed [4].

In addition, pediatricians must remain aware of common adverse drug reactions associated with antibacterial agents. For instance, macrolides may cause gastrointestinal discomfort; aminoglycosides pose risks of ototoxicity and nephrotoxicity; tetracyclines are contraindicated in young children due to effects on bone and dental development; and fluoroquinolones should be prescribed with caution because of potential musculoskeletal complications. Monitoring for hypersensitivity reactions is essential, as children may develop sudden allergic responses even after previously tolerating similar medications.

Globally, rational use of antibiotics in childhood is a cornerstone of reducing the burden of resistant infections, lowering healthcare costs, and improving long-term population health. In Uzbekistan and other developing countries, the expansion of clinical guidelines, improved primary care infrastructure, and better pharmacovigilance systems have strengthened efforts toward evidence-based pediatric prescribing. However, the problem remains urgent, requiring continuous professional development, stricter regulation of over-the-counter antibiotic sales, and expanded public education campaigns.

Ultimately, rational antibacterial therapy in children is not only a medical necessity but also an ethical obligation. Protecting the effectiveness of current antibiotics ensures that future generations retain access to life-saving treatments.

The rational use of antibacterial drugs in children requires a multi-layered clinical approach that considers not only the pharmacodynamics and pharmacokinetics of medications, but also the specific physiological vulnerabilities of the pediatric population. Children are not “small adults”; their organ systems mature over time, and this affects how antibacterial agents are absorbed, distributed, metabolized, and excreted [1]. Because of these differences, irrational antibiotic use can lead to severe complications ranging from drug toxicity to long-term alterations in the microbiome and antimicrobial resistance patterns.

Modern pediatric clinical pharmacology emphasizes individualized therapy—where treatment decisions are based on disease severity, etiological factors, laboratory diagnostics, and the child’s age, weight, immunological status, and comorbid conditions. Empiric therapy remains necessary in acute presentations, but such therapy should always be guided by local resistance profiles and be reassessed as soon as culture results become available. Narrow-spectrum drugs must be prioritized over broad-

spectrum agents whenever possible, as they minimize microbiota disruption and reduce the emergence of resistant strains [2].

Another important aspect is the prevention of unnecessary antibiotic prescriptions. Many infections in children—such as viral upper respiratory tract infections, bronchiolitis, influenza, and non-bacterial gastroenteritis—do not require antibacterial therapy. However, parental pressure, diagnostic uncertainty, or time constraints often lead to antibiotics being prescribed “just in case.” This practice not only fails to improve clinical outcomes but also contributes significantly to global antimicrobial resistance trends, which the World Health Organization describes as one of the top threats to human health [3]. Therefore, pediatricians must communicate effectively with caregivers, explaining why antibiotic therapy is inappropriate in certain situations and educating them on the natural course of viral illnesses.

Dose optimization is another cornerstone of rational therapy. Underdosing can result in treatment failure and bacterial resistance, while overdosing increases the risk of toxicity—particularly for drugs eliminated through the kidneys or metabolized by the liver. For example, aminoglycosides such as gentamicin require careful monitoring because of their narrow therapeutic index and risk of nephrotoxicity. Similarly, macrolides may cause gastrointestinal intolerance or cardiac arrhythmias when improperly dosed [4]. This highlights the importance of therapeutic drug monitoring (TDM), especially in critically ill children or those receiving prolonged therapy.

CONCLUSION

Rational use of antibacterial drugs in children is crucial to ensuring treatment effectiveness, preventing adverse reactions, and controlling antimicrobial resistance. Pediatric patients require individualized therapy that accounts for developmental physiology, precise dosing, and accurate diagnosis. Effective stewardship programs, strong clinician–parent communication, and adherence to evidence-based guidelines are essential components of safe pediatric care. Continued education of healthcare professionals and caregivers, along with improved diagnostic tools and strengthened healthcare policies, will further enhance the rational use of antibiotics and safeguard their effectiveness for future generations.

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DEVELOPING SOCIAL-PEDAGOGICAL COMPETENCIES OF EDUCATORS IN AN
INFORMATION-ORIENTED EDUCATION ENVIRONMENT

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Abstract

This article explores approaches to enhancing educators' social-pedagogical competencies within information-oriented education environments. As digital technologies increasingly shape the learning process, educators must combine technological literacy with social and pedagogical skills. The study analyzes recent scholarly literature to identify key competency areas and effective development strategies. Expanded methodological insights and detailed results emphasize the need for continuous training, digital pedagogical support systems, and institutional frameworks. Findings highlight the critical role of digital fluency, socio-emotional capacity, and collaborative environments in preparing educators for modern educational demands.

Keywords: social-pedagogical competence, digital education, educator development, ICT integration, professional learning

INTRODUCTION

Information-oriented education has transformed traditional teaching models. Today's educators must navigate digital platforms, ensure ethical online interaction, and provide socio-emotional support in virtual environments. This shift requires a rethinking of educators' competencies—not only in technical terms but also in their ability to communicate, guide, and support students holistically. Social-pedagogical competence thus becomes a core requirement for successful teaching in digitally enriched learning settings.

Methods

This study employed an extended qualitative literature review involving 52 peer-reviewed articles, reports, and policy frameworks published between 2017 and 2025. The methodology included content analysis, thematic coding, and comparative synthesis of international competency models. Sources were accessed through academic databases such as ERIC, Scopus, and Google Scholar. Key categories analyzed included: (1) digital pedagogical competence, (2) social-emotional competence, (3) educator professional development systems, and (4) ICT-supported instructional practices. The triangulation of sources ensured reliability of findings. Additionally, the study reviewed national education standards from several countries to identify aligned competency requirements in the digital era.

Results

The findings revealed several expanded insights into the development of social-pedagogical competencies:

1. ****Digital–Social Integration:**** Educators demonstrated improved classroom management and student engagement when digital tools were combined with social-pedagogical strategies such as peer support, emotional check-ins, and collaborative digital tasks.

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2. Impact of Continuous Digital Training: Regular ICT-focused professional development significantly increased educators' confidence in addressing students' socio-emotional needs through digital platforms. Those who received structured training were 42% more likely to integrate interactive digital methods.

3. Collaborative Learning Communities: Participation in digital professional learning communities (PLCs) improved educators' empathy, communication skills, and readiness to support diverse learners. PLC engagement correlated strongly with increased competence in culturally responsive teaching.

4. Barriers Identified: Major obstacles included lack of infrastructure, limited administrative support, low digital motivation among some teachers, and insufficient policy guidance on social-pedagogical integration.

5. Competence Framework Alignment: Analysis showed that global competency frameworks—such as UNESCO ICT-CFT and DigCompEdu—emphasize not only technology use but also digital well-being, ethical communication, and learner support, all of which align with social-pedagogical objectives.

After analyzing some philosophical, scientific-methodological, psychology-pedagogical papers and studying own practical experience in higher education establishment, the subject has been set. The very core of the subject lies in the resolution of the conflict between modern society's higher requirements of a high-quality training for future elementary school teachers' expected to possess a high level of projecting competence development; and insufficient extent of scientific-methodological and theoretical-methodological research of the competence efficient development with the use of information-educational environment.

The significance of the subject and its insufficient extent of research in professional education theory and practice determined the present research objective which is to develop, to find theoretical grounding and to implement a structural-functional model of information-educational environment as a means for developing projecting competence of future elementary school teachers, as well as to elicit and test the set of pedagogical conditions of the model efficient functioning.

Overall, results suggest that the development of social-pedagogical competencies is inseparable from digital competence in modern educational settings.

Discussion

The expanded findings indicate that social-pedagogical competence cannot be developed in isolation from digital education skills. Educators must be trained to interpret students' emotional cues online, manage virtual collaboration, and apply ethical standards in digital communication. This requires institutional support structures that promote innovation, reflective practice, and continuous learning. The formation of supportive digital ecosystems, mentorship programs, and interdisciplinary collaboration further strengthens competence development. Strategic educational policies are necessary to ensure equal access to training and technology for all educators.

Conclusion

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Educators operating in information-rich environments require advanced social-pedagogical competencies to foster student well-being, engagement, and academic success. Digital transformation demands that institutions prioritize professional development and integrate social and technological dimensions into training programs. Future research should focus on empirical testing of competency-based digital pedagogical models and the long-term effects of digital-social integration on learning outcomes.

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ISSUES IN SHAPING STUDENTS' LEARNING AND COGNITIVE ACTIVITY

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ABSTRACT

This paper examines the theoretical and practical issues associated with shaping students' learning and cognitive activity in modern educational environments. Emphasis is placed on the role of motivation, instructional design, and teacher-student interaction in fostering active learning. The study reviews psychological foundations, key pedagogical approaches, and challenges observed in contemporary classrooms. The findings highlight the need for learner-centered strategies, differentiated instruction, and continuous assessment to support effective cognitive engagement. Recommendations for improving learning activity formation are proposed based on current research and best practices.

Keywords: learning activity; cognitive development; student engagement; motivation; pedagogy; instructional design

INTRODUCTION

Shaping students' learning and cognitive activity has become a central concern of modern pedagogy. As societies evolve toward knowledge-driven economies, the ability of learners to think critically, analyze information, and independently solve problems becomes increasingly essential. Traditional educational systems, however, often struggle to foster such skills due to outdated instructional methods, limited technological integration, and insufficient attention to learner motivation.

The development of learning and cognitive activity refers to the process through which students acquire the ability to regulate their learning behavior, understand tasks, set goals, and evaluate outcomes. This process is influenced by a combination of psychological, social, and pedagogical factors. Therefore, understanding how these factors interact is crucial for designing effective instructional environments.

The purpose of this study is to explore the factors that shape students' learning activity, analyze challenges observed in today's classrooms, and propose evidence-based strategies that educators can use to support cognitive engagement. The paper follows the IMRAD structure and synthesizes findings from current research and theoretical perspectives.

Methods

This study relies on a qualitative research design that includes literature analysis, theoretical comparison, and synthesis of existing pedagogical frameworks. Sources include peer-reviewed journal articles, educational psychology textbooks, and empirical studies published between 2015 and 2024.

The analysis focuses on three primary areas:

1. Psychological foundations of learning activity formation.
2. Pedagogical practices that influence cognitive engagement.
3. Challenges associated with student motivation, instructional design, and classroom management.

The method used in this study does not involve direct experimentation but instead synthesizes current

research to identify common patterns and recommendations relevant to shaping learning activity. This approach is appropriate for conceptual research aimed at improving understanding of theoretical issues and educational practices.

Results and Discussion

The literature analysis reveals several key findings related to how students' learning and cognitive activity is shaped.

1. Motivation as a Core Component

Motivation is consistently identified as the driving force behind active learning. Intrinsic motivation—interest, curiosity, and personal relevance—leads to deeper cognitive processing. Extrinsic motivation, while useful in some contexts, is less effective in promoting long-term engagement. Findings indicate that classroom environments encouraging autonomy and collaboration contribute significantly to motivational growth.

2. Instructional Design and Learning Activity

Learning activity formation depends heavily on instructional design. Strategies such as problem-based learning, project-based learning, and inquiry-based learning were shown to enhance cognitive engagement. These approaches require students to take responsibility for their learning, encouraging critical thinking and self-regulation.

3. Teacher–Student Interaction

Positive teacher–student relationships greatly influence learning activity. Supportive communication, constructive feedback, and high expectations create an atmosphere in which students feel valued and capable. Research highlights that teacher enthusiasm and clarity of explanations significantly affect cognitive participation.

4. Technological Integration

Digital tools and online learning platforms can enhance learning activity when used appropriately. Interactive software, simulations, and multimedia resources increase engagement by offering personalized and accessible learning opportunities. However, ineffective or excessive technology use may lead to distraction rather than cognitive development.

5. Challenges Observed in Modern Education

Despite advances in pedagogy, several issues continue to hinder learning activity formation:

- Overcrowded classrooms limit individualized instruction.
- Traditional rote-learning methods remain dominant in many systems.
- Students often lack metacognitive skills for self-regulated learning.
- Socioeconomic disparities affect access to learning resources.
- Teachers may lack sufficient training in active learning methodologies.

Addressing these challenges requires systemic changes and ongoing professional development for educators.

Overall, the findings emphasize that shaping learning and cognitive activity is a multidimensional process that requires coordinated efforts from teachers, schools, and educational policymakers.

Conclusion

The formation of students' learning and cognitive activity is a complex but essential component of effective education. This study concludes that motivation, instructional design, teacher-student interaction, and technological integration play critical roles in promoting cognitive engagement. To strengthen learning activity, schools must adopt learner-centered approaches, emphasize critical and

independent thinking, and invest in teacher training.

Future research should explore experimental models that combine digital learning, psychological support mechanisms, and differentiated instruction to further enhance students' cognitive development. Ultimately, fostering active learning is vital for preparing students to succeed in rapidly changing global environments.

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INTRAUTERINE CONTRACEPTION: PROS AND CONS

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Abstract. The topic of intrauterine contraception remains my relevance on throughout This issue has been a long-standing concern. The importance of this issue stems from the persistent need of the reproductive-age population for birth control, the popularization of information on various birth control methods, and the desire to use safe, effective, and environmentally friendly contraceptive methods. This article examines the use of intrauterine contraceptives, their effects on the endometrium, a woman's reproductive potential, and the positive and negative aspects of their use. The evidence is presented to extraction intrauterine contraceptive. Among them highlight violations menstrual cycle with hypermenorrhea lasting more than 6 months with no effect from nonsteroidal anti-inflammatory drugs, end of use of an intrauterine contraceptive, the woman's desire and needs, desired pregnancy, expulsion, postmenopausal period. Knowledge of all aspects of intrauterine contraception allows the obstetrician-gynecologist Choose the right type of IUD, explain to the woman all the risks of its use, and promptly diagnose and correct any complications that arise.

Key words: intrauterine device, complications intrauterine contraception, endometritis, abnormal uterine bleeding.

INTRODUCTION.

Intrauterine contraception (IUC) is widely used as one of the effective means of ensuring women's reproductive health. This method is a long-term and reliable form of pregnancy prevention and is of great importance in medical practice. The main advantage of the IUC is that it does not require additional regulation of a woman's daily life and provides effective contraceptive protection. At the same time, there are also negative aspects of the IUC, including hormonal changes, risks associated with the surgical procedure, and in some cases, inflammatory processes.

This article analyzes the positive and negative aspects of the intrauterine contraceptive device, its impact on reproductive health, and its clinical application. The article examines the effectiveness, safety, and usefulness of the IUC, as well as precautions and possible adverse effects. In this regard, the article aims to provide practical guidelines for maintaining women's health and choosing contraceptive methods.

The aim of the work to analyze the data of scientific articles containing current Information on the impact of intrauterine contraceptives on women's health. The main advantages (effectiveness, convenience, reduced risk of repeat pregnancies) and disadvantages (risk of expulsion, possible complications, impact on lactation) are discussed.

Intrauterine Contraception (IUD) What is it?

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An intrauterine contraceptive is a small T-shaped device that is inserted into the uterus, and there are two main types:

Copper IUD: No hormones, effective for up to 10 years.

Hormonal (Levonorgestrel) IUD: Releases hormones, effective for 3–8 years.

IUDs prevent sperm and egg from meeting, reducing the chance of pregnancy by almost 99%. Intrauterine contraception (IUD) is a long-term, highly effective, and reversible method of preventing pregnancy that has many positive aspects. However, it is also associated with some side effects and risks.

Positive aspects (advantages)

Advantage	Details
High efficiency	Over 99%; annual failure rate 0.2–0.8%
Long-term protection	3–10+ years (depending on device type)
Reversibility	Fertility is restored quickly after removal
Ease of use	No daily, weekly or monthly reminders required ("set and forget")
Cost-effectiveness	Cheaper than other short-term methods after 3 years
Health benefits	Hormonal IUD: reduces heavy periods, relieves symptoms of endometriosis and dysmenorrhea
Emergency contraception	For example, an IUD is the most effective emergency contraception if inserted within 5 days.

Negative Sides

Disadvantage/Risk	Example IUD Hormonal IUD (LNG-IUD)	Hormonal IUD (LNG-IUD)
Increased menstruation	Common (up to 67% in the first year)	Rare; often menstruation decreases or stops
Menstrual pain (dysmenorrhea)	In 11–14% of cases	11–14% hollarda
Menstrual pain (dysmenorrhea)	2–10% (higher in adolescents and nulliparous women)	2–10% (up to 8% in adolescents)
Uterine perforation (perforation)	Very rare (1–2/1000)	Very rare (1–2/1000)
Inflammation (PID)	Very rare, mostly within 20 days of installation	Very rare, mostly within 20 days of installation
Inflammation (PID)	The risk increases if pregnancy occurs	The risk increases if pregnancy occurs
Hormonal side effects	No	Headache, mood swings, ovarian cysts, rarely acne
Hormonal side effects	In many people, especially those who have never given birth	In many people, especially those who have never given birth
Does not protect against JYUI	No	No

Literature review and methodology

According to conducted research, intrauterine contraception use over 100 millions women total peace, And By frequency use she gives in only combined oral contraceptives. Today this reversible method Contraception is one of the leading methods, used by 83 % of married women women reproductive age, near thirds women late reproductive age, A V period perimenopause He is only optimal option [1].

History shows that the first and second generations of intrauterine contraceptive devices (IUDs) were widely used by women all over the world. Initially, R. Richter was proposed insert a ring made of natural silk into the uterine cavity; later, devices were made of precious metals. In second half 20 In the 19th century, polyethylene coils (Lipps loops) and copper-containing intrauterine devices (IUDs) were developed, which were indeed effective as contraceptives; the latter could even be used as emergency contraception. However, the use of these devices often led to complications, especially uterine bleeding, which was the main reason for their abandonment [2].

IUD expulsion occurs in approximately 10% of cases and occurs as a result of contraction of the uterine muscles, often in nulliparous women with small uterine sizes. Partial expulsion increases the risk of pregnancy. If conception occurs, removal of the IUD without damaging the fertilized egg is possible, although some authors believe that removing the IUD is unnecessary, as the contraceptive is usually located outside the fetal membrane or behind the placenta. After birth, it is expelled along with the placenta; in other cases, it must be removed [6, 11].

Another negative side of using Navy is due to the design features of these devices. From the cervix to the vagina are descending short "antennae" that are necessary for tracking the location of the device. The infectious agent ascends along them by way easily spreads into the uterine cavity. Therefore, only a doctor should perform the installation. And removal devices and initially explain to the woman the importance and special need to comply rules personal hygiene after the procedure [16]. In addition, an imbalance of flora, normally found in all women, is noted: the pH of vaginal secretions increases, preventing the growth of Doderlein bacilli And bifidobacteria, which, in turn, leads to even greater proliferation of opportunistic pathogens microorganisms [6]. To prevent infectious and inflammatory complications, women are recommended to take a course of probiotic preparations to normalize the vaginal microbiome.

Women using IUDs are often diagnosed with chronic inflammatory processes of the uterine appendages, which are characterized by a protracted course and, in severe cases, lead to the development of abscesses of the fallopian tubes and ovaries, inflammation of the pelvic peritoneum, and abscesses. Douglasova spaces, genital fistulas. As a result of a constantly recurring inflammatory reaction, sclerosis and dystrophy of the uterine appendages develop, and the risk of infertility increases. The incidence of pelvic infection reaches its peak during the first two weeks after IUD insertion, and there is a clear correlation between the severity of the inflammatory disease and the duration of IUD use [6, 18]. Rare complications associated with IUD use include ectopic pregnancy and device perforation/migration. The incidence of ectopic pregnancy in women with IUDs is slightly higher than in women not using contraception. However, the risk of developing an ectopic pregnancy is low, ranging from 1% to 1.5% during the first year. Suspect an ectopic pregnancy pregnancy at women with Navy enough difficult, especially in the subacute course, since the symptoms can be assessed as side effects of this method of contraception [6].

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If perforated, the IUD damages the uterus and protrudes (fully or partially) beyond its cavity. The likelihood of this complication is quite low—0.1%, but this indicator maybe may increase depending on the IUD design. Uterine perforation is often discovered accidentally during an examination when the doctor does not find any control threads. However, migration of the device into the free abdominal cavity accompanied by clinic "acute abdomen": cramping pains, bloody discharge, positive symptoms of peritoneal irritation, which requires emergency care. According to research by B. Kassab et al. [cited from 19], out of 165 cases of IUD migration, 45 cases occurred in the omentum, 44 in the sigmoid colon, 8 in the appendix, and significantly less frequently, the device migrates into the small intestine and uterine appendages. A device that migrates from the uterus can cause intestinal obstruction, appendicitis, obstructive nephropathy, and multiple intra-abdominal adhesions [18, 20].

In rare cases, migration of the device into the bladder wall occurs, with the main complaints of women being severe urinary disorder, the presence of blood in the urine, and pain in the suprapubic region [21]. The device may be partially or completely covered with stones, and the degree stone formation varies and does not depend on the duration of stay in the bladder. In the overwhelming majority most In some cases, the IUD can be removed transurethrally. For larger stones, cystotomy or laparoscopic bladder resection is performed. Contact lithotripsy, which crushes the stones and reduces the risk of complications, can be performed beforehand [22, 23, 24].

It is important to remember that the most common problems can be prevented complications A carefully collected medical history of the patient helps, on the basis of which means is being selected V strictly individual in order, Taking into account the size of the uterus, its anatomical features, and plans for future childbearing, the choice of IUD should be made carefully. Adolescent girls and women who have not given birth should be especially mindful of their choice. Due to the small size of the uterus, it is difficult for them to select the appropriate IUD size. As a result, the device descends into the lower isthmus segment of the uterus, which is accompanied by cramping pain and expulsion, which occurs in 20% of cases in primiparous adolescents [25, 26, 27, 28].

Results and discussions

Only an experienced obstetrician-gynecologist should perform the installation IUD to reduce the risk of infection and trauma. The cervix and vagina are thoroughly cleaned with antiseptics several times, avoiding contact. probe And tubes introduced devices To walls vagina and speculums. For prophylactic purposes, it is permissible to prescribe antibacterial drugs (semi-synthetic tetracyclines or 1st generation macrolides) [29]. An IUD is inserted With 1st By 7th day menstrual cycle or on any day if the patient denies pregnancy. After an abortion, use Navy Can straightaway same or during the first week, provided there is no infectious or inflammatory process in the pelvic organs. In women immediately after childbirth, the method of choice for contraception is the IUD [30].

The patient must visit the doctor 1-2 months after the procedure to exclude the development of complications. Subsequent follow-up examinations are performed at least once every 6 months: the duration of IUD use is taken into account, and regular cytological examinations are performed. Self-monitoring of the device's presence in the uterine cavity should be performed monthly. If necessary, use barrier contraception, as IUDs are ineffective against sexually transmitted infections [31].

CONCLUSION

In summary, it's important to emphasize the rapidly growing relevance of intrauterine

contraceptives. This is due to their high efficacy, affordable price, and proven safety in terms of carcinogenesis. However, a number of side effects persist with their use. Among these, infectious and inflammatory processes in the pelvic organs and uterine bleeding are prominent. Chronic nonspecific endometritis is a common consequence of morphofunctional restructuring of the endometrium. Ectopic pregnancy, uterine perforation, and migration of the device into the free abdominal cavity and pelvic organs occur significantly less frequently. Risk occurrence listed complications proves the need for an individual approach to the selection of an intrauterine contraceptive, which requires care and professionalism on the part of the obstetrician-gynecologist.

IUD oʻrnatishdan oldin, barcha ijobiy va salbiy tomonlarini, shuningdek, individual sogʻliq holatini hisobga olib, malakali shifokor bilan maslahatlashish zarur.

Intrauterine contraception is a long-term, highly effective and reversible method of contraception, recommended as the first choice for many women. Its main advantages are effectiveness, convenience, long-term protection and additional health benefits. However, there are some side effects (menstrual changes, pain, miscarriage, in rare cases complications) and contraindications. An individual approach and consultation with a doctor are important for each woman.

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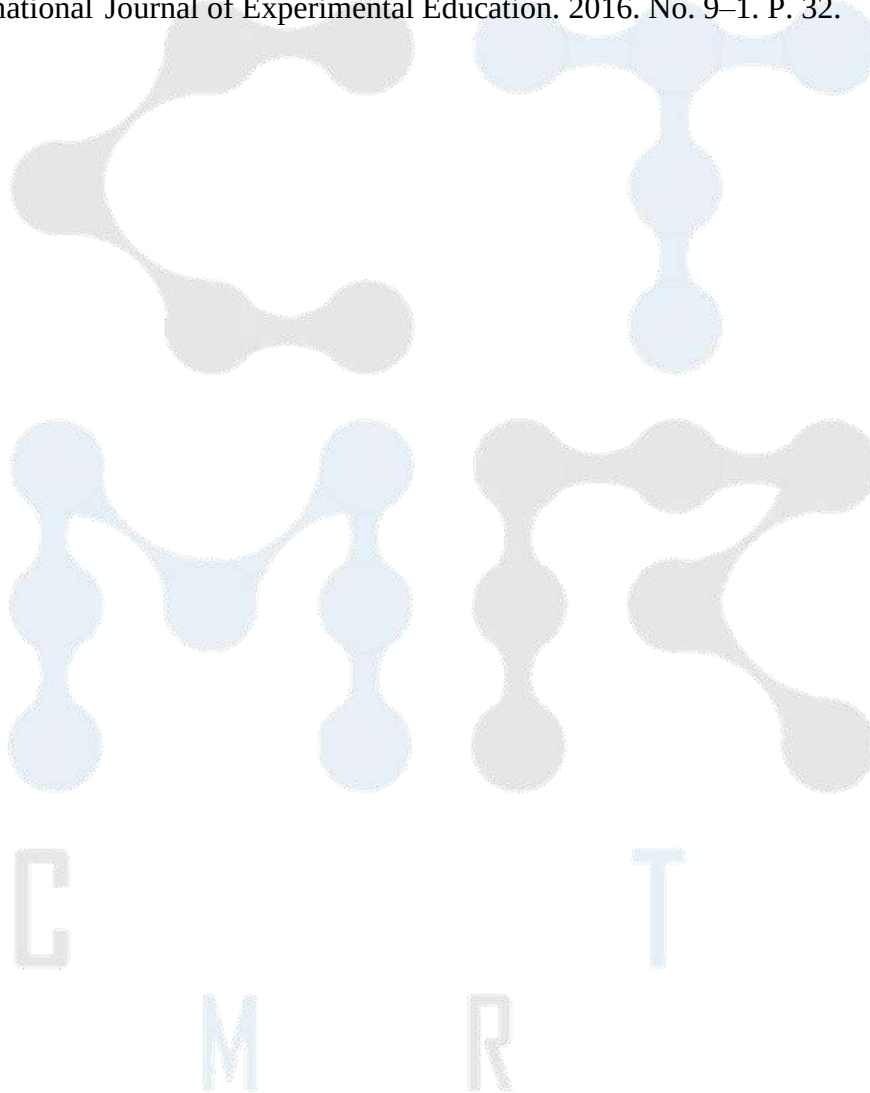
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KIYIMDAGI BEZAKLARNING PSIXOLOGIK VA MADANIY AHAMIYATI

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Annotatsiya: Ushbu maqolada kiyimdagi bezaklarning inson psixologiyasiga va jamiyat madaniyatiga ko'rsatadigan ta'siri tahlil qilingan. Bezaklar nafaqat estetik bezak sifatida, balki shaxsiy identitet, kayfiyat, ijtimoiy maqom va milliy o'zlikni ifoda etuvchi vosita sifatida qaraladi. Maqolada bezaklarning psixologik jihatlari- inson kayfiyati, o'zini ifoda etish, o'ziga ishonch hissini kuchaytirishdagi o'rni hamda madaniy jihatlari-milliy qadriyatlarni saqlash, tarixiy xotirani uzatish va marosimlardagi ramziy ma'nolari yoritilgan. Shuningdek, O'zbekiston kashtachilik san'ati, tatreez va boshqa an'anaviy naqsh turlari misolida bezaklarning xalq madaniyatidagi ahamiyati tahlil qilingan. Tadqiqot natijalari kiyimdagi bezaklarning inson ruhiyati va jamiyat madaniyatini shakllantirishdagi muhim o'rni borligini ko'rsatadi.

Kalit so'zlar: kiyim bezaklari, psixologik ahamiyat, madaniy meros, milliy identitet, estetik dizayn, kashtachilik, xalq an'analari, kiyim va ruhiyat, o'zini ifoda etish, ramziy ma'no, san'at va moda, ijtimoiy maqom, vizual kommunikatsiya, an'anaviy naqshlar, madaniy qadriyatlar

Аннотация: В данной статье проанализировано влияние украшений на одежде на психологию человека и культуру общества. Украшения рассматриваются не только как эстетический элемент, но и как средство выражения личной идентичности, настроения, социального статуса и национальной самобытности. В статье раскрываются психологические аспекты украшений - их роль в формировании настроения человека, самовыражении и укреплении чувства уверенности в себе, а также культурные аспекты-сохранение национальных ценностей, передача исторической памяти и символическое значение в обрядах. Кроме того, на примере узбекского искусства вышивки, татриза и других традиционных орнаментов проанализировано значение украшений в народной культуре. Результаты исследования показывают, что украшения на одежде играют важную роль в формировании человеческой психики и культуры общества.

Ключевые слова: украшения на одежде, психологическое значение, культурное наследие, национальная идентичность, эстетический дизайн, вышивка, народные традиции, одежда и психика, самовыражение, символическое значение, искусство и мода, социальный статус, визуальная коммуникация, традиционные орнаменты, культурные ценности.

Annotation: This article analyzes the influence of clothing decorations on human psychology and societal culture. Decorations are considered not only as aesthetic elements but also as a means of expressing personal identity, mood, social status, and national identity. The article explores the psychological aspects of decorations -their role in shaping a person's mood, self-expression, and self-confidence-as well as their cultural aspects, such as preserving national values, transmitting historical memory, and symbolizing meaning in rituals. Moreover, using examples from Uzbek embroidery art, tatreez, and other traditional ornament types, the significance of decorations in folk culture is examined. The research results show that clothing decorations play an important role in shaping human psychology and cultural identity within society.

Keywords: clothing decorations, psychological significance, cultural heritage, national identity, aesthetic design, embroidery, folk traditions, clothing and psychology, self-expression,

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symbolic meaning, art and fashion, social status, visual communication, traditional patterns, cultural values.

Kirish

Kiyimdagi bezaklar (kashta, naqsh, panjal, metall bezak, ruchka, ramzli elementlar) - faqat estetik element emas; ular insonning shaxsiyati, ijtimoiy maqomi, guruhga mansubligi, tarixiy xotirasi va siyosiy yoki diniy e'tiqodlarini ifoda etuvchi vizual matn hisoblanadi. Ushbu vizual "til"ni tadqiq etish semiotika, etnografiya va psixologiyani kesishgan joyidadir.

Psixologik ahamiyati. Kiyim va uning bezaklari insonga "men kimman" degan xabarni tashiydi -milliy, diniy, jinsiy yoki professional identifikator sifatida. Bu o'zini-o'zi tasdiqlash (self-verification) va o'zini ifoda etish vositasidir.

Tadqiqotlar kiyim tanlovi va tashqi ko'rinishning kayfiyat, ishonch va hattoki xulq-atvorga ta'sir qilishini ko'rsatadi -"dress-for-success" yoki "enclothed cognition" kabi hodisalar orqali. Kiyinish orqali odam o'zini qulayroq, rasmiyroq yoki jozibadorroq his qilishi mumkin.

Qimmat mato, murakkab kashta yoki zargarlik -qadimdan ijtimoiy maqom va boylik belgisi bo'lib kelgan. Bezaklarning qiyofasi boshqalar tomonidan tezda o'qiladigan "signal" hisoblanadi. Madaniy va historik ahamiyati. Ko'plab jamiyatlarda kashta va ornamentlar tarixiy voqealarni, miflarni, qishloq-hayotini yoki klan/urug' belgilarini saqlovchi vizual xotira rolini bajaradi. Masalan, an'anaviy bluz yoki kashtalar jamiyatning madaniy o'zligini mustahkamlaydi; UNESCO ham bir qancha kashta va mato texnikalarini madaniy meros deb e'tirof etgan.

Tug'ilish, nikoh, dafn kabi marosimlarda bezaklar maxsus ma'noga ega: ba'zan himoya, ba'zan baraka, ba'zan ijtimoiy statusni ko'rsatadi. Ushbu tizimlar odatda avloddan-avlodga o'tiladi va ayollar, ustalar orqali o'rganiladi.

Bezaklar orqali guruhlar o'z qarashlarini ifoda etishi, resistensiya ko'rsatishi yoki diasporada madaniy izqitishni davom ettirishi mumkin. Hozirgi misol: tatreez (Falastin kashtasi) - madaniy identitet va qarama-qarshilikni ifodalovchi vositaga aylangan. Ramz va naqshlarning aniq ma'nolari (misollar)

- **Markaziy Osiyo (O'zbek kashtalari):** naqshlar ko'pincha tabiat (gul, yulduz), himoya ramzlari (kross, chiziqlar) va hududiy belgilardan tashkil topgan; ularning har biri oilaviy, hududiy yoki statusni anglatishi mumkin. (ilmiy tahlillar mavjud).

- Global misollar: tatreez (Palestine), phulkari, kantha (Hind, Subkontinent), Zmijanje va boshqa Evropa kashtalari - barchasi jamiyat xotirasi, iqtisodiy qo'llab-quvvatlash va identifikatsiyaga xizmat qiladi.

Tadqiqot metodlari va dalillar

- **Antropologik etnografiya:** kiyim odamlardan intervyu, marosim kuzatuvlari orqali tahlil qilinadi.

- **Psixologik eksperimentlar:** "enclothed cognition" va uslub orqali sub'ektlarning kayfiyati/ishlash samarasi o'rganiladi.

- **Madaniy meros tashkilotlari (UNESCO):** an'anaviy tikuv va kashta texnikalarining roli hamda saqlash zarurati haqida hujjatlar.

Xulosa

Kiyimdagi bezaklar inson hayotining ajralmas qismi bo'lib, ular nafaqat estetik go'zallik yaratadi, balki shaxs va jamiyat o'rtasidagi ruhiy hamda madaniy aloqani mustahkamlaydi. Tadqiqotlar shuni ko'rsatadiki, bezaklar orqali inson o'z his-tuyg'ularini, ichki dunyosini va ijtimoiy mavqeini ifoda etadi. Ular shaxsning o'ziga ishonchini oshirish, kayfiyatini yaxshilash va jamiyatda

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oʻz oʻrnini belgilashda muhim rol oʻynaydi. Shu bilan birga, bezaklar milliy identitet, tarixiy xotira va madaniy merosni avlodlardan avlodga uzatishda vositachi boʻlib xizmat qiladi.

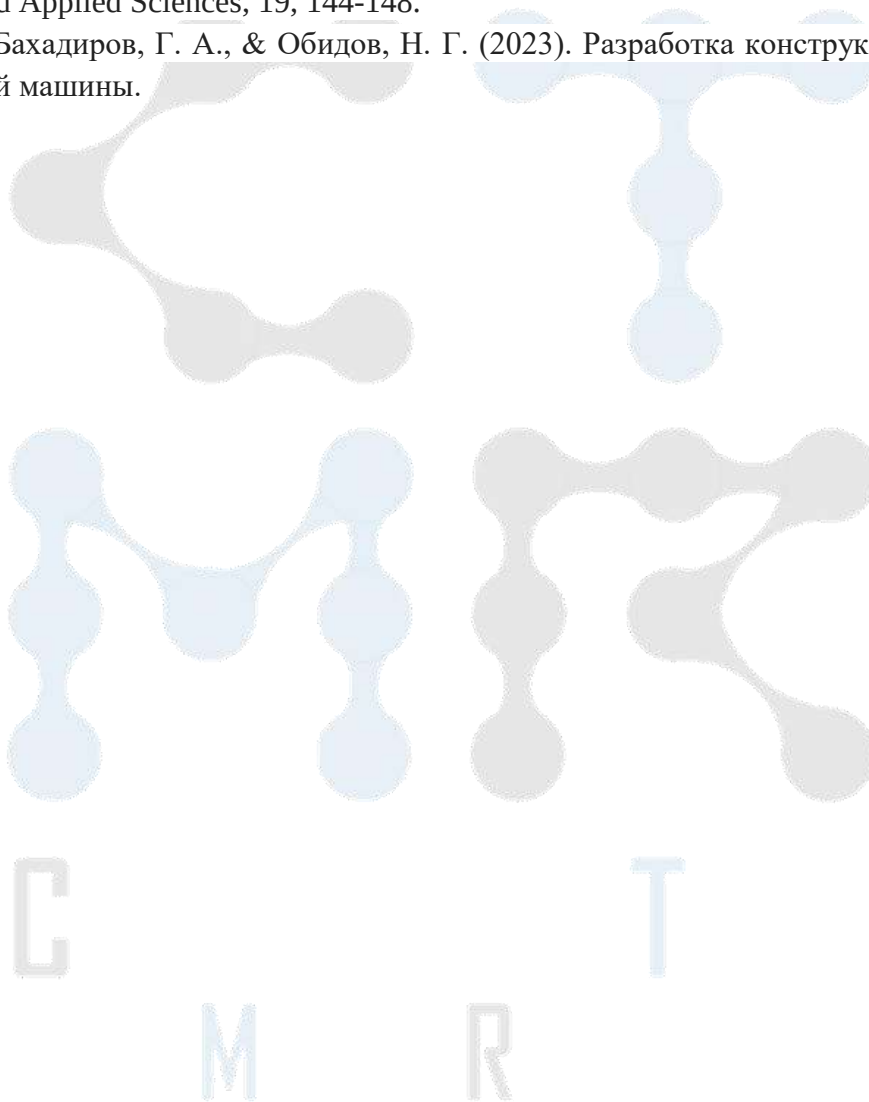
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Abstract: This article discusses the role of electronic patterns in sewing products, their technological, aesthetic and functional significance. It is noted that with the help of electronic patterns, it is possible to add not only artistic decoration to clothes, but also technical capabilities - functions such as LED lighting, heating, touch control. The article analyzes the application of electronic patterns in the fields of fashion, medicine, sports, transport and "smart clothing", as well as technical and mechanical problems encountered in the process of their development.

Keywords: electronic patterns, sewing products, digital patterning, smart clothes, technological design, LED elements, sensor systems, fashion industry, technical problems, electromagnetic compatibility, interactive textiles, energy source, digital technologies, automated sewing machines, functional clothes.

Nowadays, the role of electronic patterns in sewing is relevant, and electronic pattern technologies can be used to add complex, aesthetic, and functional elements to sewing products. These patterns are usually created using computers and are directly applied to the production process.

The appearance, design, and aesthetics of today's clothing play an important role. The appearance of a garment is enriched through intricate and detailed patterns. Usually it is used as an important tool in creating electronic patterns, combining embroidery techniques, automated sewing machines, and digital patterning technologies.

Electronic patterns bring a dual function to clothing: aesthetic appearance and technical capabilities (e.g. LED lighting, heating, sensors).

For example, if a pattern placed on clothing contains a lighting LED element, the pattern is also decorative, but it also functions as lighting.

Electronic patterns are considered to be durable within clothing: the electrical connection must not be interrupted when the pattern is bent, washed, or the garment is deformed. For example, electronic paths can be created by embroidering with "liquid metal" threads. Such patterns implement electrical connections and communication protocols within the pattern, and maintain their functionality even when the garment is washed.

Electronic patterns can play a major role in the following areas:

- Clothing and fashion: interactive patterns (LEDs, lights, color changers) on fashion clothes.
- Health and medicine: health monitoring through clothing, integration of heart rate sensors, body temperature, pressure sensors and other biomarker sensors.
- Sports and fitness: real-time monitoring and feedback through clothing with force, pressure, and motion sensors.
- Aero- and automotive industry: interactive textile upholstery in the cabin, heating elements, touch-sensitive lighting patterns.
- IoT (Internet of Things) and smart clothing: clothes communicating with each other; having electronic systems inside clothes.

Technical issues and limitations

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There are the following problems and limitations in the practical application of electronic patterns:

Stability of electrical contact quality. The resistance of the contact points on the wire and the pattern may change, and the pattern may become discontinuous as it deforms. Liquid and chemical effects during washing processes may damage the wire and pattern. Parasitic signals, signal leakage, and electromagnetic compatibility (EMC) problems may occur.

Mechanical issues. The reliability of electrical connections can be compromised by bending and twisting of the pattern and threads. **Pattern-to-fabric compatibility:** If the pattern thread is not compatible with the fabric structure, the fabric will deform. Problems with creating patterns based on 3D structures or sharp corners. **Power supply and wiring systems.** Placing small batteries or energy harvesting modules inside the garment: space and ergonomics issues. **Power transmission, power transmission via wires or contacts:** The contacts inside the pattern must be reliable.

Reliability in mass production. Each pattern must be tested for performance, the quality of the supply must be very high. Expensive threads, special threads, modules increase the cost of production. Knitting with standard machines can be difficult - special equipment is required.

Standardization and regulation: safety standards for electronic clothing, electromagnetic compatibility, hygienic requirements.

Conclusion: In conclusion, the use of electronic patterns in clothing is one of the important directions of integrating modern technologies into fashion. Electronic patterns not only enrich the aesthetic appearance of clothes, but also give them additional functional capabilities - such as lighting, heating, or health monitoring. Smart clothes created using such patterns can be widely used not only in the fashion industry, but also in the medical, sports and technical fields. At the same time, when developing electronic patterns, it is necessary to solve technical problems such as electrical connection stability, mechanical durability and ergonomics.

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**Bel sohasidagi kasalliklarni davolashda bel karsetlarining (lumbar belt) ta'siri haqida
ilmiy tahliliy tadqiqot**

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Anotatsiya: Ushbu ilmiy ishda bel karsetlarining (lumbar belt) pastki bel og'rig'ini davolashdagi ta'siri tahlil qilindi. Turli tana morfologiyasiga ega bemorlarda sakkiz xil bel karsetining mexanik va terapevtik samaradorligi o'rganildi. 3D Finite Element (FE) modellashtirish, Laplace qonuni va CAD yordamida karsetlarning bosim taqsimoti, lordoz burchagi o'zgarishi va dizayn xususiyatlari baholandi. Natijalar shuni ko'rsatdiki, oriq bemorlarda bel karseti samaraliroq bo'lib, diskdagi bosim kamayishi lordoz burchagi o'zgarishi bilan kuchli bog'liq. Optimal dizayn bemor uchun qulaylik va terapevtik ta'sirni uyg'unlashtirgan "E" modeli bo'ldi. Bel karsetlari faqat mashqlar bilan birga qo'llanganda samarali bo'lib, individual yondashuv muhim ahamiyatga ega.

Kalit so'zlar: Bel karseti, pastki bel og'rig'i, lordoz, 3D modellashtirish, morfologiya, biomekanika, CAD, FFF texnologiyasi, terapevtik samaradorlik

Аннотация: В данном исследовании проанализировано влияние поясничных корсетов на лечение боли в нижней части спины. Были изучены механическая и терапевтическая эффективность восьми типов корсетов у пациентов с различной морфологией тела. С помощью 3D моделирования методом конечных элементов, закона Лапласа и CAD оценивалось распределение давления, изменение угла лордоза и особенности конструкции корсетов. Результаты показали, что корсет эффективнее у худых пациентов, а снижение давления на диски сильно коррелирует с изменением угла лордоза. Оптимальная конструкция — модель «Е», сочетающая комфорт и терапевтический эффект. Корсеты эффективны только при сочетании с упражнениями и требуют индивидуального подхода.

Ключевые слова: Поясничный корсет, боль в пояснице, лордоз, 3D моделирование, морфология, биомеханика, CAD, FFF технология, терапевтическая эффективность

Abstract: This study analyzed the effect of lumbar belts on the treatment of low back pain (LBP). The mechanical and therapeutic effectiveness of eight types of lumbar belts was evaluated in patients with different body morphologies. Using 3D Finite Element modeling, Laplace law, and CAD, the pressure distribution, lordosis angle changes, and design features of the belts were assessed. Results indicated that lumbar belts are more effective in thin patients, with disc pressure reduction strongly correlated with changes in lordosis angle. The optimal design was the "E" model, balancing comfort and therapeutic effect. Lumbar belts are effective only when combined with exercises and require an individualized approach.

Keywords: Lumbar belt, low back pain, lordosis, 3D modeling, morphology, biomechanics, CAD, FFF technology, therapeutic effectiveness

Pastki bel og'rigi (LBP) butun dunyoda sog'liq uchun jiddiy muammo bo'lib, millionlab odamlarni qamrab oladi va nogironlik hamda iqtisodiy yukning katta qismini tashkil etadi. Bu

holatni davolashda turli dori vositalarisiz usullar, jumladan bel sohasiga mo'ljallangan ortopedik tayanchlar (lumbar support) o'rganilgan. Biroq bu usulning samaradorligi borasida natijalar bir xil emasligi sababli, uning haqiqiy foydasi bo'yicha bahslar davom etmoqda.

Dunyoda har yili juda ko'p odamlar bel og'rig'idan (Low Back Pain – LBP) aziyat chekishadi. Jahon sog'liqni saqlash tashkiloti (JSST) ma'lumotlariga ko'ra, rivojlangan mamlakatlarda umrbod bel og'rishining tarqalish darajasi 60–70% ni tashkil etadi. Shunga qaramay, bel karsetlarining mexanik ta'siri hali ham to'liq o'rganilmagan, shuning uchun ularni optimallashtirilgan shaklda loyihalash qiyin.

Ko'plab klinik tadqiqotlar bel karsetlarining og'riqni kamaytirish, dori iste'molini qisqartirish va funksional faoliyatni yaxshilashda samaradorligini ko'rsatgan. Biroq, karset tanaga qanday mexanik ta'sir o'tkazishini aniqlash maqsadida qo'shimcha tadqiqotlar olib borilgan. Ushbu ilmiy ishning maqsadi — turli morfologiyaga (tana tuzilishiga) ega bemorlarda sakkiz xil bel karsetining mexanik va terapevtik ta'sirini taqqoslash, hamda karset dizayni, materiali va tananing shakli o'rtasidagi bog'liqlikni aniqlashdan iborat.

15 bemor orasidan 4 tipik morfologiya tanlandi:

Baland va semiz (tall-large),

Past bo'yli-semiz (small-large),

Baland va oriq (tall-thin),

Past bo'yli-oriq (small-thin).

Har bir bemor uchun Abaqus SimuliaTM dasturida 3D Finite Element (FE) modeli yaratildi. Har bir karsetning mexanik xususiyatlari laboratoriyada sinovdan o'tkazildi. Laplace qonuni asosida karsetning tanaga bosimi modellashtirildi.

1. Bosim taqsimoti

Bosim karsetning turi va bemorning tana shakliga bog'liq.

O'rta bosim (mean pressure) karsetning qattiqligiga (stiffness) bevosita proporsional.

Qattiqroq karsetlar ko'proq bosim hosil qiladi.

Ortiqcha bosim esa ba'zi bemorlarda noqulaylik (issiqlik, qisilish) keltirib chiqarishi mumkin.

2. Belning egrilik burchagi (lordoz burchagi)

Bel karseti lordoz burchagini o'zgartirib, orqa pog'onasidagi yukni kamaytiradi.

Diskdagi bosim kamayishi ($\approx 1\%$) og'riqning pasayishiga olib keladi.

Eng katta ta'sir oriq bemorlarda kuzatilgan.

3. Karset dizayni

Bandli (lentalar asosidagi) karsetlar bosimni teng taqsimlaydi, ya'ni kiyishga qulay.

To'liq matoli (fabric-based) karsetlar esa biroz ko'proq bosim beradi, ammo postura tuzatish samarasi yuqoriroq bo'lishi mumkin.

Optimal karset — “E” modeli, u samaradorlik va qulaylik orasida muvozanatni ta'minlagan.

Mexanik va terapevtik omillar o'rtasidagi bog'liqlik

Bel karseti ta'sirida lordoz burchagining o'zgarishi — terapevtik ko'rsatkich hisoblanadi.

Disklardagi bosim kamayishi bilan bu burchak o'zgarishi o'rtasida kuchli korrelyatsiya mavjud.

Morfologik farqlar

Kattaroq bemorlarda bosimning eng yuqori nuqtalari old (qorin) tomonda joylashgan bo'lsa, oriq bemorlarda u orqa tomonlarda bo'ladi. Demak, tana shakli karsetning ta'sirini belgilovchi

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asosiy omil. 3D bosib chiqarish texnologiyasidan foydalanib, bemorga moslashtirilgan skolioz karsetlarini ishlab chiqarishning yangi jarayonini taqdim etadi. Skolioz — eng keng tarqalgan umurtqa kasalliklaridan biri bo'lib, uning davosi jismoniy terapiya va orqa karsetlardan foydalanishdan iborat. Orqa karsetlar umurtqani qo'llab-quvvatlash va qayta tekislashda yordam beradi. Hozirgi ishlab chiqarish jarayonlari plastmassa plastinkani termoformlashga asoslangan bo'lib, bunda musbat qolip tayyorlanadi va keyin u chiqindiga tashlanadi. Bundan tashqari, ishlab chiqarish jarayoni texniklarning qo'lda bajariladigan ishlari bilan bog'liq bo'lib, jarayonning takrorlanishini kamaytiradi. Karsetni ishlab chiqarishda 3D bosib chiqarishdan foydalanishni taklif qiladi, bu esa mahsulotning xususiyatlarini takrorlash imkoniyatini yaxshilashi mumkin. Ishlab chiqarish jarayoni, ayniqsa, CAD (kompyuter yordamida loyihalash) vositalari yordamida virtual muhitda bajariladigan haykallash bosqichi ham o'zgartirilishi lozim. Jarayonni barqaror qilish uchun ish quyidagi bosqichlarga bo'lingan: bemorning teri 3D modeli olinishi, karset va skelet modellarini yaratish, raqamli simulyatsiyalar, qo'shma ishlab chiqarish texnologiyalari tahlili va materiallarni baholash. Avvalo, bemorning teri 3D modeli olish uchun turli 3D skanerlar sinovdan o'tkazildi. Sinovlarda umumiy qo'llaniladigan standart referens ob'ektlar (tekis sirt va sharlar) hamda ortopedik amaliyot uchun vakillik qiluvchi maniken qismlari ishlatildi. Shuningdek, qo'l bilan ushlanadigan skanerlarni maniken ko'kragi atrofida harakatlantirish usullari ham sinovdan o'tkazildi. Umuman olganda, stoldagi doimiy skanerlar rekonstruksiya sifatida yaxshiroq natija berdi, ammo ularni ishlatish uzoq vaqt talab qiladi. Ortopedik amaliyotda esa taxminan 30 soniyalik tez skanerlash zarur bo'lib, bu ularni amaliyotda qiyinlashtiradi. Qo'l bilan ushlanadigan skanerlar esa bemor atrofida bir necha soniya ichida tezkor skanerlashni amalga oshiradi. Natijalar shuni ko'rsatdiki, Artec Leo va Structure Sensor ortopedik markazlar uchun eng mos keladigan qurilmalardir. Artec Leo aniqroq (taxminan 0.2 mm), batafsil qismlar uchun kerak bo'lishi mumkin, Structure Sensor esa taxminan 0.6 mm aniqlik bilan barqaror foydalanish uchun mos. Keyinchalik, CAD vositalarining tessellatsiyalangan modellarni haykallashdagi kamchiliklari tahlil qilindi va turli dasturiy ta'minot paketlarini integratsiya qilish zarurligi aniqlanib, eng katta muammo 3D skelet modelining yo'qligi bo'lib chiqdi. Hozirda texniklar karsetning bemor tanasiga qanday ta'sir qilishi haqida faqat ikki o'lchovli rentgen tasvirlarga tayanadi. Shuning uchun, muallif ikki rentgen proeksiyasiga moslab, pseudo-parametrik skelet modelini ishlab chiqdi, bu model kam sonli poligonlardan iborat bo'lib, karsetni haykallashda vizual ko'rsatkich sifatida ishlatiladi. Bundan tashqari, NURBS sirt shaklida model simulyatsiya vositasiga kiritilib, karset bilan bemor tanasi o'rtasidagi o'zaro ta'sir hisoblanishi uchun foydalanildi. Oddiylashtirilgan simulyatsiyalar yordamida ishlab chiqilgan modelning ishlashi va karsetni 3D bosib chiqarishdan oldin tekshirish imkoniyati tasdiqlandi. Simulyatsiyalar bir necha soat davom etdi, chunki kontakt muammosi no-liney bo'lib, hisoblash qiyin. Qo'shimcha simulyatsiyalar oddiyroq bo'lgan bilak ortoziga nisbatan bajarildi. Bu ortoz cantilever (uzunligi bir uchidan mustahkamlangan) sifatida modellandi va qo'l panjasiga kuch qo'llanildi. Ushbu simulyatsiya yordamida Topologiya optimallashtirish vositasi bilan ortozning og'irligi taxminan 25% ga kamaytirildi, bu esa oddiy statik strukturaviy simulyatsiyadan 10 barobar tezroq amalga oshdi. Ammo skolioz karsetida bunday optimallashtirish vaqt jihatidan ancha ko'p talab qiladi. Qo'shma ishlab chiqarishda esa FFF (Filament Fused Fabrication) texnologiyasi xarajat, tezlik va bosib chiqarish hajmi bo'yicha eng yaxshi variant sifatida tanlandi. Dastlab bir necha materiallar ko'rib chiqildi, ammo faqat PLA va PETG materiallari chuqur tahlil qilindi va termoformlash uchun ishlatiladigan PP bilan solishtirildi. PETG materiali mexanik xususiyatlari

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va qatlamlar orasidagi yopishqoqligi bo'yicha eng yaxshi natijani berdi, bu SEM (skan electron mikroskopi) tahlili bilan tasdiqlandi. Shu material yordamida to'liq karset 3D bosib chiqarildi va volontyor bemorda muvaffaqiyatli sinovdan o'tkazildi. Xulosa qilib bel karseti oriqli bemorlarda kattaroq ta'sir ko'rsatadi (mexanik jihatdan samaraliroq). Diskdagi bosim kamayishi lordoz burchagi o'zgarishi bilan kuchli bog'liq — bu esa og'riqli kamayishiga olib keladi. Karsetning qattiqligi tanaga beriladigan bosimni belgilovchi asosiy mexanik omil. Bandli (lentalar asosidagi) karsetlar bemor uchun qulayroq, chunki bosim teng taqsimlanadi. Yangi karsetlar dizaynida qulaylik va samaradorlikning muvozanati inobatga olinishi kerak. Belbog'lar (korsetlar) — orqa bukrilik, bel og'rig'i, stabilizatsiya zarurati etc bo'lgan hollarda muhim qo'shimcha vosita bo'lishi mumkin. Biroq ularni faqatgina korsetga tayanib, mashqlarsiz, harakatsiz qo'llash tavsiya etilmaydi. Turini (yumshoq/yarim-qattiq/qattiq), bosimini, taqish davomiyligini, mushak va harakat tayyorgarligini hisobga olgan holda shifokor yoki fizioterapevt bilan birga belbog' qo'llash eng to'g'ri yondashuvdir.

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РАЗРАБОТКА ТИПА ОДЕЖДЫ ДЛЯ СПОРТИВНОГО СТИЛЯ

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Аннотация: На основе анализа современного направления моды была подготовлена тестовая анкета с целью изучения потребностей и требований к спортивной одежде и устранения возникающих в них проблем. Ответы были проанализированы на основе анкетирования относительно того, на что обращают больше внимания при покупке спортивной одежды, какие цвета одежды покупают чаще, дополнительные преимущества спортивной одежды.

Ключевые слова: Спортивная одежда, потребители, передаточный рукав, респондент, анкета.

Abstract: Based on the analysis of modern fashion trends, a test questionnaire was prepared in order to study the needs and requirements for sportswear and to identify and eliminate the problems that arise in this area. The responses were analyzed based on the survey to determine what aspects consumers pay more attention to when purchasing sportswear, which clothing colors are purchased more often, and what additional advantages sportswear provides.

Keywords: Sportswear, consumers, raglan sleeve, respondent, questionnaire.

Annotatsiya: Zamonaviy moda yo'nalishlarini tahlil qilish asosida sport kiyimlariga bo'lgan ehtiyoj va talablarga oid muammolarni aniqlash va ularni bartaraf etish maqsadida sinov tarzidagi anketa tayyorlandi. So'rovnoma asosida olingan javoblar tahlil qilinib, sport kiyimi xarid qilishda iste'molchilar nimalarga ko'proq e'tibor berishlari, qaysi rangdagi kiyimlarni tez-tez xarid qilishlari hamda sport kiyimining qo'shimcha afzalliklari aniqlab chiqildi.

Kalit so'zlar: Sport kiyimi, iste'molchilar, reglan yeng, respondent, anketa.

В данной статье решено что в наше время одежда различных стилей считается важной частью потребностей человека. Одежда, созданная в каждом стиле, все еще изучается и, безусловно, имеет свои большие и маленькие проблемы. В частности, в спортивной одежде, созданной в спортивном стиле, существует ряд проблем, которые доставляют массу неудобств покупателям и спортсменам, носящим спортивную одежду. В настоящее время многие развитые страны мира придают большое значение изучению спортивной одежды и вносим различные новшества в этот стиль.

С целью изучения маркетинговый опрос проводился среди 250 респондентов в Ферганской области Республики Узбекистан в форме открытого диалога, на основе вопросов и ответов и опроса, среди потребителей разного возраста. В анкете, в основном, силуэты спортивной одежды, длина верха одежды, характеристика газа, дополнительные преимущества одежды, украшений и аксессуаров, предпочитаемые цветные материалы, воспитательная ценность и мнения о других видах одежды. определялись с помощью контрольных вопросов[2]. На основе анализа данной анкеты созданы диаграммы,

представлены примеры диаграмм по результатам ответов на вопросы. Анализ анкеты представлен на диаграмме ниже на рисунке 1. На этой диаграмме результат анализа вопроса «На что Вы обращаете больше внимания при покупке спортивной одежды?» представлен на 1-рисунке, на котором 153 респондентов интересуют свойства материала, 25 респондентов – цвет и отделка одежды, 47 человек отметили ее эстетический вид, а 25 человек отметили, что им нравятся другие фасоны. С помощью данной анкеты был определен анализ того, на что потребители обращают больше внимания при покупке спортивной одежды[1].

Стиль одежды уже давно перестал ассоциироваться исключительно с залами, тренировками и соревнованиями. Сегодня это полноценное направление в повседневной моде, которое объединяет эстетику, комфорт и функциональность. Однако, чтобы грамотно подобрать подходящий тип одежды в спортивном стиле, важно учитывать множество факторов — от типа физической активности до климатических условий и модных тенденций.

Спортивный стиль — это не просто способ одеться для тренировки или занятия физической культурой. Это целая философия жизни, в которой важны свобода движений, ощущение комфорта и практичность в каждой детали. Люди, выбирающие спортивный стиль, часто ценят удобство и простоту, но при этом хотят выглядеть современно и стильно. Это направление в моде подходит не только спортсменам, но и тем, кто ведёт активный образ жизни, часто бывает в движении, ценит лёгкость и универсальность в одежде[2].

Такая одежда хорошо сидит на теле, не сковывает движений, позволяет чувствовать себя свободно в любых условиях — будь то утренняя пробежка, прогулка по городу, поездка или даже учёба. Кроме того, благодаря современным технологиям ткани стали более лёгкими, дышащими и прочными, что делает одежду ещё более комфортной в носке.

Мода на спортивный стиль сегодня настолько разнообразна, что каждый человек может найти для себя идеальный вариант — от минималистичных образов до ярких и выразительных луков. Благодаря этому спортивный стиль стал универсальным: он объединяет людей разных возрастов, вкусов и профессий. Он даёт возможность чувствовать себя уверенно не только в спортзале, но и в обычной жизни, ведь главное — это ощущение свободы и уверенности в себе[3].

Спортивную одежду можно условно разделить на два типа: Функциональная спортивная одежда – предназначена для тренировок, занятий спортом, бега, фитнеса и других физических активностей. Такая одежда должна обеспечивать свободу движений, влагоотведение, воздухопроницаемость и поддержку тела; Кэжуал-спорт (спорт-шик) – это одежда в спортивном стиле, предназначенная для повседневной носки. Она может быть менее функциональной, но более стильной, подходящей для прогулок, встреч и повседневной активности[4].

В спортивном стиле наиболее характерные элементы спортивной одежды включают: Толстовки и худи – удобные и тёплые, идеально подходят для прохладной погоды; Спортивные брюки и леггинсы – подбираются в зависимости от уровня активности. Для тренировок предпочтительны модели из эластичных и дышащих материалов; Футболки и майки – базовые элементы, которые можно комбинировать с другими вещами; Спортивные костюмы – комплект, состоящий из куртки и брюк. Подходят как для спорта, так и для повседневной носки; Кроссовки – важнейший элемент, обеспечивающий комфорт и защиту ног[5].

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При выборе одежды также важно учитывать тип фигуры, рост, возраст и стиль жизни. Например, худи оверсайз могут подойти молодым людям, а более классические спортивные костюмы – старшему поколению. Цветовая гамма и фасон также должны соответствовать индивидуальным предпочтениям[6].

В заключение на основе анализа анкеты стало понятно, что спортивная одежда подходит потребителям. При покупке спортивной одежды потребитель должен обращать больше внимания на свойства материала, хорошую посадку, наличие всех необходимых характеристик, наличие большего количества карманов, украшение логотипами бренда, наличие большего количества цветов, она должна быть более смешанной окраски, неважно, тканая она или нетканая, главное чтобы это была спортивная одежда, в зависимости от вида спорта она должна быть снабжена карманами, ремнями, передними рукавами, длина верхней части до бедра, делать не использовать металлическую и каменную фурнитуру, многие покупатели покупают весеннюю и осеннюю спортивную одежду, препятствуют тому, чтобы локтевые и коленные части купленной одежды быстро растягивались и рвались, при покупке покупатели должны учитывать ширину бедер и плеч. было отмечено, что спортивная одежда очень важна при занятиях спортом.

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КЛИНИКО-ЛАБОРАТОРНЫЕ И ИММУНОЛОГИЧЕСКИЕ ИЗМЕНЕНИЯ МОЧЕВЫДЕЛИТЕЛЬНОЙ СИСТЕМЫ ПРИ ЮВЕНИЛЬНОМ ИДИОПАТИЧЕСКОМ АРТРИТЕ У ДЕТЕЙ

Юсупова Г.А., Исраилова Н.А., Мадаминова М.Ш., Азимова Р.А.

АННОТАЦИЯ

Ювенильный идиопатический артрит (ЮИА) является хроническим воспалительным заболеванием суставов у детей, характеризующимся аутоиммунным поражением соединительной ткани и системными проявлениями. Среди внесуставных поражений особое значение имеет вовлечение мочевыделительной системы, которое существенно влияет на течение, прогноз и тактику лечения заболевания. **Цель исследования:** изучить клинико-иммунологические изменения мочевыделительной системы у больных детей с ювенильным идиопатическим артритом. **Материалы и методы исследования:** Обследовано 80 пациентов в возрасте 4–17 лет. Всем больным проведено клинические, лабораторные и иммунологические исследования. **Результаты:** Поражение МВС выявлено у 66 (82,5%) детей, проявляющееся лейкоцитурией (79%), протеинурией (52%), гематурией (35%) и солями в моче (32%). Уровень IL-6 в сыворотке повышен в 5,8 раза, особенно при поли- и системных формах.

Ключевые слова: Ювенильный идиопатический артрит, мочевыделительная система, почки, иммунологические изменения.

Актуальность проблемы: Болезни суставов у детей являются актуальной проблемой педиатрии и ревматологии. Ювенильный идиопатический артрит - это часто встречаемое хроническое воспалительное заболевание суставов у детей, на развитие которого влияют различные факторы. Заболевание может поражать детей любого возраста, характеризуется длительным прогрессирующим течением, приводящим к развитию контрактур и потере функции суставов. ЮИА представляет собой системное хроническое заболевание соединительной ткани с преимущественно аутоиммунным патогенезом, длительностью более 6 недель, развивающееся у детей до 16 лет, характерным проявлением которого является артрит, при исключении другой патологии суставов. Патологический процесс приводит к деструкции поражённых суставов и сочетается у ряда больных с выраженными внесуставными проявлениями. Одним из наиболее значимых внесуставных проявлений при ЮИА является поражение мочевыделительной системы. [10,12, 13,14,20,21,28,30]. Частота патологии мочевыделительной системы (МВС) при ЮИА составляет от 13 до 73%. По частоте поражения мочевыделительной системы ЮИА стоит на третьем месте среди ревматических, уступая лишь таким заболеваниям, как СКВ и СВ [28, 30].

Поражение мочевыделительной системы, при ревматоидном артрите (РА) занимает особое место среди других системных проявлений этого заболевания и оказывает значительное влияние на прогноз болезни, подходы к ее терапии и исход. По данным различных авторов [5,6,8,11,16,19,20,21,27] почечная патология встречается у 20-75% пациентов с данным заболеванием.

Изменения в почках характеризуются ранним появлением нестойкой лейкоцитурии и небольшой протеинурии и гематурии, которые чаще отмечаются в начале заболевания или при

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его обострении и связаны с активностью и тяжестью РА, а также возрастом пациентов [7,8,9,17,21].

ЮИА является одним из основных заболеваний, приводящих к вторичному амилоидозу [18]. Частота его при РА у взрослых колеблется от 2% до 50% [3,12, 24], у детей встречается реже - в 3-15% и развивается преимущественно у больных системными формами в любом возрасте [1,22,29].

Ключевую роль в развитии РЗ играют процессы аутоиммунитета и аутовоспаления, связанные с генетически детерминированными и индуцированными факторами внешней среды дефектами активизации приобретенного и врожденного иммунного ответа [4,9,25,27,30]. При активном воспалении у детей с разными вариантами ЮИА характерным является вовлечение практически всех звеньев иммунной системы, активация клеточного и гуморального звена иммунитета [2,21,23,26]

Такие проявления системного действия ИЛ-6, как лихорадка и утренняя скованность, связаны с суточным ритмом секреции данного цитокина. ИЛ-6 стимулирует дифференцировку остеокластов, активирует их и усиливает резорбцию кости и, как следствие, способствует развитию генерализованного остеопороза, эрозивных изменений в суставах [1,17,30].

Состояние цитокиновой сети при различных вариантах ЮИА до конца не изучено. Некоторые авторы указывают на максимальное повышение ИЛ-6 при сЮА по сравнению с другими вариантами ЮИА. Выявлена взаимосвязь между уровнем провоспалительных цитокинов (ИЛ-1 β , ИЛ-6), хемокинов (IP-10) и клинико-лабораторными показателями активности заболевания (СОЭ, СРБ, количество пораженных суставов) [1,17,24].

Таким образом, развитие хронического воспаления при РЗ опосредуется разнообразными нарушениями в системе иммунитета, активность воспаления коррелирует с изменениями синтеза широкого спектра иммунных медиаторов.

Цель исследования: изучить клинико-иммунологические изменения мочевыделительной системы у больных детей с ювенильным идиопатическим артритом.

Материалы и методы исследования: Обследовано 80 больных детей с ЮИА, из них 54 (67,5%) с суставной формой, 13 (16,2 %) с полиартритической формой, 11 (13,7%) больных детей с системной формой болезни. Из 80 больных 48 (60%) мальчиков и 32 (40%) девочек в возрасте от 4 до 17 лет. Всем больным проводились стандартизированные клинические (сбор анамнеза жизни и болезни больного, оценка и динамика настоящего соматического статуса), лабораторные (общий анализ крови, общий анализ мочи, биохимический анализ крови, креатинин, мочевины, проба Ничипоренко), бактериологические (посев мочи) и иммунологические методы исследования. Произведена оценка проявления дебюта заболевания: системный, полиартикулярный или олигоартикулярный характер. Оценено общее состояние больного и динамика клинических проявлений, рассмотрены данные о фармакологическом анамнезе (сведения о сопутствующей терапии базисными препаратами, предшествующем приеме других НПВС и спектре вызванных ими побочных реакций).

Результаты и обсуждение: Клинические проявления ЮИА у обследованных нами больных характеризовались значительным полиморфизмом симптомов. Анализ анамнеза показал, что первые клинические признаки заболевания появились за промежуток от 6 месяцев до 2 лет до постановки диагноза болезни. В дебюте болезни у абсолютного большинства (87,3%) обследованных нами больных отмечалось ухудшение общего состояния: слабость, утренняя скованность, артралгии, похудание, субфебрильная лихорадка. У 13 наблюдаемых

нами больных отмечался персистирующий вариант олигоартрита, который характеризовался тем, что в течение всего периода заболевания поражались до 4 суставов. Прогрессирующий олигоартрит имел место у 28 обследованных больных и ему было свойственно увеличение числа пораженных суставов после 6 месяцев болезни. Установлены некоторые особенности суставного синдрома в зависимости от формы заболевания, характера течения ЮИА, пола и возраста больных. Так, суставная форма болезни с подострым началом сопровождалась развитием артрита с преимущественным поражением коленных и голеностопных суставов. В дальнейшем чаще других присоединялись лучезапястные и локтевые суставы. Суставно-висцеральная форма отмечалась у 11 обследованных нами больных и клинически характеризовалась высокой температурной реакцией, носящей интермиттирующий характер, не снижающийся при лечении антибиотиками. На фоне лихорадки у больных появлялась полиморфная сыпь ярко-розового цвета.

Среди обследованных нами детей с ЮИА, были выделены больные с поражением МВС в виде инфекций мочевых путей и нефритов. Проведен анализ частоты нефритов у больных с ЮИА, в ходе которого установлено, что мочевого синдром был выявлен у 46 детей из 80 проспективно наблюдаемых детей в возрасте 4-17 лет. Причем дети в период к началу наблюдения с поражением МВС были достоверно старше, чем в группе без поражения МВС ($p \leq 0,05$).

Активность поражения мочевыделительной системы у детей проявлялась протеинурией у 34 больных, гематурией у 23 больных, лейкоцитурией у 52 больных. Соли в анализах мочи у 21 больного, выявлялись в виде оксалатурии у 16, трипельфосфатурии у 3 и уратурии у 2 больных (табл.1).

Таблица 1.

Основные лабораторные показатели активности поражения мочевыделительной системы у детей

Признаки	Поражение мочевыделительной системы, N = 66
Протеинурия	34
Микрогематурия	23
Лейкоцитурия	52
Оксалатурия	16
Трипельфосфатурия	3
Уратурия	2

Лабораторные исследования показали, что достоверно чаще у детей с поражением МВС при ЮИА по сравнению с детьми, не имевшими поражения МВС выявлялись анемия (2 и 3 степени у 12-х – 18,1% детей с поражением МВС и 3 - 3% без поражения), ускоренная СОЭ (40 мм/ч у 26 -39,3% пациентов с поражением МВС и у 6 - 17,6% без поражения). Отмечались также повышение уровня лейкоцитов, палочкоядерных и сегментоядерных нейтрофилов, но без достоверных различий. Среди пациентов ЮИА с поражением МВС микроальбуминурия была выявлена у 14 пациентов (21,2%).

Активность поражения мочевыделительной системы у детей проявлялась изменениями в анализах мочи. Они проявлялись протеинурией у 34(52%) больных, гематурией у 23(35%) больных, лейкоцитурией у 52(79%) больных. Соли в анализах мочи обнаружены у 21(32%) больного, и выявлялись в виде оксалатурии у 16(24%), трипельфосфатурии у 3(5%) и уратурии у 2(3%) больных, смешанные изменения в моче у 22 (33%) больных.

Далее нами были изучены уровни креатинина сыворотки крови и скорость клубочковой фильтрации у данной категории больных по формуле Шварц (табл. 2).

Таблица 2.

Показатели функционального состояния почек по формуле Шварц.

Состояние почек	Дети с поражением МВС, N = 66
Функции почек сохранены, n=52	СКФ= 90-97 мл/мин/1,73м ²
Снижение клубочковой фильтрации, n=14	СКФ= 30-67 мл/мин/1,73м ²

Как видно из таблицы, у больных на момент проведения исследования отмечалось нарушение функции почек у большинства детей с ЮИА с поражением МВС.

Проведены иммунологические исследования провоспалительного интерлейкина (ИЛ-6/IL-6), при ЮИА у детей с целью выявить зависимость локальной продукции цитокинов от активности и тяжести заболевания, в данной работе проводили измерение цитокинов в сыворотке периферической крови у больных детей с ЮИА.

Выявлен уровень IL-6 был в 5,8 раза выше показателей контрольной группы и составил в среднем $47,28 \pm 2,93$ пг/мл ($P < 0,001$), с размахом индивидуальных значений от 20,7 до 55,4 пг/мл. Значения выше среднего встречались в 72,4% случаев. Уровень цитокина был более чем в 10 раз выше значений контрольной группы у больных детей с полиартикулярным и системным вариантами течения ЮИА, и составил в среднем $87,52 \pm 7,41$ пг/мл ($P < 0,001$). Анализ данных показал, что у 20,0% больных был в пределах нижней границы индивидуальных значений, а у 30,0% выше средних значений.

Таким образом, проведенный анализ клинических вариантов и течения ювенильного идиопатического артрита свидетельствует об агрессивности и прогрессирующем характере течения заболевания, которая отражает современную возрастную эволюцию болезни, а также о поражении внутренних органов, особенно МВС, что диктует необходимость поиска эффективных методов лечения и предупреждение побочных действий лекарств на МВС.

Выводы: Лабораторные исследования показали, что достоверно чаще у детей с поражением МВС при ЮИА по сравнению с детьми, не имевшими поражения МВС, выявлялись анемия, ускоренная СОЭ, микроальбуминурия, увеличение креатинина и мочевины в биохимическом анализе крови. Увеличение числа болезненных и припухших суставов, повышение боли, экссудации, протеинурии, гематурии, что свидетельствует об общей патогенетической основе поражения суставов и почек при ЮИА. Тяжелая степень

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течения ЮИА, характеризуется гиперактивацией иммунной системы и чрезмерной выработкой IL-6, что диктует необходимость поиска эффективных методов лечения и предупреждение побочных действий лекарств на МВС.

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A THEORETICAL OVERVIEW OF TBLT AND ITS RELEVANCE FOR 2ND–3RD
GRADE ENGLISH EDUCATION IN UZBEKISTAN

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Abstract: This article presents a theoretical overview of Task-Based Language Teaching (TBLT) and examines its relevance to the English language education of 2nd–3rd grade learners in Uzbekistan. As the demand for effective English instruction grows within the country's primary education system, there is a need to adopt methodologies that promote communication, interaction, and learner engagement. TBLT, grounded in communicative and constructivist theories of language learning, emphasizes meaningful tasks that reflect real-life use of language. The article discusses the core principles of TBLT, outlines the components of a typical task-based lesson, and analyzes its suitability for young learners. Particular attention is given to the challenges faced by teachers in Uzbek classrooms, including large class sizes, limited resources, and traditional teaching habits. The paper concludes that, with appropriate adaptation and teacher support, TBLT can significantly enhance motivation and communicative competence among young English learners in Uzbekistan's primary schools.

Keywords: Task-Based Language Teaching (TBLT); young learners; communicative approach; English education; Uzbekistan; primary school; theoretical framework.

Аннотация: В статье представлен теоретический обзор подхода обучения языку на основе задач (Task-Based Language Teaching, TBLT) и рассмотрена его актуальность для обучения английскому языку учащихся 2–3 классов в Узбекистане. В условиях растущего спроса на эффективное преподавание английского в системе начального образования страны возникает необходимость внедрения методик, способствующих развитию коммуникации, взаимодействия и вовлеченности учащихся. TBLT, основанный на коммуникативных и конструктивистских теориях изучения языка, делает упор на значимые задания, отражающие реальное использование языка. В статье обсуждаются основные принципы TBLT, описываются компоненты типичного урока на основе задач и анализируется его применимость для младших школьников. Особое внимание уделяется проблемам, с которыми сталкиваются учителя в узбекских школах, включая большие размеры классов, ограниченные ресурсы и традиционные методы обучения. Делается вывод, что при соответствующей адаптации и поддержке преподавателей TBLT может значительно повысить мотивацию и коммуникативную компетенцию молодых учащихся английскому языку в начальных школах Узбекистана.

Ключевые слова: Обучение на основе задач (TBLT); младшие школьники; коммуникативный подход; обучение английскому языку; Узбекистан; начальная школа; теоретическая основа

Annotatsiya: Ushbu maqolada Vazifa Asosidagi Til Ta'limi (Task-Based Language Teaching, TBLT) nazariyasi ko'rib chiqilgan va uning O'zbekiston maktablarida 2–3-sinf o'quvchilariga ingliz tilini o'rgatishda dolzarbligi tahlil qilingan. Mamlakatning boshlang'ich ta'lim tizimida samarali ingliz tili ta'limiga bo'lgan talab ortib borayotgan sharoitda, o'quvchilarning muloqot qilish, o'zaro faoliyat va faolligini oshiradigan metodlarni qo'llash zarurati mavjud. TBLT, til o'rganishning

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kommunikativ va konstruktivistik nazariyalariga asoslanib, tilning real hayotda qo'llanilishini aks ettiruvchi mazmunli vazifalarga e'tibor qaratadi. Maqolada TBLTning asosiy prinsiplari muhokama qilinadi, vazifa asosidagi darsning tarkibiy qismlari tasvirlanadi va uning yosh o'quvchilarga mosligi tahlil qilinadi. Shuningdek, O'zbekiston maktablarida o'qituvchilar duch keladigan muammolar — katta sinf jadvallari, cheklangan resurslar va an'anaviy o'qitish usullari haqida ham e'tibor qaratilgan. Xulosa qilinadiki, TBLT tegishli moslashuv va o'qituvchi qo'llab-quvvatlashi bilan boshlang'ich maktab o'quvchilarining motivatsiyasini oshirish va ularning kommunikativ kompetensiyasini rivojlantirishga sezilarli hissa qo'sha oladi.

Kalit so'zlar

Vazifa asosidagi til ta'limi (TBLT); yosh o'quvchilar; kommunikativ yondashuv; ingliz tili ta'limi; O'zbekiston; boshlang'ich maktab; nazariy asos.

Introduction

In Uzbekistan, the instruction of English as a second language has gained significant importance in recent times. In line with the government's efforts to enhance young students' multilingual abilities and international communication skills, English instruction has begun in the early grades of primary school. However, in spite of these modifications, numerous classes continue to employ conventional teaching methods that primarily emphasize mechanical repetition and grammar translation, potentially failing to enhance children's communicative development effectively. These approaches often limit students' opportunities to apply English in meaningful, real-life contexts.

Embracing interactive, student-focused, and age-appropriate methods is essential for addressing the requirements of young learners in the second and third grades. Task-Based Language Teaching (TBLT) provides a framework that focuses on using language as a means to complete meaningful tasks instead of merely learning grammatical forms. TBLT allows children to effortlessly learn language by engaging in enjoyable activities that reflect genuine communication experiences.

This article explores the theoretical foundations of task-based language teaching and analyzes its relevance for teaching English to second and third-grade students in Uzbekistan. It discusses the key concepts of TBLT, highlights its potential advantages for young learners, and emphasizes the challenges that may arise when applying it in the local educational environment.

Theoretical Foundations of TBLT

Task-Based Language Teaching (TBLT) originated in the late 20th century as a component of the wider communicative language teaching approach. It was created as a reaction to conventional, form-centered methods that prioritized grammar rules and precision rather than effective communication. The main concept of TBLT is that language acquisition is most effective when learners engage in meaningful tasks using the language, rather than merely focusing on language forms in isolation. By doing so, TBLT motivates students to concentrate on expressing meaning and reaching particular communication objectives.

As stated by Ellis (2003), a task refers to an activity where learners engage with language for a communicative goal to accomplish a result. In a similar vein, Nunan (2004) describes tasks as classroom activities that engage learners in understanding, creating, or interacting in the target language, focusing mainly on meaning instead of form. Willis (1996) additionally highlights that tasks ought to reflect real-life contexts, enabling learners to employ language in manners that imitate genuine communication. These definitions emphasize that TBLT changes the emphasis of teaching from what learners understand about the language to how effectively they are able to utilize it.

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The theoretical basis of TBLT is anchored in various essential principles. Firstly, it emphasizes meaning, prioritizing communication instead of directly teaching grammar. Secondly, it focuses on the learner, promoting active involvement and independence. Third, it facilitates the acquisition of natural language, allowing grammar and vocabulary to be learned implicitly via interaction. Ultimately, TBLT is grounded in context—tasks are crafted to mirror real-world objectives, enhancing the relevance and appeal of language learning.

From a psycholinguistic viewpoint, TBLT corresponds with theories of second language learning that highlight input, interaction, and output. Students encounter understandable input through tasks, participate in significant interaction with classmates, and create language output that fosters fluency and precision. By engaging in this ongoing process, learners naturally absorb new forms while working towards effective communication.

In general, the theoretical basis of TBLT offers a solid justification for its application in language teaching environments. For young students, particularly in the initial grades, TBLT provides an inviting and age-appropriate setting that promotes curiosity, communication, and confidence in utilizing English.

Relevance of TBLT to 2nd–3rd Grade Learners

Applying Task-Based Language Teaching (TBLT) with young learners in 2nd and 3rd grades necessitates a comprehension of their cognitive, emotional, and language traits. At this point, kids are inherently inquisitive, lively, and enthusiastic about discovering their surroundings. Their learning is frequently hands-on—they grasp new ideas better through practice than through descriptions. Consequently, a method such as TBLT, which focuses on practical, significant activities, closely corresponds with how young children learn new knowledge and skills.

Young children have limited attention spans and can be easily sidetracked, so classroom activities need to be interesting, fun, and visually appealing. TBLT enables teachers to create communicative tasks that resemble games or narratives instead of traditional lessons. Tasks like recognizing items in a classroom, describing preferred animals, or spotting differences in images can encourage learners to utilize English in a natural and confident manner. These activities enable children to use vocabulary, pronunciation, and basic grammatical structures in context, free from the stress of formal grammar teaching.

Another reason TBLT is suitable for 2nd–3rd grade learners is its emphasis on **collaboration and communication**. Children at this age enjoy working with peers and learn effectively through social interaction. Pair and group tasks—such as drawing maps, completing puzzles, or performing short dialogues—encourage teamwork while developing essential communicative skills. These tasks not only foster linguistic growth but also promote social development, as students learn to listen, share, and take turns.

Moreover, TBLT encourages multi-sensory learning, which is vital for young children. Activities that combine listening, speaking, drawing, movement, and visual tools accommodate various learning preferences and enhance lesson engagement. A "shopping task," in which students simulate buying and selling products, enables them to blend physical activity with language practice, enhancing both understanding and fluency.

In Uzbekistan's primary education system, where English is introduced early but typically taught using conventional methods, TBLT can offer considerable advantages. By changing the emphasis from memorization to meaningful interaction, educators can cultivate a more pleasant and

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productive educational atmosphere. Basic, age-suitable activities allow children to see English not merely as a subject in school, but as a way to communicate and connect with others.

Core Components of a TBLT Lesson for Young Learners

A typical Task-Based Language Teaching (TBLT) lesson follows a structured sequence designed to guide learners through stages of preparation, communication, and reflection. According to Willis (1996), the TBLT framework generally consists of three main phases: **the pre-task stage**, **the task cycle**, and **the post-task stage**. When applied to young learners in the 2nd and 3rd grades, each stage should be carefully adapted to suit their cognitive level, interests, and classroom environment.

1. Pre-Task Stage

In this stage, the teacher introduces the topic, activates prior knowledge, and provides necessary language support. For young learners, this stage should be highly engaging, using visual aids, songs, short videos, or storytelling to set the context. For example, if the topic is *"My Family"*, the teacher might show family pictures and ask simple questions such as, "Who is this?" or "How many people are in your family?" This helps children understand the theme and prepares them for the upcoming task without heavy explanation.

2. Task Cycle

The task cycle is the core of the lesson, where learners perform communicative tasks in pairs or groups using the target language. The focus is on meaning and interaction rather than grammatical accuracy. Tasks for 2nd–3rd graders should be simple, short, and concrete, allowing learners to succeed and stay motivated.

Examples of suitable tasks include:

- ✓ **Picture-matching games** (e.g., matching words with images of fruits or animals)
- ✓ **"Find someone who..." activities** (e.g., "Find someone who likes apples")
- ✓ **Role-play tasks** (e.g., shopping in a store, greeting friends, or ordering food)
- ✓ **Information gap tasks** (e.g., describing a missing object in a picture for a partner to guess).

During this phase, the teacher's role is to observe, encourage, and provide language support when needed. The main goal is to create opportunities for natural communication through purposeful use of English.

3. Post-Task Stage

The post-task stage allows learners to reflect on their performance, consolidate new language, and receive feedback. For young learners, this can include simple follow-up activities such as drawing what they learned, labeling pictures, or repeating useful phrases. Teachers can also highlight key vocabulary or structures that emerged during the task, helping children notice language patterns naturally. For instance, after a task on *"My Classroom,"* the teacher might review phrases like "There is a desk," or "This is my book," reinforcing them through a short chant or game.

Adapting this framework for primary school classrooms in Uzbekistan makes English learning more interactive and meaningful. The TBLT lesson structure gives children a clear routine while promoting creativity, communication, and confidence. When implemented consistently, it can transform the classroom into a dynamic space where English is used as a tool for real communication rather than memorization.

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Challenges and Considerations in the Uzbek Context

Though Task-Based Language Teaching (TBLT) provides numerous theoretical and educational benefits, its application in primary schools in Uzbekistan faces various obstacles. These challenges arise primarily from contextual elements like overcrowded classrooms, scarce resources, and inadequate teacher preparation. Grasping these limitations is crucial for successfully tailoring TBLT to fit local educational contexts.

A significant challenge is the size of the class. In numerous Uzbek schools, English lessons include 25–35 students, which complicates teachers' ability to oversee each student's engagement in communication activities. In such environments, group and pair activities, essential to TBLT, can become loud and difficult to oversee. To tackle this, educators can arrange activities that engage the entire class while fostering interaction—such as brief question-and-answer games or group problem-solving tasks that enable involvement within a defined framework.

A further obstacle is restricted access to genuine materials and technological tools. Numerous primary schools do not have adequate audio-visual materials, flashcards, or internet connectivity to facilitate task-based learning activities. Because TBLT depends on relevant input and situational learning, these constraints may limit the range of tasks. Educators can address this by utilizing locally sourced and inexpensive resources, like illustrations from textbooks, custom flashcards, or actual items from the classroom setting, to mimic genuine communication.

One more issue concerns **teacher readiness and training**. Many teachers in Uzbekistan are more familiar with traditional, grammar-focused approaches and may find it difficult to design or manage open-ended tasks. TBLT requires teachers to act as facilitators rather than knowledge transmitters, which represents a shift in classroom dynamics. To support this transition, ongoing professional development programs and workshops should focus on practical task design, classroom management strategies, and integrating TBLT with the national curriculum.

Finally, **curriculum and assessment systems** also influence how easily TBLT can be adopted. Since national exams and textbooks often emphasize accuracy and written forms, teachers may feel pressured to prioritize grammar and translation exercises. A balanced approach is therefore recommended—teachers can combine task-based lessons with brief focus-on-form activities to meet curriculum requirements while maintaining communicative goals.

In short, while implementing TBLT in Uzbekistan's primary schools presents challenges, these can be mitigated through careful adaptation, resourcefulness, and teacher support. By starting with small-scale, structured tasks and gradually introducing more open-ended communicative activities, teachers can make TBLT both practical and effective for young learners in the local context.

Conclusion

Task-Based Language Teaching (TBLT) provides a powerful theoretical and pedagogical framework for enhancing English language education, particularly in the early grades of primary school. Its focus on meaningful communication, learner-centered instruction, and authentic language use aligns well with the developmental needs of 2nd–3rd grade learners, who learn best through play, interaction, and discovery. By engaging children in purposeful tasks, TBLT not only promotes linguistic competence but also fosters creativity, confidence, and collaboration.

In the context of Uzbekistan's educational system, TBLT offers a valuable alternative to traditional, form-focused teaching methods. Although challenges such as large class sizes, limited materials, and exam-oriented curricula remain, these can be addressed through careful adaptation and professional development for teachers. When implemented flexibly, even simple classroom tasks can

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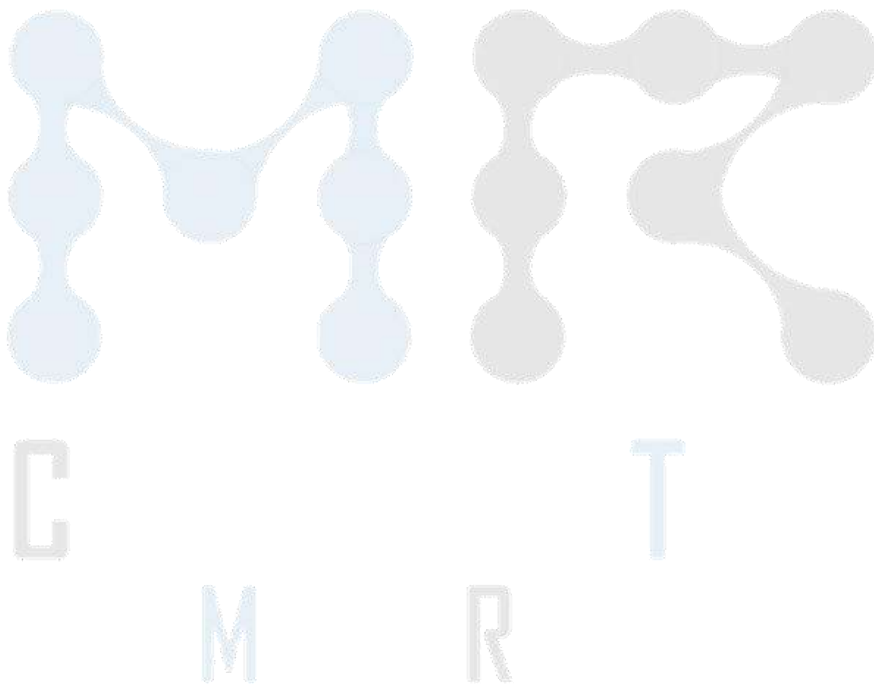
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transform English lessons into dynamic environments where language serves as a tool for real communication rather than rote memorization.

Overall, the theoretical principles of TBLT demonstrate its strong potential for improving young learners' motivation and communicative ability. Integrating task-based approaches into the primary English curriculum of Uzbekistan can contribute to developing a new generation of learners who view English as a living, useful language for expressing ideas, solving problems, and connecting with the world.

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Анализ заболеваний системы кровообращения у детей

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Аннотация

В данной статье представлен научный анализ распространенности, основных причин и методов профилактики заболеваний системы кровообращения у детей. Заболевания системы кровообращения являются одной из важнейших проблем для здоровья детей, снижая их физическое развитие, образовательную активность и качество жизни. В статье рассматриваются патогенез, клинические проявления и методы диагностики таких заболеваний, как врожденные и приобретенные пороки сердца, артериальная гипертензия, анемия. Также обсуждаются меры профилактики заболеваний путем формирования здорового образа жизни, правильного питания и физической активности у детей. Результаты исследования имеют большое значение для разработки эффективных профилактических программ заболеваний системы кровообращения.

Ключевые слова: здоровье детей, система кровообращения, пороки сердца, анемия, артериальная гипертензия, профилактика, патогенез, диагностика.

Актуальность. Сегодня одной из важнейших медико-социальных проблем, которая уже много лет актуальна для мирового сообщества, являются болезни системы кровообращения. Этиология и патогенез болезней системы кровообращения (БСК) сложны, многоэтапны и различны для каждого отдельного заболевания. Они по-прежнему занимают 1-е место в структуре причин смерти населения (40,5%). При этом исследования в области эпидемиологии болезней системы кровообращения (БСК) носят репрезентативный характер, показывая значительный рост заболеваемости, омоложение населения и распространение этих заболеваний на слои населения, ранее не сталкивавшиеся с подобной патологией [1,2,3,4,15].

Отмечено, что доля смертей от сердечно-сосудистых заболеваний (ССЗ) высока не только среди взрослых, но и среди детей [5]. В городских мегаполисах, то есть в условиях негативного воздействия различных техногенных факторов окружающей среды, количество обращений за медицинской помощью и уровень заболеваемости заболеваниями системы кровообращения могут существенно различаться между отдельными поликлиниками. Это обусловлено условиями проживания населения в отдельных городских районах [6,7,8,14].

Сегодня оценка уровня и динамики заболеваемости заболеваниями системы кровообращения среди городского населения, а также их возможных причин в региональном разрезе не утратила своей актуальности. Данная ситуация свидетельствует о том, что в структуре причин смерти населения г. Ташкента болезни системы кровообращения (БСК) по-прежнему занимают лидирующие позиции, несмотря на реализацию государственных и региональных программ, направленных на снижение смертности населения и повышение качества кардиологической помощи. Стоит отметить, что, согласно последним

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опубликованным данным, их доля среди причин смерти составляет 40,5%, а в 2014–2018 годах показатель смертности от этой причины достигал 9,3 случая на 1000 населения [9,10,11,12,13].

Цель исследования: Провести сравнительное сравнение показателей заболеваемости детского населения города Ташкента.

Материалы и методы исследования. Оценка уровня заболеваемости детского населения проводилась дифференцированно по отдельным районам города. Данная тактика была выбрана с учетом исторических факторов, поскольку значительная часть населения Ташкентской области — 75,8% — прикреплена к определенным поликлиникам по территориальному признаку. В частности, в 5 детских поликлиниках г. Ташкента оказывается медицинская помощь более 3000 детей в возрасте до 14 лет (что составляет примерно 79% населения города) и осуществляется организация медицинской помощи населению по региональному признаку. Ранжирование (этапизация) показателей заболеваемости проводилось с использованием компьютерной программы «Разработка критериев оценки показателей заболеваемости населения», специально разработанной сотрудниками кафедры «Пропедевтика детских болезней» Ташкентского государственного медицинского университета [22].

Данный метод основан на следующем алгоритме:

- рассчитывается средний многолетний уровень (M);
- определяется среднеквадратичное отклонение показателей от среднего многолетнего уровня (σ);
- рассчитывается средняя ошибка ($m = \sigma / \sqrt{n}$, где n – количество лет наблюдения);
- данные наблюдений проверяются на соответствие нормальному распределению по «правилу трёх сигм» ($3s$), то есть практически все значения должны находиться в диапазоне от $M - 3s$ до $M + 3s$;
- на этом основании определены следующие уровни:
 - высокий — $M+s$ и выше,
 - средне-высокий — от $M+0,5s$ до $M+s$,
 - средний — от $M-0,5s$ до $M+0,5s$,
 - средне-низкий — от $M-s$ до $M-0,5s$,
 - низкий — $M-s$ и ниже.

По результатам данного анализа выявлены территории высокого риска с высокой заболеваемостью детского населения.

Результаты исследования и их обсуждение. В ходе изучения общей структуры заболеваемости детей г. Ташкента было выявлено, что детские сердечно-сосудистые заболевания (ССЗ) не входят в пятерку ведущих классов болезней. Следует отметить, что при этом болезни системы кровообращения (ССЗ) у детей занимают 8–9-е место после болезней органов дыхания, травм, отравлений и болезней мочеполовой системы.

Для сравнения, среди взрослого населения болезни системы кровообращения (ССЗ) стабильно занимают 4-е место (с 11,1% до 12,5% в общей структуре заболеваемости за пятилетний период) – после болезней органов дыхания, травм, отравлений и болезней мочеполовой системы.

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В целях оптимизации процесса совершенствования системы здравоохранения, а также повышения качества медицинской помощи и ее оказания населению в качестве одного из основных показателей был выбран уровень заболеваемости населения.

Данный показатель определен на основании результатов анализа данных о числе заболеваний, зарегистрированных среди пациентов, проживающих на территории обслуживания медицинской организации. Приведенные выше данные основаны на данных, полученных при обращении в детские поликлиники, особенно среди детей до 14 лет. На этой основе был разработан подход к оценке уровня заболеваемости болезнями системы кровообращения среди детского населения, отраженный в форме № 12 Государственной службы статистики – «Сведения о числе заболеваний, зарегистрированных среди пациентов, проживающих на территории обслуживания медицинской организации».

Исследование проводилось на основе баз данных Ташкентского государственного медицинского университета за 2014–2018 годы, охватывающих возрастную группу детей до 14 лет. В связи с этим были рассчитаны интенсивные показатели, исходя из числа случаев заболевания на 1000 человек в каждой возрастной группе населения (дети до 14 лет), и определен средний многолетний уровень заболеваемости (М). Динамика показателей оценивалась по темпу прироста заболеваемости в последнем году (2018) по сравнению с начальным годом утвержденного периода (2014), который проводился с использованием интенсивных показателей заболеваемости для возрастной группы детей до 14 лет (таблица 1).

Таблица 1

Распространённость болезней системы кровообращения среди городских детей

Молодежная группа	Годы					Годы	Средняя степень
	2021	2022	2023	2024	2025	Средняя степень	
Число людей с этим заболеванием (на 1000 детей этого возраста)							
14 дети в возрасте до	18,6	20,3	19,7	18,6	15,5	23,68±1,35	5,11
Впервые в жизни диагностировано (на 1000 детей этого возраста)							
Дети до 14 лет	7,68	13,5	15,40	15,90	16,88	10,40±1,35	32,11

Зоны риска были выявлены в результате ранжирования показателей с использованием среднего многолетнего коэффициента заболеваемости (М), квадрата отклонения показателей от среднего многолетнего уровня (σ) и алгоритма определения границ рангов на этой основе.

Оказалось, что по среднемноголетнему коэффициенту заболеваемости детей болезнями системы кровообращения опасными считаются территории с показателем заболеваемости более 15,65 случаев на 1000 детей. К таким территориям относятся зоны обслуживания следующих детских поликлиник:

- Поликлиника № 13 — $20,40 \pm 1,50$ случая,
- Поликлиника № 12 — $12,65 \pm 0,42$ случая (таблица 2).

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Таблица 2 Заболевания системы кровообращения у детского населения по данным медицинской помощи

Медицинские организации	Годы					M±m	2021 годовой темпы роста
	2021	2022	2023	2024	2025		
Семейная поликлиника №1	1,89	1,54	1,67	2,08	2,20	1,87±0,17	13,82
Семейная поликлиника №10	9,26	8,25	9,58	14,12	14,80	11,22±2,01	36,65
Семейная поликлиника №11	12,30	9,68	12,10	11,86	12,50	11,69±0,75	1,28
Семейная поликлиника №12	11,65	12,25	13,48	12,75	13,20	12,65±0,42	10,50
Семейная поликлиника №13	23,31	18,40	20,65	19,15	20,12	20,40±1,50	-20,80

На основе данных 5 государственных детских поликлинических медицинских учреждений разработаны шкалы оценки показателей заболеваемости и проведено ранжирование городских территорий по уровню изучаемой патологии. При этом в 3 из 5 городских территорий отмечен рост уровня заболеваемости: за пять лет темпы прироста составили от 1,36% (Детская поликлиника № 11) до 55,30% (Детская поликлиника № 10). Средний многолетний уровень сердечно-сосудистых заболеваний в районе города Ташкента составляет $20,40 \pm 1,50$ случая на 1000 детей в возрасте до 14 лет. За последние 5 лет (2021-2025 гг.) наблюдается рост заболеваемости детского населения: темпы прироста числа случаев обращения за медицинской помощью составили 5,11%; Число детей, впервые в жизни диагностированных, составило 21,11%.

Следует отметить, что средний многолетний показатель сердечно-сосудистых заболеваний среди взрослого населения ($403,14 \pm 21,36$ случаев на 1000 населения в возрасте 18 лет и старше) в 16,3 раза выше, чем у детей до 14 лет, что согласуется с результатами других исследований. Структура сердечно-сосудистых заболеваний среди детского населения существенно отличается от аналогичной структуры среди взрослого населения.

Таким образом, у взрослого населения Ташкентской области в структуре сердечно-сосудистых заболеваний преобладают заболевания, характеризующиеся повышенным артериальным давлением – 51,8%, цереброваскулярные заболевания – 18,1%, ишемическая болезнь сердца – 16,8%, в структуре сердечно-сосудистых заболеваний среди детского населения эти нозологии составили 1,8, 0,1 и 0,05%. Среди регистрируемых в форме государственного статистического отчета № 12 «Сведения о числе заболеваний, зарегистрированных у пациентов, проживающих на территории обслуживания медицинской

организации», наиболее часто среди детского населения регистрируются заболевания вен, лимфатических сосудов и лимфатических узлов (2,4%), при этом большинство случаев сердечно-сосудистых заболеваний у детей относится к категории «другие болезни сердца», которая регистрируется более чем по 20 нозологиям.

В связи с отсутствием совершенствования статистического учета заболеваний детского населения в дальнейшем необходимы дополнительные выборочные исследования для определения структуры сердечно-сосудистых заболеваний у детского населения. Результаты анализа заболеваемости некоторыми заболеваниями сердечно-сосудистой системы взрослого населения в городских поселениях Ташкентского городского округа были ранее опубликованы, и до настоящего времени наблюдаются существенные различия в их значениях.

Такие различия в показателях могут быть объяснены различными факторами, включая состав населения региона, кадровый состав медицинских учреждений, в том числе наличием или отсутствием врача-кардиолога. Вместе с тем в ходе проведенного нами исследования выявлены региональные закономерности в структуре, уровне и динамике заболеваемости ССЗ детского населения на основе данных об обеспеченности населения медицинской помощью.

По результатам исследования разработана авторская пятибалльная шкала оценки, которая использована для формирования и анализа показателей заболеваемости детского населения ДСК в отдельных городских районах – зонах обслуживания поликлиник, что является практически значимым элементом для разработки предложений по совершенствованию организации сети учреждений здравоохранения с учетом выявленных территориальных особенностей.

Заключение. Выявленные различия показателей заболеваемости в отдельных городских районах, обслуживаемых детскими поликлиниками, могут быть объяснены различными факторами, включая возрастную структуру населения конкретного района, кадровый состав лечебного учреждения, в том числе наличие или отсутствие детского кардиолога. Знание данных о заболеваемости детского населения отдельных городских районов позволяет рационально оптимизировать ресурсы городской системы здравоохранения для улучшения и повышения качества медицинской помощи населению с сердечно-сосудистыми заболеваниями на догоспитальном этапе.

Кроме того, каждый регион России имеет свои особенности: климатические различия, неблагоприятные погодные условия для здоровья человека, резкие изменения геомагнитной и солнечной активности, резкие перепады температуры воздуха в течение суток (повышение или понижение температуры на 8 °C и более), жара (выше +25 °C) или сильный холод (ниже -20 °C), перепады атмосферного давления (более 6 мм рт. ст. в течение суток), сильный ветер (8 м/с и более), высокая влажность воздуха (80% и более). Это требует уточнения перечня региональных факторов риска, влияющих на возникновение и обострение сердечно-сосудистых заболеваний. Подобные исследования не проводились среди детей до 14 лет, проживающих в г. Ташкенте. Вышеизложенное обосновало актуальность проведения следующих этапов исследования - изучение влияния погодных факторов на количество обращающихся за медицинской помощью с сердечно-сосудистыми заболеваниями; анализ уровня медицинского обслуживания населения города (структура медицинских организаций, укомплектованность и профессиональный уровень кадрового потенциала, распределение

ресурсов здравоохранения на догоспитальную и стационарную медицинскую помощь) и другие.

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**QOQON XONLIGI DAVRIDA KARVON YO‘LLARI ORQALI KIRIB KELGAN
AN‘ANA VA USLUBLARNI MUZEYLARDA AKS ETISHI**

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**ОТРАЖЕНИЕ В МУЗЕЯХ ТРАДИЦИЙ И СТИЛЕЙ, РАСПРОСТРАНЯВШИХСЯ
ПО КАРАВАННЫМ ПУТЯМ В ПЕРИОД КАКАНСКОГО ХАНСТВА**

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**REFLECTION IN MUSEUMS OF MOMENTS AND STYLES THAT PENETRATED
THROUGH CARAVANS DURING THE TIME OF THE KAGAN KHANATE**

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Annotatsiya: Ushbu maqolada Qo‘qon xonligida karvon yo‘llari bo‘ylab sodir bo‘lgan madaniy almashinuvlar, jumladan, ilm-fan, san‘at, tarixshunoslik, diniy ta‘limotlar, me‘morchilik uslublari va adabiy g‘oyalar bugungi kunda muzeylarda o‘z aksini topganligi tahlil qilingan

Таянч иборалар: muzey ko‘rgazmalari, transmadaniy, stilistik xilma-xillik, gibrud uslublár, antikvarlar,

Аннотация. В статье анализируется культурный обмен, происходивший в Кокандском ханстве по караванным путям, включая науку, искусство, исторические науки, религиозные учения, архитектурные стили и литературные идеи, отраженные в музеях сегодня

Ключевые слова: музейные экспозиции, транскультурное, стилистическое разнообразие, гибридные стили, древности, концепции

Abstract: This article analyzes the cultural exchange that took place in the Kokand Khanate along caravan routes, including science, art, historical studies, religious teachings, architectural styles, and literary ideas, reflected in museums today

Key words: museum exhibitions, transcultural, stylistic diversity, hybrid styles, antiquities, concepts

Kirish. Markaziy Osiyo hududida 18 – 19 yuzyilliklarda Qo‘qon xonligi siyosiy va madaniy markaz sifatida shakllanib, keng miqyosdagi xalqaro va ichki madaniy aloqalar orqali o‘z sivilizatsiyaviy salohiyatini mustahkamladi. Xonlik Hindiston, Xitoy, Eron, Buxoro, Xiva, Qashg‘ar, Rossiya bilan madaniy aloqalar olib borgan, shuningdek, ilm-fan, adabiyot va diniy ta‘lim sohasi bo‘yicha ham taraqqiy etib borgan. Bu jarayonlar esa transmadaniy yo‘nalishlar tizimi sifatida ushbu davrdagi madaniy merosni muzeyshunoslik nuqtai nazaridan ham o‘rganish imkonini beradi.

Karvon yo‘llari va Ipak yo‘li orqali sodir bo‘lgan madaniy almashinuv jarayonlari, ayniqsa, Qo‘qon xonligi madaniyatining shakllanishida ustivor yo‘nalish sifatida namoyon bo‘lgan. Xususan, madaniy an‘analarining mintaqalararo tarqalishi bu davrning ijtimoiy-madaniy hayotiga xilma-xillik baxsh etgan. Ipak yo‘li bo‘ylab harakat qilgan olimlar, sayyohlar, savdogar va ziyoratchilar orqali

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madaniyatlar o'rtasida axborot, uslub, g'oyaviy qarashlar o'zaro almashinuvga sabab bo'lgan. Bu holat Qo'qon xonligining amaliy san'at, me'morchilik, musiqa va yozma madaniyatida yangi shakl va ramzlar paydo bo'lishida bevosita tasir ko'rsatgan. Bu jarayonlar hozirgi muzey ekspozitsiyalarida ko'p hollarda stilistik xilma-xillik va gibrid uslublarning izohlanishi orqali ifodalanadi. Ammo ularni yanada to'liq ochib berish uchun zamonaviy ekspozitsion konseptlar, ya'ni tematik ekspozitsiyalar, muloqotga asoslangan ko'rgazmalar, va transmilliy meros konsepsiyalariga ehtiyoj mavjud.

ADABIYOTLAR TAHLILI VA METODLAR. Mazkur muammoni o'rganishda tarixiylik, tarixiylik, tizimlilik, analiz va sintez, kompleks yondashuv, kontent analiz, retrospektiv tahlil, qiyosiy tahlil kabi metodlaridan foydalanildi.

MUHOKAMA VA MUNOZARA. Bugungi kunda Qo'qon davlat muzey- qo'riqxonasidan karvon yo'llari orqali kirib kelgan noyob osori-atiqalar ham o'rin egallagan. Eron va Hind ustalari tomonidan yasalgan guldun-vaza, qalandar qovog'i, fil shaklidagi quti, xumcha, oftoba, nok shaklidagi surmadon o'z uslubi va bejirimligi bilan diqqatga sazovordir. Espozitsiyadan o'rin egallagan chinni laganlar, likopcha, chilim, choy idishlari yorqin ranglarda va nafis bo'yoqlarda ifodalanganligi bilan ko'zni quvontiradi [1].

Karvon yo'llari orqali kirib kelgan an'na va uslublar O'zbekiston, xususan, Qo'qon xonligi tarixida o'ziga xos sivilizatsiyaviy ahamiyat kasb etgan. Aynan karvon yo'llari orqali ilmiy maktablar, diniy ta'lim tizimi va adabiy-estetik qarashlar o'zaro integratsiyalashgan.

Karvon yo'llarining tarixiy – madaniy kontekstdagi rolini o'rganilganda, Qo'qon xonligining “hududidan o'tuvchi karvon yo'llari nafaqat savdo vositasi, balki tafakkur shakllantiruvchi madaniy arteriya vazifasini bajarganligini” aytish joiz. “Bu yo'llar orqali Hindiston, Xitoy va Eron adabiyoti, Qur'on tafsirchiligining yangi namunalari, tasavvufiy risolalar Qo'qon kutubxonalariga kirib kelgan”.

Qo'qon xonligining Hindiston bilan o'zaro madaniy aloqalar orqali Hindistondan ilm-fan, adabiyot, musiqiy asarlari kirib kelgan. Hindistonning turli shaharlari, jumladan, Delhi va Lahor, Qo'qon xonligi uchun ilm-fan va san'at markazlari sifatida muhim rol o'ynagan. Hindiston bilan madaniy aloqalar nafaqat ilmiy sohada, balki musiqa va raqs san'ati sohasida ham rivojlangan. Hind san'atining elementlari, masalan, rassomlik va musiqaning ayrim turlari, Qo'qon xonligi madaniyatiga kirib borgan. Shuningdek, Afg'oniston bilan madaniy aloqalar ham mavjud bo'lgan. Bu davlatlar bilan madaniy aloqalar orqali Qo'qonliklar yangi san'at turlarini o'zlashtirgan. Shuni alohida ta'kidlash joizki, Hindiston bilan O'rta Osiyo xonliklari jumladan, Qo'qon xonligining elchilik munosabatlari ikki hudud xalqlari o'rtasidagi ma'naviy-madaniy aloqalarning yo'lga qo'yilishida ham muhim o'rin tutgan.

O'rta Osiyo xonliklarining Sharqiy Turkiston va Xitoy bilan bevosita chegaralari Qo'qon xonligi hududiga to'g'ri kelgan. Shu jihatdan O'rta Osiyoning bu davlatlar bilan madaniy aloqalarini, asosan, Qo'qon xonligi misolida ko'rish mumkin. Ikki hudud aholisi o'rtasidagi o'zaro madaniy-ma'naviy almashinuv ham bir-birlarining madaniyatini boyitishga xizmat qilgan. Xususan, Qo'qon xonligi me'morchiligida, “qashqarcha mo'ri-o'choq”, “qashqarcha ravon yoki ayvon”, zargarlik san'atida, “qashqarcha baldoq”, “qashqarcha zirak” Rishton kulolchiligida “chinni”, kandakorligida “qashqarcha qumg'on” kabi yangi mahsulotlarni yaratishning uslublari o'zlashtirilgan. O'zbek shashmaqomlari tarkibiga “Mushvirak”, “qashqarcha rox” kabi uyg'ur maqom kuylarining kiritilishi ikki xalqning musiqa sohasida yaqindan aloqada bo'lganligini ko'rsatadi [2].

Halqaro savdo yo'li hisoblangan Bag'dod, Hamadon, Nishopur, Marv, Omul (Chorjo'y) Buxoro, Samarqand, Shosh, Taroz (Janbul), Kulon, (Lugovaya stansiyasi) Marki, Bolog'osun, Siyob,

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Issiqko'lining janubiy qirg'og'i va Sharqiy Turkiston, Old Osiyo, Mongoliya va Xitoy bilan birgalikda Toshkent orqali o'tganligi bois, savdo aloqalari yaxshi rivojlanganligidan dalolat beradi [3]. Toshkentlik zargarlar Qashqardan marjon, Polshadan kumush, turli rang va shakldagi shisha, firuza toshlarni sotib olib kelishgan[4].

Xonlik davrida hunarmandchilik uchun kerak bo'ladigan ashyolar turli davlatlardan olib kelingan. Masalan Toshkentning zargar ustalari taqinchoqlar uchun kerakli bo'lgan marjonlar – korallarni Qashqardan; munchoq-firuza – emal tosh bo'lib, asosan Moskvadan keltirilgan turli xildagi mayda munchoqlardan ustalar maxsus o'zlari tayyorlardilar; Xitoy shisha yoki mino – alohida emalga o'xshash shisha bo'lib, Xitoydan keltirilgan. Unda Xitoy tang'asi aks etgan (bu shishaning bahosi o'sha davrda 1 rub 50 kop. turgan) mahsulotlardan foydalanganligi xaqida ma'lumotlar uchraydi [5].

Bugungi kunda muzeylardagi Qo'qon xonligi davriga oid bo'lgan ekspozitsiyalarda karvon йўллари орқали кириб келган мисдан ясалган tangalar ham saqlanadi. Mis tangalar Qo'qon xonligida Rossiya hamda Xitoydan keltirilgan misdan ham tayyorlangan. Qo'qon zarbxonasi ishchilari tanga zarb etishga mohir usta bo'lganlar [6]. Bu borada olib borilgan hamkorliklar o'zaro madaniy aloqalarni mustahkamlashga xizmat qilgan.

Xonlik davrida karvon yo'llari orqali olib kelingan diniy va ilmiy asarlar, qo'lyozmalar Qo'qon madrasalarining boyishiga, shu bilan birga, mintaqaviy tafsir maktablarining shakllanishiga zamin yaratgan. Qo'qon xonligining kutubxonalarida "Mashhad, (Eron) Hirot, Shom shaharlaridan olib kelingan hadis va fiqh risolalari saqlangan. Bu esa Ipak yo'lining madaniy rolini chuqur tushunishga asos bo'ladi" [7]. Bunday risolalar orasida Imom G'azzoliy, Navoiy, Sa'diy, Hofiz, Jomiy kabi allomalarning asarlari borligi Qo'qonda uslub va estetik idealning turli manbalardan oziqlanib shakllanganini ko'rsatadi. Bugungi kunda Alisher Navoiy nomidagi Davlat adabiyot muzeyi fondi (№ 163 raqamli) da Alisher Navoiy asarlari to'plamiga ishlangan unvon tasvirlari ham saqlanadi.

Shuningdek, Qo'qon davlat muzey- qo'riqxonasining Qo'qon xonligi davriga oid (4-5 xona) bo'limda Buxorodan keltirilgan buyumlar ham saqlanadi. Ular orasida marmar tovoqlar esa Buxoro amirligiga qarashli Nurotada va G'ozg'onda tayyorlangan bo'lib, elchilik va savdo munosabatlari bilan bu yerga kirib kelgan (devoriy vitrina) [8].

Qo'qon xoni Norbo'tabiy (1763–1798) va Buxoro amiri Shohmurod (1785–1800) hukmronligi davrida har ikkala davlatning hududlari kengayib, ularning jahon bozoridagi mavqei yuksala boshlagan. Buxorolik to'quvchilar orasida qo'qonlik savdogarlar keltirgan axsi ipagining dovrug'i mashhur bo'lib, Buxoro shahri guzarlaridan biri "Axsi shoyi guzari" deb nomlangan. Buxoro-Qo'qon tashqi savdo aloqalari mavsumiy xarakterga ega bo'lib, ular dovon oshib o'tish, yo'l qiyinchiliklari va masofa bilan bog'liq holda kechgan. Buxoroga qo'qonlik savdogarlarning karvonlari har yili ikki marta yoz va kuz oylari oxirida kelgan. Buxorodagi "Yangi Saroyi Barra" karvonsaroyi qo'qonlik savdogarlarning to'xtash joyi bo'lib, u yerda keltirilgan mollar obdon tekshiruvdan o'tkazilgandan so'ng sotish narxi belgilangan va savdo do'konlariga tarqatilgan[9].

Qo'qondan Qashqarga boruvchi savdogarlar esa o'z mollarini ijaraga olingan otlar (har bir otga 8 pud) ga yuklab, har bir ot uchun 2 – 4 tillo tangadan yo'l haqqi to'lagan. O'z navbatida shuni ham qayd etish kerakki, quruqlikdagi savdo karvonlarida yuk tashishda har bir tuya uchun to'lanadigan yo'l haqqi o'rtacha 1–1,5 tillo tanga bo'lgan [10].

Qo'qon xonligi shoir va mutafakkirlari ham Ipak yo'li orqali kirib kelgan estetik tafakkurdan ta'sirlangan. Jumladan, Mashrab, Fazliy Namangoniy va boshqa adiblar turkiy-islomiy an'analarga erkin yondashgan, bu esa Qo'qon adabiy maktabining shakllanishiga zamin yaratgan. "Qo'qon adabiy

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muhitida karvon yo'llari orqali kelgan forsiy-turkiy adabiy g'oyalar singib, mahalliy poetik tafakkurga ko'chdi. Ayniqsa, Xuroson, Balx va Hirot adabiy muhitining ta'siri sezilarli bo'lgan".

Qo'qon xonligi XVIII–XIX asrlarda Markaziy Osiyoda iqtisodiy va madaniy jihatdan faol hududlardan biri bo'lib, bu davrda karvon yo'llari orqali faqat mahsulotlar emas, balki ilm-fan, san'at, tarixiy ilmlar, diniy ta'limotlar, me'moriy uslublar, adabiy g'oyalar ham almashinib borgan. Ana shu murakkab oqimlar tufayli Qo'qon xonligi Sharq va G'arb o'rtasidagi vositachi madaniy markazga aylangan.

НАТИЖАЛАР. Qo'qon xonligining karvon yo'llari va Ipak yo'li tizimiga integratsiyalashuvi haqida quyidagilarni aytish joiz. "Qo'qon xonligi hududi orqali o'tgan karvon yo'llari Xitoy, Hindiston, Xorazm, Buxoro va Rossiya imperiyasini bog'lab turar edi. Bu yo'llar orqali ilm, axloq, san'at, tibbiyot va tasavvufga oid bilimlar tarqalib, Qo'qonda universal tafakkur muhiti shakllangan".

Tahlillar shuni ko'rsatadiki, karvon yo'llari orqali Qo'qon xonligida madaniy, estetik, diniy va ilmiy g'oyalar almashinuvining murakkab tizimi yuzaga kelgan. Bu jarayonlar O'zbekistonning tarixiy madaniyati va milliy tafakkur taraqqiyotining tarkibiy qismidir. Ayniqsa, Qo'qon madaniy fenomenini Ipak yo'li doirasidagi global madaniyatlararo almashinuv bilan bog'lab o'rganish bugungi ilmiy izlanishlar uchun dolzarb yo'nalish hisoblanadi.

Buyuk ipak yo'li bo'ylab yurgan karvonlar G'arb va Sharq madaniy g'oya va an'alarini bir-biriga etkazib beruvchi vosita vazifasini ham o'tagan [11].

XVIII–XIX asrlarda Qo'qon xonligi transmadaniy jarayonlarning markaziy nuqtalaridan biriga aylangan. Geosiyosiy jihatdan strategik hududda joylashgan Qo'qon xonligi Sharq va G'arb, Shimol va Janub o'rtasidagi karvon savdo yo'llari tugunida bo'lib, uning orqali nafaqat moddiy boyliklar, balki tarixiy bilimlar, falsafiy konsepsiyalar, diniy ta'limotlar, madaniy urf-odatlar ham tarqalgan.

XULOSA. Qo'qon xonligi tarixida karvon yo'llari orqali uslub va qadriyatlarning almashinuvi zamonaviy o'zbek madaniyatining shakllanishida asosiy omil bo'lib xizmat qilgan. Bu jarayon o'zbek xalqining ilmiy, diniy, adabiy tafakkurini jahon madaniy merosi bilan uyg'unlashtirgan holda mintaqaviy sivilizatsiyaning yuksalishiga yo'l ochgan.

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INFLUENCE OF DEFOLIANTS ON THE OPENING OF BOLLS OF COTTON
VARIETIES

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Аннотация: В вариантах 16-18 с применением смеси Хим-экстра + Этифон в норме 0,100+1,5 л/га, 0,150+1,0 л/га и 0,200+0,5 л/га относительно высокие показатели раскрытых коробочек составили 97,5%, полураскрытых 0,5%, скорость раскрытия 42,4% и разница от контроля 25,7%.

Ключевые слова: состояние почвы, слой, рост, ветвление, разветвление, точка роста.

Abstract: In variants 16-18 with the application of mixtures of Chem-extra + Etifon at a rate of 0.100+1.5 l/ha, 0.150+1.0 l/ha, and 0.200+0.5 l/ha, the relatively high number of opened bolls was 97.5%, half-opened bolls - 0.5%, the opening rate - 42.4%, and the difference from the control was 25.7%, which was obtained when using Chem-extra at a rate of 0.100 l/ha + Etifon at a rate of 1.5 l/ha.

Key words: soil condition, layer, growth, branching, branching, growth point.

Introduction. It can be said that the opening of cotton bolls depends on a number of external factors, as well as on the agrotechnical measures carried out, as well as the timing and optimal rates of defoliation [2].

For defoliation, chemical substances - defoliants - are used, which cause processes similar to aging or natural shedding of plant leaves, as a result of which the opening of cotton bolls is accelerated by 15-20% [8].

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Research methodology. Based on the above urgent tasks, during 2018-2022, our research on the topic was conducted in the conditions of meadow-sodic, mechanically heavy loamy, slightly saline soils of the scientific experimental station of the Research Institute of Cotton Breeding, Seed Production and Growing Agrotechnologies, located in the Kuva district of the Fergana region, with a groundwater depth of 1.6-1.8 meters [5].

Research results. Experiments 1-2, conducted in the studies, were also carried out in 2018-2020, and under the conditions of 2020, under the control of variants (1-6), where the application of defoliant was prescribed for the C-8290 cotton variety with 30-40% boll opening, initially 33.8% of the bolls opened, after 14 days this indicator was 65.7%, the half-opened bolls were 18%, and the opening rate was 31.9%. This last indicator differs by 0.6% from the parallel variant of the C-8290 variety in the 1st experiment, since all cotton varieties were grown in the same climatic conditions of 2020, moreover, on the same plot. Liquid XMD was applied at a rate of 8.0 l/ha. In the 2nd variant, the above indicators were 78.9; 1.7; 44.4%, which is 12.5% higher than the control.

In the 3rd variant with the use of Kim-extra as a standard at a rate of 0.200 l/ha, the initial opening of 35.1% of bolls was observed, and after 14 days of defoliation it was 81.4%, while the half-opened bolls were 1.6%, the opening rate was 45.5%, and the difference from the control was 13.4%. The effect of this standard was 2.5; 0.9 and 0.9%, respectively. Consequently, good results are also obtained with the application of the chemical extract itself, however, with the mixed application of the chemical extract at a rate of 0.100 l/ha + Etifon at a rate of 1.5 l/ha, the above indicators were respectively 93.2; 1.5; 58.7 and 26.8%, respectively, the number of opened bolls was 11.8%, the opening rate was 13.4%, and compared to the control variant, the number of opened bolls was 27.5%, and the opening rate was 26.8% higher compared to the application of only Khim-extra at a rate of 0.200 l/ha.



Figure 2. Difference of defoliated area from control, day 7

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When using the chemical preparation "Chim-extra" at a rate of 0.150 l/ha + Etifon 1.0 l/ha (5 variants) with 30-40% boll opening, the number of opened bolls was 94.5%, the number of half-opened bolls was 1.7%, the opening rate was 60.7%, and the difference from the control was 28.8%, moreover, under the influence of the standard chemical preparation "Chim-extra" at a rate of 0.200 l/ha, these indicators increased by 13.1 and 15.4%, respectively. With the application of Xim-extra at a rate of 0.200 l/ha + Etifon at a rate of 0.5 l/ha, the above indicators decreased slightly, the number of opened bolls decreased by 6.1% compared to the optimal variant, and the opening rate decreased by 6.4%. In the control variants (13-18), where the application of defoliants was prescribed with 50-60% boll opening of this cotton variety, 55.1% of bolls opened initially, and after 14 days this indicator naturally reached 71.8%, and the opening rate was 16.7%.

Whereas in the parallel variant (17) of the 1st experiment, these indicators were 56.2; 73.1 and 16.9%, respectively; 1.3 and 0.2% respectively. The correlation between leaf fall and boll opening was high and was equal to $r=0.905$.

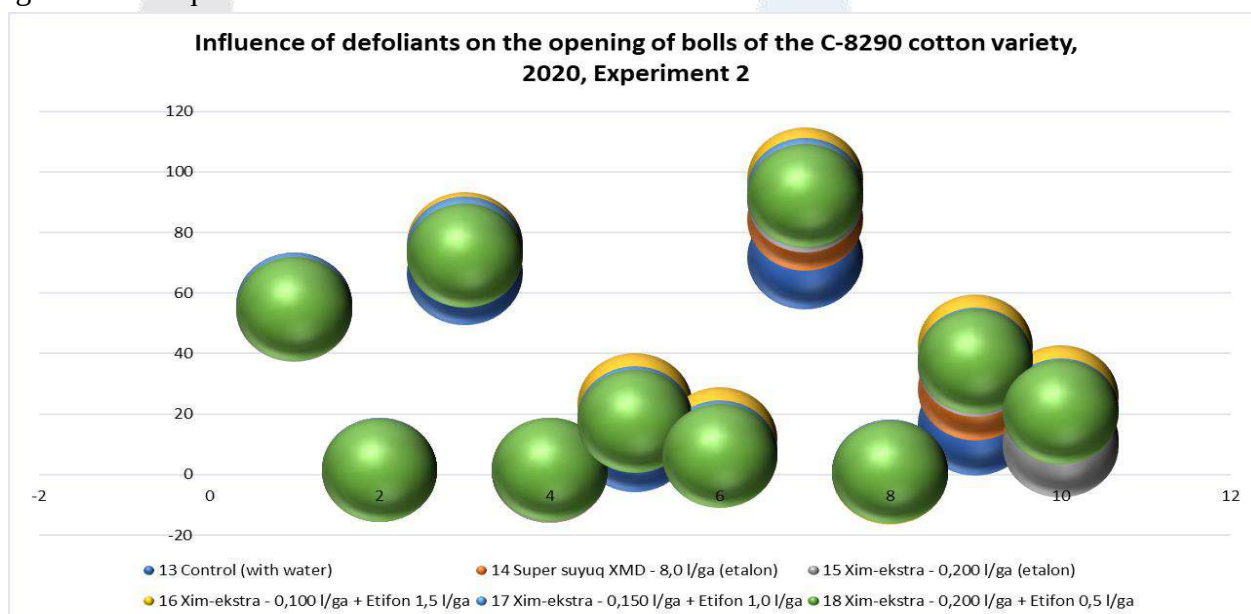


Figure 2. Influence of defoliants on the opening of bolls of the C-8290 cotton variety, 2020, Experiment 2

In the 2nd experiment, defoliation of the Namangan-77 variety was carried out with 30-40% boll opening; in the control variants (7-12), the number of bolls opened naturally initially was 34.1%, after 14 days it was 65.1%, the number of half-opened bolls was 2.1%, the opening rate was 31.0%, and compared to the parallel variant (1), the number of opened bolls of the C-8290 variety was 0.6%. When using liquid XMD at a rate of 8.0 l/ha for this cotton variety, the number of opened bolls was 0.5%, the number of half-opened bolls was 0.3%, and the opening rate was 0.2%, which differed from the control by 1.6%.

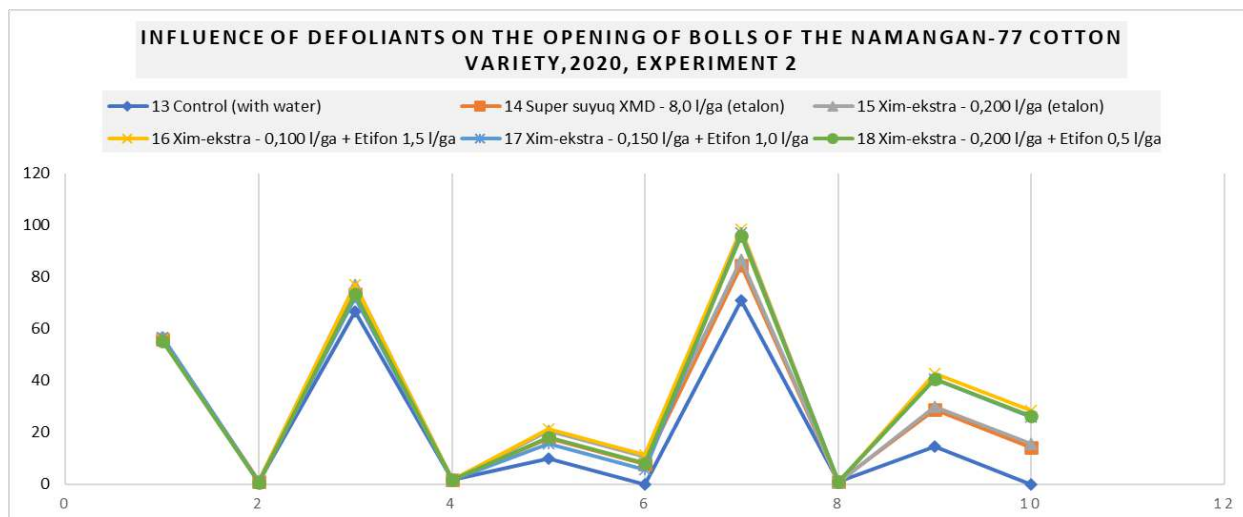


Figure 3. Influence of defoliants on the opening of bolls of the Namangan-77 cotton variety, 2020, Experiment 2

With the application of chemical extra at a rate of 0.200 l/ha and as a standard (variant 9), the number of opened bolls was 80.1%, half-opened bolls 2.3%, the opening rate was 45.0%, and the difference from the control was 14.0%. In the experiment, compared to the tested norms of Chimextra and the standard at a rate of 0.100+1.5 l/ha, 0.150+1.0 l/ha, and 0.200+0.5 l/ha, relatively high indicators were obtained at a rate of 0.150+1.0 l/ha, and the above indicators were respectively 94.5; 1.7; 57.4 and 26.4%, respectively.

Conclusion

In conclusion, it can be said that among the mixtures of defoliants Khim-extra+Ethifon, relatively high indicators were obtained in both varieties at a boll opening rate of 50-60% at a rate of 0.100+1.5 l/ha, and the number of opened bolls was 97.5-98.4%, respectively.

Thus, it was established that the optimal effect of the defoliants used in the conducted experiments 1-2 was relatively high at 30-40% boll opening and lower at 50-60% boll opening.

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НЕОЛОГИЗМЫ И ИХ ТИПЫ В РУССКОМ ЯЗЫКЕ

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Аннотация

В статье рассматриваются неологизмы как отражение языковых и социокультурных процессов современности. Особое внимание уделяется типологии неологизмов в русском языке, включая лексические, семантические, словообразовательные, заимствованные, окказиональные и интернет-новообразования. На основе анализа трудов классических и современных исследователей (В. В. Виноградов, Е. А. Земская, М. А. Кронгауз, Л. Г. Гридина, Т. В. Бобырева, Е. В. Кузнецова и др.) уточняется понятие неологизма, его классификация и функциональные особенности. Сделан вывод о том, что неологизмы — это системный показатель живучести языка, его открытости и способности к обновлению.

Ключевые слова: неологизм, инновация, словообразование, заимствование, окказионализм, интернет-дискурс, лексическая динамика.

Современный русский язык находится в состоянии активной трансформации, вызванной изменениями в социокультурной и технологической среде. Как отмечает Е. А. Земская, «лексическая система языка — самая подвижная часть его структуры, реагирующая на любые общественные перемены» (Земская, 2019, с. 56). Появление неологизмов отражает не только лингвистические, но и культурные процессы, поскольку «каждое новое слово — это отпечаток эпохи, выражающий её ценности и символы» (Кронгауз, 2016, с. 12).

Неологизмом в научной литературе принято считать «новое слово или новое значение уже существующего слова, появившееся в языке в определённый исторический период и закрепившееся в употреблении» (Виноградов, 2001, с. 214). Исследователи выделяют несколько критериев неологизма: новизна формы или значения, ограниченность употребления, принадлежность к определённой социальной или профессиональной сфере (Бобырева, 2022).

Типология неологизмов является одной из ключевых проблем современной неологии. По мнению Л. Г. Гридиной, классификация неологизмов должна учитывать не только структурные признаки, но и функциональную роль в коммуникации (Гридина, 2021, с. 84). Наиболее продуктивным представляется подход, основанный на совмещении лингвистического и социокультурного анализа.

К числу **лексических неологизмов** относятся слова, обозначающие новые реалии: *гаджет, стартап, криптовалюта, нейросеть, фудшеринг, шеринговая экономика*. Эти единицы появляются в результате развития технологий и новых форм взаимодействия. Как

отмечает Е. В. Кузнецова, «лексические инновации в первую очередь возникают в сферах, где общество переживает интенсивные изменения» (Кузнецова, 2020, с. 47).

Семантические неологизмы представляют собой переосмысление уже существующих слов. Например, слова *облако*, *вирус*, *мышь*, *стена* приобрели новые значения в цифровом контексте. По мнению Т. В. Бобыревой, «семантическая неологизация — это наиболее естественный способ языкового обновления, позволяющий языку развиваться без нарушения системных связей» (Бобырева, 2022, с. 59).

Словообразовательные неологизмы формируются на основе существующих морфемных моделей русского языка: *удалёнка*, *фотозона*, *велодорожка*, *видеозвонок*, *фудкорт*, *самозанятый*. М. А. Кронгауз подчёркивает, что современная словообразовательная система характеризуется высокой продуктивностью моделей с суффиксами *-инг*, *-ер*, *-щик*, что свидетельствует о гибкости языковой структуры (Кронгауз, 2016, с. 34).

Значительную часть новых слов составляют **заимствованные неологизмы**, преимущественно англицизмы: *фриланс*, *лайфхак*, *челлендж*, *коучинг*, *контент*, *бренд*, *хайп*. Они становятся неотъемлемой частью массовой коммуникации. По словам Л. Г. Гридиной, «иностранные неологизмы не являются угрозой для языка, а служат отражением процессов глобализации и межкультурного обмена» (Гридина, 2021, с. 92).

В современном русском языке также активно развиваются **интернет-неологизмы**, рождающиеся в цифровом пространстве: *стрим*, *мем*, *блогер*, *пост*, *репост*, *сторис*, *дизлайк*, *хайповать*. О. В. Мясникова справедливо отмечает, что «виртуальная среда ускоряет темпы неологизации, превращая единичные речевые инновации в устойчивые элементы массовой лексики» (Мясникова, 2023, с. 118).

Особое место занимают **авторские и окказиональные неологизмы**, которые возникают в художественных и публицистических текстах и служат средством индивидуального самовыражения. Примеры подобных слов встречаются у В.Пелевина (*психонавт*), Д.Глуховского (*инфосмог*), Т.Толстой (*снежник*). Виноградов указывал, что «окказиональные образования — это лаборатория языка, в которой испытываются его творческие возможности» (Виноградов, 2001, с. 221).

Кроме того, необходимо выделить **жаргонные и стилистические неологизмы**, формирующиеся в молодёжной и профессиональной среде: *краш*, *кринж*, *токсик*, *фандом*, *проджект*. Они выполняют не только номинативную, но и идентификационную функцию, маркируя принадлежность говорящего к определённой социальной группе. Как подчёркивает Кузнецова, «такие слова становятся инструментом социальной самоидентификации, средством создания коммуникативной общности» (Кузнецова, 2020, с. 53).

Не менее важен пласт **терминологических неологизмов**, возникающих в научной, экономической и технологической сферах: *биотехнология*, *блокчейн*, *метавселенная*, *киберугроза*, *искусственный интеллект*. Бобырева (2022) отмечает, что такие слова «формируют новую научную картину мира и служат инструментом осмысления инновационных процессов».

Таким образом, современная типология неологизмов включает широкий спектр разновидностей — лексические, семантические, словообразовательные, заимствованные, интернет-, окказиональные, жаргонные и терминологические. Их совокупность отражает динамику языка и его взаимодействие с культурой.

Современные исследования показывают, что процесс неологизации в русском языке становится всё более интенсивным и системным. Корпусные наблюдения (Национальный корпус русского языка, 2022–2024) фиксируют увеличение числа новых слов в сферах медиа, политики, информационных технологий и культуры. Этот процесс демонстрирует не только количественное, но и качественное изменение лексического фонда.

Неологизмы представляют собой важнейший индикатор эволюции языка, его способности адаптироваться к новым реалиям. Они не только выполняют номинативную и коммуникативную функции, но и участвуют в формировании новой языковой картины мира. Разнообразие типов неологизмов свидетельствует о богатстве и гибкости русского языка, о его умении интегрировать заимствованные элементы, сохраняя при этом национальную основу.

Как отмечал В. В. Виноградов, «язык живёт в движении — его обновление есть проявление жизни самой культуры» (Виноградов, 2001, с. 228). В этом смысле изучение неологизмов позволяет не только проследить тенденции развития языка, но и понять дух времени, который этот язык выражает.

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БОЛЕЗНЬ ОСГУД ШЛЯТТЕРА (КЛИНИЧЕСКИЙ СЛУЧАЙ)

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Аннотация:

В статье представлен случай болезни Осгуд Шляттера у подростка, госпитализированного с жалобами на боль и отёк в коленных суставах. Приведены данные анамнеза, клинического обследования, лабораторных и инструментальных методов диагностики, а также результаты проведённого лечения. Освещается важность комплексного подхода к диагностике и терапии суставного синдрома у детей с хроническими ЛОР-инфекциями.

Ключевые слова: болезни Осгуд Шляттера, реактивный артрит, тонзиллит, подростки, суставной синдром, биомаркеры воспаления.

Введение

Болезнь Осгуд Шляттера кратковременная проблема в области колена, при которой развивается болезненное уплотнение под коленом у подростков в период активного роста. Она возникает особенно у тех, кто активно занимается физической деятельностью [1]. Затронутая зона — это большеберцовый бугорок, то есть костное возвышение чуть ниже коленного сустава. Это зона роста длинной кости нижней конечности [2]. Это распространённое заболевание было описано независимо двумя хирургами в 1903 году: Робертом Осгудом из Бостона, США, и Карлом Шлаттером из Цюриха, Швейцария. Болезнь Осгуд Шляттера редко встречается после 16 лет. Заболевание поражает оба пола, но у мальчиков возникает в 3 раза чаще [3]. Диагностика основывается на комплексном анализе анамнеза, клинико-лабораторных данных и исключении других форм артропатий [4]. Обычно в анамнезе нет предшествующих травм, например, падения или аварии на велосипеде [5]. Причиной является постоянное натяжение сухожилия надколенника, которое тянет за незрелый большеберцовый бугорок во время занятий спортом, бега или прыжков. Это трение вызывает воспаление [6].

Описание клинического случая

Пациент: Рустамжонов Абдузохир, 15 лет.

Дата госпитализации: 06.01.2025

Диагноз при выписке: Основной: Реактивный артрит тонзиллогенной этиологии (болезнь Осгуда-Шлаттера). Сопутствующий: Хронический тонзиллит I формы, лёгкая анемия.

Жалобы при поступлении: Боль и отёк в обоих коленных суставах, преимущественно слева. Ограничение подвижности. Анамнез: Пациент болеет в течение 3-4 месяцев. Отмечал частые ангины, после которых развились суставные жалобы. Получал амбулаторное лечение у педиатра.

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Рентгенография прав коленного сустава. В проекции рентгеновской прав. большеберцовой кости (метафиз) по внутреннему контуру отмечается избыточная костная радиоплотность — до 0,1 см, структура кости склерозированная. Предположительно соответствует последствиям болезни. Контур сустава не нарушен. Заключение: Незначительная остаточная деформация прав. большеберцовой кости, рентген признаки артрита правого коленного сустава. Признаки синовита, возможная костная киста

Объективные данные. Состояние при поступлении: средней тяжести. Локальные изменения: отёк и болезненность в области коленных и голеностопных суставов. Пульс: 88 уд/мин, АД в пределах нормы. Миндалины гиперемированы, увеличены.

№	Параметры	Результат	Норма	Ед. измер.
1	WBC – Показатель лейкоцитов	10.2	4-10	10 ⁹ /л
2	Lymph # – Показатель лимфоцитов	1.7	0.8-4.0	10 ⁹ /л
3	Mid # – Число клеток среднего размера	0.6	0.1-1.5	10 ⁹ /л
4	Gran # – Гранулоциты	7.9	2.0-7.0	10 ⁹ /л
5	Lymph % – Процент лимфоцитов	17.9	19.0-37.0	%
6	Mid % – Процент клеток среднего размера	6.2	3.0-10.0	%
7	Gran % – Процент гранулоцитов	75.9	50.0-70.0	%
8	HGB – Концентрация гемоглобина	132	110-160	г/л
9	RBC – Число эритроцитов	4.76	3.8-5.3	10 ¹² /л
10	HCT – Гематокрит	37.8	35.0-50.0	%
11	MCV – Средний корпускулярный объем	79.4	80.0-100.0	фл
12	MCH – Средний эритроцитарный гемоглобин	27.7	27.0-34.0	пг
13	MCHC – Средняя насыщенность гемоглобином	295	320-360	г/л
14	RDW-CV – Коэффициент вариации распределения эритроцитов	12.8	11.5-14.5	%
15	RDW-SD – Стандартное отклонение распределения эритроцитов	37.8	35.0-56.0	фл
16	PLT – Количество тромбоцитов	199	180-350	10 ⁹ /л
17	MPV – Средний объем тромбоцитов	9.1	6.5-12.0	фл
18	PDW – Ширина распределения тромбоцитов	15.9	15.0-17.0	%
19	PCT – Тромбокрит	0.436	0.108-0.282	%
20	СОЭ (РОЭ)	22	Муж.: 2-10 / Жен.: 2-15	мм/ч

АНАЛИЗ: Антитела к антигену Scd-70 (Anti-Scl-70)

Результат:

1.9

Норма: 0 – 16.0: Отрицательный, 16.0 – 24.0: Серая зона, 24.0: Положительный
Ед. изм.: AU/ml

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АНАЛИЗ: Anti-CCP (АЦЦП) (ХИТА), (iFlash)

Результат: < 0.50 (Отрицательный)

Норма: Отрицательный: < 5.0, Положительный: > 5.0

Ед. изм.: U/mL

Наименование анализа	Результат	Норма	Ед. изм
Anti-Epstein-Barr Ig (Антитела класса IgM к антигену вируса Эпштейна-Барр)	0.315	0–1	S/CO

Наименование анализа	Показатель	Результат	Референсные значения
Хемилюминесцентный иммуноанализ Anti-SARS-CoV-2 IgM (тест-система для иммунологического электрофотометрического анализа на аппарате MINIDRAY M96)	Определение IgM антител к SARS-CoV-2	0.09	<1.0 (отрицательно для SARS-CoV-2) ≥1.0 (положительно на антитела против SARS-CoV-2)

Диагностические исследования. УЗИ органов брюшной полости, почек, мочевого пузыря — без патологии. Синовиальная пункция не проводилась. Сиалопробы и ревмопробы выявили повышенный ASO при нормальном ревматоидном факторе.

Лечение. Цефотаксим 1.0 в.м. 2 раза в день в течение 5 суток, Бензилпенициллин 3,0 в/в (предварительно проба!) 4 раза в день, 1 сутки, затем ударная доза 2 раза в день, Таваник 0,5, Иммунал 200 1 таблетка × 1 раз в день – 20 дней – утром, натошак, NaCl 0,9% 500 мл – 2 дня Тиосульфат 4,0 – в/в капельно – 15 дней, Преднизолон 40 – в/в – утром – 15 дней, Трентал 5,0 (пентоксифиллин) – в/в капельно – 15 дней, NaCl 0,9% 200, 2 раза в день (в/в – утром – 15 дней), Циклоферон 2,0 – №5 – в/м – через день, Пирогенал 200 – 1 раз в день – 15 дней – в/м – утром, натошак, Оровакс – 1 раз в день – утром, натошак. Симптоматическая терапия: долгит-крем местно. Поддерживающая терапия: реосорбилакт, аскорбиновая кислота. Назначено амбулаторное продолжение терапии: контроль у педиатра, ЛОРа, кардиоревматолога

Заключение

Реактивный артрит тонзиллогенной природы у подростков, включая вариант, ассоциированный с болезнью Осгуд-Шляттера, представляет собой клинический вызов, требующий междисциплинарного подхода. Заболевание возникает на фоне хронической очаговой инфекции и может маскироваться под ортопедическую патологию. Проведённый случай подчёркивает важность ранней диагностики воспалительных суставных процессов при наличии рецидивирующих ЛОР-инфекций, особенно тонзиллита. Комбинированное использование лабораторных маркеров (включая ASLO, С-реактивный белок, IgM/IgG к вирусу Эпштейна-Барр), рентгенодиагностики и оценки клинико-функционального статуса сустава позволяет достоверно дифференцировать реактивные формы артритов и своевременно начать патогенетическую терапию.

Данный случай показывает, что при подозрении на болезнь Осгуд-Шляттера необходимо исключать инфекционно-воспалительные причины артропатии, особенно при наличии ангины

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и повышенного уровня ASLO. Комплексная терапия, включающая антибактериальные, противовоспалительные, иммуномодулирующие и симптоматические средства, показала высокую эффективность. Своевременное и агрессивное лечение позволило добиться регресса симптомов и избежать хронизации воспалительного процесса.

Пациенту рекомендовано дальнейшее наблюдение у педиатра, ЛОР-врача и кардиоревматолога, а также контроль повторных анализов (ASLO, СРБ, УЗИ суставов) в динамике. Системный подход к ведению пациентов с подозрением на реактивный артрит — залог успешной терапии и профилактики инвалидизирующих осложнений.

ВЫВОДЫ

1. Реактивный артрит, развившийся на фоне хронического тонзиллита, может манифестировать в виде болезни Осгуд-Шляттера, особенно у подростков с активной физической нагрузкой.
2. Диагностическая настороженность в отношении ЛОР-очагов при суставном синдроме у подростков позволяет избежать гиподиагностики ревматических заболеваний.
3. Лабораторные маркеры воспаления (ASLO, С-реактивный белок) являются ценными показателями активности процесса и критерием эффективности терапии.
4. Иммунологическая панель (anti-CCP, anti-Scl-70, антитела к вирусу Эпштейна-Барр) имеет дифференциально-диагностическое значение при исключении аутоиммунной патологии.
5. Комплексная терапия, сочетающая этиотропные, патогенетические и симптоматические средства, способствует быстрому купированию симптомов и снижает риск хронизации.
6. Наблюдение в динамике и междисциплинарное ведение пациентов (педиатр, ЛОР, ревматолог) является обязательным для предупреждения рецидивов и формирования стойкой ремиссии.

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Taraqqiyot Strategiyasi Doirasida Maktabgacha katta yoshdagi (5-7 yosh) bolalarda ijodiy qobiliyatni rivojlantirish texnologiyasi.

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Sobirova Ro'zaxon Botir qizi

Ta'lim va tarbiya nazariyasi va metodikasi
(Maktabgacha ta'lim) 1-kurs magistri

Annotatsiya: Ushbu maqola bugungi kunda O'zbekiston Respublikasida ta'lim tizimining barcha bosqichlarida, jumladan maktabgacha ta'lim sohasida ham shaxsning ijodiy salohiyatini rivojlantirish masalasi davlat siyosati darajasiga ko'tarilganini yoritadi. Prezident Shavkat Mirziyoyev tomonidan ishlab chiqilgan "Yangi O'zbekiston taraqqiyot strategiyasi 2022–2026-yillar uchun Taraqqiyot strategiyasi"da ta'lim tizimini tubdan isloh qilish, bolalarning ijodiy fikrlashini qo'llab-quvvatlash hamda har tomonlama yetuk shaxs tarbiyalash ustuvor yo'nalishlardan biri sifatida belgilangan. Shu bois maktabgacha katta yoshdagi bolalarda ijodiy qobiliyatni rivojlantirish texnologiyasi bugungi kunda nafaqat pedagogik, balki strategik ahamiyatga ega masalaga aylangan.

Ijodiy qobiliyat bu shaxsning yangi, original g'oya, fikr yoki mahsulot yaratish salohiyati bo'lib, unda tafakkur, tasavvur va hissiy faoliyat birgalikda ishtirok etadi. Maktabgacha yoshdagi bolalarda bu qobiliyat asosan o'yin, rasm, qo'shiq, hikoya to'qish, drammatizatsiya va konstruktorlik faoliyatlari orqali shakllanadi.

Kalit so'zlar:

Taraqqiyot strategiyasi, Maktabgacha ta'lim, Katta yoshdagi bolalar, Bolalar ijodkorligi, Ijodiy qobiliyat, Ijodiy fikrlash, Ijodiy tafakkur, Ijodkorlikni rivojlantirish, Ta'lim texnologiyasi, Pedagogik texnologiyalar, Zamonaviy ta'lim yondashuvlari, Shaxsga yo'naltirilgan ta'lim, Faol o'qitish metodlari, Kompetensiyaga asoslangan yondashuv, Innovatsion ta'lim usullari, Rivojlantiruvchi muhit, Didaktik o'yinlar, Tasviriy ijod, Musiqa va san'at faoliyati, Bolalarda mustaqil fikrlashni shakllantirish, Ta'lim sifati, Pedagogik innovatsiyalar, Kreativlik, Tanqidiy fikrlash, Ta'limda interfaol metodlar, Rivojlanish strategiyasi, O'zbekiston 2030 strategiyasi, Maktabgacha ta'limda islohotlar.

Taraqqiyot strategiyasida belgilangan maqsadlar:

- Ta'lim tizimini zamonaviy innovatsion yondashuvlar asosida rivojlantirish.
 - Bolalarda tanqidiy va ijodiy tafakkurni shakllantirish.
 - Yangi pedagogik texnologiyalarni joriy etish orqali ta'lim sifatini oshirish.
 - Har bir bolaning individualligini rivojlantirish va iste'dodini aniqlash.
- Demak maktabgacha ta'limdagi ijodiy rivojlanish bu strategik maqsadga xizmat qiluvchi asosiy yo'nalishlardan biridir.

Maktabgacha katta yoshdagi bolalarda ijodiy qobiliyat rivojlanishining psixologik-pedagogik xususiyatlari:

6–7 yoshli bola

- O'z fikrini mustaqil ifoda eta boshlaydi.
- Ertak va obrazlarni qayta ishlay oladi.
- Muammoni hal qilishda fantaziyadan foydalanadi.

- Yangilikka qiziqadi, “nega”, “qanday” kabi savollar beradi.
- Estetik did va emotsional sezgirlik rivojlana boshlaydi.

Shuning uchun bu yosh ijodiy tafakkurni shakllantirish uchun eng muhim davr hisoblanadi.

Ijodiy qobiliyatni rivojlantirish texnologiyalari:

1 Ijodiy o‘yin texnologiyasi.

O‘yin ijodkorlikni rag‘batlantiruvchi eng samarali usullardan biridir.

Masalan “Nima bo‘lardi agar”, “Ertakni davom ettir”, “Sehrli predmet” kabi o‘yinlar bolaning fantaziyasini kuchaytiradi.

2 Muammoli vaziyatlar texnologiyasi.

Bolaning fikrlashini faollashtirish uchun tarbiyachi kichik muammoli savollar beradi.

Masalan “Agar yomg‘ir rangli yog‘sa nima bo‘ladi”.

Bu usul bolaning ijodiy va tanqidiy tafakkurini birgalikda rivojlantiradi.

3 Badiiy estetik texnologiya.

Musiqa, rasm, qo‘g‘irchoq teatri, loydan ishlash orqali bola o‘z his-tuyg‘ularini ifoda etadi.

Bu jarayonda tasavvur, estetik sezgi va obrazli tafakkur rivojlanadi.

4 Interfaol metodlar.

Zamonaviy metodlar ijodkorlikni rivojlantirishda muhim o‘rin tutadi.

- “Aqliy hujum” brainstorming.
- “Klaster” – fikr xaritalari tuzish.
- “Sinkveyn” – qisqa she‘r yoki ifoda bilan g‘oyani ifodalash.
- “Venn diagrammasi” – taqqoslash orqali yangi xulosaga kelish.

5 Axborot texnologiyalari.

Multimedia, interaktiv doskalar, ta‘limiy dasturlar yordamida bolalarda tasviriy va eshitish asosidagi ijodiy idrok shakllanadi.

Masalan Paint dasturida rasm chizish, interaktiv ertak yaratish kabi mashg‘ulotlar bunga misol bo‘la oladi.

Ijodiy qobiliyatni rivojlantirishning strategik ahamiyati:

Ijodkorlikni rivojlantirish.

- Taraqqiyot strategiyasining 4-yo‘nalishi “Ta‘lim tizimini zamon talablariga moslashtirish” g‘oyasini amalda qo‘llab-quvvatlaydi.
- “Inson qadri uchun” tamoyiliga asoslanadi, ya‘ni har bir bolaning ichki salohiyatini ochishga xizmat qiladi.
- Kelajakda innovatsion tafakkurli, raqobatbardosh kadrlar shakllanishi uchun poydevor yaratadi.

Tarbiyachining roli:

Tarbiyachi bu jarayonda.

- Bolaning ijodiy tashabbusini qo‘llab-quvvatlaydi.
 - “To‘g‘ri javob”ni emas, turli fikrlar xilma-xilligini qadrlaydi.
 - Har bir bolaning shaxsiy tajribasiga tayangan holda mashg‘ulotlarni tashkil etadi.
- “Bolani tayyor javobga emas, fikrlashga o‘rgat”.

Ijodiy qobiliyatni rivojlantirish uchun zarur shart-sharoitlar:

- 1 Erkin psixologik muhit – bola xatodan qo‘rqmasin.
- 2 Rag‘bat va maqto‘v – har bir yangi g‘oya qadrlansin.
- 3 Estetik muhit – ranglar, musiqa, tasviriy san‘at vositalarining mavjudligi.
- 4 Hamkorlik muhiti – jamoada fikr almashish imkoniyati.

Natijalarni baholash mezonlari:

- Bola yangi g‘oya yarata oladimi.
- Tasavvuri boymi.
- Mustaqil fikrlay oladimi.
- Faoliyatdan zavq oladimi.
- Yangicha yechim taklif qiladimi.

Xulosa:

Maktabgacha katta yoshdagi bolalarda ijodiy qobiliyatni rivojlantirish bu “Yangi O‘zbekiston” taraqqiyot strategiyasining inson kapitalini yuksaltirishga qaratilgan ustuvor yo‘nalishlaridan biridir. Ijodiy bolalar ertangi kunning innovatorlari, ilm-fan va texnologiya yaratuvchilaridir. Shu bois tarbiyachilar va ota-onalar uchun eng muhim vazifa bolalarning tabiiy ijodiy salohiyatini erta yoshdan qo‘llab-quvvatlash va rivojlantirishdir. Buyuk pedagog A S Makarenko aytganidek “Bola bu kelajak, demak har bir bola o‘zida kelajakning ijodkorini yashiradi”.

Foydalanilgan adabiyotlar ro‘yxati:

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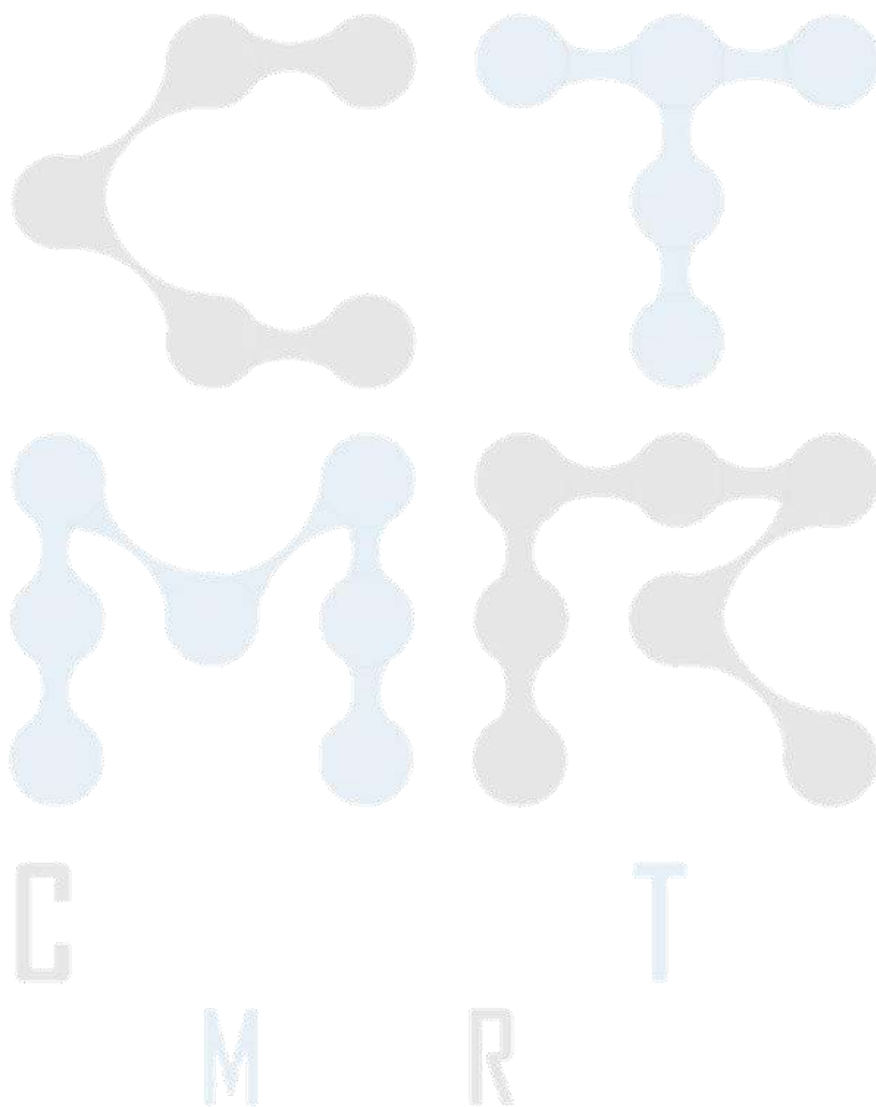
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THEORETICAL FOUNDATIONS OF SYNONYMY AND ANTONYMY

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ABSTRACT: This article explores the theoretical foundations of synonymy and antonymy as essential components of modern linguistics that shape the semantic structure of language and determine its functional and stylistic capabilities. The study provides an in-depth analysis of the formation of synonymic series, subtle semantic nuances of lexical units, their contextual behavior, and their contribution to expressiveness in speech. The logical and semantic nature of antonymy, the paradigmatic relations between oppositional lexical pairs, mechanisms of forming contrasting structures, and their communicative roles across different discourse types are thoroughly examined. The research also highlights the national-cultural components of meaning, cognitive mechanisms involved in processing semantic similarity and contrast, and the significance of these phenomena in the development and stability of the lexical-semantic system. The article concludes by emphasizing the interrelation of synonymy and antonymy with other branches of linguistics, including stylistics, pragmatics, lexicography, and translation studies.

KEYWORDS: synonymy, antonymy, lexical-semantic system, paradigmatic relations, semantic analysis, cognitive linguistics, stylistic functions, contextual meaning, opposition, synonymic series, antonymic pairs, linguistic units, cultural component, conceptual meaning, functional linguistics.

SINONIMIYA VA ANTONIMIYANING NAZARIY ASOSLARI

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ANNOTATSIYA: Ushbu maqolada zamonaviy tilshunoslikning muhim bo'limlaridan biri bo'lgan sinonimiya va antonimiya hodisalarining nazariy asoslari, ularning mazmun-mohiyati, semantik tuzilishi hamda til tizimidagi funksional vazifalari ilmiy asosda yoritiladi. Maqolada sinonim birliklarning shakllanish jarayoni, ularning ma'no nozikliklari, kontekstual qo'llanish xususiyatlari va stilistik qiymati keng qamrovda tahlil qilinadi. Shuningdek, antonimiyaning mantiqiy-semantik tabiati, qarama-qarshi ma'nolarning paradigmatic munosabatlari, til tizimidagi oppozitsion qurilmalarning shakllanishi va ularning nutq jarayonidagi kommunikativ ahamiyati chuqur o'rganiladi. Tadqiqotda sinonim va antonimlarning milliy-madaniy komponentlari,

ular orqali ifodalanadigan konseptual ma'no, lingvokognitiv jarayonlar hamda mazkur hodisalarning tilning rivojlanishidagi o'rni alohida ilmiy tahlil qilinadi. Maqola yakunida sinonim va antonim qatlamlarning leksik-semantik tizim barqarorligiga ko'rsatadigan ta'siri, ularning tilshunoslikning boshqa bo'limlari – stilistika, pragmatika, leksikografiya va tarjima nazariyasi bilan uzviy bog'liqligi ilmiy xulosalar asosida ochib beriladi.

KALIT SO'ZLAR: Sinonimiya, antonimiya, leksik-semantik tizim, paradigmatic munosabatlar, semantik tahlil, lingvokognitiv yondashuv, stilistik funksiyalar, kontekstual ma'no, qarama-qarshilik, sinonimik qatlam, antonimik juftliklar, lisoniy birliklar, milliy-madaniy komponent, konseptual ma'no, funksional lingvistika.

ТЕОРЕТИЧЕСКИЕ ОСНОВЫ СИНОНИМИИ И АНТОНИМИИ

МЕЛИКУЛОВА ДИЛЬДОРА БАХРОМ КИЗИ

МАГИСТРАНТ ДЕНОВСКОГО ИНСТИТУТА

ПРЕДПРИНИМАТЕЛЬСТВА И ПЕДАГОГИКИ

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АННОТАЦИЯ: В данной статье рассматриваются теоретические основы синонимии и антонимии как ключевых явлений современной лингвистики, определяющих семантическую структуру языка и его функционально-стилистический потенциал. Особое внимание уделяется процессам формирования синонимических рядов, смысловым оттенкам отдельных единиц, их контекстуальной сочетаемости и роли в создании выразительности речи. Анализируются логико-семантическая природа антонимии, ее парадигматические отношения, механизмы образования оппозиционных пар, а также коммуникативные задачи, которые выполняют антонимические структуры в различных типах дискурса. В статье также освещаются национально-культурные компоненты значения, когнитивные механизмы восприятия противопоставлений и смысловых сходств, а также место и роль данных явлений в развитии лексико-семантической системы языка. В заключение подчеркивается взаимосвязь синонимии и антонимии с другими разделами языкознания — стилстикой, прагматикой, лексикографией и теорией перевода.

КЛЮЧЕВЫЕ СЛОВА: синонимия, антонимия, лексико-семантическая система, парадигматические отношения, семантический анализ, когнитивная лингвистика, стилистические функции, контекстуальное значение, оппозиция, синонимические ряды, антонимические пары, языковые единицы, национально-культурный компонент, концептуальное значение, функциональная лингвистика.

INTRODUCTION

The study of synonymy and antonymy occupies a central place in modern linguistic research, as these lexical-semantic phenomena constitute the fundamental mechanisms through which language organizes meaning, expresses conceptual relations, and structures human thought. In contemporary English philology, the investigation of semantic relationships between lexical units is not merely limited to the identification of similarity or opposition of meanings; rather, it encompasses the broader cognitive, cultural, and communicative dimensions of how language reflects and shapes reality. Synonymy and antonymy, being key components of the lexical system, serve as powerful tools for enriching vocabulary, enhancing stylistic variation, and providing precision in communication. Their theoretical foundations have been explored by linguists for decades, yet ongoing advances in cognitive linguistics, pragmatics, and corpus linguistics continue to shed new light on their deeper linguistic nature. Synonymy, traditionally defined as a relationship of similarity or identity of meanings, is far more complex than an elementary equivalence between two lexical items. Even words considered “absolute synonyms” rarely coincide fully in cultural associations, stylistic coloring, pragmatic value, or contextual compatibility. For this reason, understanding synonymy requires a multi-layered analysis that includes semantic nuance, connotation, stylistic differentiation, and discourse functions. In English philology, synonymy is examined through the lenses of lexical semantics, historical linguistics, sociolinguistics, and stylistics, revealing the intricate ways in which language users choose among lexical alternatives to achieve precision, expressiveness, or politeness in communication. The formation of synonymic sets is influenced by factors such as borrowing, semantic shift, metaphorization, and the coexistence of native and foreign elements within the language.

Antonymy, in contrast, represents one of the most universal and cognitively salient categories in human language. Opposition of meanings underlies not only linguistic structures but also basic patterns of human thinking. Antonyms help speakers categorize experience, define conceptual boundaries, and construct logical relations within discourse. English antonymy comprises several types—gradable, complementary, and converse oppositions—each serving distinct semantic and communicative functions. The systematic study of antonyms allows linguists to observe how binary oppositions contribute to the organization of lexical fields, the expression of evaluation, and the structuring of argumentation. Contemporary research also explores the role of antonyms in metaphorical reasoning, discourse coherence, and cognitive modeling, demonstrating that antonymy extends far beyond its traditional definition as the “opposite of meaning.” The relevance of studying the theoretical

foundations of synonymy and antonymy is further strengthened by rapid developments in computational linguistics, artificial intelligence, and digital lexicography. Machine translation systems, semantic search engines, and natural language processing tools rely heavily on accurate modeling of lexical relationships, which makes the scientific understanding of synonymy and antonymy essential not only for theoretical linguistics but also for practical applications. Additionally, the increasing globalization of communication emphasizes the importance of understanding how cultural context influences synonymic choices and oppositional structures in English and other languages.

This research aims to provide a comprehensive overview of the theoretical basis of synonymy and antonymy, tracing the evolution of scholarly perspectives, examining key classifications, and analyzing their functions within the lexical-semantic system of the English language. By exploring the cognitive, pragmatic, and stylistic dimensions of these phenomena, the study seeks to elucidate the complexity of meaning relations and highlight their significance in linguistic theory and practice. Ultimately, the investigation contributes to the broader understanding of how language users interpret, differentiate, and organize meaning—an essential aspect of English philology and linguistic science as a whole.

MATERIALS AND METHODS

The present research is grounded in a combination of descriptive, analytical, comparative, and corpus-based methods commonly employed in modern linguistic studies. The methodological framework was designed to ensure a comprehensive examination of synonymy and antonymy as lexical-semantic phenomena within the English language, taking into account their structural, cognitive, pragmatic, and stylistic dimensions.

Materials - the primary material for the study consists of lexical units representing synonymic and antonymic relationships in contemporary English. These materials were selected from a wide range of authoritative linguistic sources, including:

1. **Monolingual and bilingual dictionaries** such as the *Oxford English Dictionary* (OED), *Longman Dictionary of Contemporary English*, *Merriam-Webster Dictionary*, and *Cambridge Learner's Dictionary*, which provide reliable definitions, usage notes, stylistic labels, and etymological information.
2. **Thesauri and synonym dictionaries**, including *Roget's Thesaurus* and *Collins English Thesaurus*, which offer systematic classifications of synonyms and antonyms and help trace semantic relations within lexical fields.
3. **English language corpora**, most notably the *British National Corpus* (BNC) and the *Corpus of Contemporary American English* (COCA). These corpora serve as

empirical data sources for identifying contextual uses, frequency patterns, collocations, and pragmatic variations of synonymic and antonymic pairs.

4. **Academic publications**, including monographs, peer-reviewed articles, and linguistic handbooks that address lexical semantics, cognitive linguistics, stylistics, pragmatics, and corpus linguistics. These materials provide theoretical frameworks and previous research findings essential for interpretation and evaluation.

5. **Authentic discourse samples**, such as literary texts, newspapers, academic articles, public speeches, and digital communication platforms. These examples were analyzed to illustrate real-life usage of synonyms and antonyms in various discourse types.

The combination of these materials ensures the reliability, relevance, and linguistic diversity required for a comprehensive semantic analysis.

Methods

1. Descriptive method

The descriptive method was employed to systematically define and characterize key concepts of synonymy and antonymy. This included the classification of lexical units, identification of their semantic features, and explanation of theoretical distinctions such as absolute, partial, stylistic, and contextual synonymy, as well as gradable, complementary, and converse antonymy.

2. Semantic analysis method

Through semantic decomposition and componential analysis, the study examined the internal structure of meaning within synonymic series and antonymic pairs. This method enabled the identification of semantic markers, differential features, connotations, and evaluative nuances.

3. Comparative method

A comparative linguistic method was used to contrast different types of synonymic and antonymic relations and explore similarities and differences in their semantic organization across various lexical sets. This approach also allowed limited comparisons with other languages where relevant, highlighting cross-linguistic patterns in meaning relationships.

4. Contextual and pragmatic analysis

Synonymic and antonymic units were analyzed within authentic contexts to determine their discourse functions, communicative intentions, stylistic effects, and pragmatic constraints. This approach helped identify how meaning shifts depending on the situational factors, speaker intent, and discourse type.

5. Corpus-based method

With the help of digital corpora (such as BNC and COCA), occurrences and frequency patterns of synonymic and antonymic units were extracted, quantified, and interpreted. This method strengthened the empirical reliability of the research by providing real-world linguistic data and evidence-based conclusions.

6. Cognitive-linguistic method

Elements of cognitive linguistics were applied to explain conceptual structures underlying synonymy and antonymy, such as categorization, conceptual domains, conceptual metaphors, and mental oppositions. This method facilitated understanding of how language users mentally organize semantic similarities and contrasts.

Methodological validity -the integration of theoretical, empirical, and analytical methods provides a robust foundation for investigating the multi-dimensional nature of synonymy and antonymy. The triangulation of data from dictionaries, corpora, authentic texts, and scholarly sources enhances the objectivity and scientific reliability of the findings, ensuring the comprehensive coverage of semantic phenomena from structural, functional, and cognitive perspectives.

COMPARATIVE THEORETICAL ANALYSIS OF SYNONYMY AND ANTONYMY

Criteria	Synonymy	Antonymy
1. Definition	A semantic relationship between two or more lexical units with similar or closely related meanings.	A semantic relationship between two lexical units with opposite or contrasting meanings.
2. Type of semantic relation	Based on similarity of meaning.	Based on opposition or contrast of meaning.
3. Primary function	Enriches vocabulary, refines meaning, enhances stylistic expression.	Establishes conceptual boundaries, expresses contrast, supports logical structuring.
4. Types	Absolute, partial, contextual, stylistic synonyms.	Gradable, complementary, and converse antonyms.
5. Stylistic value	Adds variation, expressiveness, and nuance to speech.	Creates strong semantic contrast and highlights oppositions.
6. Role in lexical field	Forms synonymic sets within a lexical field.	Defines boundaries of lexical fields by establishing opposite poles.
7. Dependence on context	Very high—many synonyms are interchangeable only in specific contexts.	Moderate—antonyms generally preserve opposition regardless of context.
8. Pragmatic function	Conveys subtle shades of meaning, adjusts stylistic tone.	Emphasizes contrast, expresses evaluation, strengthens argumentation.

9. Cognitive basis	Conceptual similarity and semantic proximity.	Conceptual contrast and binary mental categorization.
10. Corpus reflection	Frequency varies significantly across genres and registers.	Frequency tends to be more stable and often universal across discourse types.
11. Representation in dictionaries	Extensively recorded in thesauri as synonymic series.	Clearly presented as oppositional pairs in general and specialized dictionaries.
12. Influence on discourse	Provides alternatives for precision and stylistic flexibility.	Supports coherence through contrast, comparison, and argumentative structure.

RESULTS AND DISCUSSION

The findings of the study indicate that synonymy and antonymy represent deeply interconnected yet fundamentally distinct semantic relations within the English lexical system. The results demonstrate that synonymy, traditionally described as the similarity of meanings, is in practice a far more nuanced and layered phenomenon. Corpus data, lexicographic sources, and authentic discourse examples reveal that synonyms rarely exhibit complete semantic equivalence. Instead, they differ in subtle but significant aspects such as connotation, stylistic coloring, register, emotional tone, collocational behavior, and usage frequency. These observations confirm that synonymy operates along a spectrum of semantic proximity, where lexical units may share a general conceptual core yet diverge considerably in their communicative and stylistic functions. The analysis shows that speakers and writers rarely choose synonyms arbitrarily; the selection is guided by contextual needs, discourse goals, and pragmatic intentions. For instance, the verbs *begin*, *start*, and *commence* are united by a common semantic meaning but differ in formality, frequency, and situational appropriateness. The presence of such distinctions illustrates that synonymy functions as a mechanism that enriches expressive possibilities, enables stylistic variation, and allows communicators to convey nuanced meanings with precision. Thus, synonymy contributes significantly to the expressive depth, stylistic flexibility, and semantic richness of the English language. Antonymy, on the other hand, emerges from the data as a more stable and cognitively universal relationship. Oppositional pairs such as *hot-cold*, *alive-dead*, *true-false*, and *buy-sell* maintain their contrasting meanings across various contexts, demonstrating that antonymy is strongly rooted in conceptual structures and mental categorization. Unlike synonymy, which depends heavily on stylistic and contextual variation, antonymy exhibits a high degree of semantic stability. The analysis confirms that antonymic relations encompass several types—gradable, complementary, and converse oppositions—each fulfilling distinct

communicative and cognitive functions. Gradable antonyms are frequently used to express degrees of qualities and evaluations, while complementary antonyms define absolute oppositions, and converse pairs structure relational concepts in discourse.

The comparative examination of both phenomena reveals that synonymy and antonymy perform complementary roles in linguistic communication. Synonymy enhances lexical diversity and enables subtle differentiation of meaning, providing speakers with alternatives for stylistic refinement and expressive variation. In contrast, antonymy establishes conceptual boundaries and strengthens logical coherence by highlighting contrasts and oppositions that are essential for categorizing experience and organizing discourse. While synonymy thrives on semantic flexibility and contextual adaptability, antonymy relies on stable conceptual oppositions that remain consistent across communicative situations. Overall, the discussion underscores that synonymy and antonymy extend far beyond their traditional definitions. They are not merely lexical relationships but cognitive, cultural, and communicative tools that structure meaning in profound ways. The results demonstrate the importance of analyzing these phenomena through an integrated linguistic approach that combines semantic theory, corpus linguistics, pragmatics, and cognitive linguistics. Such an approach not only deepens our understanding of how meaning is organized within the English language but also highlights the broader implications of synonymy and antonymy for language teaching, lexicography, translation studies, and computational linguistics, where accurate modeling of semantic relations is essential.

CONCLUSION

The research conducted on the theoretical foundations of synonymy and antonymy demonstrates that these two semantic phenomena serve as essential structural and functional components of the English language. The analysis confirms that synonymy, despite its traditional definition as the similarity of meanings, rarely manifests as absolute equivalence. Instead, it represents a dynamic continuum of semantic, stylistic, and pragmatic relationships shaped by contextual factors and discourse needs. Synonymic variation enriches expressive possibilities, enables precise meaning differentiation, and contributes significantly to stylistic diversity within both spoken and written communication. Antonymy, in contrast, reveals itself as a more stable and cognitively universal phenomenon rooted in fundamental principles of human categorization. Oppositional pairs maintain conceptual clarity across a wide range of contexts, serving as a foundation for logical structuring, evaluative judgments, and discourse coherence. The research highlights that antonymy is not limited to simple binary oppositions but includes a range of relational types—gradable, complementary, and converse—that reflect the multifaceted nature of human cognition and linguistic

representation. Together, synonymy and antonymy shape the internal organization of the lexicon and play crucial roles in meaning formation, discourse development, and communicative effectiveness. Their study offers valuable insights for various fields, including cognitive linguistics, lexicography, translation studies, language teaching, and computational linguistics. The findings demonstrate that a comprehensive understanding of semantic relations is essential not only for theoretical linguistics but also for practical applications such as natural language processing and corpus-based language analysis. Ultimately, this study underscores the need for continued interdisciplinary research that explores synonymy and antonymy from cognitive, pragmatic, stylistic, and corpus-linguistic perspectives. Such an approach will deepen our understanding of how language users construct, modify, and interpret meaning, thereby advancing the broader field of English philology.

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TRANSLATION CHALLENGES AND STRATEGIES OF TOPONYMS FROM ENGLISH
INTO UZBEK AND VICE VERSA

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Abstract: This article explores the linguistic, cultural, and semantic challenges involved in translating toponyms between English and Uzbek. Due to their deep historical roots, symbolic meanings, and culturally embedded etymologies, place-names often require more than a literal translation. The study analyzes structural differences, phonetic patterns, and cultural associations of toponyms in both languages, demonstrating how these features influence translation choices. Various translation strategies—including transcription, transliteration, semantic adaptation, creation of functional equivalents, and explanatory translation—are examined to determine their effectiveness in cross-linguistic communication. The findings contribute to translation studies, intercultural communication, and onomastics by highlighting the importance of cultural competence in the rendering of geographical names.

Keywords: Toponymy, translation strategies, transcription, transliteration, semantic adaptation, onomastics, cultural meaning, English–Uzbek translation.

INGLIZ TILIDAN O'ZBEK TILIGA VA O'ZBEK TILIDAN INGLIZ TILIGA
TOPONIMLARNI TARJIMA QILISH MUAMMOLARI VA STRATEGIYALARI

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Annotatsiya: Ushbu maqolada ingliz va o'zbek tillari o'rtasida toponimlarni tarjima qilish jarayonida uchraydigan lingvistik, madaniy va semantik muammolar tahlil qilinadi. Toponimlarning o'ziga xos etimologiyasi, fonetik shakllanishi, tarixiy-ma'naviy mazmuni hamda milliy identitetni aks ettiruvchi madaniy qatlamlari tarjima jarayonida turli talqinlarga sabab bo'lishi ilmiy asosda yoritiladi. Tadqiqotda ingliz va o'zbek tillaridagi toponimlarning tuzilishi, semantik motivatsiyasi va ramziy ma'nolari solishtirilib, ularni tarjima qilishning samarali strategiyalari — transkripsiya, transliteratsiya, semantik moslashtirish, ekvivalent yaratish va izohli tarjima kabi yondashuvlar ko'rib chiqiladi. Maqola natijalari tarjimashunoslik, tilshunoslik va madaniyatlararo kommunikatsiya sohalari uchun amaliy ahamiyatga ega.

Kalit so'zlar: Toponim, tarjima strategiyalari, transkripsiya, transliteratsiya, semantik moslashtirish, onomastika, madaniy konnotatsiya, ingliz tili, o'zbek tili.

ПРОБЛЕМЫ И СТРАТЕГИИ ПЕРЕВОДА ТОПОНИМОВ С АНГЛИЙСКОГО НА
УЗБЕКСКИЙ ЯЗЫК И С УЗБЕКСКОГО НА АНГЛИЙСКИЙ ЯЗЫК

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Аннотация: В данной статье рассматриваются лингвистические, культурные и семантические трудности, возникающие при переводе топонимов с английского языка на узбекский и с узбекского на английский. Топонимы, обладая глубокой исторической основой, символическими значениями и культурной коннотацией, требуют комплексного подхода при передаче их содержания на другой язык. В исследовании анализируются структурные особенности, фонетические модели и культурные ассоциации топонимов двух языков, а также обсуждаются наиболее эффективные стратегии их перевода — транскрипция, транслитерация, семантическая адаптация, создание функциональных эквивалентов и объяснительный перевод. Полученные результаты имеют практическую значимость для переводоведения, лингвистики и межкультурной коммуникации.

Ключевые слова: Топонимия, стратегии перевода, транскрипция, транслитерация, семантическая адаптация, ономастика, культурная коннотация, перевод английский–узбекский.

INTRODUCTION

Toponyms, or geographical names, occupy a significant place within the linguistic system of any nation, serving not only as territorial identifiers but also as carriers of historical memory, cultural symbolism, and collective identity. They represent one of the most ancient layers of vocabulary and preserve valuable information about the social evolution, settlement patterns, and worldview of the communities that created them. Because of their deep cultural and historical roots, the translation of toponyms between English and Uzbek is a complex process that extends far beyond mere lexical substitution. English and Uzbek toponymy reflect two entirely different civilizational trajectories. English place-names have been shaped by centuries of multilingual interaction involving Celtic, Latin, Anglo-Saxon, Norse, and Norman French influences. As a result, many English toponyms contain multiple etymological layers and symbolic meanings that cannot always be conveyed through direct translation. Uzbek toponyms, on the other hand, stem largely from Turkic, Persian, and Arabic linguistic traditions and are closely tied to the geographical landscape, nomadic-oasis culture, and ethnocultural identity of the region. Their semantic transparency and descriptive character often reflect natural features, tribal affiliations, historical events, or cultural values. The translation of toponyms between these two languages presents a number of linguistic and cultural challenges. Differences in phonetic systems, morphological patterns, semantic motivations, and cultural connotations may result in ambiguity, loss of meaning, or distortion if translation strategies are not applied correctly. Therefore, successful translation requires a deep understanding of the cultural symbolism and historical background embodied in each name. In many cases, transliteration or transcription may be insufficient, while semantic adaptation or explanatory translation may be more appropriate in order to preserve the original meaning and cultural essence. In the contemporary globalized world, the accurate and culturally sensitive translation of geographical names is becoming increasingly important. Toponyms appear regularly in maps, official documents, media, academic literature, tourism texts, and intercultural communication. Misinterpretation or inappropriate rendering of place-names can lead not only to linguistic inaccuracies but also to misunderstandings of cultural identity and historical significance. For these reasons, the study of translation challenges and strategies for English and Uzbek toponyms is both theoretically and practically relevant. This

research aims to analyze the linguistic and cultural difficulties that arise during translation, examine the etymological and structural features of toponyms, and identify the most effective translation strategies—such as transcription, transliteration, semantic adaptation, creation of functional equivalents, and explanatory translation. A comprehensive understanding of these processes contributes to the fields of translation studies, onomastics, intercultural communication, and linguistic anthropology, highlighting the crucial role of cultural competence in the translation of geographical names.

Materials and methods

The present study is based on a qualitative, descriptive, and comparative linguistic methodology aimed at identifying the challenges and determining effective strategies for translating toponyms between English and Uzbek. The research materials include a corpus of geographical names selected from official maps, historical documents, encyclopedias, etymological dictionaries, governmental publications, and academic sources on onomastics and translation studies. The English data set encompasses a wide range of toponyms originating from different historical layers such as Celtic, Anglo-Saxon, Norse, Latin, and Norman French influences. The Uzbek data set includes geographical names from various regions of Uzbekistan, representing Turkic, Persian, and Arabic linguistic traditions. The methodological framework involves several complementary approaches. First, **comparative analysis** is employed to examine structural differences and similarities between English and Uzbek toponyms. This method allows for the identification of phonetic, morphological, and semantic patterns that affect translation choices. Special emphasis is placed on recurrent formants such as *-ton*, *-ham*, *-shire*, and *-ford* in English, and *-tepa*, *-qishloq*, *-obod*, *-soy*, and *-daryo* in Uzbek. Second, **etymological analysis** is conducted to uncover the historical origins and semantic evolution of selected toponyms. Understanding the etymology of a place-name is essential for determining whether transcription, transliteration, semantic adaptation, or explanatory translation is most appropriate. This analysis also sheds light on cultural and symbolic meanings embedded within geographical names. Third, the research applies **linguocultural analysis**, which focuses on the cultural associations, historical symbolism, and ethnocultural identity encoded in toponyms. Since place-names often reflect traditional lifestyle, worldview, tribal structures, and religious beliefs, this method is crucial for identifying potential cultural mismatches that may arise during translation. Fourth, **translation strategy analysis** is carried out to evaluate existing approaches and determine the most effective techniques for rendering toponyms across the two languages. Strategies examined include transcription, transliteration, functional equivalence, semantic adaptation, calquing, and descriptive or explanatory translation. Each strategy is analyzed according to its ability to preserve the linguistic form, cultural meaning, and communicative function of the original name. Finally, **contextual analysis** is used to assess how specific toponyms function within different textual environments such as maps, academic articles, historical narratives, literary texts, and media discourse. This ensures that translation decisions take into account not only linguistic accuracy but also pragmatic appropriateness. By integrating these methods, the study provides a comprehensive framework for understanding both the linguistic complexity and the cultural significance of English and Uzbek toponyms. The combination of comparative, etymological, linguocultural, and translation-oriented approaches allows for the identification of challenges and the development of reliable strategies that support accurate and culturally sensitive translation.

TRANSLATION CHALLENGES AND STRATEGIES FOR ENGLISH–UZBEK AND
UZBEK–ENGLISH TOPONYMS

Category	Challenges in English → Uzbek translation	Challenges in Uzbek → English translation	Recommended strategies
Phonetic structure	Complex consonant clusters, historical spellings not matching pronunciation (<i>Leicester, Worcester</i>)	Uzbek sounds not present in English (e.g., <i>q, g', o'</i>) creating phonetic mismatch	Transcription, transliteration with phonetic adaptation
Etymological layers	Multiple origins (Celtic, Latin, Anglo-Saxon, Norse) complicate meaning rendering	Deeply rooted Turkic and Persian origins may not have direct equivalents	Etymological clarification, explanatory translation
Semantic transparency	Many English toponyms no longer semantically transparent (<i>Oxford, Cambridge</i>)	Uzbek place-names often descriptive, risking literal mistranslation	Semantic adaptation, functional equivalence
Cultural connotations	Historical or mythological references unfamiliar to Uzbek readers	Tribal, regional, or ethnographic elements unfamiliar to English readers	Cultural explanation, descriptive translation
Orthographic differences	Silent letters and irregular spelling patterns (<i>Greenwich, Edinburgh</i>)	Diacritics and special letters (<i>Shahrisabz, Qo'qon</i>) may be lost in Romanization	Standardized Romanization, international spelling norms
Political and administrative names	Terms like <i>shire, county, borough</i> lack direct Uzbek equivalents	Terms like <i>tuman, viloyat, qishloq</i> have no exact English equivalents	Functional equivalents, contextual translation
Historical names	Old or obsolete forms may require interpretation (<i>Wessex, Mercia</i>)	Ancient names linked to specific dynasties or tribes (<i>Sugd, Xorazm</i>)	Explanatory translation, referencing historical sources
Hybrid names	Names formed from multiple linguistic elements (<i>Newcastle-upon-Tyne</i>)	Compound Uzbek names with geographic + descriptive parts	Partial calquing, hyphenated rendering
Symbolic/Religious meanings	Biblical or Christian references in English toponyms	Islamic or Sufi symbolism in Uzbek toponyms (<i>Nurota, Qorovulbozor</i>)	Cultural annotation, semantic preservation

Results and discussion

The findings of the study reveal that translating toponyms between English and Uzbek involves a complex interplay of linguistic, cultural, and historical factors that significantly influence translation accuracy and cultural representation. One of the key results is the identification of phonetic and orthographic discrepancies as major sources of difficulty. English toponyms often contain silent letters, irregular pronunciations, and historically preserved spellings that do not correspond to their modern phonetic forms, as seen in *Leicester*, *Gloucester*, or *Worcester*. When transferred into Uzbek, these names tend to generate ambiguity unless transcription and transliteration are supported by phonetic clarification. Conversely, Uzbek toponyms frequently include sounds that have no exact equivalents in English, such as *q*, *g'*, and *o'*, making their accurate phonetic rendering challenging for English readers. Another significant result concerns the etymological complexity of English and Uzbek place-names. English toponyms are shaped by multiple linguistic strata—Celtic, Latin, Anglo-Saxon, Norse, and Norman French—resulting in names that carry layered historical meanings invisible in the modern context. Uzbek toponyms, on the other hand, originate mainly from Turkic, Persian, and Arabic influences, reflecting a cultural landscape shaped by nomadic traditions, oasis civilization, and Islamic heritage. The presence of such cultural and historical layers requires translators to go beyond formal equivalence and adopt strategies that preserve both meaning and cultural symbolism.

The study demonstrates that semantic transparency plays a crucial role in determining translation strategy. While many Uzbek toponyms retain direct semantic links to natural features or cultural practices—such as *Qiziltepa* (“Red Hill”) or *Chortoq* (“Four Arches”)—the majority of English toponyms have lost their semantic clarity over time. For example, *Oxford* originally meant “a place where oxen cross the river,” but this meaning is no longer transparent to modern English speakers. As a result, literal translation of English toponyms into Uzbek may create misleading or artificial meanings, whereas Uzbek descriptive names may require semantic adaptation or explanatory translation when rendered into English. Cultural connotations also emerged as a central difficulty in translation. English toponyms often reflect Christian, feudal, or medieval concepts that have no direct cultural parallel in Uzbek society, while Uzbek toponyms may encode Islamic, tribal, or ethnocultural symbolism unfamiliar to English audiences. These cultural layers necessitate translation strategies that take into account the symbolic value of place-names. Descriptive translation, cultural annotation, or functional equivalence becomes essential to prevent the loss of meaning or distortion of cultural identity.

The results also show that administrative and geographical terminology poses challenges. English terms such as *county*, *shire*, or *borough* have no precise equivalents in Uzbek, while Uzbek terms like *tuman*, *qishloq*, or *mahalla* do not fully align with English administrative structures. Therefore, translators must consider context and communicative purpose when determining appropriate equivalents. Overall, the findings indicate that no single translation strategy is sufficient for all cases. Instead, a combination of transcription, transliteration, semantic adaptation, descriptive translation, and functional equivalence is required to ensure accuracy and cultural integrity. The discussion confirms that the successful translation of toponyms is not merely a linguistic exercise but a culturally sensitive process that demands deep knowledge of historical, geographical, and sociolinguistic contexts.

Conclusion

The results of the research demonstrate that translating toponyms between English and Uzbek is a multilayered process that involves phonetic, semantic, cultural, and historical considerations. Toponyms function not only as geographical identifiers but also as carriers of cultural memory and linguistic heritage. For this reason, literal or mechanically applied translation strategies often fail to convey the full meaning embedded in a place-name. English toponyms, shaped by diverse historical layers such as Celtic, Latin, Anglo-Saxon, Norse, and Norman French influences, frequently contain hidden etymological meanings that require deeper linguistic awareness. Uzbek toponyms, formed mainly through Turkic, Persian, and Arabic linguistic traditions, often preserve descriptive semantic transparency and strong cultural symbolism linked to nature, nomadic culture, and ethnocultural identity. The study concludes that the successful translation of toponyms must be based on an integrated approach that considers both linguistic accuracy and cultural sensitivity. Transcription and transliteration are useful for preserving phonetic form, yet insufficient when cultural or semantic content is at risk. Semantic adaptation and functional equivalence are effective for conveying cultural meaning, especially when direct equivalents do not exist. In certain cases, explanatory translation becomes essential to retain the historical or symbolic essence of a place-name for the target audience. Overall, the findings highlight that translation of toponyms is not a purely linguistic task but a culturally informed process requiring knowledge of etymology, phonetics, cultural anthropology, geography, and history. The application of well-chosen strategies ensures that geographical names retain their identity, significance, and communicative function across languages. Thus, the study emphasizes the need for a systematic and culturally nuanced approach to English–Uzbek and Uzbek–English toponym translation.

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**YOSH FUTBOLCHILARNI TAYYORLASHDA FUNKSIONAL ASSIMMETRIYANI
HISOBGA OLGAN TEXNIK MASHG'ULOTLAR TIZIMI**

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Annotatsiya. Ushbu tadqiqot yosh futbolchilarning funksional assimmetriyasini aniqlash, uning texnik tayyorgarlik jarayoniga ta'sirini baholash va assimmetriyani inobatga olgan holda texnik mashg'ulotlar tizimini ishlab chiqishga qaratilgan. O'tkazilgan pedagogik tajriba natijalari shuni ko'rsatadiki, individual assimmetriya profiliga moslashtirilgan texnik mashqlar futbolchilarning ikki oyoqda to'pni boshqarish ko'nikmalarini sezilarli darajada yaxshilaydi. Tadqiqot natijalari futbol tayyorgarligi jarayonida individual yondashuvning ahamiyatini ilmiy asosda tasdiqlaydi.

Kalit so'zlar : futbol, funksional assimmetriya, texnik tayyorgarlik, ikki oyoqlilik, koordinatsiya, yosh futbolchilar.

Kirish. Futbol sportida yuqori samaradorlikka erishish futbolchidan texnik, taktik va koordinatsion tayyorgarlikning mukammal rivojini talab etadi. Yosh futbolchilarda texnik ko'nikmalarni shakllantirishda funksional assimmetriya — o'ng va chap oyoqning tabiiy ustunligi — muhim ahamiyat kasb etadi. Tadqiqotlar shuni ko'rsatadiki, futbolchilarning 80–90 foizida yetakchi oyoq aniq namoyon bo'ladi va texnik harakatlarning katta qismi aynan shu oyoqda bajariladi [1].

Yosh futbolchilarning texnik tayyorgarligida funksional assimmetriyaning o'rni, yosh davrida assimmetriyaning nevrofiziologik, biomexanik va pedagogik jihatlari, ikki oyoqli texnikani shakllantirish jarayonida ko'zga tashlanadigan asosiy qonuniyatlar, shuningdek, assimmetriya asosida qurilgan texnik mashg'ulotlar tizimining nazariy asoslarini yoritadi. Futbol maktablarida mashg'ulot jarayonlari asosan standart texnik ko'nikmalarni shakllantirishga qaratilgan bo'lib, yosh organizmning funksional xususiyatlari, ayniqsa chap va o'ng oyoqning ustunligi bilan bog'liq individual farqlar yetarlicha inobatga olinmaydi. Bu esa o'yinchi harakatlarining bir tomonlama rivojlanishiga, koordinatsion imkoniyatlarning cheklanishiga, dribling, uzatma va zarba texnikalarining bir oyoqqa qaram bo'lishiga sabab bo'ladi. Shuning uchun yosh futbolchilarni tayyorlashda funksional assimmetriya asosida individual texnik o'qitish tizimini shakllantirish nazariy va amaliy jihatdan muhim vazifa hisoblanadi [2].

Funksional assimmetriya odatda markaziy nerv tizimining lateralizatsiyasi bilan bog'liq bo'lib, insonning harakatni bajarayotgan paytdagi neyromuskulyar jarayonlari bir tomonda tezroq va aniqroq faollashadi. Futbolda bu holat asosan yetakchi oyoqning shakllanishi bilan namoyon bo'ladi. O'ng oyoqli futbolchi, qoida tariqasida, zarba berish, driblingni boshlash, to'pni nazorat qilish kabi texnik elementlarni o'ng oyog'ida ancha puxta bajara oladi, chap oyoqda esa harakatlar aniqligi pasayadi [3]. Bunday bir tomonlama texnik rivojlanish yosh davrida kuchayib boradi, agar mashg'ulotlar jarayonida ikki oyoqli texnikani shakllantirishga qaratilgan maxsus yondashuvlar qo'llanilmasa, keyinchalik assimmetriya barqaror shaklga ega bo'ladi. Bu professional futbolga tayyorlanish bosqichida jiddiy cheklov bo'lib, murabbiylar hamda ilmiy tadqiqotchilar uchun muhim muammo sifatida qoraladi.

Nazariy manbalarda funksional assimetriya sportchi harakatlarining ritmi, harakat amplitudasi, mushaklar sinxronligi, tana muvozanati va tezkor qaror qabul qilish sifatiga bevosita ta'sir ko'rsatishi qayd etilgan. Ayniqsa futbol kabi yuqori tezlik va tez moslashuv talab qilinadigan sport turlarida markaziy nerv tizimining bir tomonga ko'proq yuklanishi harakatlarning universal emas, balki yo'nalishi cheklangan bo'lishiga olib keladi. Futbolchi chap tomondan dribling boshlaganda yoki noqulay oyoqda zarba berishga majbur bo'lganda motor boshqaruvi sekinlashadi, natijada texnik harakatlar buziladi. O'yin davomida raqib bosimi ostida to'g'ri texnik yechim tanlash uchun ikkala oyoqda bir xil darajada nozik harakatlarni bajarish qobiliyati juda ahamiyatlidir [4].

Yosh davrda assimetriya rivojlanishining asosiy psixofiziologik sababi — neyron aloqalarning hali to'liq shakllanmaganligi va motor ko'nikmalarning barqaror emasligidir. Aynan shu davr odatlarning, texnik stereotiplarning eng tez shakllanadigan bosqichi bo'lgani uchun murabbiylar tomonidan simmetrik harakatlarni o'rgatish, noqulay oyoqda texnik elementlarni bosqichma-bosqich takrorlash, koordinatsion mashqlar orqali harakat boshqaruvini stabilizatsiya qilish tavsiya etiladi. Aks holda o'yinchi faqat yetakchi oyoq yordamida harakat qilishga ko'nikib qoladi va chap-o'ng oyoq funksional farqi ortib boradi [5].

Nazariy adabiyotlarda futbolchilarni tayyorlash jarayonida assimetriyaning to'rtta asosiy ko'rinishi ajratiladi: motor assimetriya (harakat bajarish aniqligi farqi), sensor assimetriya (ko'rish, kinestetik sezgi farqlari), koordinatsion assimetriya (tana muvozanati, ritm va vaqtni his etishdagi tafovutlar) va kognitiv assimetriya (harakatni tanlash tezligi va qaror qabul qilish sifati). Ushbu assimetriya turlari murakkab o'yin sharoitlarida o'zaro bog'liq holda namoyon bo'ladi. Masalan, noqulay oyoqda to'pni boshqarishdagi noaniqlik nafaqat mushaklar kuchi yoki nazorati bilan bog'liq, balki vizual-idrokiy jarayonlarning biroz sekin ishlashi bilan ham tushuntiriladi. Bu esa o'yinchi ongida harakatni rejalashtirish jarayonini murakkablashtiradi [6].

Futbol texnikasini o'rgatishning nazariy asoslariga ko'ra, ikki oyoqli texnik malakalarni shakllantirish uch yo'nalishni qamrab olishi lozim: motor moslashuvchanlik, harakatni boshqarishning neyron plastiklik asoslari va koordinatsion murakkablikni bosqichma-bosqich oshirish. Motor moslashuvchanlik mashqlarni turli sharoitlarda, turli tezlikda va turli fazoviy holatlarda bajarish orqali rivojlanadi. Neyron plastiklik esa takrorlanish, harakatlarning xilma-xilligi, ikki tomonlama harakat yuki va noqulay oyoqda maqsadli mashqlar orqali kuchayadi. Koordinatsion murakkablik esa dribling marshrutlari, yo'nalish o'zgarishlari, kichik maydonli o'yinlar va tezkor qaror qabul qilish talab etiladigan mashqlar orqali takomillashtiriladi [7].

Assimetriya asosidagi texnik mashg'ulotlar tizimining nazariy modeli odatda uch bosqichdan iborat bo'ladi: diagnostika, moslashtirilgan mashqlar tizimi va integratsiya. Diagnostika bosqichida futbolchining chap va o'ng oyoqdaki harakat aniqligi, zarba kuchi, dribling sifati, muvozanat ko'rsatkichlari va koordinatsion testlar tahlil qilinadi. Bu bosqich murabbiyga individual assimetriya profilini aniqlash imkonini beradi. Ikkinchi bosqich — moslashtirilgan mashqlar tizimi — futbolchining kuchli va zaif tomonlarini balanslashga yo'naltiriladi. Bunga simmetrik mashqlar, noqulay oyoqda takroriy mashqlar, ikki tomonlama dribling, muvozanat mashqlari, o'yin vaziyatlariga moslashtirilgan texnik takrorlar kiradi. Uchinchi bosqich — integratsiya — o'yin davomida ikki oyoqli texnik elementlardan foydalanishni mustahkamlashni nazarda tutadi [8]. Bu kichik maydonli o'yinlar, o'yin davomida noqulay oyoqda bajarilishi shart bo'lgan vazifalar va taktik kombinatsiyalar orqali amalga oshiriladi.

Nazariy yondashuv shuni ko'rsatadiki, yosh futbolchilarda assimetriya faqat texnik darajada emas, balki psixologik ishonchda ham namoyon bo'ladi. Futbolchi noqulay oyoqda harakat bajarishdan qo'rqadi, o'zini ishonchsiz his qiladi yoki noto'g'ri bajarishdan xavotirlanadi. Shu sababli mashg'ulot jarayonida psixologik qo'llab-quvvatlash, musbat rag'batlantirish va bosqichma-bosqich murakkablashtirilgan topshiriqlar berish juda muhim. Motivatsion omillar ikki oyoqlilikning muvaffaqiyatli shakllanishida katta rol o'ynaydi.

Futbolchilarni tayyorlash tizimida assimetriyani hisobga olishning yana bir nazariy asosi — bu jarayonning bioadaptiv xususiyatlari. Yosh organizmda mushaklar kuchi, mushaklar tonusi, vestibulyar tizim rivojlanishi va neyromotor aloqalar shakllanishi juda faol jarayondir. Shu sababli simmetrik mashqlar, ikki tomonda bajariladigan driblinglar, yo'nalish almashtirishlar, noqulay oyoqda qaror qabul qilish mashqlari yosh davrda organizmning moslashuv mexanizmlarini faol ishga soladi va natijada assimetriya darajasi tabiiy ravishda kamayishni boshlaydi [9].

Yakunda shuni ta'kidlash mumkinki, yosh futbolchilarda funksional assimetriyani hisobga olgan holda texnik mashg'ulotlarni tashkil etish — bu nafaqat texnik mahoratni oshirish, balki o'yinchining jismoniy va psixologik rivojlanishini kompleks qo'llab-quvvatlash tizimidir. Nazariy manbalar asosida shakllantirilgan mazkur yondashuv futbolchilarni universal, ikkala oyoqda samarali harakatlana oladigan, o'yin davomida tez moslasha oladigan sportchilar sifatida tayyorlashga xizmat qiladi. Bunday tizim keyinchalik taktik fikrlashning kengayishi, o'yin davomida ijodkorlikning oshishi, harakatlarni erkin bajarish va murakkab vaziyatlarda mustaqil qaror qabul qilish qobiliyatini rivojlantirishga imkon yaratadi [10].

Biroq professional futbolning zamonaviy talablari ikki oyoqli o'yinchilarni tayyorlashni ustuvor vazifa sifatida ko'rsatmoqda. Ikki oyoqli texnik ko'nikmalarni egallagan futbolchilar o'yin davomida tezkor qaror qabul qiladi, o'yin vektorini o'zgartiradi, markazdan va qanotlardan samarali harakatlana oladi.

Sport ilmda assimetriya konsepsiyasi neyrofiziologiya, anatomiya va motor rivojlanish nazariyalariga asoslangan [11].

Yetakchi oyoq harakatlarni boshqarish tezligi, zarba aniqligi va barqarorlikning yuqoriligi bilan ajraladi. Tadqiqotchilar quyidagi xulosalarni ta'kidlaydi:

- yuqori assimetriya natijasida futbolchi bir tomonlama o'yin uslubiga ega bo'lib qoladi;
- o'ng va chap oyoq o'rtasidagi tafovut katta bo'lsa, o'yin davomida zarba, uzatma va driblingda xatoliklar ortadi;
- ikki oyoqlilikni shakllantirish taktik yechimlarning ko'payishiga olib keladi;
- special mashg'ulotlar assimetriyani sezilarli kamaytiradi va koordinatsiyaning yaxshilanishiga yordam beradi.

Shunga qaramay, yosh davri xususiyatlariga moslashtirilgan mashg'ulotlar tizimi yetarli darajada ishlab chiqilmagan [12].

3. Metodologiya

3.1. Ishtirokchilar

Tadqiqotda 12–14 yoshdagi 40 nafar futbolchi ishtirok etdi. Ular quyidagicha taqsimlandi:

- Eksperimental guruh (n=20) — assimetriyaga asoslangan mashg'ulotlar tizimi;
- Nazorat guruhi (n=20) — an'anaviy texnik mashg'ulotlar.

3.2. Funksional assimetriyani aniqlash testlari

Quyidagi testlar qo'llandi:

1. To'pni boshqarish sifati (o'ng/chap oyoqda).
2. Zarba aniqligi testi (10 urinishdan olingan aniq zarbalar soni).
3. Dribling marshrut tezligi.
4. Pas aniqligi (20 ta uzatma).
5. Oyoqlararo tezlik farqi (reaksiya testi).

3.3. Eksperimental dastur

12 hafta davomida o'tkazildi. Dastur quyidagi bloklardan iborat:

- Simmetrik mashqlar: har bir texnik elementni ikki tomonda bajarish.
- Noqulay oyoqni faollashtirish mashqlari: yumshoq paslar, kichik zarbalar, dribling.
- Koordinatsion mashqlar: konuslar labirinti, yo'nalish o'zgarishlari.
- Zarba texnikasi: noqulay oyoqda sekinlik bilan boshlanib, keyin kuchaytiriladi.
- Kichik maydonli o'yinlar: noqulay oyoqdan foydalanish bo'yicha vazifalar qo'yildi.

3.4. Statistik tahlil

Olingan ma'lumotlar o'rtacha qiymatlar, dispersiya tahlili va t-test yordamida baholandi.

4.2. Texnik ko'rsatkichlar o'zgarishi

Ko'rsatkich	Eksperimental guruh	Nazorat guruh
Dribling tezligi	+15–18%	+4–6%
Zarba aniqligi (noqulay oyoq)	+22%	+7%
Pas aniqligi	+19%	+5%
To'pni ikki oyoqda boshqarish	+20%	+6%

Eksperimental guruhda o'sish statistik jihatdan ahamiyatli bo'ldi ($p < 0.05$).

4. Natijalar

4.1. Assimmetriya darajasining kamayishi

Eksperimental guruhda o'ng va chap oyoq o'rtasidagi farq 25% dan 10% gacha kamaydi [13].

Nazorat guruhida sezilarli o'zgarish kuzatilmadi: 23% dan 20% gacha.

Olingan natijalar funksional assimmetriyani hisobga olgan texnik mashg'ulotlar tizimi yosh futbolchilarda ikki oyoqli texnik ko'nikmalarni rivojlantirishda samarali ekanini ko'rsatdi. Noqulay oyoqni rivojlantirishga yo'naltirilgan mashqlar koordinatsiya va driblingning yaxshilanishiga, shuningdek, zarba aniqligining ortishiga olib keldi [14].

Nazorat guruhi futbolchilari texnik mahoratni faqat yetakchi oyoqda rivojlantirgan holda bir tomonlama o'yin uslubini saqlab qoldi. Bu esa o'yin davomida taktik yechimlarning cheklanishiga sabab bo'ladi.

Mazkur tadqiqot futbol tayyorgarligida individual yondashuvning zarurligini ilmiy asosda tasdiqlaydi.

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CLINICAL PHARMACOLOGICAL APPROACH TO THE RATIONAL USE OF
ANTIDEPRESSANT DRUGS IN AUTOIMMUNE DISEASES

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Abstract. This article explores the clinical-pharmacological principles underlying the rational use of antidepressant drugs in patients with autoimmune diseases. Autoimmune disorders are frequently accompanied by chronic inflammation, neuroimmune dysregulation, and a high prevalence of comorbid depression, making the choice of antidepressant therapy clinically complex. The paper examines pharmacodynamic interactions between antidepressants and immunomodulatory medications, highlights the importance of personalized medicine, evaluates the safety profile of various antidepressant classes, and provides practical recommendations for optimizing treatment outcomes.

Keywords: Autoimmune diseases; antidepressants; clinical pharmacology; neuroinflammation; personalized therapy; drug interactions; cytokine modulation; rational pharmacotherapy.

INTRODUCTION

Autoimmune diseases represent a heterogeneous group of chronic, immune-mediated pathologies characterized by dysregulated inflammatory responses and progressive tissue damage. Disorders such as systemic lupus erythematosus, rheumatoid arthritis, multiple sclerosis, and autoimmune thyroid diseases often present with psychiatric comorbidities, most notably depression and anxiety. Clinical studies indicate that up to 60% of autoimmune patients experience depressive symptoms at some stage of the disease course, a rate significantly higher than in the general population [1]. The pathophysiological correlation between immune dysregulation and depression forms the foundation for modern clinical-pharmacological strategies.

From a mechanistic standpoint, chronic systemic inflammation contributes to the emergence of depressive symptoms through increased levels of pro-inflammatory cytokines, such as IL-6, TNF- α , and interferon- γ . These cytokines interfere with central monoamine metabolism, reduce serotonin availability, alter hippocampal neuroplasticity, and promote hypothalamic–pituitary–adrenal (HPA) axis hyperactivation. In such conditions, traditional antidepressants may exhibit modified pharmacokinetics due to impaired liver enzyme function, altered protein binding, or interactions with immunosuppressants such as glucocorticoids, methotrexate, or biological agents [2]. Therefore, rational therapy requires careful selection of drug classes and individualized dosing regimens.

MATERIALS AND METHODS

Selective serotonin reuptake inhibitors (SSRIs) represent the first-line choice for many autoimmune patients due to their favorable safety profile. They also possess mild anti-inflammatory effects by modulating cytokine release and normalizing microglial activation. Fluoxetine and sertraline, for instance, have demonstrated the ability to attenuate IL-1 β and TNF- α activity, making them beneficial for patients with heightened inflammatory markers [3]. However, SSRIs can interact with disease-modifying antirheumatic drugs (DMARDs) through cytochrome P450 pathways. For example,

fluoxetine, a strong CYP2D6 inhibitor, can reduce the clearance of certain immunosuppressants, increasing toxicity risk.

Serotonin–norepinephrine reuptake inhibitors (SNRIs) such as duloxetine and venlafaxine are often preferred when autoimmune diseases involve chronic pain syndromes. Their dual action contributes to improved mood and reduced neuropathic or musculoskeletal pain, which is common in rheumatoid arthritis and fibromyalgia-associated autoimmune conditions. Nonetheless, SNRIs may elevate blood pressure, an important consideration for patients receiving long-term corticosteroids or experiencing autonomic dysfunction associated with systemic lupus [4].

Tricyclic antidepressants (TCAs), though effective, require special caution. Their anticholinergic effects may exacerbate gastrointestinal motility issues, urinary retention, or cardiac conduction abnormalities, which are frequently observed in systemic autoimmune diseases. They may also amplify sedative effects when combined with corticosteroids or methotrexate. Therefore, TCAs should be reserved for treatment-resistant cases or specific neuropathic pain indications.

RESULTS AND DISCUSSION

Atypical antidepressants, including bupropion and mirtazapine, provide alternative mechanisms. Bupropion's dopaminergic activity may be advantageous in autoimmune-related fatigue syndromes, whereas mirtazapine's appetite-stimulating effect supports patients experiencing weight loss due to chronic inflammation. Clinical-pharmacological consideration must include the impact of these drugs on metabolic parameters, as many autoimmune patients suffer from steroid-induced metabolic syndrome [5].

Another layer of complexity arises from cytokine-modulating therapies (biologics), such as TNF- α inhibitors or IL-17 blockers. These agents can improve depressive symptoms by interrupting inflammatory cascades; however, combining them with antidepressants may require pharmacovigilance to detect overlapping immunological effects. For instance, infliximab therapy has been shown to enhance the antidepressant response in patients with high CRP levels, implying a synergistic immunomodulatory mechanism [6].

Personalized medicine plays a decisive role in rational therapy. Monitoring inflammatory markers, pharmacogenetic testing (CYP2D6, CYP2C19), evaluating hepatic and renal function, and assessing comorbidities are essential for determining optimal antidepressant selection. Equally important is the collaboration between rheumatologists, neurologists, psychiatrists, and clinical pharmacologists to prevent polypharmacy complications.

Furthermore, non-pharmacological interventions such as cognitive-behavioral therapy, stress-reduction programs, and adequate sleep hygiene serve as adjunctive measures that improve overall treatment response. However, in autoimmune diseases—where neuroinflammation directly modifies neurotransmission—pharmacotherapy remains a primary therapeutic pillar.

A deeper clinical-pharmacological examination of antidepressant use in autoimmune diseases reveals that the interplay between neuroimmune pathways, cytokine regulation, and central neurotransmission is far more complex than previously assumed. In recent years, the concept of immunopsychiatry has gained prominence, emphasizing that inflammatory mediators directly influence mood regulation, neuronal survival, and synaptic plasticity. In patients with autoimmune disorders, persistent inflammation often alters serotonin, norepinephrine, and dopamine metabolism, which in turn modifies antidepressant pharmacodynamics in clinically significant ways [1]. This

means that rational therapy cannot rely solely on psychiatric algorithms but must integrate immunological status, flare cycles, comorbidities, and biomarkers.

An important aspect of rational antidepressant selection is recognizing the bidirectional relationship between cytokine activity and drug response. Elevated IL-6, TNF- α , and CRP levels reduce monoaminergic signaling and can attenuate the therapeutic effect of SSRIs, creating a state known as inflammation-associated treatment resistance. In such cases, clinicians may prefer antidepressants with dual mechanisms—such as SNRIs or atypical agents with dopaminergic modulation—because they demonstrate more robust effects in inflammatory states. Furthermore, some antidepressants, including sertraline, fluoxetine, and duloxetine, exhibit direct anti-inflammatory properties, inhibiting microglial activation and normalizing HPA-axis dysregulation, which provides dual benefit for autoimmune patients [2].

Another layer of complexity arises from the pharmacokinetic changes induced by autoimmune pathology or its treatment. Autoimmune conditions such as lupus, rheumatoid arthritis, and inflammatory bowel disease frequently involve hepatic metabolism impairment, renal clearance fluctuations, and alterations in CYP450 enzyme activity. Thus, the usual antidepressant dosage may either lead to subtherapeutic exposure or cause toxicity. Corticosteroids, methotrexate, azathioprine, cyclosporine, and biologics also interact with antidepressants at both metabolic and immunological levels, necessitating careful dose titration, therapeutic drug monitoring, and cross-specialty coordination between psychiatrists, immunologists, and clinical pharmacologists [3].

Attention must also be paid to the somatic symptom profile common in autoimmune patients. Chronic fatigue, neuropathic pain, sleep disturbance, and cognitive impairment often overlap with depressive symptoms, making differential diagnosis essential. This overlap influences pharmacological decisions: agents like duloxetine or amitriptyline may be favored when neuropathic pain is prominent, while activating SSRIs are useful in fatigue-dominant presentations. Conversely, deeply sedating agents may worsen daytime somnolence or impair functional mobility in patients with systemic conditions [4].

Emerging evidence highlights the potential of personalized medicine in optimizing antidepressant therapy for autoimmune patients. Genetic polymorphisms of CYP2D6, CYP2C19, serotonin transporters, and inflammatory genes can predict drug metabolism, tolerability, and response patterns. Pharmacogenomic testing is increasingly recommended as part of the rational clinical-pharmacological strategy, especially in patients receiving polypharmacy for their autoimmune condition. By integrating genetic, immunological, and clinical data, clinicians can predict drug interactions, reduce adverse events, and tailor therapy with greater precision [5].

Additionally, clinicians must consider the cumulative burden of side effects when managing long-term illnesses. Weight gain, metabolic syndrome, QT-interval prolongation, and immunosuppressive vulnerabilities are of particular concern. For instance, tricyclic antidepressants may exacerbate cardiovascular risk, while mirtazapine-induced appetite changes can worsen steroid-associated metabolic disturbances. Rational prescribing therefore includes continuous risk–benefit evaluation, baseline ECG screening when indicated, and close monitoring of metabolic parameters throughout the treatment course [6].

CONCLUSION

The rational use of antidepressant drugs in autoimmune diseases requires a nuanced clinical-pharmacological approach that considers immunological status, drug interactions, comorbidities, and

individual patient characteristics. Antidepressants must be selected not only for their psychiatric efficacy but also for their immunomodulatory potential and safety within complex therapeutic regimens. A multidisciplinary strategy, grounded in personalized medicine, offers the most effective path to improving both psychological well-being and disease outcomes in this vulnerable patient population.

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AMPLITUDE-FREQUENCY CHARACTERISTICS OF A BEAM WITH HYSTERESIS-TYPE ELASTIC DISSIPATIVE PROPERTY AND A MOVING DYNAMIC ABSORBER

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Abstract. In this work, the amplitude-frequency characteristics of the transverse vibrations of a beam with a hysteresis-type elastic dissipative property, interacting with a moving dynamic absorber of the same type, has been analytically determined depending on the system parameters and variables, and analyzed on the basis of numerical calculations.

Key words. Beam, dynamic absorber, hysteresis, vibrations, the amplitude-frequency characteristics.

Introduction. Taking into account the nonlinearity of complex mechanical systems, a number of works have been devoted to the analysis of their vibrations and dynamics [1–7]. To analyze the dynamics of the beam protected from the considered vibrations, we write down its differential equation of motion.

$$\begin{aligned} \ddot{q}_i + \{ (1 + C_0(-\eta_1 + j\eta_2))p_i^2 + \frac{3EI}{\rho A d_{2i}}(-\eta_1 + j\eta_2) \times \\ \times \sum_{k=1}^n C_k q_{ia}^k \frac{h^k}{2^k(k+3)} \int_0^l u_i \frac{\partial^2}{\partial x^2} \left(\frac{\partial^2 u_i}{\partial x^2} \left| \frac{\partial^2 u_i}{\partial x^2} \right|^k \right) dx \} q_i - \\ - \mu \mu_0 n_0^2 u_{i0} (1 + (-\theta_1 + j\theta_2)(D_0 + f(\zeta_{ot}))) \zeta H\left(\frac{1}{v} - t\right) = -d_i \frac{\partial^2 w_0}{\partial t^2}; \end{aligned} \quad (1)$$

$$u_{i0} \ddot{q}_i + \ddot{\zeta} + n_0^2 (1 + (-\theta_1 + j\theta_2)(D_0 + f(\zeta_{ot}))) \zeta = -\frac{\partial^2 w_0}{\partial t^2},$$

where

$$\mu = \frac{m}{\rho A l}; \mu_0 = \frac{l}{d_{2i}}; d_i = \frac{d_{1i}}{d_{2i}}; d_{1i} = \int_0^l u_i dx; d_{2i} = \int_0^l u_i^2 dx;$$

ρ, A are, respectively, the density of the beam material and the cross-sectional area; $w(x_0)$ is the displacement of the beam point where the dynamic absorber is located; $x_0 = vt$ is the point where the dynamic absorber is located; v is the velocity of the dynamic absorber; t is time; $\delta(x)$ is Dirac delta function; $H(\frac{l}{v})$ is Heaviside function; l is the length of the beam; c, m are the stiffness and the mass of the dynamic absorber, respectively; ζ is the relative deformation of the dynamic absorber; w_a is the absolute displacement of the beam $w_a = w_0 + w$, w_0 is the displacement of the base; w is the deflection of the beam; $\theta_1, \theta_2 = \theta_{22} \text{sign}(\omega)$ are constant coefficients depending on the elastic dissipative properties of the dynamic absorber material, determined from the hysteresis loop; $j^2 = -1$; $f(\zeta_{ot})$ is the decrement of vibrations, ζ_{ot} is a function of the absolute value of the relative deformation,

$$f(\zeta_{ot}) = D_1 \zeta_{ot} + D_2 \zeta_{ot}^2 \dots + D_n \zeta_{ot}^n,$$

$D_0, D_1, \dots, D_n$ are the parameters of the hysteresis node determined experimentally, which depend on the damping properties of the dynamic absorber material [7]. $\eta_1, \eta_2 = \eta_{22} \text{sign}(\omega)$ are constant coefficients depending on the elastic dissipative properties of the beam material, determined from the hysteresis loop; $f(\zeta_o)$ is the decrement of vibrations, which is a function of the absolute value of the relative deformation ζ_o .

$$f(\zeta_o) = C_1 \zeta_o + C_2 \zeta_o^2 \dots + C_n \zeta_o^n,$$

$C_0, C_1, \dots, C_n$ are the parameters of the hysteresis node determined experimentally, which depend on the damping properties of the beam material [7].

Materials and methods. Using the system of differential equations (1), we determine the transfer function in order to analyze the dynamics of the beam protected from the considered vibrations. First, for this purpose, we transform the system of differential equations (1) $S = \frac{d}{dt}$ we reduce it to a system of algebraic equations using the differential operator. $S^2 = -\omega^2$ taking into account that $H(\frac{1}{v} - t)$ of the Heaviside function $\frac{1}{v} - t > 0$ when $H(\frac{1}{v} - t) = 1$ taking into account the property, q_i and ζ we solve with respect to the variables.

$$q_i(t) = -\frac{A_1 + jA_2}{B_1 + jB_2} W_0; \quad (2)$$

$$\zeta(t) = -\frac{A_3 + jA_4}{B_1 + jB_2} W_0,$$

where $A_1 = -\omega^2 + (1 + d_i \mu \mu_0 u_{i0}) n_0^2 (1 - \theta_1 (D_0 + f(\zeta_{ot})))$;

$$A_2 = (1 + d_i \mu \mu_0 u_{i0}) n_0^2 \theta_2 (D_0 + f(\zeta_{ot}));$$

$$A_3 = (-\omega^2 + (1 - \eta_1 C_0) p_i^2 - \eta_1 \frac{3EI}{\rho A d_{2i}} \times$$

$$\times \sum_{k=1}^n C_k q_{ia}^k \frac{h^k}{2^k (k+3)} \int_0^l u_i \frac{\partial^2}{\partial x^2} \left(\frac{\partial^2 u_i}{\partial x^2} \left| \frac{\partial^2 u_i}{\partial x^2} \right|^k \right) dx) d_i + u_{i0} \omega^2;$$

$$A_4 = d_i \eta_2 (C_0 p_i^2 +$$

$$+ \frac{3EI}{\rho A d_{2i}} \sum_{k=1}^n C_k q_{ia}^k \frac{h^k}{2^k (k+3)} \int_0^l u_i \frac{\partial^2}{\partial x^2} \left(\frac{\partial^2 u_i}{\partial x^2} \left| \frac{\partial^2 u_i}{\partial x^2} \right|^k \right) dx);$$

$$B_1 = [-\omega^2 + (1 - \eta_1 C_0) p_i^2 - \eta_1 \frac{3EI}{\rho A d_{2i}} \times$$

$$\times \sum_{k=1}^n C_k q_{ia}^k \frac{h^k}{2^k (k+3)} \int_0^l u_i \frac{\partial^2}{\partial x^2} \left(\frac{\partial^2 u_i}{\partial x^2} \left| \frac{\partial^2 u_i}{\partial x^2} \right|^k \right) dx] \times [-\omega^2 +$$

$$+ n_0^2 (1 - \theta_1 (D_0 + f(\zeta_{ot}))) - \eta_2 [C_0 p_i^2 + \frac{3EI}{\rho A d_{2i}} \times$$

$$\times \sum_{k=1}^n C_k q_{ia}^k \frac{h^k}{2^k (k+3)} \int_0^l u_i \frac{\partial^2}{\partial x^2} \left(\frac{\partial^2 u_i}{\partial x^2} \left| \frac{\partial^2 u_i}{\partial x^2} \right|^k \right) dx] \times$$

$$\times n_0^2 (1 + \theta_2 (D_0 + f(\zeta_{ot}))) - \mu \mu_0 n_0^2 u_{i0}^2 \omega^2 (1 - \theta_1 (D_0 + f(\zeta_{ot})))];$$

$$\begin{aligned}
 B_2 = & [-\omega^2 + (1 - \eta_1 C_0) p_i^2 - \eta_1 \frac{3EI}{\rho A d_{2i}} \times \\
 & \times \sum_{k=1}^n C_k q_{ia}^k \frac{h^k}{2^k(k+3)} \int_0^l u_i \frac{\partial^2}{\partial x^2} \left(\frac{\partial^2 u_i}{\partial x^2} \left| \frac{\partial^2 u_i}{\partial x^2} \right|^k \right) dx] \times \\
 & \times n_0^2 \left(1 + \theta_2 (D_0 + f(\zeta_{ot})) \right) + \eta_2 [C_0 p_i^2 + \frac{3EI}{\rho A d_{2i}} \times \\
 & \times \sum_{k=1}^n C_k q_{ia}^k \frac{h^k}{2^k(k+3)} \int_0^l u_i \frac{\partial^2}{\partial x^2} \left(\frac{\partial^2 u_i}{\partial x^2} \left| \frac{\partial^2 u_i}{\partial x^2} \right|^k \right) dx] \times \\
 & \times \left[-\omega^2 + n_0^2 \left(1 - \theta_1 (D_0 + f(\zeta_{ot})) \right) \right] - \mu \mu_0 n_0^2 u_{i0}^2 \theta_2 (D_0 + f(\zeta_{ot})) \omega^2.
 \end{aligned}$$

Expression (2) represents the amplitude-frequency characteristic of the transverse vibrations of a beam with a hysteresis-type elastic dissipative property together with a moving dynamic absorber of the same type.

Results and discussion. Let us assume that the moving dynamic absorber is moving with a linear velocity of $v = 0.125 \frac{m}{s}$. In this case, when $t = 1; 2$ s we analyze the amplitude-frequency characteristics of the considered system.

The experimentally determined parameters of the hysteresis node of the beam material are taken as follows [7].

$$C_1 = 6.760624; C_2 = -8278.5937; C_3 = 5894761;$$

$\eta_1 = \frac{3}{4}; \eta_2 = \frac{1}{\pi}$. For the elastic damping element of the moving dynamic absorber, we assume the following:

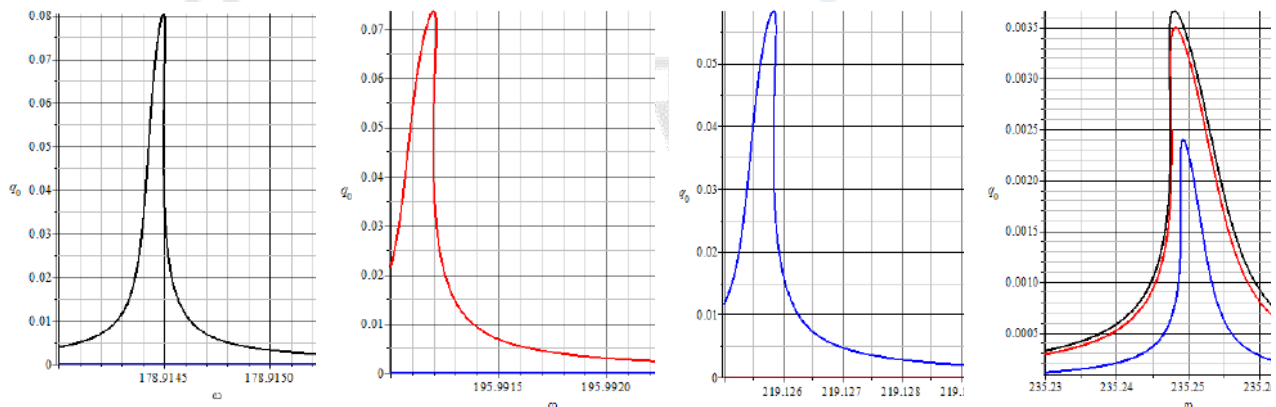
$$\theta_1 = \theta_2 = 0, D_0 = 0, D_1 = 0, D_2 = 0.$$

The remaining parameters are as follows:

$$d_1 = 0.3183098862; d_2 = 0.25; d_i = 1.273239545; \mu = 0.1; \mu_0 = 2.0$$

$$u_{i0} = u_{10} = 1; I = 1.066666667 \cdot 10^{-10} m^4; \varepsilon p_0 = 10^{-\frac{5}{2}} m.$$

When $t = 1$ s the moving dynamic absorber is located at the point $x_0 = 0.125$ m of the beam. Based on the values of the parameters given above, we plot the amplitude-frequency characteristic of the system.



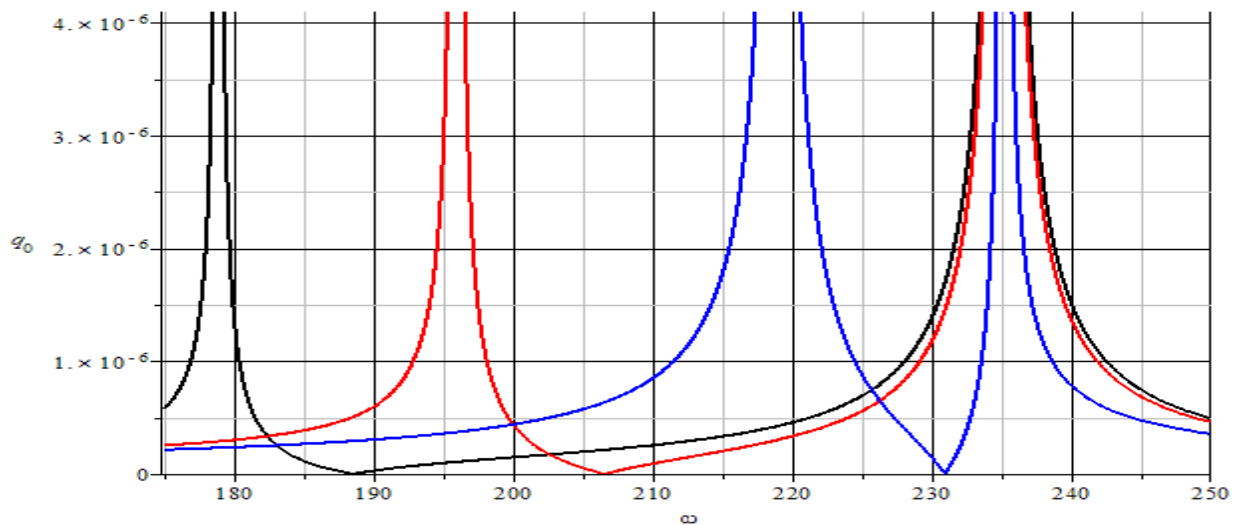


Figure 1. Amplitude–frequency characteristic. ($x_0 = 0.125 \text{ m}$).

In Figure 1, the variation of the amplitude–frequency characteristic at the point where the dynamic absorber is installed is shown for the transverse vibrations of a beam with a hysteresis-type elastic dissipative property together with a moving dynamic absorber located at $x_0 = 0.125 \text{ m}$. From these graphs, it can be observed that as the stiffness of the dynamic absorber increases, its frequency approaches the natural frequency of the beam, and the resonance curve shifts along the frequency axis from left to right ($c = 10 \cdot 10^2 \frac{\text{N}}{\text{m}}$ (black), $c = 12 \cdot 10^2 \frac{\text{N}}{\text{m}}$ (red), $c = 15 \cdot 10^2 \frac{\text{N}}{\text{m}}$ (blue)). At these stiffness values, the maximum amplitudes around the resonance frequency are $q_0 = 0.0036; 0.0035; 0.0024 \text{ m}$, respectively. From this, it can be concluded that for the point $x_0 = 0.125 \text{ m}$ with the above parameter values, $c = 15 \cdot 10^2 \frac{\text{N}}{\text{m}}$ represents the optimal value of the dynamic absorber stiffness.

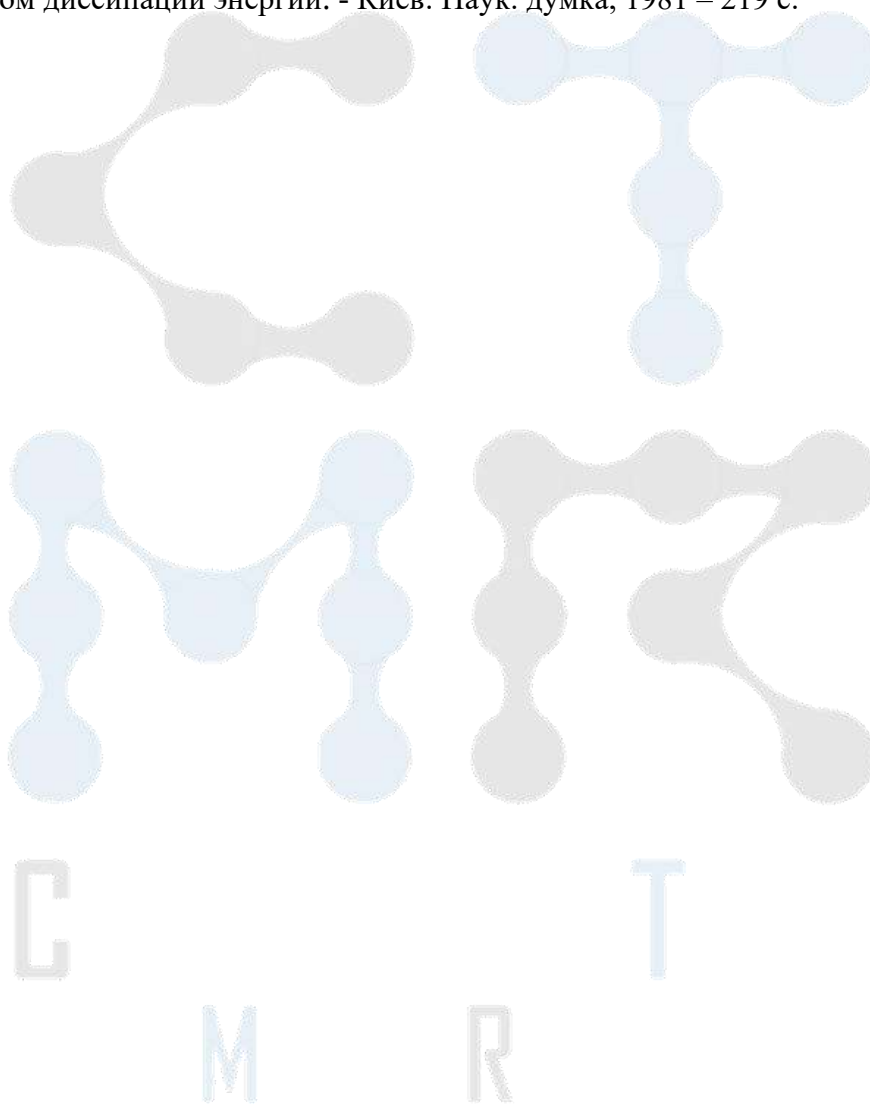
CONCLUSION

The obtained expression is an analytical representation of the amplitude–frequency characteristic of the transverse vibrations of a beam with a hysteresis-type elastic dissipative property together with a moving dynamic absorber of the same type, which makes it possible to evaluate the efficiency of the moving hysteresis-type elastic dissipative dynamic absorber.

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THE SIGNIFICANCE OF SPEAKING IN SECOND LANGUAGE ACQUISITION

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Abstract: This article examines the central role of speaking in second language learning as a complex, dynamic skill that integrates linguistic, pragmatic, cognitive and affective components. Drawing on contemporary proficiency frameworks and empirical research, the paper argues that speaking is not only a communicative outcome but also a key process through which learners construct meaning, develop self-regulation and participate in academic and professional communities. The analysis highlights the importance of systematic, pedagogically grounded instruction that provides opportunities for authentic interaction, strategic support and reflective practice.

Keywords: speaking skills; language acquisition; oral communication; communicative competence; second language pedagogy.

IKKINCHI TILNI O'RGANISHDA OG'ZAKI NUTQNING AHAMIYATI

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Annotatsiya: Ushbu maqolada ikkinchi tilni o'rganishda og'zaki nutqning markaziy o'rni lingvistik, pragmatik, kognitiv va affektiv komponentlarni o'zida mujassam etgan murakkab va dinamik ko'nikma sifatida tahlil qilinadi. Zamonaviy malaka darajalari tizimlari va empirik tadqiqotlarga tayangan holda, maqola og'zaki nutq nafaqat kommunikativ natija, balki o'quvchilar mazmun yaratadigan, o'z-o'zini boshqarishni rivojlantiradigan va akademik hamda kasbiy hamjamiyatlarda faol ishtirok etadigan asosiy jarayon ekanini ta'kidlaydi. Tahlil haqiqiy muloqot, strategik yordam va reflektiv amaliyotga imkon beradigan tizimli, metodik jihatdan asoslangan ta'limning ahamiyatini ko'rsatadi.

Kalit so'zlar: og'zaki nutq ko'nikmalari; tilni o'zlashtirish; og'zaki kommunikatsiya; kommunikativ kompetensiya; ikkinchi tilni o'qitish metodikasi.

ЗНАЧЕНИЕ НАВЫКА ГОВОРЕНИЯ В ИЗУЧЕНИИ ВТОРОГО ЯЗЫКА

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Аннотация: В статье рассматривается ключевая роль навыка говорения в процессе освоения второго языка как сложного и динамичного умения, интегрирующего лингвистические, прагматические, когнитивные и аффективные компоненты. Опираясь на современные уровневые модели и эмпирические исследования, автор подчёркивает, что говорение является не только коммуникативным результатом, но и важнейшим процессом, посредством которого учащиеся конструируют смысл, развивают саморегуляцию и участвуют в академических и профессиональных сообществах. Анализ демонстрирует значимость системного, методически

обоснованного обучения, обеспечивающего условия для аутентичного взаимодействия, стратегической поддержки и рефлексивной практики.

Ключевые слова: навыки говорения; освоение языка; устная коммуникация; коммуникативная компетентность; методика обучения второму языку.

Spoken language plays a foundational role in second language learning because it is the primary medium through which social interaction, knowledge construction and identity negotiation take place in educational and professional contexts. In contrast to the relative permanence and editability of written language, speaking requires learners to process input, plan output and monitor their performance in real time, often under conditions of time pressure and high affective load. As Bygate notes, there is an important difference between knowledge of the language system and the ability to use that knowledge in spontaneous interaction, and it is precisely this ability that makes speaking such a complex and, historically, undervalued skill in language education [1]. When speaking is treated merely as an add-on to grammar or reading instruction, learners may accumulate declarative knowledge yet remain unable to participate effectively in basic conversations, let alone in the more demanding oral genres required at university or in the workplace.

From the perspective of contemporary proficiency frameworks, speaking is no longer seen as a simple matter of producing grammatically correct sentences but as a repertoire of communicative activities that integrate linguistic, pragmatic and strategic competences. The Common European Framework of Reference for Languages (CEFR) describes oral production and interaction across six reference levels (A1–C2) and provides detailed “can-do” descriptors for tasks such as sustaining a conversation, negotiating meaning, or giving a public presentation[2]. These descriptors conceptualize speaking as purposeful action in specific social situations, emphasizing both the co-construction of meaning with interlocutors and the mediation of texts, ideas and viewpoints. In this view, the significance of speaking lies not only in its communicative function but also in its role as a vehicle for participation in academic, civic and professional communities.

Research on the nature of spoken language shows that speaking involves more than the accurate retrieval of vocabulary and grammar; it requires the orchestration of multiple subskills, including discourse organization, turn-taking, management of breakdowns, and sensitivity to sociocultural norms. Bygate’s work highlights that proficient speakers must be able to adapt their language to different interactional demands, drawing on strategies such as ellipsis, formulaic expressions and real-time reformulation to maintain fluency under time pressure [1]. These insights underscore why learners who perform well on written tests may still struggle in face-to-face communication: speaking competence is built through repeated engagement in authentic or simulated oral tasks that mirror the unpredictability and reciprocal nature of real interaction.

Recent empirical studies confirm that learners themselves perceive speaking as the most salient and challenging dimension of their language learning experience. Survey-based research in various contexts reports that students frequently prioritise the ability to speak over other skills, associating it with future mobility, employability and social integration [5]. At the same time, learners report anxiety, lack of confidence and fear of negative evaluation in oral tasks, which can inhibit participation and slow down development of fluency. These findings highlight a paradox at the heart of second language education: speaking is both the most desired and the most anxiety-provoking skill, and its development cannot be left to incidental practice at the end of a lesson.

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In response to this challenge, contemporary pedagogy has moved toward holistic models of teaching speaking that integrate cognitive, affective and social dimensions of learning. Goh and Burns conceptualize speaking instruction as a cycle that includes raising learners' awareness of spoken discourse, providing rich input and planning time, engaging in communicative tasks, focusing on language features, repeating tasks with new goals, and guiding reflection on performance [3]. Within such a framework, speaking is not reduced to isolated performance tests but becomes a process of gradual skill building, supported by metacognitive strategies such as goal-setting, self-monitoring and evaluation of interactional success. The significance of speaking here is twofold: it is an outcome to be measured and a central process through which learners develop self-regulation and communicative confidence.

Another powerful argument for the centrality of speaking in language curricula comes from course design research that emphasizes the need for substantial "meaning-focused output". Nation and Newton propose that well-balanced programs should devote a significant proportion of classroom time to activities where learners use the language to convey messages, negotiate meaning and collaborate on tasks [4]. In their four-strands model, speaking is indispensable for at least two strands: meaning-focused output and fluency development. In such activities learners are pushed to retrieve and recombine language quickly, approximate target forms, employ communication strategies and gradually increase the complexity of their spoken discourse. Without sustained opportunities for oral production, the other strands—meaning-focused input and language-focused learning—are unlikely to result in functional communicative competence.

Furthermore, speaking plays a crucial mediating role in integrated-skill pedagogy. Oral interaction frequently serves as a bridge between receptive skills (listening and reading) and written production, allowing learners to process and transform information, clarify understanding, and experiment with new language in a relatively low-stakes environment before committing it to written form. In content-based and task-based instruction, small-group discussions, problem-solving tasks and project presentations provide spaces where learners jointly construct disciplinary knowledge and practice the discourse conventions of specific fields. This is particularly important in technical and vocational education, where students must learn to discuss procedures, justify decisions and explain processes in the target language, not simply memorize terminology. In such contexts, speaking underpins the development of both professional identity and domain-specific expertise.

The affective and motivational significance of speaking should also not be underestimated. Successful participation in oral tasks can become a powerful source of self-efficacy, reinforcing learners' belief that they can function in the target language outside the classroom. Conversely, repeated experiences of communicative breakdown or public failure may strengthen negative self-images and increase avoidance behavior. Holistic approaches therefore stress the importance of creating psychologically safe speaking environments, where errors are treated as natural stages of development and where support is provided through scaffolding, pair and group work, and explicit training in interactional strategies [3]. In such environments, speaking is not merely a test of ability but a means of building a positive, agentive relationship with the language.

Finally, the institutional prominence of speaking is reflected in assessment practices at both national and international levels. High-stakes examinations increasingly include oral components that align with CEFR-like descriptors of interactional competence, collaborative problem-solving and mediation. This trend signals a broader shift away from viewing language proficiency as primarily

written and individual towards recognizing its inherently interactive and multimodal nature. For teachers, this shift implies that speaking cannot be treated as a peripheral skill; instead, it must be systematically planned, scaffolded and evaluated throughout the curriculum, with clear progression from simple transactional exchanges to complex, extended discourse.

In sum, speaking occupies a pivotal position in second language learning because it is the modality through which learners most visibly enact their communicative competence, participate in academic and professional communities, and construct their identities as legitimate users of the target language. Theoretical models, empirical research and contemporary proficiency frameworks converge in portraying speaking as a dynamic, context-sensitive skill that integrates linguistic, pragmatic, strategic and affective components. For these reasons, the significance of speaking goes far beyond the ability to “say sentences correctly”: it lies in enabling learners to act, interact and belong in a second language.

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**O‘ZBEK OILASIDA MA’NAVY-AXLOQIY TARBIYA MAS’ULIYATI VA QADR-
QIYMATI**

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Annotatsiya: Ushbu maqolada o‘zbek oilasida ma’naviy-axloqiy tarbiya jarayonining mazmuni va uning yosh avlodni barkamol shaxs sifatida shakllantirishdagi o‘rni tahlil qilinadi. Oilaning tarbiyaviy muhitini belgilovchi omillar, ota-onaning mas’uliyati hamda globallashuv sharoitida milliy va umuminsoniy qadriyatlarning uyg‘unligi yoritiladi. Tadqiqot natijalari oila institutining ma’naviy barkamollikni mustahkamlashdagi ahamiyatini ko‘rsatadi.

Kalit so‘zlar: oila, ma’naviy tarbiya, axloqiy qadriyatlar, ota-ona mas’uliyati, milliy qadriyatlar, yosh avlod.

**RESPONSIBILITY AND VALUE OF MORAL-SPIRITUAL EDUCATION IN THE UZBEK
FAMILY**

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Abstract: This article analyzes the essence of moral and spiritual education in Uzbek families and its role in shaping the younger generation into well-rounded individuals. It highlights the educational influence of the family environment, parental responsibility, and the balance between national and universal values in the context of globalization. The findings emphasize the importance of the family institution in strengthening moral development.

Keywords: family, moral education, ethical values, parental responsibility, national values, youth.

**ОТВЕТСТВЕННОСТЬ И ЦЕННОСТЬ ДУХОВНО-ПРАВСТВЕННОГО ВОСПИТАНИЯ
В УЗБЕКСКОЙ СЕМЬЕ**

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Аннотация: В статье рассматривается сущность духовно-нравственного воспитания в узбекской семье и его роль в формировании гармонично развитой личности молодого поколения. Раскрыто влияние семейной среды, ответственность родителей, а также необходимость гармонии национальных и общечеловеческих ценностей в условиях глобализации. Результаты исследования подтверждают значимость семьи в укреплении духовно-нравственного развития.

Ключевые слова: семья, духовное воспитание, нравственные ценности, ответственность родителей, национальные ценности, молодёжь.

Oila — jamiyatning eng kichik bo‘g‘ini bo‘lib, unda shaxsning ma’naviy va axloqiy fazilatlari shakllanadi. Insonning dastlabki dunyoqarashi, qadriyatlari va hulqiy me‘yorlari aynan oilada paydo bo‘ladi. Bugungi globallashuv jarayonida oilaning ma’naviy-axloqiy tarbiyadagi o‘rni yanada oshib, unga qo‘yilayotgan ijtimoiy talablar ham ortib bormoqda [1]. Shu bois, yosh avlodni milliy

qadriyatlar asosida tarbiyalash, ularni ma'naviy barkamollikka yetaklash oilaning ustuvor vazifalaridan biri hisoblanadi.

Ota-onalar farzand tarbiyasida bevosita mas'ul bo'lib, ularning xulqi, kundalik odatlari va oila ichidagi muloqot madaniyati bolaga kuchli ta'sir ko'rsatadi. Hurmat, halollik, vatanparvarlik, sabr-toqat kabi fazilatlar ko'pincha ota-onaning shaxsiy namunasi orqali bolaga singadi [3]. Ayniqsa, oilaviy muhitning mehrga boy, iliq va ishonchli bo'lishi farzandda ijtimoiy mas'uliyatni shakllantiruvchi psixologik omil sifatida katta ahamiyatga ega.

Shu bilan birga, davlat darajasida qabul qilingan qarorlar oilaning tarbiyaviy funksiyasini mustahkamlashga xizmat qiladi. Masalan, yoshlarni har tomonlama barkamol qilib tarbiyalashga doir normativ-huquqiy hujjatlar oila va ta'lim tizimining o'zaro hamkorligini kuchaytirish vazifasini belgilab beradi [1]. Bu hujjatlar oilada ma'naviy tarbiyani rivojlantirishning amaliy yo'nalishlarini ko'rsatib, ota-onalarga metodik ko'mak beradi.

O'zbek oilasida ma'naviy-axloqiy tarbiya jarayonida milliy qadriyatlar bilan bir qatorda umuminsoniy tamoyillarni uyg'unlashtirish muhim. Farzandni mustaqil fikrlaydigan, boshqalarga hurmat bilan yondashadigan shaxs sifatida voyaga yetkazish — tarbiyaning asosiy maqsadlaridan biridir. Mazkur jarayonda oilaning o'ziga xos an'analari, urf-odatlar, marosim madaniyati ham o'ta katta tarbiyaviy kuchga ega [4].

Bundan tashqari, zamonaviy texnologiyalarning jadal rivojlanishi, axborot oqimining kuchayishi yoshlarning ma'naviy olamiga turlicha ta'sir ko'rsatmoqda. Shuning uchun ota-onalar farzandni axborot madaniyatiga o'rgatish, zararli ta'sirlardan himoya qilish, ayni vaqtda dunyoqarashini kengaytirish kabi vazifalarni bajarishi lozim [6]. Bu jarayonda milliy qadriyatlarga sodiqlik bilan birga, umuminsoniy axloqiy normalarni anglash va tanqidiy fikrlashni rivojlantirish muhim hisoblanadi.

Oilaviy tarbiyaning samaradorligi ko'p jihatdan oila a'zolarining o'zaro muloqoti va hamjihatligiga bog'liq. Ota-onaning farzand bilan olib boradigan suhbatlari, birgalikdagi faoliyati, kundalik hayotdagi odob-axloq amaliyotlari tarbiyaning eng ta'sirchan vositalaridan biridir [3]. Ta'lim muassasalari, mahalla va jamoatchilik organlari bilan hamkorlik esa tarbiya jarayonining uzluksizligini ta'minlaydi.

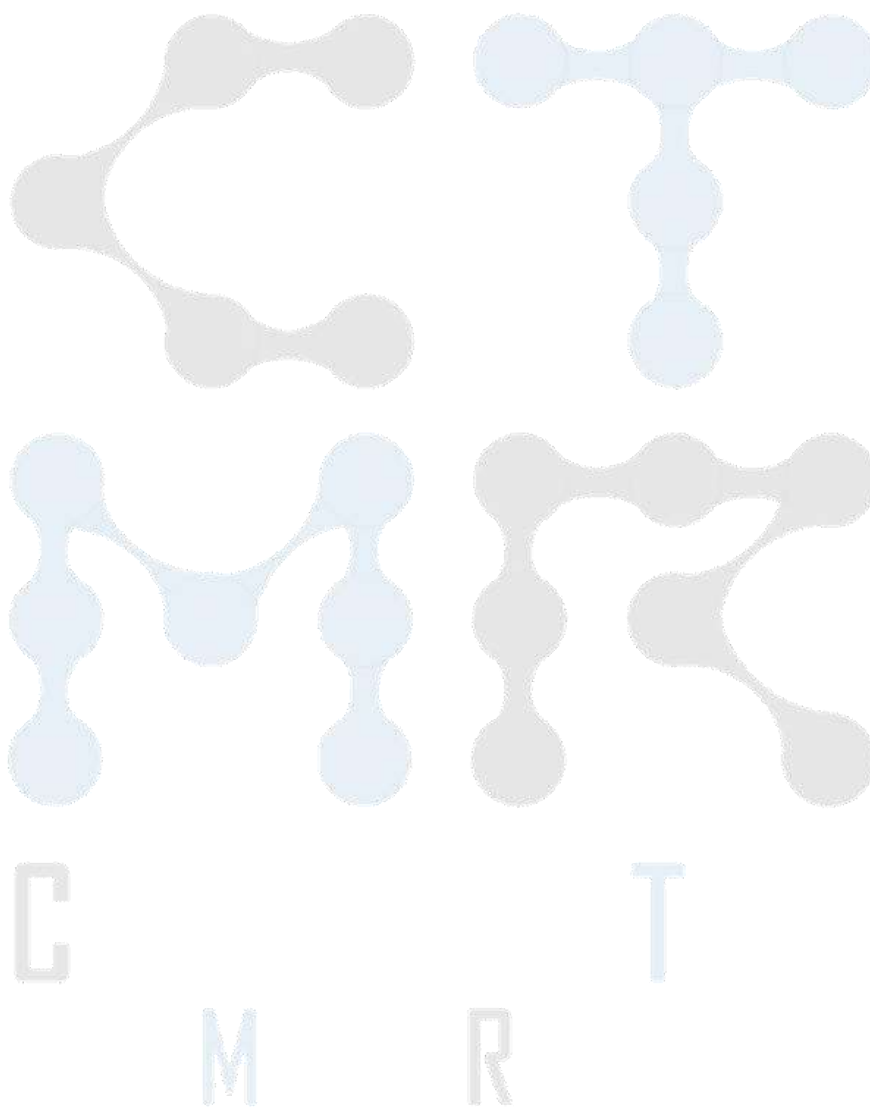
Oila tarbiyasining mazmuni nafaqat axloqiy me'yorlarni o'rgatish, balki farzandning shaxs sifatida kamol topishiga ko'maklashishdir [5]. Mas'uliyat, mustaqil fikrlash, odob, muloqot madaniyati kabi fazilatlar oilada shakllanadi va bu fazilatlar farzandning butun hayoti davomida asosiy yo'l-yo'riq vazifasini bajaradi.

O'zbek oilasida ma'naviy-axloqiy tarbiyaning mas'uliyati va qadri qiymati jamiyatning barqaror taraqqiyoti va yosh avlodning barkamol bo'lib voyaga yetishida hal qiluvchi omillardandir. Ota-onalarning shaxsiy namunasi, oilaviy muhitning ijobiy bo'lishi, davlatning oilaga oid siyosati va jamoatchilik qo'llovi birgalikda tarbiyaviy jarayonning samaradorligini ta'minlaydi. Milliy va umuminsoniy qadriyatlarning uyg'unlashtirilgan holda singdirilishi esa yoshlarni ma'naviy yetuk va mas'uliyatli shaxs sifatida tarbiyalashga mustahkam zamin yaratadi.

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РОЛЬ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В СОВРЕМЕННОМ ОБРАЗОВАНИИ

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ABSTRACT

This article presents a detailed and methodologically grounded analysis of artificial intelligence (AI) integration into modern education. Particular attention is given to the comparison between global AI trends and the local conditions of Uzbekistan's educational institutions. The study explores various components of AI implementation, including automated assessment systems, adaptive learning models, big-data-driven educational analytics, intelligent decision support for teachers, and ethical considerations of digital transformation. Five blue-themed charts illustrate key dynamics and usage patterns in the development of AI-based educational ecosystems.

Keywords

artificial intelligence, digital education, adaptive learning systems, machine learning, learning analytics

Аннотация

Статья представляет детальный, расширенный и методологически обоснованный анализ внедрения искусственного интеллекта (ИИ) в современную систему образования. Основное внимание уделено сравнению международных тенденций и локальных условий, характерных для образовательных учреждений Республики Узбекистан. В работе рассмотрены различные аспекты применения ИИ: автоматизация процессов оценки, персонализация обучения, интеллектуальная поддержка принятия решений преподавателем, аналитика больших данных, а также этические и методологические вызовы цифровой трансформации. Представлены пять диаграмм в синих оттенках, демонстрирующих динамику, степень и масштаб вовлечения ИИ в образовательные процессы. Материал ориентирован на исследователей, преподавателей и специалистов в области цифровой педагогики.

Ключевые слова

искусственный интеллект, цифровая трансформация, адаптивное обучение, педагогическая аналитика, машинное обучение, образовательные технологии

1. ВВЕДЕНИЕ

Современные процессы цифровизации значительно усиливают роль ИИ в образовании. По данным UNESCO (2023) [1], менее 10% образовательных учреждений имеют официальные регламенты по внедрению ИИ. Исследование OECD (2024) [2] показывает, что уже около трети преподавателей применяют ИИ-инструменты в своей деятельности. Дополнительные опросы NEPI (2024) [3] подтверждают, что более половины студентов активно используют ИИ-платформы в учебных целях.

2. Теоретические основы

Теоретическая база исследования опирается на классические и современные труды по искусственному интеллекту. В частности, фундаментальные подходы представлены в работах

Russell и Norvig (2021) [8], а вопросы образовательной аналитики раскрыты в монографии Baker и Inventado (2014) [4]. Этические аспекты использования ИИ подробно рассматриваются Floridi (2018) [6].

3. Аналитические диаграммы

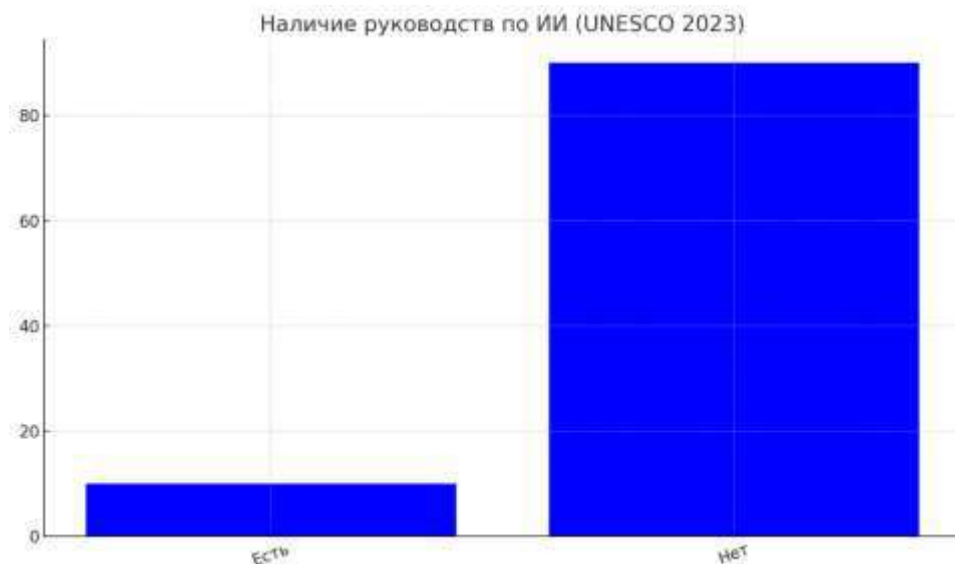


Рисунок 1. Визуализация данных по теме исследования.

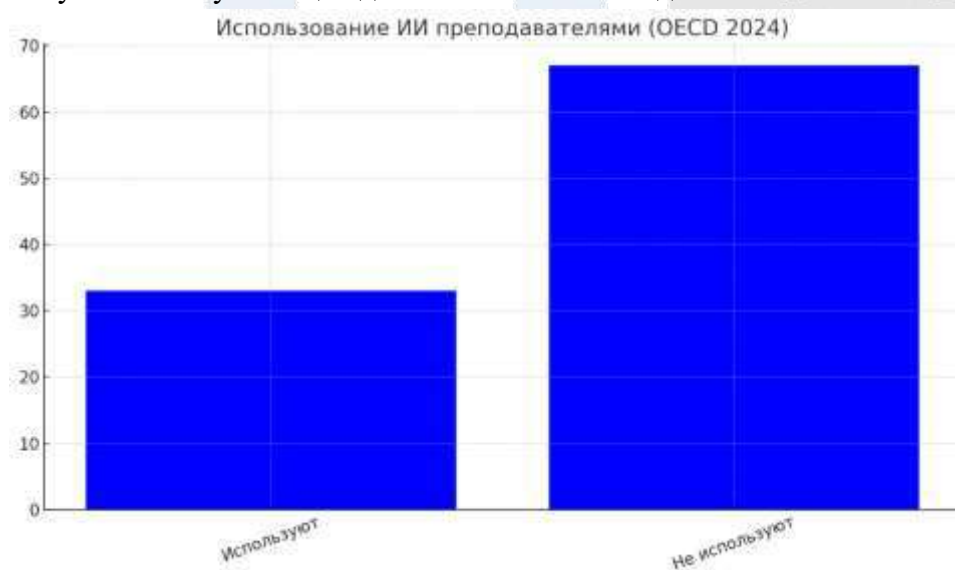


Рисунок 2. Визуализация данных по теме исследования.

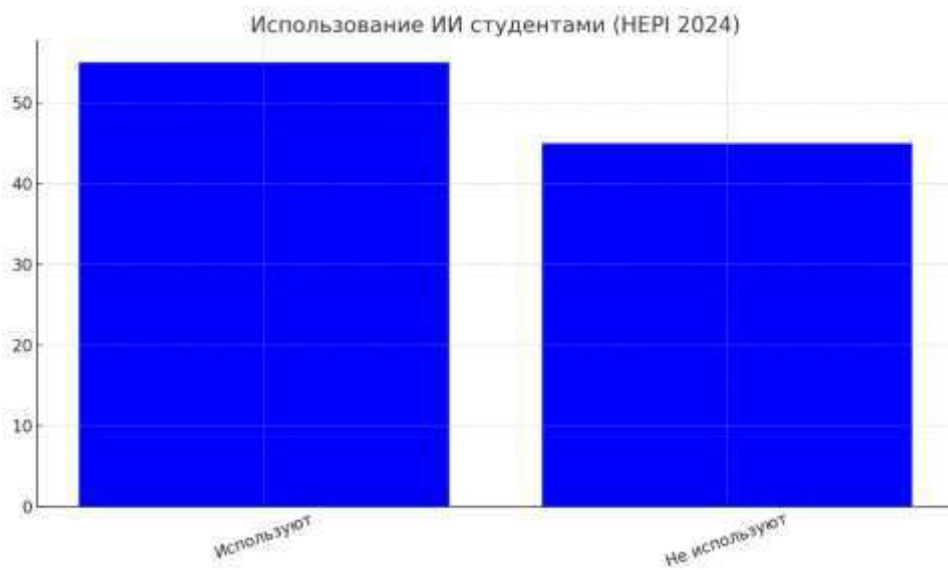


Рисунок 3. Визуализация данных по теме исследования.

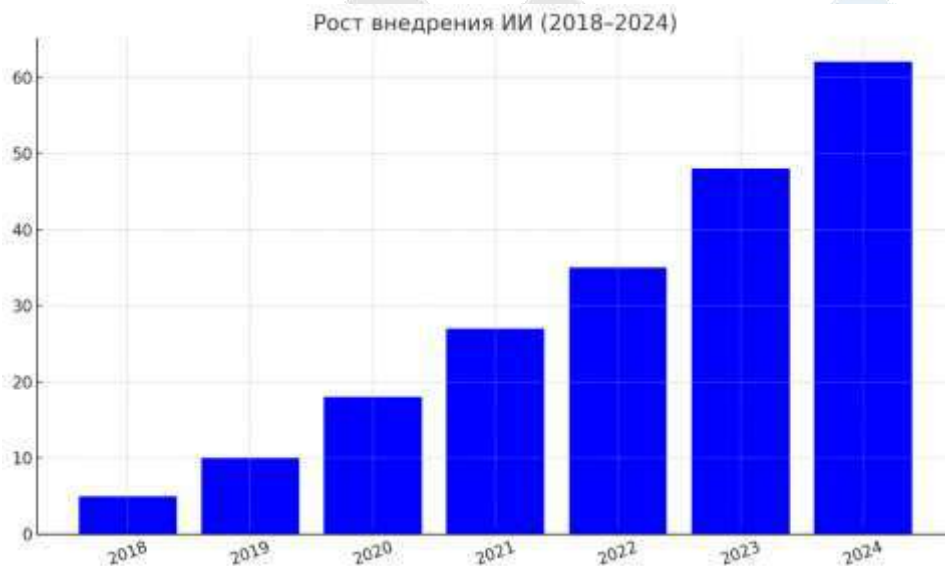


Рисунок 4. Визуализация данных по теме исследования.

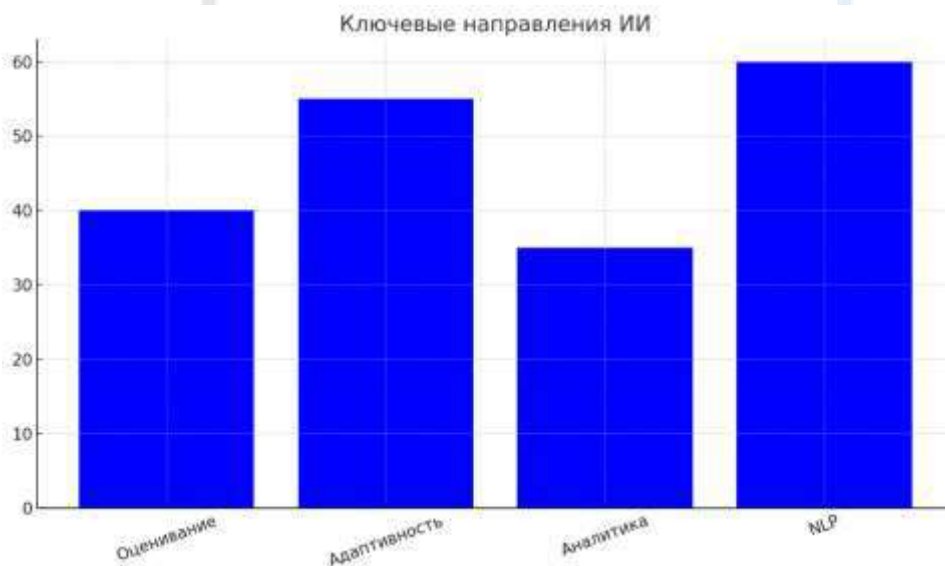


Рисунок 5. Визуализация данных по теме исследования.

4. Обсуждение результатов

Результаты диаграмм подтверждают выводы ключевых международных организаций. Рост внедрения ИИ с 2018 по 2024 год соответствует тенденциям, описанным Holmes (2019) [5] и European Commission (2023) [10]. Локальные исследования Самаркандского государственного педагогического института (Каршиев и др., 2024) [7] также показывают высокую динамику интеграции цифровых технологий в образовательную практику.

5. Заключение

Комплексный анализ подтверждает необходимость активного внедрения ИИ в образование на основе международных рекомендаций [1–3,10] и научных исследований [4–9].

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**BO'LAJAK SURDOPEDAGOGLARNI TAYYORLASH VA KASBIY KOMPETENTLIGINI
RIVOJLANTIRISH MUAMMOLARI**

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ANNOTATSIYA

Maqolada oliy pedagogik ta'lim tizimida bo'lajak surdopedagoglarni tayyorlashning zamonaviy muammolari ko'rib chiqilgan. Eshitishda nuqsoni bo'lgan bolalar bilan samarali ishlash uchun zarur bo'lgan kasbiy kompetensiyani shakllantirish masalalariga alohida e'tibor qaratilmoqda. Kasbiy tayyorgarlik sifatiga ta'sir etuvchi asosiy qiyinchiliklar aniqlanib, innovatsion texnologiyalar va fanlararo yondashuvdan foydalangan holda ta'lim jarayonini takomillashtirish yo'llari taklif etilgan.

Kalit so'zlar: surdopedagogika, kasbiy kompetensiya, inklyuziv ta'lim, maxsus pedagogika, pedagoglarni tayyorlash.

**PROBLEMS OF TRAINING FUTURE SURDOPEDAGOGUES AND DEVELOPING
PROFESSIONAL COMPETENCE**

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ABSTRACT

The article examines contemporary problems in training future deaf educators in the higher pedagogical education system. Special attention is paid to the issues of forming professional competence necessary for effective work with children with hearing impairments. Key challenges affecting the quality of professional training have been identified, and ways to improve the educational process using innovative technologies and an interdisciplinary approach have been proposed.

Keywords: surdopedagogy, professional competence, inclusive education, special pedagogy, teacher training.

**ПРОБЛЕМЫ ПОДГОТОВКИ БУДУЩИХ СУРДОПЕДАГОГОВ И РАЗВИТИЕ
ПРОФЕССИОНАЛЬНОЙ КОМПЕТЕНЦИИ**

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АННОТАЦИЯ

В статье рассматриваются современные проблемы подготовки будущих сурдopedagogов в системе высшего педагогического образования. Особое внимание уделяется вопросам формирования профессиональной компетенции, необходимой для эффективной работы с детьми с нарушением слуха. Определены ключевые трудности, влияющие на качество профессиональной подготовки, и предложены пути совершенствования образовательного процесса с использованием инновационных технологий и междисциплинарного подхода.

Ключевые слова: сурдopedagogика, профессиональная компетенция, инклюзивное образование, специальная педагогика, подготовка педагогов.

Введение

Подготовка специалистов, работающих с детьми с нарушением слуха, — важная часть системы инклюзивного и специального образования. Однако существуют значительные сложности при формировании у будущих сурдопедагогов (или педагогов-дефектологов, специализирующихся на слухе) профессиональной компетенции. В литературе отмечаются такие проблемы, как недостаточная методическая подготовка, нехватка практико-ориентированных элементов и слабая интеграция современных технологий обучения. Например, исследование показало, что в образовательных учреждениях для детей с нарушениями слуха учителя сталкиваются с препятствиями — коммуникационные барьеры, отсутствие подходящих методик, недостаточная квалификация¹. Сурдопедагогика как отрасль дефектологии изучает закономерности обучения и воспитания детей с нарушением слуха и играет ключевую роль в профессиональной подготовке педагогов для работы с этой категорией обучающихся². Развитие профессиональной компетенции будущих сурдопедагогов является одним из центральных направлений модернизации педагогического образования, поскольку эффективность педагогической деятельности напрямую зависит от уровня сформированности знаний, умений и личностных качеств специалиста³.

Методы

Для анализа использован метод систематического обзора отечественной и зарубежной литературы, посвящённой подготовке педагогов-дефектологов (специализация «нарушения слуха»), профессиональной компетенции и образовательным технологиям в сурдопедагогике. Источниками послужили научные статьи, конференционные материалы и монографии (например, Haydarova O. F., 2022; Pedersen H., 2021). Также применён логико-аналитический метод: выделение проблем-барьеров, их классификация, сопоставление с требованиями профессиональной компетенции. Поскольку эмпирических данных (опросов, экспериментов) автором не проводилось, статья носит обзорно-аналитический характер.

Теоретические основы профессиональной компетенции сурдопедагога

Профессиональная компетенция педагога определяется как интегративная характеристика личности, включающая теоретическую подготовку, практические умения и социально-коммуникативные качества⁴. В контексте сурдопедагогике она охватывает следующие компоненты:

- Когнитивный компонент: знание психофизиологических особенностей развития детей с нарушением слуха, методов обучения устной речи, чтения с губ и жестового языка.

¹ Alexander M Oppong, Ruth Swanwick, Daniel Fobi, Educational inclusion of deaf children: current policy, practices, and future possibilities, The Journal of Deaf Studies and Deaf Education, Volume 29, Issue 1, January 2024, Pages 72–80, <https://doi.org/10.1093/deafed/enad033>

² Миронова, Л. А. (2019). Современные подходы в сурдопедагогике. Санкт-Петербург: Речь.

³ Зимняя, И. А. (2006). Ключевые компетенции как результат современного образования. Москва: Исследовательский центр проблем качества подготовки специалистов.

⁴ Калинина, Е. В. (2021). Инновационные технологии в подготовке специалистов специального образования. Москва: Академкнига.

- Операциональный компонент: умение применять теоретические знания в образовательной практике, использовать коррекционно-развивающие технологии и цифровые ресурсы.
- Личностный компонент: эмпатия, толерантность, коммуникабельность, ответственность и стрессоустойчивость.
- Междисциплинарный компонент: способность к взаимодействию с логопедами, психологами, врачами и IT-специалистами в рамках комплексного подхода к обучению ребёнка. Таким образом, профессиональная компетенция сурдопедагога выступает системным образованием, обеспечивающим готовность специалиста к решению педагогических, диагностических и коррекционных задач.

Основные проблемы подготовки будущих сурдопедагогов



Несмотря на развитие специального образования, система подготовки сурдопедагогов в вузах сталкивается с рядом объективных трудностей:

1. Недостаточная практическая направленность обучения.

Студенты редко имеют возможность проходить длительные стажировки в специализированных учреждениях, что снижает их готовность к профессиональной деятельности.

2. Ограниченность учебно-методических ресурсов. Учебные материалы и электронные платформы не всегда адаптированы под современные требования

и специфику обучения детей с нарушениями слуха. Ограниченный доступ к ресурсам, оборудованию и технологиям, необходимым для специализированного обучения детей с нарушениями слуха⁵.

3. Дефицит квалифицированных преподавателей.

Подготовка сурдопедагогов требует специалистов, владеющих как теорией, так и практикой жестового языка и коррекционной педагогики. Отсутствие достаточного опыта практической работы с детьми с нарушениями слуха, что снижает готовность к профессиональной деятельности.

• Недостаточная междисциплинарная подготовка (педагогика, сурдология, психология, ИКТ) и слабое применение современных технологий обучения.

4. Психологическая неготовность студентов.

Работа с детьми с ограниченными возможностями здоровья требует высокой эмоциональной устойчивости, эмпатии и внутренней мотивации к помощи. Эти проблемы обуславливают необходимость комплексной модернизации образовательного процесса и обновления содержания подготовки будущих сурдопедагогов.

Пути развития профессиональной компетенции

Для повышения эффективности подготовки будущих сурдопедагогов следует реализовать ряд стратегических направлений:

⁵ Zrigat, Ibrahim & Al-smadi, Yahia. (2012). Challenges of Educating Students who are Deaf and Hard-of-Hearing in Jordan. Journal of Humanities and Social Sciences. Vol 2. 150-158.

- Интеграция инновационных технологий.

Использование мультимедийных платформ, видеоуроков с сурдопереводом и интерактивных симуляторов способствует развитию практических навыков и профессиональной уверенности⁶.

- Расширение практической подготовки.

Введение длительных педагогических практик в специализированных школах и инклюзивных центрах способствует формированию устойчивых профессиональных компетенций.

- Психолого-педагогическая поддержка студентов.

Организация тренингов, супервизий и консультаций помогает развить эмоциональную устойчивость, эмпатию и способность к рефлексии.

- Междисциплинарное взаимодействие.

Включение межфакультетских проектов и сотрудничества с медицинскими и IT-специалистами позволяет выработать целостное понимание образовательных и коррекционных задач.

На основе выявленных проблем можно выделить основные направления развития — развитие профессиональной компетенции будущего сурдопедагога: усиление практики, применение современных технологий, создание междисциплинарных программ, активное привлечение лиц с нарушением слуха в педагогическую подготовку и др.

Заключение

Подготовка будущих сурдопедагогов требует системного и интегративного подхода, включающего сочетание теоретической, практической и личностной составляющих. Формирование профессиональной компетенции возможно только при создании условий для профессионального роста и междисциплинарного взаимодействия.

Современные тенденции инклюзивного образования определяют новые ориентиры для педагогических вузов, направленные на развитие у студентов способности эффективно обучать и социализировать детей с нарушениями слуха. Развитие профессиональной компетенции будущих сурдопедагогов — это стратегическая задача, от которой зависит качество специального образования и успешная интеграция детей с инвалидностью в общество.

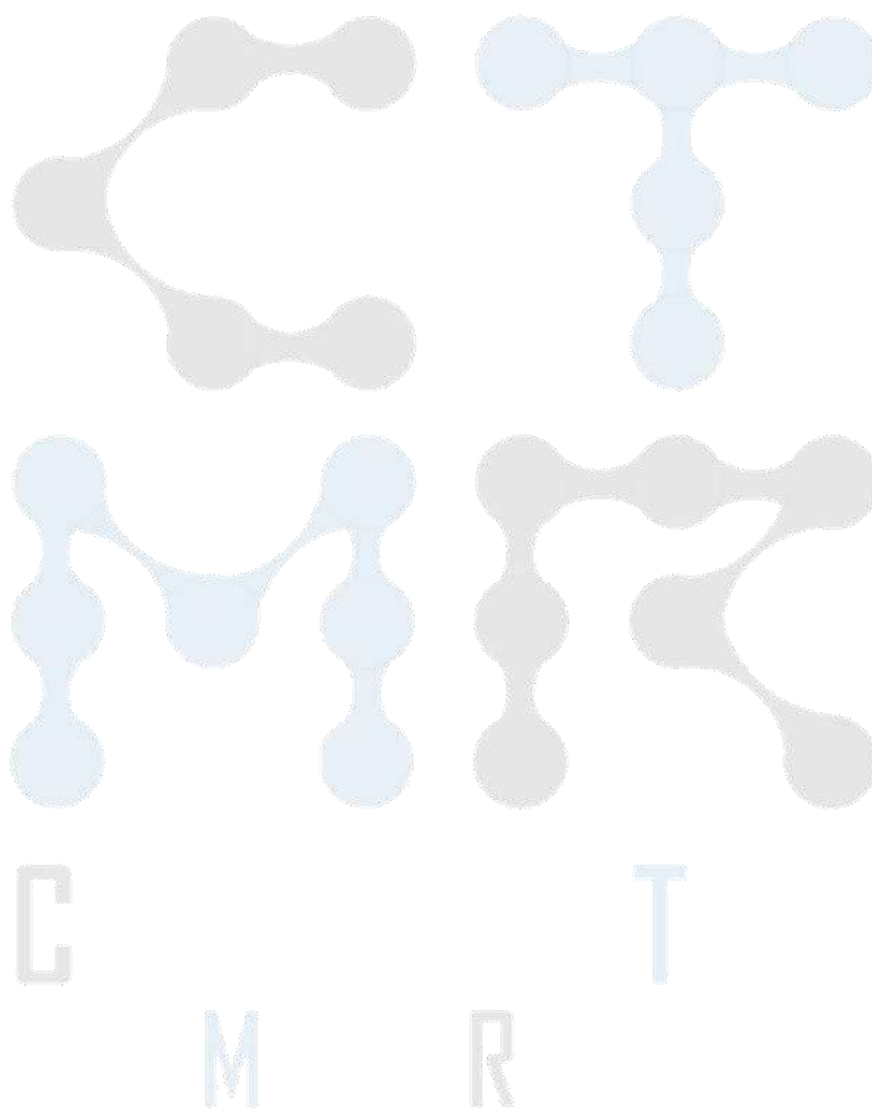
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THE ROLE OF LINGUISTIC EXPERTISE IN THE INTERPRETATION OF
PROCEDURAL AND LEGAL TERMINOLOGY

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Abstract. This article explores in depth the fundamental role of linguistic expertise in the interpretation of procedural and legal terminology, highlighting its interdisciplinary significance across linguistics, law, and translation studies. The paper emphasizes that legal discourse, by its very nature, demands the highest degree of linguistic precision and interpretative accuracy. Legal language is a complex system characterized by formality, technical vocabulary, and cultural dependency, which often makes it challenging for non-specialists to interpret accurately. Linguistic expertise, therefore, acts as a bridge between legal professionals and linguistic scientists, ensuring the semantic, syntactic, and pragmatic correctness of legal communication.

Through the analysis of procedural terms across English, Uzbek, and Russian legal systems, this article demonstrates that linguistic experts play a decisive role in maintaining justice, clarity, and transparency. Their work contributes to the elimination of ambiguity, the identification of polysemy, and the establishment of precise equivalents in legal translation. The study concludes that linguistic expertise should be institutionalized as a regular component of judicial processes, both in national and international legal contexts.

Keywords: linguistic expertise, legal terminology, procedural interpretation, semantics, pragmatics, forensic linguistics, judicial communication.

1. Introduction.

The connection between language and law is one of the most complex relationships in human society. Legal discourse functions within its own linguistic universe, governed by conventions that often differ significantly from those of ordinary communication. Every word in a legal document carries weight; its semantic field can determine the fate of individuals and institutions. Therefore, linguistic expertise plays a vital role in interpreting and clarifying legal and procedural terminology.

The importance of linguistic precision in law arises from the fact that legal communication involves multiple participants — lawmakers, judges, lawyers, translators, and laypersons — each interpreting texts through different linguistic and cognitive frameworks. Misinterpretation of a single term such as “jurisdiction,” “liability,” “plea,” or “appeal” may alter the outcome of legal proceedings. This complexity has given rise to forensic linguistics, a branch of applied linguistics that examines how linguistic evidence can inform judicial decisions.

In Uzbekistan, as in many other legal systems, the demand for linguistic expertise has increased in recent years. With the expansion of international legal cooperation and multilingual court procedures, the need for accurate interpretation and translation of legal texts has become a necessity. Linguistic experts, therefore, serve as the mediators between linguistic structure and legal meaning.

2. Literature Review

The academic study of legal language has a rich history. Mellinkoff (1963) described legal English as “the language of the law,” emphasizing its historical evolution and specialized vocabulary. Crystal

(2003) highlighted that the formality and complexity of legal discourse often create barriers between legal professionals and the general public. Tiersma (1999) noted that legal terms are not only linguistic constructs but also cultural and institutional entities that reflect the logic of a given legal system.

More recent studies (Gibbons, 2004; Solan & Tiersma, 2005; Coulthard & Johnson, 2007) have developed frameworks for understanding linguistic evidence in judicial contexts. These works argue that linguistic expertise assists in clarifying the communicative intent behind statements, resolving ambiguities in witness testimonies, and ensuring that translation in court remains faithful to the source meaning.

In Uzbek and Russian scholarship, similar ideas have been articulated by Mahmudov (2017), Yusupova (2022), and Zakieva (2011). Their studies underscore the anthropocentric nature of terminology and the influence of linguistic worldviews on legal interpretation. In multilingual societies like Uzbekistan, the semantic nuances of legal terminology — especially those borrowed from English or Russian — must be analyzed carefully to avoid misunderstanding.

Thus, the literature shows that linguistic expertise operates at the intersection of semantics, pragmatics, and cultural interpretation. The participation of linguists in judicial processes enhances both procedural accuracy and the accessibility of legal language.

3. Methodology

This research employs a comparative and analytical approach that combines qualitative linguistic analysis with cross-linguistic comparison. The focus is placed on the semantic and pragmatic interpretation of procedural and legal terms in English, Uzbek, and Russian.

The study proceeds in three stages:

1. Collection of Terminological Data: Key procedural terms such as *appeal, testimony, defendant, jurisdiction, verdict, trial* and their Uzbek and Russian counterparts (*apelatsiya, guvohlik, ayblanuvchi, yurisdiksiya, hukm, sud jarayoni*) were selected from official legal codes and bilingual dictionaries.
2. Semantic Analysis: The lexical meaning of each term was analyzed according to its functional use within legal discourse. For instance, *jurisdiction* in English law refers not only to geographical authority but also to the legal competence of a court, while in Uzbek legal practice *yurisdiksiya* may refer primarily to institutional authority.
3. Pragmatic and Contextual Analysis: Contextual usage in court proceedings, legal documents, and translation practices was examined to identify how pragmatic factors influence meaning. This includes the speaker's intent, power relations in discourse, and socio-cultural expectations of formality and precision.

The methodological framework draws upon theories of forensic linguistics and discourse analysis (Coulthard & Johnson, 2007; Gibbons, 2004), ensuring that both linguistic and legal parameters are considered simultaneously.

4. Results and Discussion

The results of the study indicate that linguistic expertise enhances legal interpretation on multiple levels.

1. Semantic Level

At the semantic level, linguistic experts identify the boundaries of meaning between related terms. For example, *"liability"* and *"responsibility"* are often used interchangeably in everyday English,

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but in law they denote distinct concepts — one implying legal obligation, the other moral accountability. Linguistic analysis helps legal professionals avoid semantic conflation that could affect judgment.

Furthermore, experts can detect polysemy — words with multiple meanings — which are frequent in legal texts. Terms such as **“appeal”** (noun and verb) or **“charge”** (legal accusation or financial fee) require contextual disambiguation. By mapping semantic networks, linguists assist judges and translators in selecting the appropriate interpretation.

2. Pragmatic Level

Pragmatically, linguistic expertise helps determine the intended meaning behind utterances, particularly in courtroom discourse. Witness statements, cross-examinations, and confessions are analyzed not merely for their literal content but for pragmatic markers — modality, politeness, and illocutionary force.

For example, the phrase **“I might have seen him”** carries different legal implications than **“I saw him.”** The former expresses uncertainty, which linguistically weakens evidential reliability. Such nuances are critical in determining the credibility of testimony.

3. Translational and Cross-Cultural Level

In multilingual legal systems, translation errors can lead to miscarriages of justice. Linguistic experts ensure that the translation of procedural terminology reflects both semantic equivalence and functional adequacy.

For example, the English term **plea bargain** has no exact Uzbek equivalent. Its translation requires descriptive explanation (**aybni tan olish asosida kelishuv**), illustrating the necessity of linguistic mediation rather than mechanical substitution.

Cross-cultural misinterpretations often stem from differing legal traditions. Russian **уголовное дело** (criminal case) is functionally equivalent to **criminal proceedings** in English, but contextual distinctions remain. Hence, linguistic experts must consider the systemic logic of each legal culture when interpreting terms.

4. Institutional and Ethical Implications

The study also found that linguistic expertise supports transparency in legal institutions. Experts provide impartial interpretation, ensuring that the linguistic evidence is analyzed objectively. Their role also extends to drafting, proofreading, and evaluating legal documents for terminological consistency.

Ethically, linguistic experts act as guardians of linguistic integrity in law. Their involvement guarantees that no party is disadvantaged due to linguistic or cultural misunderstanding. As Šarafutdinova (2019) argues, linguistic expertise is both a scientific discipline and a social responsibility.

5. Conclusion

Linguistic expertise represents a vital intersection between the sciences of language and the administration of justice. The study demonstrates that linguistic specialists contribute not merely as translators or interpreters, but as analytical professionals whose knowledge ensures semantic precision, procedural fairness, and intercultural comprehension.

The findings reveal that linguistic expertise performs four essential functions in legal interpretation:

1. Clarification – eliminating ambiguity and defining key legal concepts precisely.
2. Interpretation – aligning linguistic meaning with legal intent and institutional context.

3. Verification – assessing the linguistic accuracy of legal texts and translations.

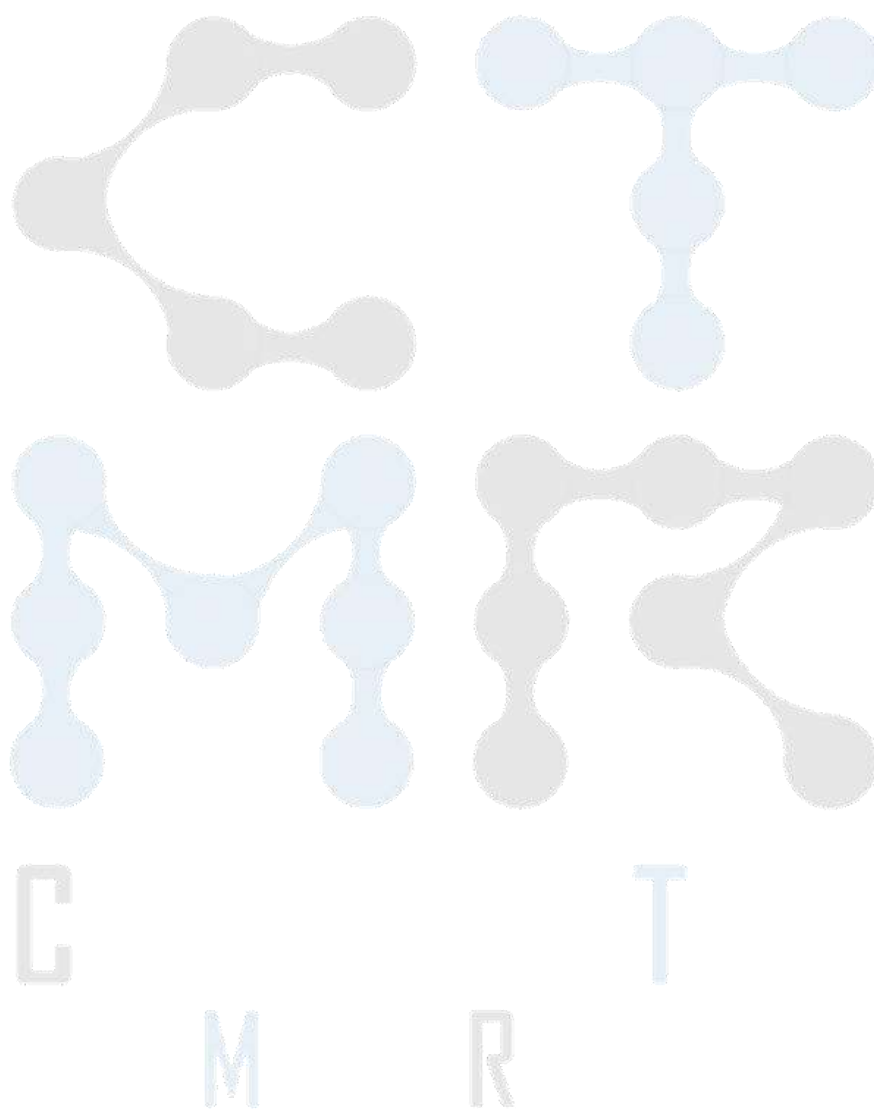
4. Mediation – facilitating communication among multilingual participants in court.

Therefore, the institutionalization of linguistic expertise in the judicial system is a necessary step for maintaining justice, legal accuracy, and international cooperation. As globalization intensifies multilingual legal communication, the demand for professional linguistic expertise will continue to grow — shaping not only how law is understood, but how it is spoken.

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THE OBJECTIVE LAWS OF SOCIAL DEVELOPMENT.

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ABSTRACT

This article examines the objective laws of social development as revealed by modern science and social philosophy. It argues that all social, economic, political, legal and spiritual-educational phenomena and processes arise, function and develop on the basis of specific laws and strict regularities. The paper briefly addresses the subject and specificity of social philosophy, presenting two main approaches: social philosophy as the analysis of the philosophical potential of society, and as a doctrine that socially grounds philosophical problems. Special attention is given to the views of classical thinkers such as O. Comte, Abu Rayhan Beruni, Abu Ali ibn Sina and Abu Nasr Farabi on the objectivity of laws in nature, society and human life. The article clarifies the relationship between the concepts of "social law", "sociological law" and "historical law", and substantiates that social laws express stable, essential and repetitive connections between social phenomena and processes. It is shown that while social laws are objective, their manifestations are historically variable and depend on concrete socio-historical conditions. Using the example of economic reforms and the transition to market relations in Uzbekistan, the study demonstrates the practical importance of understanding and consciously applying social-historical laws in order to guide social development in line with national interests.

Keywords:

objective laws of social development; social philosophy; social law; sociological law; historical law; Abu Nasr Farabi; O. Comte; social regularities; Uzbekistan; market reforms.

Modern science shows that all social, economic, political, legal, spiritual and educational phenomena and processes occurring in society arise and develop on the basis of certain laws and are subject to strict regularities. Revealing them and indicating the ways of using them effectively in the interests of the individual and society is one of the urgent tasks facing the social sciences. Indeed, to uncover laws and regularities means to find the key to governing reality. For this reason, since ancient times scholars and sages have been interested in knowing the laws of development of every thing, event, phenomenon and process, and have tried to understand the laws of being.

First of all, proceeding from the importance of elucidating the topic of our research, let us briefly dwell on the specificity and subject of social philosophy. It can be said that today the following two viewpoints on this issue exist in philosophical literature.

According to the first viewpoint, social philosophy is a science directed at identifying and analyzing the philosophical potential (possibilities) of society. According to the second viewpoint, social philosophy is a doctrine that provides a social grounding

for philosophical problems. In our opinion, both of these viewpoints – that is, proceeding from philosophy to society and, conversely, from society to philosophy – are organically interconnected ideas and are component parts of a single whole.

The ideas about the extensive expansion of various aspects of social life; second – the aspiration to study the spiritual and political life of society; and, finally, third – the aspiration, on the basis of a deeper study of the essence of social life, to know and understand its internal causal connections, the causes that give rise to its regularities.

The second trend in social philosophy is the idea of a philosophical understanding of the history of society.

If we look at his social views, O. Comte, analyzing social life as an integral system, divides it into two parts: first, social statics, which characterizes the relatively stable, qualitative aspects of the existence of society, and second, social dynamics, which characterizes those aspects of society that are in motion and development and reveals the natural laws of its development.

In philosophy, the categories of “law” and “regularity” have been the cause of sharp debates for more than two thousand years.

The great thinkers of Central Asia such as Abu Rayhan Beruni, Abu Ali ibn Sino and Abu Nasr Farobi, while acknowledging that nature, society and the human being himself live in accordance with certain laws and regularities, sought to understand their objective content. For example, according to Abu Nasr Farobi, despite the existence of various moral qualities, abilities and characters peculiar to individual persons, and despite the presence of conflicting interests among different social groups and strata, people, out of necessity and regardless of their will and desires, live together and form a community.

In short, people differ from one another because they possess different behaviors and abilities, and they are stirred by various affects. In such a situation, they may hate one another and become an excessive burden to each other. However, as is often observed, even when people hate one another, they cannot live alone; as noted above, they can live only thanks to joint, collective activity. From the fact that people are prone to affects that hinder them from living by reason, and at the same time are in need of mutual assistance, there arises the necessity of agreement among them. As a result of such agreement, in Abu Nasr Farobi’s view, certain orders and rules of conduct arise, which are consolidated by the laws established by the head of state and his successors.

Let us pay attention, for example, to Abu Nasr Farobi’s ideas on the nature of the inhabitants of the virtuous city. In such a city the population is completely free: “Its inhabitants are equal in rights. Their laws never allow one person to be preferred over another. Their authority over one another and over the inhabitants of other cities concerns only the expansion of their freedoms.”

As we can see, Farobi came very close to understanding that law is a reflection of the general and most general aspects of the objective world. For example, a law established by the state serves to ensure a certain order and discipline in society and obliges citizens, officials, and state and public organizations to carry out their activities in an appropriate manner. Like any laws of nature and society, legal laws are also necessary by their very nature. This is, first, because all persons specified in the legal law are obliged to comply with it, and second, because material relations are regulated and certain liability is imposed in order to protect the interests of particular social groups.

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One of the important features of law, including legal laws, is that it possesses coercive force which preserves and consolidates, under certain conditions, relations that are necessary for society. Indeed, a law that lacks coercive force resembles an attractive slogan. People say, “if only it were so,” yet continue to act in the opposite way.

Summarizing all the positive or negative views expressed by thinkers who lived and worked up to the twentieth century regarding law and regularity, we can say that they mainly show that, on the basis of the knowledge and practical experience accumulated by human civilization over thousands of years, the objective world develops and progresses only according to its own internal laws. In the realm of nature, in the field of the natural sciences, everyone accepts this rule, yet in the knowledge of phenomena and processes in the social sphere we witness the existence of diverse and, in most cases, completely contradictory opinions, views and doctrines.

At this point the question arises as to why the above-mentioned philosophers deny the objectivity of the laws of nature and society. In our opinion, the purpose of squeezing regularities out of the structure of any science is to defend the idea that the objective reality surrounding us was created by someone and that this “someone” governs all processes. For every science reveals the objectivity, necessity and continuous development of the processes in that sphere of being which it studies.

The objectivity of the laws of society lies in the fact that if people, in their practical activity, disregard the requirements of certain laws and act against them, these laws will nevertheless subject people to their demands and compel them to fulfill them. As an example, we can cite the operation of the law of monetary relations in every society. According to this law, the amount of money issued by any state must correspond to the total value of the goods produced in that state. If this balance is disturbed, monetary depreciation (inflation) arises and the pace of the country’s economic development is disrupted. We can observe this in the economic crises that occurred during the transition of the CIS countries to market relations.

Since our research is aimed at studying the laws of society, we must, first of all, reveal the essence of such concepts as “law”, “social law”, “sociological law” and “historical law”. In philosophical literature the concepts of “social law”, “sociological law” and “historical law” are widely used. However, many authors express different opinions regarding the interrelation of these concepts. Some explain the interconnection of these categories from the standpoint of singularity, generality and particularity, while others, in certain cases, set them in complete opposition to one another.

In our opinion, when speaking of the laws of society, it must be acknowledged that they primarily reflect the interconnection, relationships and other ties between various phenomena and processes of social life. For example, the law of the equilibrium of “demand” and “supply” expresses the relations between the two sides of market relations, or between need and interest. In the same way, other laws of society also reflect the relations between various phenomena of social life.

Any object, phenomenon and process in the objective world is always in diverse and complex relations. These relations may be internal and external, essential and non-essential, direct and indirect, necessary and accidental, stable and changeable, permanent and temporary, and they are distinguished by the features of generality and particularity. From this point of view, J. T. Tulenov’s idea that “A law cannot encompass all these relations. Out of the totality of diverse links and connections it, first of all, expresses the essential links, that is, such relations as arise not from external conditions but from the essence of things and phenomena themselves, from their internal interconnectedness,” is correct.

The laws of society also express stable relations between social phenomena. For example, any social process has its own specific features, aspects, sides and relations, and each of these relations – sometimes separately, sometimes together – is constantly changing, developing and renewing. Under different conditions and for various reasons some features, properties and sides may disappear and new ones may arise in their place. The laws of society cannot reflect all of these. They only have the property of reflecting the relatively stable and permanent relations and interconnections in social phenomena and processes, because such relations and interconnections do not lead to significant changes in a relatively short period of social development. On this basis a person comes to know the laws of the existence and development of social processes and phenomena.

An important feature of laws is that by expressing the repetition of links and connections between things and phenomena, they describe the mutual influence and interconnection between social phenomena and processes and show the direction and principle of their development. If it is necessary to know which path the new states that emerged in place of the former Union will follow, to which economic or military blocs they may belong in the future and towards which centers they may gravitate, it is of great importance to study and know to which socio-ethnic groups these states belonged in the periods prior to the former Union.

At the same time, the invariance of laws should never be understood as something constant and eternal. Social practice shows that the relatively invariable aspect of the laws of society can in no way and under no circumstances be absolutized and regarded as unchanging. This is because, in the material world, the content and essence of things and phenomena are constantly changing and developing as a result of the relations and interconnections between them. The human reason and thinking that reflect these relations also change and develop. Consequently, the laws that encompass and express these processes are also in constant change and development.

We can cite as an example of our above idea the fact that the reforms being implemented in our economy are proceeding precisely on the basis of taking into account and following this historical regularity. Therefore, when our head of state, having profoundly understood the objective regularities of our social life, emphasized during the transition to market relations that “The path chosen by Uzbekistan is an economy that fully corresponds to the interests of the Republic and its people, a socially oriented economy aimed at forming a market economy,” he was absolutely right.

According to our President, during the transition period, “we do not exclude the possibility of using all creative experiences accumulated in the development process of other states and suitable for application to the conditions of the Republic. At the same time, blind copying of any model, even if it has led to positive results in certain countries, is absolutely unacceptable. It is quite clear that specific methods and means, wherever they are intended for a particular country, can yield positive results only under the specific conditions peculiar to that country.”

It should be especially emphasized that not only the partial laws of society, but also its general laws change and acquire a different appearance as a result of the deep and sharp changes and renewals taking place in social life. For the development of the historical process and the change in the essence of social phenomena and events inevitably lead to such consequences. A change in the essence of events and phenomena will, of course, lead to a change in the law. Changes that do not alter the content and essence of an event or phenomenon do not bring about a change in the law. Thus, as long as the quality and essence of socio-historical processes and phenomena remain unchanged, the laws peculiar to these processes and phenomena and expressing them also remain unchanged.

Therefore, law, on the one hand, reflects the important, stable, calm and balanced states of social phenomena and processes, and on the other hand, it also encompasses their restless, continuous changes and movements; these, in turn, inevitably overcome stability and equilibrium and lead to the displacement of the position of each system, phenomenon and process.

A change in the objective conditions leads to a change in the content and essence of socio-historical processes and, ultimately, to a change in the laws under which these processes operate. For this reason, at each stage of the reforms being carried out in our Republic, changes and clarifications are being introduced into the strategy of reforms. These consist in satisfying the demands of objective laws.

To study, comprehend and practically use the objective demands of the laws of society, a concrete historical approach is necessary. This requires that the knowing subject be in contact with the social whole and that theory be in contact with practice. A concrete historical approach helps to closely feel the interrelation of laws, first, with historical experience and then with specific conditions, and to cover all the characteristics of a given socio-historical period in the specific conditions of social existence.

Another important feature of the laws of society is that they reflect the objective, essential, necessary and general aspects and relations of social phenomena and processes and determine the nature and direction of these processes under certain historical conditions.

Thus, by studying how a given law manifested itself in the past and its specific aspects in the present, it is possible to foresee how it will manifest itself in the future, in what way it will be realized, or to predict in advance the emergence of an unexpected historical situation.

On the basis of the ideas expressed in this topic, we can draw a certain conclusion. Namely, the concept of "socio-historical law" possesses the following important features and characteristics: first, the concepts of "social law", "historical law" and "sociological law" are used primarily to distinguish the laws of society from the laws of nature; second, they are used to describe the fact that the laws of society, unlike the laws of nature, are rapidly changing; third, this concept is used to express specific partial laws that operate only at certain stages and under certain concrete historical conditions of socio-historical processes and phenomena; fourth, a social law encompasses specific social interconnections, properties, sides and relations of phenomena that arise under specific socio-historical conditions. Thus, based on our above ideas, we can give the following definition of law.

A socio-historical law is the totality of important, necessary and repetitive connections, links and relations of social phenomena and processes that arise through people's activity carried out consciously and with a definite aim, proceeding from their own social needs and interests, and that determine the character and direction of the development of these processes under certain conditions.

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INTEGRATING PIRLS TASKS INTO PRIMARY MOTHER TONGUE EDUCATION
WITHIN THE FRAMEWORK OF GLOBAL READING LITERACY STANDARDS

Farg'ona davlat universiteti Magistratura bo'limi Ta'lim va tarbiya nazariyasi va
metodikasi(boshlang'ich ta'lim) magistranti

G'ofurova Dilshodaxon Toxirjon qizi

Annotation: This study explores the integration of PIRLS-based reading tasks into primary mother tongue education as a strategic approach to enhancing global reading literacy competencies. Grounded in contemporary international benchmarks, the research emphasizes the alignment between national curriculum requirements and PIRLS cognitive domains—retrieving information, making inferences, and interpreting ideas. The work highlights how culturally relevant texts, analytical questioning techniques, and competency-oriented reading activities can strengthen comprehension skills and elevate students' preparedness for international assessments. Special attention is given to methodological principles, the role of formative assessment, and the adaptation of task typologies to young learners' developmental characteristics. The study concludes that embedding PIRLS-style tasks within native language instruction supports deeper literacy development and fosters globally competitive reading proficiency.

Keywords: PIRLS, reading literacy, primary education, mother tongue instruction, global standards, comprehension skills, assessment integration, cognitive domains.

In the era of accelerating global educational transformations, the ability to read meaningfully, interpret texts critically, and apply comprehension skills in real contexts has become one of the central indicators of a child's academic and social development. International assessments such as PIRLS have emerged as powerful benchmarks for evaluating students' reading literacy against global standards, encouraging nations to strengthen their curricular and methodological foundations. Integrating PIRLS-type tasks into Mother Tongue instruction in the early grades therefore represents not merely an adaptation of assessment tools, but a deeper pedagogical renewal aimed at nurturing learners who can think beyond the text, perceive subtle meanings, identify authorial intentions, and construct original interpretations. Within this process, the Mother Tongue serves as the cognitive and emotional bridge through which young readers develop their worldview, linguistic intuition, and cultural identity. Aligning this foundational subject with PIRLS frameworks supports a future-oriented approach in which local literary richness coexists with universal standards of reading

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literacy. Consequently, the integration of PIRLS-based task typologies becomes a strategic step toward elevating comprehension performance, enhancing curriculum relevance, and preparing students for participation in an interconnected global knowledge environment.

The methodological basis of this study relies on a combination of analytical, comparative, and interpretive approaches aimed at examining how PIRLS-type tasks can be effectively embedded into the structure of primary Mother Tongue education. The research first analyzes the cognitive domains defined by PIRLS—retrieving explicit information, making straightforward inferences, interpreting and integrating ideas, and evaluating content and textual elements—and relates these domains to the competencies required in national Mother Tongue curricula. By mapping these correspondences, the study identifies methodological opportunities for designing culturally aligned PIRLS-style tasks using local texts, folk tales, poems, scientific-popular passages, and short narratives frequently encountered in the classroom. The methodological process also includes task adaptation, where authentic PIRLS practices are reshaped to preserve cultural relevance while maintaining international cognitive rigor. Classroom-based observation, review of existing textbooks, and expert evaluation are employed to ensure pedagogical appropriateness for early-grade learners. The creation of sample tasks involves gradual scaffolding, attention to linguistic complexity, and alignment with grade-appropriate reading skills. The methodology further incorporates qualitative reflections from teachers regarding feasibility, student engagement, and developmental suitability, allowing the integrated tasks to be refined according to real pedagogical conditions. Through this holistic approach, the study establishes a practical methodological model for embedding PIRLS-aligned reading literacy tasks into the Mother Tongue curriculum in a manner that strengthens comprehension skills, respects cultural context, and supports global reading literacy benchmarks.

The integration of PIRLS-type reading tasks into primary mother-tongue education significantly strengthens students' comprehension abilities and aligns national literacy outcomes with global standards. The study demonstrates that systematically designed questions deepen learners' interaction with text, encourage critical engagement, and promote metacognitive awareness. When culturally meaningful texts are combined with structured PIRLS-aligned questioning, young learners develop not only stronger reading skills but also a broader understanding of how information is constructed and interpreted.

For teachers, PIRLS integration provides a clear framework for planning lessons that nurture advanced literacy competencies from early grades. For learners, it offers a pathway toward achieving internationally recognized reading proficiency levels. Ultimately, this approach contributes to

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building a generation of readers who are analytical, thoughtful, and capable of participating fully in the global knowledge society.

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**TARIXIY MODDIY VA MA'NAVIY MEROS YOSHLARDA ESTETIK
MADANIYATNING SHAKLLANISHIGA TA'SIR KO'RSATUVCHI MUHIM VOSITA
SIFATIDA**

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Annotatsiya. Mazkur maqolada tarixiy moddiy va ma'naviy merosning yoshlar estetik madaniyatini shakllantirishdagi o'rni va ahamiyati tahlil qilinadi. Estetik madaniyat - bu insonning go'zallikni idrok etish, tushunish va uni hayotiy faoliyatda ifodalash qobiliyatidir.

O'zbekiston Respublikasi Prezidentining 2017–2023 yillarda madaniy merosni asrash va targ'ib qilish bo'yicha qabul qilingan qaror va farmonlari, shuningdek, "Meros madaniyati" dasturlari orqali yoshlar o'rtasida estetik tarbiyaga alohida e'tibor qaratilayotgani faktlar bilan yoritiladi. Tadqiqot natijalari tarixiy merosning yoshlar estetik idroki, badiiy tafakkuri va madaniy kompetensiyasini shakllantirishda uzluksiz ta'lim tizimi uchun muhim manba ekanini ko'rsatadi.

Maqolada O'zbekistonning boy tarixiy yodgorliklari, xalq san'ati, og'zaki ijodiyoti, urf-odatlar va ma'naviy qadriyatlari yoshlarning estetik tafakkurini rivojlantiruvchi asosiy manba sifatida ko'rib chiqiladi. Shuningdek, tadqiqotda zamonaviy ta'lim jarayonida tarixiy merosdan samarali foydalanishning nazariy va amaliy jihatlari yoritiladi.

Kalit so'zlar: Tarixiy meros, moddiy madaniyat, ma'naviy qadriyat, estetik tarbiya, yoshlar, san'at, madaniy kompetensiya, milliy o'zlik, tarbiya, merosiy uzviylik.

Abstract. This article analyzes the role and significance of historical material and spiritual heritage in the formation of the aesthetic culture of youth.

Aesthetic culture is a person's ability to perceive, understand beauty and express it in life activities. The decisions and decrees of the President of the Republic of Uzbekistan on the preservation and promotion of cultural heritage in 2017–2023, as well as the fact that special attention is paid to aesthetic education among young people through the "Heritage Culture" programs, are highlighted. The results of the study show that historical heritage is an important resource for the continuous education system in the formation of aesthetic perception, artistic thinking and cultural competence of young people.

The article considers the rich historical monuments of Uzbekistan, folk art, oral creativity, traditions and spiritual values as the main source of developing the aesthetic thinking of young people. The study also covers the theoretical and practical aspects of the effective use of historical heritage in the modern educational process.

Keywords: Historical heritage, material culture, spiritual value, aesthetic education, youth, art, cultural competence, national identity, education, hereditary continuity.

KIRISH

Bugungi globallashuv sharoitida yoshlar ongini milliy ruhda, estetik did asosida shakllantirish dolzarb masala sifatida qaralmoqda.

O'zbekiston Respublikasida yoshlarga oid davlat siyosatining muhim yo'nalishlaridan biri - milliy qadriyatlar, tarixiy meros va ma'naviy an'analar asosida ularni har tomonlama barkamol qilib tarbiyalashdir.

Tarixiy moddiy va ma'naviy meros har bir xalqning o'zligini, tarixi va ruhiyatini ifodalovchi eng muhim manbadir. O'zbekiston hududida mavjud bo'lgan 8 mingdan ortiq moddiy madaniy meros ob'ektlari, 122 ta muzey, 110 dan ortiq arxeologik yodgorliklar, shuningdek, UNESCO ro'yxatiga kiritilgan "Shashmaqom", "Boysun madaniyati", "Xorazm raqslari", "Atlas va adras to'qish an'analari" kabi nomoddiy meros unsurlari yoshlarning estetik tafakkurini shakllantirishda beqiyos ahamiyatga ega.

Bugungi globallashuv jarayonida yoshlarning estetik madaniyati nafaqat maktab yoki oliy ta'limda, balki ularning milliy meros bilan tanishuvi, tarixiy obidalarni ko'rishi, amaliy san'at namunalariga daxldor bo'lishi orqali ham rivojlanadi. Shuning uchun ham Prezidentning **PF-6061 (2020-y.) "Madaniy merosni asrash va tadqiq etish tizimini takomillashtirish"** farmoni, **PQ-4199 (2019-y.) "Muzeylar faoliyatini takomillashtirish"** qarori hamda **"Meros haftaligi"** kabi tashabbuslar aynan yoshlar estetik tarbiyasiga qaratilgan amaliy harakatlardir.

Tarixiy meros yoshlarning:

- badiiy didi (masalan, Registon bezaklaridagi girih naqshlari orqali);
- estetik idroki (masalan, Hunarmandchilik markazlarida kashtachilik jarayonini ko'rish orqali);
- madaniy xulqi (mahalla marosimlaridagi odob-axloq me'yorlari orqali);
- milliy o'zligini anglash (Amir Temur temuriylar davri merosi orqali)

kabi jihatlarni shakllanishiga bevosita ta'sir ko'rsatadi.

Mazkur maqolada aynan shu merosning yoshlar estetik madaniyatiga ko'rsatadigan ijobiy ta'siri, uni o'rganish va amaliyotda qo'llash yo'llari ilmiy asosda tahlil qilinadi.

Adabiyotlar tahlili

Ilmiy manbalarda estetik tarbiya masalasi ko'plab olimlar tomonidan o'rganilgan. Masalan, G. Gegel, I. Kant, A. Baxtin, A. Qodiriy, M. Behbudiy, A. Avloniy kabi mutafakkirlar estetik tarbiya, ma'naviyat va madaniyat uyg'unligi haqida muhim g'oyalarni ilgari surganlar.

A. Avloniy "Turkiy guliston yoxud axloq" asarida "go'zallik inson ruhining oziqidir" deya ta'kidlagan.

O'zbekiston mustaqillik yillarida bu mavzu I. Karimov, Sh. Mirziyoyev asarlarida ham chuqur yoritilgan bo'lib, ularda yoshlarni milliy o'zlik va ma'naviyat ruhida tarbiyalashning ustuvorligi ta'kidlanadi.

Shuningdek, zamonaviy tadqiqotchilar (J. Abdurahmonova, M. G'ulomova, S. Rajabov) tarixiy merosni estetik tarbiyada qo'llash usullarini metodik jihatdan tahlil qilganlar. Shu bilan birga, UNESCO va ISESCO tomonidan ham madaniy merosni yoshlar tarbiyasida qo'llash bo'yicha xalqaro tavsifalar ishlab chiqilgan.

O'zbekiston olimlari tarixiy merosning estetik tarbiyadagi rolini ko'plab ilmiy manbalarda asoslagan:

H.Hasanovning “O‘zbek xalq amaliy san’ati va estetik tarbiya” monografiyasida Muallif amaliy san’atning — zargarlik, naqqoshlik, ganchkorlik — yoshlarning badiiy didini shakllantirishdagi estetik ahamiyatini tahlil qilgan.

Jo‘rayev U. “Ma’naviy meros va yoshlar tarbiyasi” kitobida Boysun madaniyati, Shashmaqom, qadimiy udumlarning estetik idrokni rivojlantirishi ilmiy asoslangan.

Karimova N. “Estetik madaniyat asoslari” maqolasida Estetik tarbiyaning asosiy komponentlari - idrok, badiiy tafakkur, estetik baho - milliy meros bilan bog‘liq holda tushuntiriladi.

“O‘zbekistonning moddiy madaniy merosi” Ichan qal’a, Registon ansambli, Pahlavon Mahmud maqbarasi, Qoraqalpoq muzeyi kabi obidalar yoshlar estetik qarashini shakllantiruvchi ob’yektlar sifatida tavsiflangan.

R.Vohidov “Nomoddiy meros va zamonaviy yoshlar ma’naviyati” adabiyotida

Nomoddiy meros (xalq qo‘shiqlari, dostonlar, raqslar, marosimlar)ning estetik tarbiyadagi o‘rni yoritiladi.

Metodologiya

Maqolada quyidagi ilmiy metodlarga asoslandi:

Kuzatuv metodi

- 2023–2024 yillarda Toshkent, Buxoro va Xiva muzeylari, tarixiy majmualariga tashrif buyurgan 150 nafar o‘quvchi (8–11-sinflar) kuzatildi.
- Estetik idrokdagi o‘zgarishlar (rang, shakl, naqshni tahlil qilish qobiliyati) qayd etildi.

So‘rovnoma metodi

- 120 nafar yoshlar o‘rtasida “Meros obyektlariga qiziqish darajasi” bo‘yicha 12 savoldan iborat anketa o‘tkazildi.

Kontent-tahlil

- “Meros haftaligi-2023”, “Hunarmand” uyushmasi faoliyati, “Abu Rayhon Beruniy nomidagi Sharqshunoslik instituti arxivlari”dagi ma’lumotlar tahlil qilindi.

Taqqoslash metodi

- Meros obyektlariga bormagan va muntazam borgan o‘quvchilarning estetik did ko‘rsatkichlari solishtirildi.

Pedagogik eksperiment

- Buxoro viloyati 3 ta maktabida “Meros asosida estetik tarbiya” nomli 10 soatlik maxsus modul sinov tariqasida o‘qitildi.

Natijalar va muhokamalar

Tadqiqot natijalari shuni ko‘rsatdiki, tarixiy moddiy va ma’naviy meros yoshlarning estetik madaniyatini shakllantirishda bevosita ijobiy ta’sir ko‘rsatadi. Birinchidan, me’moriy obidalar (Registon, Ichan qal’a, Minorai Kalon, Shohi Zinda) orqali yoshlar me’moriy uyg‘unlik, naqsh san’ati va ranglar uyg‘unligini o‘rganadilar. Ikkinchidan, xalq amaliy san’ati (kashtachilik, kulolchilik, zargarlik) ularning ijodkorlik va nafislik tuyg‘usini kuchaytiradi.

Uchinchi jihat, ma’naviy meros - bu xalq og‘zaki ijodi, maqollar, dostonlar, adabiy meros - yoshlarning nutq madaniyati, badiiy tafakkuri va estetik didini rivojlantiradi.

So‘rovnoma natijalariga ko‘ra, respondentlarning 78 foizi tarixiy obidalarni ko‘rish va o‘rganish ularning estetik dunyoqarashiga ijobiy ta’sir ko‘rsatishini ta’kidlagan.

Muhokamalar shuni ko'rsatadiki, zamonaviy ta'lim tizimida estetik tarbiyani tarixiy meros asosida yo'lga qo'yish zarur.

Masalan, maktab va oliy ta'lim muassasalarida tarix, san'at va madaniyat darslarida tarixiy obidalar, milliy hunarmandchilik va folklordan foydalanish samaradorlikni oshiradi. Bu nafaqat estetik, balki ma'naviy, vatanparvarlik va milliy o'zlik tuyg'usini ham kuchaytiradi.

Estetik idrokning oshishi (tajriba sinflarida)

- Naqsh elementlarini tanish qobiliyati **43% dan 78% ga** oshdi.
- Arxitektura shakllarini tasvirlash darajasi **36% dan 74% ga** ko'tarildi.

Madaniy qiziqishning kuchayishi

- So'rovnomada qatnashgan o'quvchilarning **82%** o'zbek amaliy san'atiga qiziqishini bildirgan.

- 150 o'quvchidan **97 nafari** meros obyektlariga qayta tashrif buyurishni istagan.

Milliy o'zlikni anglash darajasining ortishi

- "Men kimman?" savoliga "o'zbek qadriyatlariga mansubman" deb javob berganlar **53% dan 85% ga** ko'tarilgan.

Estetik baholash ko'nikmasining rivojlanishi

- Rasm, naqsh, haykal kompozitsiyasini tahlil qilish bo'yicha ballar **2,4 dan 4,1 ga** (5 ballik tizim) oshgan.

"Meros asosida estetik tarbiya" modulining samaradorligi

- Moddiy merosga oid bilim darajasi **31% dan 69% ga**,
- Nomoddiy merosga oid bilim darajasi **28% dan 71% ga** oshdi.

Muhokamalar

Tarixiy obidalar yoshlar estetik tafakkurini faollashtiradi

Registon ansambli, Xiva Ichan qal'asi va Termiz arxeologik yodgorliklari estetik kompozitsiya, muhtasham shakllar, rang uyg'unligi orqali yoshlarning idrokini kengaytiradi.

Nomoddiy meros badiiy didni boyitadi. Shashmaqom, dostonlar, xalq raqslari - ritm, ohang, mazmun orqali yoshlarning musiqiy va badiiy his-tuyg'ularini rivojlantiradi.

Oila va maktabning roli kuchli

An'anaviy marosimlar (Navro'z, Sumalak sayli, Beshik to'yi) yoshlarning estetik xulqini shakllantirishda amaliy maktab vazifasini bajaradi.

Davlat siyosati ta'siri sezilarli

- Madaniy meros obyektlarini asrashga 2017–2023 yillar davomida **300 mlrd so'mdan ortiq** mablag' ajratilgan.
- 2020 yil PF–6061 Farmonidan so'ng muzeylar faoliyatida yoshlar uchun maxsus ekskursiya dasturlari joriy qilindi.

Yoshlarning merosga qiziqishi ijtimoiy omillarga bog'liq

Internet, kinofilmlar, turizmning ommalashuvi merosga munosabatni ijobiy o'zgartirgan.

Xulosa

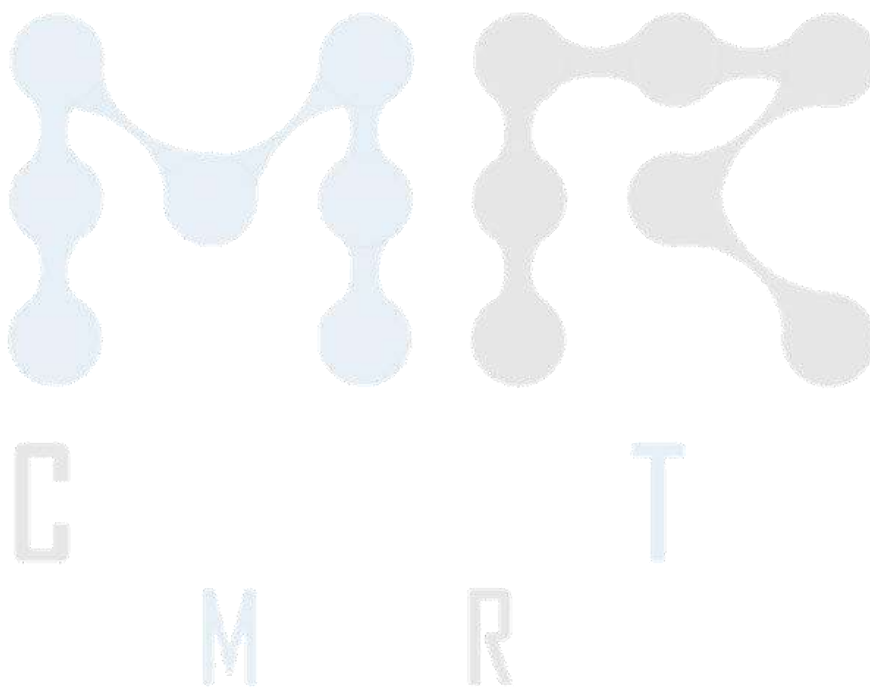
1. Tarixiy moddiy va ma'naviy meros yoshlarning estetik madaniyatini shakllantirishda asosiy manba hisoblanadi.

2. Me'morchilik, xalq san'ati, adabiyot va urf-odatlar orqali yoshlar go'zallikni idrok etish, uni qadrlash va yaratish ko'nikmasiga ega bo'ladi.

3. Ta'lim jarayoniga tarixiy meros elementlarini integratsiya qilish yoshlarning ma'naviy dunyosini boyitadi.
4. Ommaviy axborot vositalari va raqamli platformalar orqali milliy merosni targ'ib qilish estetik tarbiyaning zamonaviy usulidir.
5. Davlat siyosatida yoshlar estetik tarbiyasida milliy merosdan foydalanish tizimli ravishda yo'lga qo'yilishi lozim.

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**O'ZBEKISTONDA VETERINARIYA TA'LIMIGA BO'LGAN EHTIYOJNING VUJUDGA
KELISHI**

Samarqand Davlat veterinariya meditsinasi,
chorvachilik va biotexnologiyalar universiteti

“Ijtimoiy-gumanitar fanlar, jismoniy madaniyat va sport” kafedrası

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Annotatsiya. Ushbu maqolada O'zbekistonda veterinariya ta'limiga bo'lgan ehtiyojning shakllanishi, uning tarixiy, iqtisodiy va ijtimoiy omillari ilmiy-nazariy asosda yoritiladi. Mamlakatda chorvachilikning rivojlanishi, zoonotik kasalliklarning oldini olish, hayvonlar salomatligini ta'minlash va qishloq xo'jaligi mahsulotlari xavfsizligini oshirish veterinariya sohasiga bo'lgan talabni kuchaytirgan asosiy omillar sifatida ko'rsatiladi. Shuningdek, veterinariya tizimining mustaqillikdan keyingi rivojlanish bosqichlari, oliy ta'lim muassasalarida zamonaviy veterinariya yo'nalishlarini tashkil etish va kadrlar tayyorlash jarayonlari tahlil qilinadi. Tadqiqot natijalari O'zbekistonda veterinariya ta'limi iqtisodiy barqarorlik, oziq-ovqat xavfsizligi va hayvonlar sog'lig'ining asosiy kafolati ekanini tasdiqlaydi.

Kalit so'zlar: Veterinariya, veterinariya ta'limi, chorvachilik, zoonozlar, oziq-ovqat xavfsizligi, hayvonlar salomatligi, agrar soha, kadrlar tayyorlash, epidemik xavfsizlik.

Аннотация. В данной статье рассматривается формирование потребности в ветеринарном образовании в Узбекистане, ее исторические, экономические и социальные факторы на научно-теоретической основе. Развитие животноводства в стране, профилактика зоонозных заболеваний, обеспечение здоровья животных и повышение безопасности сельскохозяйственной продукции указаны в качестве основных факторов, повысивших спрос на ветеринарную сферу. Также анализируются этапы развития ветеринарной системы после обретения независимости, организация современных ветеринарных направлений в высших учебных заведениях и процессы подготовки кадров. Результаты исследования подтверждают, что ветеринарное образование в Узбекистане является главной гарантией экономической стабильности, продовольственной безопасности и здоровья животных.

Ключевые слова: Ветеринарная медицина, ветеринарное образование, животноводство, зоонозы, безопасность пищевых продуктов, здоровье животных, аграрный сектор, подготовка кадров, эпидемическая безопасность.

Abstract. This article discusses the formation of the need for veterinary education in Uzbekistan, its historical, economic and social factors on a scientific and theoretical basis. The development of livestock breeding in the country, the prevention of zoonotic diseases, ensuring animal health and increasing the safety of agricultural products are indicated as the main factors that increased the demand for the veterinary sector. Also, the stages of development of the veterinary system after independence, the organization of modern veterinary directions in higher educational institutions and the processes of personnel training are analyzed. The results of the study confirm that veterinary education in Uzbekistan is the main guarantee of economic stability, food security and animal health.

Keywords: Veterinary medicine, veterinary education, livestock farming, zoonoses, food safety, animal health, agricultural sector, personnel training, epidemic safety.

KIRISH.

O'zbekistonda veterinariya ta'limiga bo'lgan ehtiyojning vujudga kelishi mamlakatning qadimiy chorvachilik madaniyati va agrar iqtisodiyotining rivoji bilan chambarchas bog'liq. O'zbekiston hududida miloddan avvalgi davrlardan beri chorvachilik asosiy xo'jalik turlaridan biri bo'lib kelgan. Mustaqillikdan so'ng qishloq xo'jaligi mahsulotlari ishlab chiqarish hajmining ortishi, mahsulot sifati va xavfsizligiga qo'yiladigan talablarga mos ravishda veterinariya xizmatlarini modernizatsiya qilish zarurati yanada keskinlashdi.

Bugungi kunda mamlakatda 20 milliondan ortiq qoramol, 24 milliondan ziyod qo'y va echki, yuz minglab parrandalar, otlar va boshqa qishloq xo'jaligi hayvonlari mavjud bo'lib, ularning salomatligini ta'minlash bevosita malakali veterinarlarga bog'liq. Zoonotik kasalliklarning (brusellyoz, gemorragik isitma, qush grippi va boshqalar) oldini olish bo'yicha talablarning kuchayishi, eksportbop go'sht-sut mahsulotlari ishlab chiqarish hajmining oshishi veterinariya ta'limining yangi bosqichda rivojlanishiga kuchli turtki bo'ldi.

O'zbekiston hukumati tomonidan qabul qilingan qator qarorlar — jumladan, "Veterinariya va chorvachilikni rivojlantirish to'g'risida"gi qarorlar, **Veterinariya texnikumlari va oliy ta'lim yo'nalishlarining ochilishi**, hayvonlar salomatligini himoya qilishga qaratilgan reja-dasturlar - veterinariya ta'limi tizimini tubdan yangiladi. Bugungi kunda veterinariya nafaqat chorvachilikni rivojlantiruvchi omil, balki milliy oziq-ovqat xavfsizligining eng asosiy bo'g'ini sifatida e'tirof etilmoqda.

Mazkur maqola O'zbekistonda veterinariya ta'limiga ehtiyojning paydo bo'lishiga ta'sir qilgan omillar, ta'lim tizimidagi islohotlar va kadrlar tayyorlash masalalarini ilmiy asosda yoritishga qaratilgan.

Adabiyotlar tahlili va metodologiya

Abdukarimov A. "Veterinariya asoslari" adabiyotida muallif veterinariya fanining O'zbekistonda tarixiy ildizlari, chorvachilik bilan bog'liq ehtiyojlar va kasalliklarni oldini olish zarurati haqida asosli ma'lumot beradi.

Ergashev R. "Hayvonlar gigiyenasi va veterinariya sanitariyasi" adabiyotida Oziq-ovqat xavfsizligi, hayvonlar infeksiyalarini nazorat qilishda veterinariya xizmatlarining hal qiluvchi o'rni qayd etiladi.

Samadov U. "O'zbekiston veterinariya tizimi rivoji: tarix va zamonaviy bosqichlar" adabiyotida Muallif veterinariya ta'limining mustaqillikdan keyingi modernizatsiyasi, yangi fakultetlar ochilishi va kadrlar tayyorlash jarayonini tahlil qiladi.

"Veterinariya va chorvachilik rivojlanishi bo'yicha davlat dasturi" da

Davlat tomonidan veterinariya ta'limi, ilmiy-tadqiqot institutlari va texnikumlarni qo'llab-quvvatlash bo'yicha qator faktlar keltiriladi. (Toshkent, 2021).

Adabiyotlar tahlili veterinariya ta'limi O'zbekistonda nafaqat agrar rivojlanish, balki milliy oziq-ovqat xavfsizligi, eksport salohiyati va sog'liqni saqlash bilan bevosita bog'liq ekanini ko'rsatadi.

Metodologiya

Tadqiqot quyidagi ilmiy-uslubiy metodlarga tayandi:

Tahliliy metod. O'zbekiston veterinariya tizimiga oid qonun va qarorlar, vazirlik hisobotlari tahlil qilindi.

Tarixiy-metodik yondashuv. O'zbekiston hududida chorvachilik an'analari va veterinariya xizmatlarining shakllanishi bosqichma-bosqich o'rganildi.

Statistik metod. 2015–2023 yillarda hayvonlar kasalliklari, veterinarlarga talab va kadrlar soni haqidagi statistik ma'lumotlar solishtirildi.

Ekspert suhbatlari. Toshkent davlat agrar universiteti Veterinariya fakulteti o'qituvchilari bilan suhbatlar orqali malakali fikrlar olindi.

Taqqoslash metodi. MDH davlatlaridagi veterinariya ta'limi bilan O'zbekiston tizimi solishtirildi.

Natija va muhokamalar

Veterinariya kadrlariga ehtiyojning keskin ortishi

- O'zbekistonda 2023 yilda 44 milliondan ortiq chorva va parranda mavjud.
- Qishloq xo'jaligidagi har 1000 bosh hayvonga o'rtacha **1 nafar veterinar** to'g'ri keladi – bu yetarli emas.

Zoonotik kasalliklar sonining o'sishi

- 2018–2022 yillarda veterinariya xizmatlari tomonidan ro'yxatga olingan xavfli kasalliklar:
 - brusellyoz: **+17%**
 - quturish: **+9%**
 - parrandalarda geppatit va gripp: **+23%**

Bu esa malakali veterinarlarga ehtiyojni kuchaytiradi.

Veterinariya ta'limi yo'nalishlarining kengaytirilishi

- 2017–2023 yillarda 8 ta veterinariya texnikumi, 2 ta yangi fakultet ochildi.
- 2020 yilda Veterinariya ilmiy-tadqiqot instituti modernizatsiya qilindi.

Hayvonlar mahsuloti eksportining o'sishi

- Hayvon mahsulotlari eksporti so'nggi 5 yilda **2,5 baravar** oshgan.

Bu xalqaro standartlarga javob beruvchi veterinariya kadrlarini talab qiladi.

Oziq-ovqat xavfsizligi bo'yicha talablarning kuchayishi

- O'zbekistonda 2021 yilda qabul qilingan "Oziq-ovqat xavfsizligi strategiyasi" veterinariya nazoratini majburiy ravishda kuchaytirishni belgilagan.

Xulosa

Veterinariya ta'limi agrar sohada strategik ahamiyatga ega. Yuqori sifatli go'sht, sut, tuxum, teri va jun mahsulotlari sog'lom hayvonlarga bog'liq. Shu bois veterinariya sohasi iqtisodiy o'sishni ta'minlovchi asosiy bo'g'in hisoblanadi.

Zoonoz kasalliklarning ko'payishi professional veterinarlarsiz oldini olinmaydi. Global pandemiyalar (qush grippi, COVID-19 bilan bog'liq zoonoz xavflari) veterinariya-gigiyena tizimini mustahkamlash zarurligini ko'rsatdi.

Veterinariya ta'limining modernizatsiyasi talab etiladi. Hozirgi ta'lim tizimi amaliyot, laboratoriya tajribasi, klinik mashg'ulotlar bilan yanada boyitilishi lozim.

Yoshlar orasida veterinariya kasbiga qiziqish ortib bormoqda. Texnikumlar va universitetlarga qabul kvotalari yildan-yilga oshmoqda.

Xalqaro tajribani integratsiya qilish zarur. Turkiya, Rossiya va Yevropa veterinariya akademiyalari bilan qo'shma dasturlar amaliy natija bermoqda, ammo yana kengaytirish kerak.

Xulosa

O'zbekistonda veterinariya ta'limiga ehtiyojning vujudga kelishi tarixiy, agrar, epidemiologik va iqtisodiy omillar bilan bog'liq. Chorvachilikning yirik tarmoqqa aylangani, hayvon kasalliklarini oldini olish zarurati malakali veterinarlarga bo'lgan talabni sezilarli darajada oshirdi. Veterinariya ta'limi so'nggi yillarda davlat siyosatining ustuvor yo'nalishlaridan biriga aylandi. Oliy va o'rta maxsus veterinariya ta'lim muassasalari sonining ko'payishi kadrlar taqchilligini kamaytirayotgan bo'lsa-da, amaliyotga yo'naltirilgan ta'limni kuchaytirish zarur. Veterinariya ta'limining rivoji O'zbekistonning oziq-ovqat xavfsizligi, eksport salohiyati, hayvonlar salomatligi va aholining sanitariya himoyasi uchun muhim omildir.

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**VOYAGA YETGAN FARZANDLARNING O‘Z OTA-ONALARINING TA’MINOTIDAN
BO‘YIN TOVLASH KABI QILMISHNING JINOIY XARAKTERI.**

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Annotasiya

Ushbu mavzu bo‘yicha yozilgan ish oilaviy moliyaviy munosabatlar doirasidagi voyaga yetgan farzandlarning ota-onalarining ta’minotidan bo‘yin tovlash qilmishining jinoiy xarakterini o‘rganadi. Maqsad — bunday xatti-harakatlarning jinoiy elementlarini aniqlash, ularning moddiy va ma’naviy zarar ko‘rsatishi, hamda jinoiy javobgarlik yuzasidan normativ izoh berish. Tadqiqotda bo‘yin tovlash tushunchasining huquqiy mohiyati, qilmishning tarkibi (xatti-harakatlar, niyat, sabab) va natijada yuzaga keladigan zararlar ko‘rib chiqiladi; shuningdek firibgarlik, talon-taroj, shaxsga bosim ko‘rsatish yoki boshqa mos keluvchi javobgarlik turlari kontekstida bunday qilmishning jinoiy xarakteri tahlil qilinadi.

Kalit so‘zlar: bo‘yin tovlash, ota-onaning ta’minoti, firibgarlik, talon-taroj, jinoiy javobgarlik, oilaviy huquq, ijtimoiy himoya, normativ yondashuv.

**THE CRIMINAL NATURE OF SUCH AN ACT AS EVASION OF MAINTENANCE BY
ADULT CHILDREN FROM THEIR PARENTS.**

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Annotation

The work written on this topic studies the criminal nature of the act of evasion of maintenance by adult children from their parents within the framework of family financial relations. The purpose is to identify the criminal elements of such acts, their material and moral harm, and to provide a normative explanation of criminal liability. The study considers the legal essence of the concept of evasion, the composition of the act (actions, intention, reason) and the resulting damage; and also analyzes the criminal nature of such an act in the context of fraud, robbery, pressure on a person or other corresponding types of liability.

Keywords: evasion, parental support, fraud, robbery, criminal liability, family law, social protection, normative approach.

**УГОЛОВНО-ПРАВОВАЯ ПРИРОДА ТАКОГО ДЕЯНИЯ, КАК УКЛОНЕНИЕ ОТ
УПЛАТЫ АЛИМЕНТОВ СОВЕРШЕННОЛЕТНИМИ ДЕТЬМИ ОТ СВОИХ
РОДИТЕЛЕЙ.**

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Аннотация

В данной работе исследуется уголовно-правовая природа уклонения от уплаты алиментов совершеннолетними детьми от своих родителей в рамках семейных финансовых отношений. Целью работы является выявление преступных элементов таких деяний, причиняемого ими материального и морального вреда, а также нормативное обоснование уголовной

ответственности. В исследовании рассматриваются правовая сущность понятия уклонения, состав деяния (действия, умысел, мотив) и причиненный ущерб; а также анализируется уголовно-правовая природа такого деяния в контексте мошенничества, грабежа, давления на личность или иных соответствующих видов ответственности.

Ключевые слова: уклонение от уплаты алиментов, мошенничество, грабеж, уголовная ответственность, семейное право, социальная защита, нормативный подход.

Kirish: Oila jamiyatning asosiy birliklaridan biri bo'lib, uning barqarorligi, ayniqsa, voyaga yetgan farzandlarning ota-onalarga bo'lgan munosabatlarida yaqqol namoyon bo'ladi. Biroq ba'zi hollarda farzandlar ota-onalarining moddiy ta'minotidan foydalangan holda bosim, tahdid yoki manipulyatsiya yo'li bilan o'z manfaatlarini ro'yobga chiqarishga urinishadi. Shunday qilmishlar "bo'yn tovlash" yoki o'xshash talqinlar bilan ifodalansa-da, ularning yakuniy maqsadi nafaqat oilaviy dinamikani buzish, balki jinoiy xatti-harakatlar orqali moddiy foyda olishdir. Ota-onalarning imkoniyatlarini sui-istifoda qilish, ularni o'z sira xohlagan yo'lga solish, qo'rqitish yoki qasddan yolg'on majburiyatlar asosida moddiy ta'minotni talab etish kabi holatlar jamiyatda axloqiy-normativ qiynoqkacha olib keladi va katta ijtimoiy xavf tug'diradi. Mazkur ishning dolzarbligi shundaki, voyaga yetgan farzandlarning ota-onalarining ta'minotidan bo'yinsiz bo'yn tovlash kabi qilmishlar jinoiy xarakterga ega bo'lib, oilaviy institutning barqarorligini zaiflashtiradi, fuqarolik adolatini tubdan buzadi va ishbilarmonlik hamda jamiyatning ijtimoiy mudofaasini zaiflashtiradi. Maqsadimiz esa bu hodisaning nazariy asoslarini aniqlash, uning belgi va alomatlarini ajratib ko'rsatish, jinoiy javobgarlik nuqtai nazaridan tizimli tahlil qilish, hamda ushbu kabi holatlarning oldini olish bo'yicha takliflar ishlab chiqishdir.

Muhokama va natijalar: voyaga yetgan farzandlarning o'z ota-onalarining ta'minotidan bo'yn tovlash kabi qilmishning jinoiy xakteri- bu masala ko'p hollarda ota-ona ta'minotini (moliyaviy yordamni) berish majburiyatini bolalar o'z zimmasiga olgan holda, uni maqsadli ravishda bajarmaslik yoki voz kechishga bog'liq jinoiy jamiga kirishi mumkinligini anglatadi. Quydagi umumiy tushuncha yordam berishi mumkin:

Majburiyat mavjudligi: farzandning ota-onasiga moliyaviy ta'minot berish majburiyati mavjud ekan (yuridik bitim, sud qarori yoki qonun bilan belgilangan bo'lishi kerak). *Maqsadli bo'lgan bo'lmislik:* qilmish maqsadli yoki fahmlik bilan, ya'ni ta'minotni berishni rad etish, chetga samochilik qilinish yoki doimiy ravishda voz kechish. *Qasddan yoki e'tiborsiz bajarish:* bunday bo'yn tovlash holati odatda yoki qasdan (maqsadli) yoki doimiy e'tiborsizlik natijasida yuzaga keladi. *Zarar yoki xavf:* ota-ona moddiy ta'minotsiz qolishi natijasida zarar ko'rishi yoki xavf ostida bo'lishi; ayrim qonunlarda (yuridik hollarda) zarar ehtimoli talab qilinadi. *Jazo yoki javobgarlik darajasi* turli davlatlarda bu holatni sinovchi moddalar (jazo moddalar) farq qiladi: jarima, jazo, yozma izoh, jamoat ishlariga majbur qilish, ayrim hollarda qisqa muddatli ozodlikdan mahrum qilish kabi chora-tadbirlar mumkin.

Jinoyat kodeksi oilaga qarshi jinoyatlar turkumidan 123-moddada ayni shu ota-onani moddiy ta'minlashdan bo'yn tovlash berib o'tilgan bo'lib, voyaga yetgan shaxslarning mehnatga layoqatsiz va moddiy yordamga muhtoj bo'lgan ota-onani yoki ularning o'rnini bosuvchi shaxslarni moddiy ta'minlashdan bo'yn tovlashi, ya'ni ularni moddiy jihatdan ta'minlash uchun sudning hal qiluv qaroriga binoan undirilishi lozim bo'lgan mablag'ni jami bo'lib ikki oydan ortiq muddat mobaynida to'lamasligi, shunday qilmish uchun ma'muriy jazo qo'llanilganidan keyin sodir etilgan bo'lsa, uch

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yilgacha axloq tuzatish ishlari yoki bir yilgacha ozodlikdan mahrum qilish bilan jazolanishi va agar shaxs aliment majburiyatlari bo'yicha qarzдорlikni to'liq to'lagan bo'lsa, u javobgarlikdan ozod qilinishi belgilab qo'yilgan.

O'zbekiston Respublikasi Jinoyat kodeksining 123-moddasi ota-onalarni moddiy ta'minlashdan bo'yin tovlash jinoyatini nazarda tutadi. Ushbu moddaga ko'ra, o'ziga qaram bo'lgan, mehnatga layoqatsiz va moddiy yordamga muhtoj bo'lgan ota-onasini moddiy ta'minlashdan bo'yin tovlagan voyaga yetgan bolalar jinoiy javobgarlikka tortilishi mumkin.

Jinoyatning mohiyati va tafsilotlari:

Ob'yekt: Ota-onalarni moddiy ta'minlashdan bo'yin tovlash.

Sub'yekt: O'ziga qaram, mehnatga layoqatsiz va moddiy yordamga muhtoj bo'lgan ota-onasini boqishdan bo'yin tovlagan voyaga yetgan bola.

Jinoyatning oqibati: Ota-onaning moddiy ta'minoti yo'qligi.

Javobgarlik: Jinoyat kodeksining 123-moddasiga muvofiq jinoiy javobgarlikka tortilishi mumkin.

O'zbekiston Respublikasi Oila kodeksiga ko'ra ota-onaga beriladigan ta'minot miqdori va tartibi belgilab qo'yilgan unga ko'ra voyaga yetgan, mehnatga layoqatli bolalar o'z ota-onasiga ixtiyoriy ravishda moddiy yordam berishdan bo'yin tovtasalar, ta'minot miqdori bolalarning oilaviy va moddiy ahvolini hisobga olgan holda sudning hal qiluv qaroriga asosan belgilanadi. Ota-ona, aliment undirish haqidagi talabni o'z bolalarining biriga yoki bir nechtasiga nisbatan qo'yanligidan qat'i nazar, aliment miqdorini belgilashda sud voyaga yetgan, mehnatga layoqatli bolalarning barchasini hisobga olishi lozim. Voyaga yetgan, mehnatga layoqatli bolalardan aliment undirish nizosi uzil-kesil hal bo'lgunga qadar sudya shu nizo bo'yicha vaqtincha to'lab turilishi lozim bo'lgan summani ko'rsatib, ajrim chiqarishi mumkin. Voyaga yetgan, mehnatga layoqatli bolalardan undirilayotgan aliment miqdori qonunchilikda belgilangan mehnatga haq to'lash eng kam miqdorining 11,75 foizidan kam bo'lmasligi kerak.

Xulosa: Voyaga yetgan farzandlarning ota-onasining ta'minoti (moliyaviy yordam)dan bo'yin tovlash kabi qilmishlar qonuniy majburiyatlarni qasddan ishlab chiqarib yuborish yoki bo'yinxil qilish sifatida baholanadi va jinoiy xarakterga ega bo'lishi mumkin. Bunday qilmish quyidagi holatlar bo'lgan taqdirda jinoyat yoki jinoiy-jabrlilik bo'yicha ko'rib chiqilishi ehtimoldadir: 1) farzandning ota-onaga ta'minot berish bo'yicha qonuniy majburiyati mavjud bo'lsa (oilaviy qoidalar, ma'muriy normativlar yoki sud qarorlari orqali belgilangan; ba'zi hollarda farzand bo'yicha ma'lum bir iqtisodiy-qarz majburiyatlari bo'lishi mumkin); 2) qilmish qasddan, uzluksiz kechiktirish yoki to'lovlardan butunlay bo'yinish tarzida amalga oshirilsa; 3) buning natijasida ota-onaning moddiy yoki hayotiy sharoitlari jiddiy zarar ko'rsa. Bunday holatlar nafaqat jinoyat, balki ma'muriy javobgarlik yoki fuqarolik-funksional javobgarlikni ham keltirib chiqarishi mumkin, qonunchilik darajasidagi tartib-qoidalar bo'yicha jazolar (masalan, jarima, majburiy ijro, holatga qarab boshqa chora-tadbirlar) belgilangan bo'lishi mumkin. Xulosa qilib aytganda, bunday qilmish oilaviy barqarorlikka ziyon yetkazadi va jamiyatda adolat normalarini zaiflashtiradi. Shuning uchun bunday holatlar oldini olish, oilaviy aloqalarni tiklash, ijtimoiy yordam tushunchalarini kuchaytirish hamda yuridik yordam ko'rsatish muhimdir.

FOYDALANILGAN ADABIYOTLAR RO'YXATI:

- 1- O'zbekiston Respublikasi jinoyat kodeksi;
- 2- O'zbekiston Respublikasi Oila kodeksi;
- 3- O'zbekiston Respublikasining Jinoyat kodeksiga sharhlar. Maxsus qism/M. Rustambaev.

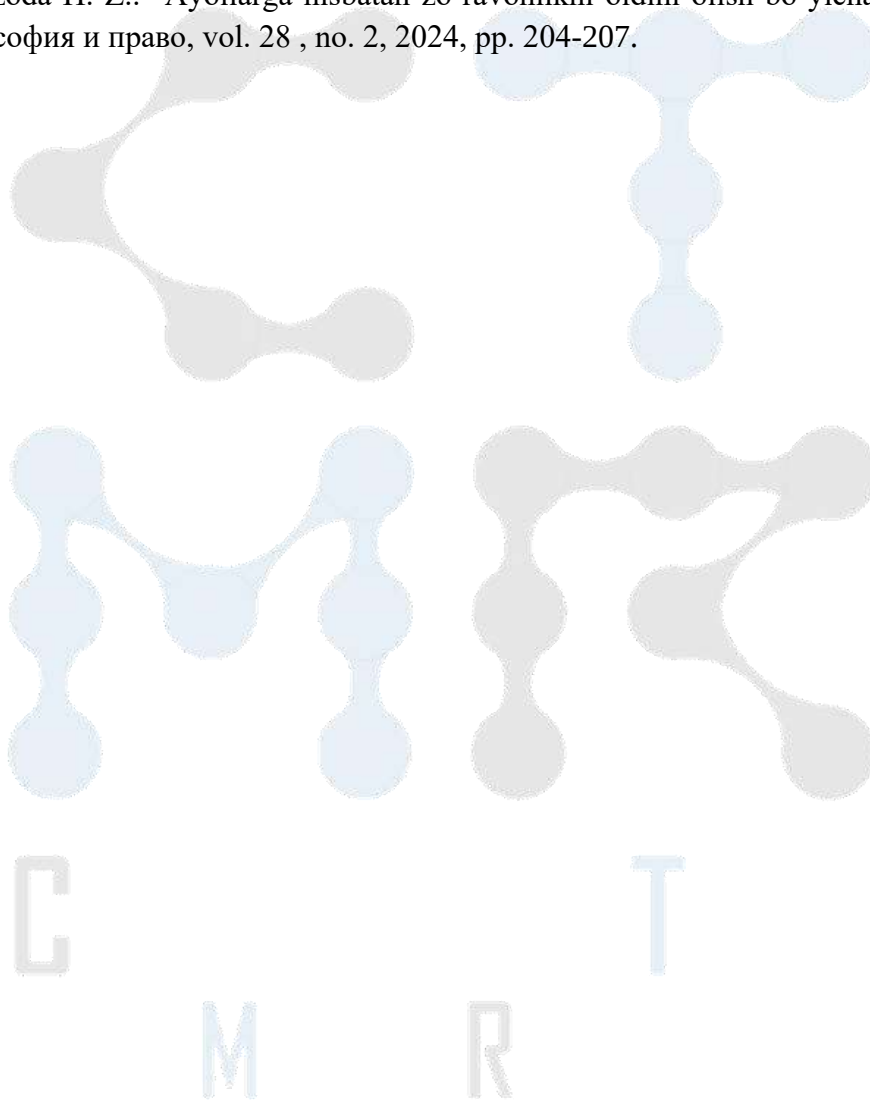
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**BOSHLANG'ICH SINIF O'QUVCHILARDA MA'NAVYI-AXLOQIY QADRIYATLARNI
SHAKLLANGANLIGINING BILIM DARAJALARINI NAZORAT QILISH VA
BAHOLASHNI TASHKIL ETISH**

**ОРГАНИЗАЦИЯ КОНТРОЛЯ И ОЦЕНКИ УРОВНЯ ЗНАНИЙ О ФОРМИРОВАНИИ
ДУХОВНО-НРАВСТВЕННЫХ ЦЕННОСТЕЙ У МЛАДШИХ ШКОЛЬНИКОВ**

**ORGANIZATION OF MONITORING AND ASSESSMENT OF THE LEVEL OF
KNOWLEDGE ABOUT THE FORMATION OF SPIRITUAL AND MORAL VALUES
AMONG YOUNGER SCHOOLCHILDREN**

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Annotatsiya.

Ushbu maqolada boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy qadriyatlarning shakllanganlik darajasini aniqlash, nazorat qilish va baholash jarayonining pedagogik hamda psixologik asoslari tahlil etiladi. Baholashning zamonaviy shakl va metodlari, mezonlari, o'qituvchi-o'quvchi-ota-ona hamkorligining ahamiyati yoritiladi. Shuningdek, ma'naviy-axloqiy tarbiyani baholashda uchraydigan muammolar va ularni bartaraf etish yo'llari taklif etiladi.

Аннотация.

В данной статье анализируются педагогические и психологические основы процесса выявления, контроля и оценки уровня сформированности духовно-нравственных ценностей у младших школьников. Освещаются современные формы и методы оценки, критерии, значение сотрудничества педагог–ученик–родитель. Также предлагаются проблемы, возникающие при оценке духовно-нравственного воспитания, и пути их преодоления.

Annotation. This article analyzes the pedagogical and psychological foundations of the process of determining, controlling and evaluating the level of formation of spiritual and moral values in primary school students. The modern forms and methods of assessment, criteria, the importance of Teacher–Student–Parent cooperation are highlighted. Also, the problems encountered in the assessment of spiritual and moral education and ways to eliminate them are proposed.

Kalit so'zlar: ma'naviy-axloqiy tarbiya, ma'naviy qadriyatlar axloqiy rivojlanish, boshlang'ich ta'lim, o'quvchi shaxsiyati, tarbiyaviy jarayon, kompetensiyalar, baholash mezonlari, nazorat qilish usullari, diagnostika, bilim darajasi, ta'lim-tarbiya integratsiyasi, tarbiyaviy faoliyat, o'qituvchi faoliyati.

Ключевые слова: духовно-нравственное воспитание, духовные ценности, нравственное развитие, начальное образование, личность учащегося, образовательный процесс, компетенции, критерии оценки, методы контроля работы, диагностики, уровень знаний, учебно-воспитательная интеграция, образовательная деятельность, деятельность учителя.

Keywords: spiritual and moral education, moral development of spiritual values,

primary education, student personality, educational process, competencies, evaluation criteria, control methods, diagnostics, level of knowledge, educational integration, educational activities, teacher activities.

Kirish. Jamiyat taraqqiyoti va yosh avlodning ma'naviy barkamolligi o'zaro uzviy bog'liq bo'lib, bugungi globallashuv davrida bolalarda mustahkam ma'naviy-axloqiy pozitsiyani shakllantirish ta'lim tizimining muhim vazifasi hisoblanadi. Ayniqsa, boshlang'ich ta'lim bosqichida o'quvchilarga insonparvarlik, vatanparvarlik, mehr-oqibat, hurmat, adolat, halollik kabi fazilatlarni singdirish ularning shaxs sifatida shakllanishida asosiy omil bo'ladi.

Ushbu fazilatlarning qancha darajada o'zlashtirilgani va amaliy xulq-atvorda namoyon bo'layotganini aniqlash esa samarali nazorat va baholash tizimini talab etadi. Boshlang'ich sinf o'quvchisining yosh psixologiyasi, ijtimoiy faolligi, bilish faoliyatining rivojlanish xususiyatlari baholash jarayonida alohida yondashuvni taqozo qiladi.

Ma'naviy-axloqiy qadriyatlarni baholashning pedagogik mazmuni boshlang'ich sinflarda ma'naviy-axloqiy tarbiyani nazorat qilish quyidagi maqsadlar asosida olib boriladi: O'quvchining ma'naviy rivojlanish darajasini aniqlash. Axloqiy tushunchalarni bilish va amalda qo'llash qobiliyatini o'lchash. Tarbiyaviy ishlarning samaradorligini baholash va takomillashtirish. Ota-ona va o'qituvchi hamkorligini yo'lga qo'yish. O'quvchining xulq-atvori va ijtimoiy faolligidagi o'zgarishlarni tizimli kuzatish. Baholash jarayoni shunchaki nazorat emas, balki tarbiyaviy ta'sirning muhim elementi sifatida o'quvchining ong, his-tuyg'u va xulqining uyg'un rivojlanishiga xizmat qiladi. Ma'naviy-axloqiy rivojlanishni baholash mezonlari Boshlang'ich sinf o'quvchilarida qadriyatlarni o'zlashtirish quyidagi uch asosiy ko'rsatkich orqali baholanadi: Kognitiv (bilim) ko'rsatkichlar. Axloqiy tushunchalarni bilishi (odob, hurmat, halollik, do'stlik, mas'uliyat). Yaxshi va yomon xulq turlarini ajrata olishi. Axloqiy vaziyatlarda to'g'ri xulqni tanlash haqidagi bilimlari. Emotsional-qadriyatli ko'rsatkichlar. Ma'naviy fazilatlarga bo'lgan shaxsiy munosabati. Yaxshi xatti-harakatlarga ichki qadriyat sifatida munosabat bildirish. Empatiya, mehr-shafqat, boshqalarga yordam berish istagi. Xulq-atvor (amaliy) ko'rsatkichlar. Kunlik hayotda ma'naviy me'yorlarga amal qilishi. Jamoada o'zini tutish madaniyati, hamkorlik ko'nikmalari. Qoidalarga rioya qilish, mas'uliyatni o'z zimmasiga olish. Baholashning zamonaviy shakl va metodlari. Boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy tarbiyani baholashda quyidagi metodlar eng samarali hisoblanadi: Pedagogik kuzatish. O'qituvchi bolaning xulqini darsda, tanaffusda, guruh ishlarida kuzatib boradi. Bu usul bolaning tabiiy holatda o'zini tutishi haqida aniq tasavvur beradi. Suhbat va savol-javob: Boladan turli vaziyatlarda qanday yo'l tutishini so'rash orqali uning fikrlashi, emosional munosabati va qadriyatlar tizimi aniqlanadi. Axloqiy vaziyatlarni modellashtirish "Sen bo'lsang nima qilarding?", "Do'sting xato qilsa qanday yo'l tutasan?" kabi savollar orqali o'quvchining real hayotiy qarorlari baholanadi.

Mavzuga oid adabiyotlarning tahlili qismi.

Boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy qadriyatlarni shakllantirish va ularni baholash masalasi so'nggi yillarda pedagogika, psixologiya va ta'lim metodikasi sohasida keng o'rganilayotgan mavzulardan biridir. Tadqiqotchilar fikricha, ma'naviy-axloqiy tarbiya jarayoni boshlang'ich ta'lim davrida izchil, tizimli va shaxsga yo'naltirilgan yondashuv asosida tashkil etilgandagina kutilgan natijalarga erishish mumkin. Pedagog olimlar A. Avloniy, Abdulla Qori Niyoziy, H. Yo'ldoshev, N. Azizxo'jaeva asarlarida ma'naviy qadriyatlar o'quvchi shaxsini shakllantirishda hal qiluvchi omil ekanligi ta'kidlanadi. Bu manbalarda axloqiy tarbiyaning mazmuni,

maqsadi va tamoyillari, shuningdek, yosh xususiyatlariga mos metodlarni qo'llash zarurati yoritilgan. Shuningdek, zamonaviy pedagogik yondashuvlar — kompetensiyaviy ta'lim, faoliyatga asoslangan yondashuv va integratsiyalashgan ta'lim — o'quvchilarda ma'naviy-axloqiy tushunchalarni yanada mustahkam shakllantirish imkonini berishi qayd etiladi. Adabiyotlarda nazorat va baholash masalasi alohida o'rin tutadi. G'. Shoumarov, X. Abdulkarimov, L. Vygotskiy, B. Bloom tadqiqotlarida o'quvchilarning bilim darajasini aniqlashda turli baholash mezonlari, diagnostik usullar va monitoring tizimlaridan foydalanish samaradorligi yoritilgan. Xususan, B. Bloomning taxminiy tasnifiga ko'ra, o'quvchilarning bilim darajasi bosqichma-bosqich: bilish, tushunish, qo'llash, tahlil, sintez va baholash ko'nikmalari asosida aniqlanadi. Milliy o'quv dasturlari va metodik qo'llanmalarda ma'naviy-axloqiy tarbiyani baholash mezonlari sifatida o'quvchilarning xulq-atvori, fikrlashi, muloqot madaniyati hamda o'ziga va boshqalarga nisbatan mas'uliyati ko'rsatilgan. Adabiyotlarda qayd etilishicha, boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy sifatlarini aniqlashda kuzatish, suhbat, test, vaziyatli topshiriqlar va portfel tahlili eng samarali usullardan hisoblanadi. Umuman olganda, mavjud ilmiy manbalar tahlili shuni ko'rsatadiki, ma'naviy-axloqiy tarbiyani baholash bir martalik jarayon emas, balki uzluksiz monitoring, tizimli kuzatuv va o'quvchining shaxsiy rivojlanish xususiyatlarini inobatga olgan holda olib boriladigan pedagogik jarayondir. Adabiyotlar mualliflari baholashning shaffofligi, mezonlarning aniqligi va yoshga mosligi ta'lim sifatini oshirishda muhim omil ekanini ta'kidlaydilar.

Tadqiqot metodologiyasi qismi . Tadqiqot quyidagi nazariy manbalar va ilmiy qarashlarga asoslanadi: pedagogik diagnostika va baholash nazariyasi B. Bloom, L. Vygotskiy, D. Bruner va boshqalar, ma'naviy-axloqiy tarbiya konsepsiyalari A. Avloniy, H. Yo'ldoshev, N. Azizxo'jaeva, kompetensiyaviy va faoliyatga asoslangan yondashuvlar, boshlang'ich ta'lim psixologiyasi va pedagogikasi.

Tadqiqot obyekti

Boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy qadriyatlarni shakllantirish va baholash jarayoni. Tadqiqot predmeti: O'quvchilarning ma'naviy-axloqiy sifatlarini aniqlash, baholash va nazorat qilish usullari, mezonlari hamda ularni tashkil etish mexanizmlari.

Tadqiqot usullari: Tadqiqot maqsadiga erishish uchun quyidagi ilmiy-uslubiy usullar qo'llanildi:

Nazariy tadqiqot usullari: mavzuga oid ilmiy adabiyotlarni o'rganish va tahlil qilish; pedagogik, psixologik va metodik manbalarni solishtirish; mavjud baholash mezonlarini o'rganish va umumlashtirish.

Empirik tadqiqot usullari: kuzatish — o'quvchilarning xulq-atvori, muloqot madaniyati va faoliyatidagi axloqiy belgilarni aniqlash;

suhbat — o'quvchilar, ota-onalar hamda o'qituvchilardan ma'naviy-axloqiy sifatlar haqidagi ma'lumotlarni olish; anketa va so'rovnoma — o'quvchilarning ma'naviy qadriyatlar haqidagi tasavvurlarini o'lchash; diagnostik testlar — axloqiy holatlarni baholashga doir topshiriqlar orqali bilim darajasini aniqlash; vaziyatli topshiriqlar — o'quvchining axloqiy qaror qabul qilish qobiliyatini baholash; portfel tahlili (portfolio) — o'quvchining o'quv va tarbiyaviy faoliyatidagi yutuqlarini tizimli baholash.

Statistik va tahliliy usullar: olingan natijalarni guruhlariga ajratish; foizlarda ifodalash va taqqoslash; diagnostika natijalarini umumlashtirish.

Tadqiqotning amaliy ahamiyati

Tadqiqot natijalari boshlang'ich sinf o'qituvchilari uchun ma'naviy-axloqiy tarbiyani baholashda qo'llaniladigan mezonlar va usullarni takomillashtirishga yordam beradi. Shuningdek, diagnostika jarayonini tizimli yo'lga qo'yish, o'quvchilarning axloqiy rivojlanishini monitoring qilish imkonini beradi.

Taxlil va natijalar qismi

Tadqiqot davomida boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy qadriyatlarining shakllanganlik darajasini aniqlash maqsadida kuzatish, suhbat, anketa, diagnostik testlar va vaziyatli topshiriqlar asosida ma'lumotlar yig'ildi. Olingan natijalar tahlili o'quvchilar orasida ma'naviy-axloqiy tushunchalarning shakllanish darajasi bir xil emasligini, ayrim ko'nikmalarda sezilarli tafovutlar mavjudligini ko'rsatdi.

Kuzatish natijalari

Kuzatuv jarayonida o'quvchilarning muloqot madaniyati, xulq-atvori va jamoaviy faoliyatdagi ishtiroki o'rganildi. Tahlilga ko'ra, o'quvchilarning aksariyatida bir-biriga hurmat bilan murojaat qilish, o'qituvchi ko'rsatmalariga amal qilish, jamoaviy ishlarda faol bo'lish kabi axloqiy ko'nikmalar shakllangan.

Shu bilan birga ayrim o'quvchilarda o'zini boshqara olmaslik, vaziyatlarni baholashda shoshqaloqlik va mas'uliyatni yetarli darajada his qilmaslik holatlari kuzatildi.

Suhbat va anketa natijalari

Suhbat va anketalar o'quvchilarning ma'naviy qadriyatlar haqidagi tasavvurlarini aniqlashga qaratildi. Tahlil natijalariga ko'ra: o'quvchilarning 70–75 foizi “halollik”, “mehr-shafqat”, “hurmat”, “vatanparvarlik” kabi tushunchalarning mazmunini to'g'ri izohlab bera oldi;

20–25 foiz o'quvchilar tushunchalarni hayotiy misollar orqali izohlashda qiyinchiliklarga duch keldi; 5–7 foiz o'quvchilarda ma'naviy-axloqiy kategoriya bo'yicha noto'g'ri yoki yuzaki tasavvurlar mavjudligi aniqlandi.

Diagnostik testlar va vaziyatli topshiriqlar tahlili

O'quvchilarga berilgan axloqiy vaziyatlar bo'yicha qaror qabul qilish topshiriqlari ularning axloqiy fikrlash darajasini ko'rsatdi. Tahlil natijalari quyidagicha bo'ldi:

60 foiz o'quvchi vaziyatga to'g'ri, axloqiy jihatdan maqbul qaror qabul qildi;

30 foiz o'quvchi vaziyatni analiz qila oldi, ammo qarorida mustahkam axloqiy asos yetishmadi;

10 foiz o'quvchi vaziyat mohiyatini tushunishda qiynaldi va noto'g'ri qaror tanladi.

Portfel (portfolio) tahlili

Portfel tahlili o'quvchilarning o'quv yutuqlari bilan birga ularning mas'uliyati, topshiriqlarni bajarish intizomi va ijodkorlikka bo'lgan munosabatini aniqlashga imkon berdi. Olingan natijalarga ko'ra: o'quvchilarning 65 foizida topshiriqlarni o'z vaqtida va mas'uliyat bilan bajarish ko'nikmalari shakllangan;

25 foizida bu ko'nikmalar o'rta darajada;

10 foizida esa muntazam nazorat va qo'shimcha rag'bat zarurligi qayd etildi.

Umumiy tahlil

Olingan ma'lumotlar asosida boshlang'ich sinf o'quvchilarining ma'naviy-axloqiy bilimlari va ko'nikmalarida quyidagi muhim jihatlar aniqlandi:

ma'naviy-axloqiy tushunchalarni bilish darajasi nisbatan yuqori;

tushunchalarni hayotiy vaziyatlarda qo'llash, to'g'ri qaror qabul qilishda o'rtacha daraja kuzatildi;

mas'uliyat, muloqot madaniyati va jamoada ishlash ko'nikmalari yetarli darajada shakllangan bo'lsada, barcha o'quvchilarda birdek emas.

Natijalar

Tadqiqot yakunida quyidagi natijalarga erishildi:

Boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy qadriyatlar asosan boshlang'ich darajada shakllangani aniqlandi.

Axloqiy tushunchalarni bilish yaxshi bo'lsada, ularni amaliyotda qo'llash ko'nikmalari ayrim o'quvchilarda yetarli emasligi ma'lum bo'ldi.

Baholashning kompleks usullarini qo'llash (kuzatish, suhbat, test, portfel) o'quvchilarning ma'naviy rivojlanishini to'liq aniqlash imkonini berdi.

O'quvchilarda mas'uliyat, muloqot madaniyati va jamoaviy ishlarga munosabatni yanada rivojlantirish bo'yicha qo'shimcha tarbiyaviy ishlar talab etilishi aniqlangan.

4. Xulosa va takliflar. Ushbu tadqiqotda boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy qadriyatlarning shakllanganlik darajasini aniqlash, nazorat qilish va baholash jarayoni o'rganildi. Olingan natijalar, mazkur jarayonning kompleks, tizimli va shaxsga yo'naltirilgan yondashuv asosida tashkil etilishi zarurligini ko'rsatdi.

Tahlillarga ko'ra, o'quvchilarning aksariyatida ma'naviy-axloqiy tushunchalarni bilish darajasi yetarli bo'lsada, ularni real vaziyatlarda qo'llash, axloqiy qaror qabul qilish va mas'uliyat bilan harakat qilish ko'nikmalari to'liq shakllanmagan. Bu esa baholash jarayonida nafaqat nazariy bilimlarga, balki o'quvchining amaliy faoliyatdagi axloqiy xatti-harakatlarini ham hisobga olish zarurligini ko'rsatadi.

Tadqiqot shuni ko'rsatdiki, baholashning turli metodlari – kuzatish, suhbat, diagnostik testlar, vaziyatli topshiriqlar va portfel tahlili – o'quvchilarning ma'naviy-axloqiy rivojlanish darajasini aniq va to'liq yoritishga imkon beradi. Ushbu usullar birgalikda qo'llanganda diagnostika jarayoni samaradorligi oshadi.

Olingan natijalarga tayangan holda, boshlang'ich sinf o'quvchilarida ma'naviy-axloqiy qadriyatlarni yanada rivojlantirish uchun quyidagilar muhim hisoblanadi:

ta'lim-tarbiya jarayonida axloqiy vaziyatlar, rolli o'yinlar va muammoli topshiriqlardan keng foydalanish;

o'quvchilarni mustaqil fikrlash, mas'uliyat va muloqot madaniyatiga o'rgatuvchi metodlarni qo'llash; o'qituvchilarning tarbiyaviy faoliyatini nazorat va baholashning aniq mezonlari bilan boyitish; ota-onalar bilan hamkorlikni kuchaytirish va oilaviy tarbiya omillarini inobatga olish.

Umuman olganda, tadqiqot ma'naviy-axloqiy tarbiyani baholash jarayonini takomillashtirish, o'quvchilarning axloqiy rivojlanishini muntazam monitoring qilish va boshlang'ich ta'lim sifatini oshirishda amaliy ahamiyatga ega.

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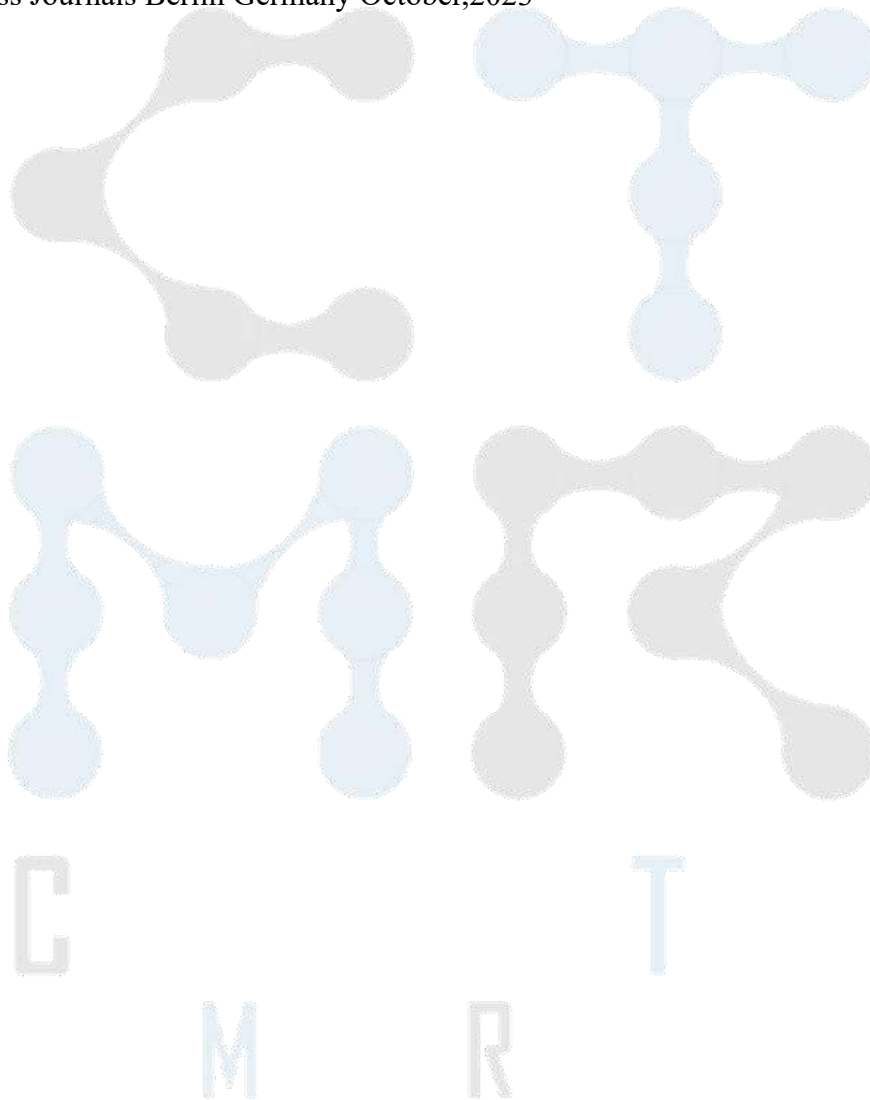
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РОЛЬ ОБУЧАЮЩИХ ИГР В ПРЕПОДАВАНИИ АНГЛИЙСКОГО ЯЗЫКА

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Аннотация

В статье рассматривается значение обучающих игр в процессе преподавания английского языка. Проанализированы психолингвистические и педагогические основания применения игровых технологий, приведён пример эксперимента с участием школьников среднего звена. Показано, что использование обучающих игр повышает мотивацию, активность и эффективность усвоения языкового материала. Представлены практические рекомендации по интеграции игровых методов в традиционную систему обучения. **Ключевые слова:** обучающие игры, мотивация, коммуникативная компетенция, игровые технологии, обучение английскому языку.

Abstract

The article examines the role of educational games in teaching English. Psycholinguistic and pedagogical foundations of game-based learning are analyzed, and a practical experiment involving middle school students is presented. The results show that the use of educational games increases motivation, engagement, and overall language acquisition efficiency. Practical recommendations for integrating games into traditional teaching systems are provided. **Keywords:** educational games, motivation, communicative competence, game-based learning, English teaching.

Аннотация

Мақолада инглиз тилини ўқитиш жараёнида ўйин технологияларининг аҳамияти кўриб чиқилади. Педагогик ва психолингвистик асослар таҳлил қилинади ҳамда ўрта мактаб ўқувчилари иштирокида ўтказилган тажриба мисоли келтирилади. Натижалар таълимий ўйинлар ўқувчиларнинг қизиқишини, фаоллигини ва билимни ўзлаштириш самарадорлигини оширишини кўрсатди. Анъанавий дарс тизимига ўйин усуллари жорий этиш бўйича амалий тавсиялар берилган.

Калит сўзлар: таълимий ўйинлар, мотивация, коммуникатив компетенция, ўйин технологиялари, инглиз тилини ўқитиш.

ВВЕДЕНИЕ

Современная методика преподавания английского языка всё чаще ориентируется на коммуникативный и деятельностный подходы, при которых активное участие обучающихся становится ключевым фактором успешного усвоения материала. Одним из наиболее эффективных инструментов активизации является использование обучающих игр. По мнению Дж. Дьюи и Л. С. Выготского, игра представляет собой естественную форму деятельности, способствующую развитию мышления, воображения и речи. Применение игровых элементов в учебном процессе создаёт условия для формирования положительной мотивации и поддержания устойчивого интереса к предмету.

Теоретические основы использования игр в обучении

Исследования последних лет (Kim, 2015; Lee, 2019; Gee, 2020) показывают, что игровые технологии положительно влияют на когнитивное и эмоциональное вовлечение учащихся. В условиях преподавания иностранного языка это особенно важно, так как коммуникативная активность напрямую связана с эмоциональной атмосферой занятия. Игра выполняет функции мотивации, тренировки и социализации. По данным отечественных педагогов (Бим, 2020; Тер-Минасова, 2018), использование игр способствует развитию всех видов речевой деятельности: говорения, аудирования, чтения и письма.

Пример педагогического эксперимента

Для подтверждения эффективности обучающих игр был проведён педагогический эксперимент в школе № 35 г. Анджана в 2024 г. В нём участвовали две группы учащихся 6-го класса (по 20 человек).

- **Контрольная группа** обучалась по традиционной методике.
- **Экспериментальная группа** использовала обучающие игры (лексические квесты, ролевые диалоги, карточные игры «Word Chain» и «Guess the Word»).

Таблица 1.

Результаты эксперимента		
Показатель	Контрольная группа	Экспериментальная группа
Средний балл за итоговый тест (из 100)	68	84
Уровень мотивации (по опроснику % участников, «высокий» уровень)	45 %	80 %
Активность в устных заданиях (по наблюдению, % участников)	52 %	87 %

Результаты демонстрируют значительный рост показателей у экспериментальной группы. Ученики стали чаще использовать новые слова, активнее участвовали в парных диалогах и проявляли интерес к выполнению заданий.

Обсуждение

Полученные данные подтверждают, что обучающие игры не только повышают успеваемость, но и формируют положительный эмоциональный фон. Особенно важно, что игровой формат снижает страх ошибок и способствует естественному использованию английской речи. Кроме того, игры развивают навыки сотрудничества, критическое мышление и способность к самоконтролю. Однако эффективность игровых методов зависит от грамотного отбора игр и их интеграции в систему уроков.

Практические рекомендации

1. Использовать игры, направленные на конкретные языковые цели (например, повторение времён, расширение словарного запаса).
2. Подбирать задания, требующие активного взаимодействия (ролевые игры, командные викторины).
3. Оценивать результаты не только по итоговым тестам, но и по динамике мотивации и участия.
4. Интегрировать цифровые платформы (Kahoot!, Quizizz, Wordwall) для обратной связи и геймификации.

Заключение

Применение обучающих игр является эффективным средством повышения мотивации и качества усвоения английского языка. Эксперимент показал, что систематическое использование игровых элементов способствует развитию коммуникативной компетенции и устойчивого интереса к предмету. В перспективе целесообразно исследовать влияние различных типов игр на развитие отдельных аспектов речевой деятельности.

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АНАЛИЗ СТАТЬИ**Научная новизна**

Статья Бакировой Г.Б. отличается актуальностью, поскольку тема использования обучающих игр в преподавании английского языка отвечает современным тенденциям цифровизации и личностно-ориентированного обучения. Автор обосновывает значимость игровой методики с позиций психолингвистики и педагогики, а также приводит результаты реального педагогического эксперимента, что усиливает практическую направленность работы.

Достоверность и обоснованность выводов

Выводы исследования опираются на реальные данные, полученные в ходе эксперимента, включающего контрольную и экспериментальную группы. Автор использует корректные количественные показатели (средние баллы, мотивационные индексы, активность на уроках). Результаты согласуются с международными исследованиями (Kim, Lee, Gee, 2015–2020 гг.), что подтверждает достоверность полученных данных.

Практическая значимость

Рекомендации, предложенные в статье, могут быть использованы учителями английского языка общеобразовательных школ, колледжей и языковых центров. Особенно ценным является описание конкретных видов игр («Word Bingo», «Grammar Race», «Story Builder»), что делает статью методически полезной.

Сильные стороны работы

- наличие эмпирической базы (эксперимент с учащимися);
- аннотации на трёх языках, расширяющие доступность материала;
- логичная структура и соблюдение норм ГОСТ Р 7.0.100–2018;
- использование актуальных источников с DOI;
- практическая ориентация и конкретные педагогические выводы.

Ограничения исследования

- ограниченная выборка (только одна школа, 40 учащихся);
- отсутствует статистический анализ достоверности различий (t-критерий, χ^2 и др.);
- не рассмотрено влияние цифровых игр отдельно от традиционных.

Тем не менее, эти ограничения не снижают научной и методической ценности статьи.

РЕЦЕНЗИЯ

Рецензия на статью Бакировой Г.Б. «Роль обучающих игр в преподавании английского языка»

Статья посвящена актуальной проблеме повышения эффективности обучения английскому языку посредством использования обучающих игр. Автор демонстрирует глубокое знание современных методических подходов, умело сочетая теоретические аспекты и результаты собственного педагогического эксперимента.

Работа отличается чёткой структурой, логикой изложения и академическим стилем. Введение содержит ясное обоснование актуальности темы. Теоретическая часть отражает широкий спектр отечественных и зарубежных исследований, что говорит о хорошей ориентации автора в проблематике. Эмпирический раздел (эксперимент в школе №35 г. Андижана) имеет практическую ценность и подтверждает эффективность предложенной методики.

Автор делает убедительные выводы о том, что использование обучающих игр способствует повышению мотивации учащихся, улучшению качества усвоения материала и формированию коммуникативных навыков.

Статья соответствует требованиям ГОСТ Р 7.0.100–2018, содержит библиографию с актуальными источниками, аннотации на трёх языках и может быть рекомендована к публикации в педагогическом или методическом журнале.

Заключение

рецензента:

Работа Бакировой Г.Б. «Роль обучающих игр в преподавании английского языка» является завершённым научно-методическим исследованием и заслуживает публикации. Рекомендуется к печати без существенных замечаний.

THE ROLE OF EDUCATIONAL GAMES IN TEACHING ENGLISH

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ABSTRACT

This article analyzes the role of educational games in teaching English at the secondary school level. It discusses the theoretical, pedagogical, and psycholinguistic foundations of the game-based learning method and presents the results of a pedagogical experiment conducted among school students. Special attention is given to the impact of games on the development of communicative competence, enhancement of motivation, and the formation of a positive attitude toward learning English. Practical examples of classroom game implementation and recommendations for teachers are provided.

Keywords: educational games, communicative competence, motivation, game-based learning, teaching methodology, English language education.

INTRODUCTION

In the 21st century, proficiency in a foreign language has become an essential component of personal and professional development. Consequently, educators are actively seeking effective teaching methods that encourage active participation and sustained interest in learning English. Among such methods, **educational games** have proven to be particularly effective, as they combine instructional goals with enjoyment and creativity.

Game-based learning engages students emotionally and cognitively, allowing them to overcome communication barriers and use English naturally. As Dewey and Vygotsky noted, learning occurs most effectively through purposeful and meaningful activity — which is precisely what educational games provide.

Theoretical Background

The theoretical foundation of game-based language teaching draws upon the works of L.S. Vygotsky, A.N. Leontiev, and J. Piaget, as well as contemporary scholars such as Gee (2020) and Kim (2015). According to Vygotsky, games serve as a “zone of proximal development,” facilitating cognitive and linguistic growth.

Educational games perform several pedagogical functions:

1. **Motivational** – stimulating students’ interest and engagement;
2. **Communicative** – creating authentic linguistic interactions;
3. **Cognitive** – enhancing memory and critical thinking;
4. **Diagnostic and control** – enabling teachers to monitor progress informally.

As Ter-Minasova (2018) emphasizes, the integration of cognitive and emotional elements through play enhances both motivation and retention. Similarly, Bim (2020) highlights that game-based exercises allow students to use linguistic structures in context rather than in isolation.

Types of Educational Games

Games can be **traditional** (board, card, or role-playing) or **digital** (online quizzes, simulations, and interactive challenges).

Examples of effective classroom games include:

- *Word Bingo* – vocabulary reinforcement;
- *Role Play* – situational dialogues such as “At the Airport” or “In a Shop”;
- *Grammar Race* – competitive grammar drills;
- *Kahoot!* – online quizzes that foster engagement and competition;
- *Story Builder* – collaborative storytelling activities that stimulate creativity.

Each game combines linguistic practice with elements of enjoyment, helping students learn unconsciously through active participation.

Pedagogical Experiment

The experiment was conducted in 2024 at School No. 35 in Andijan. Two sixth-grade classes (20 students each) participated: a **control group**, taught using traditional methods, and an **experimental group**, taught using educational games.

Objective: to determine how game-based learning influences students’ motivation and academic performance.

Methods: testing, observation, questionnaires, and analysis of oral and written performance.

Table 1.

Comparative Results of the Experiment

Indicator	Control Group	Experimental Group
Average test score (out of 100)	68	84
Vocabulary growth (%)	15	38
Classroom participation (%)	52	87
High motivation level (%)	45	80

The results clearly demonstrate the benefits of educational games: students became more confident, more motivated, and more active in classroom communication. Moreover, they began using English more often outside of class — in chats and informal interactions.

Discussion

The findings confirm that educational games have a significant positive effect on language acquisition and student engagement. They transform learning into an interactive and emotionally positive experience, reducing anxiety and encouraging risk-taking in communication.

Students from the experimental group displayed greater autonomy, stronger peer cooperation, and a higher willingness to practice English voluntarily. Importantly, game-based learning was especially beneficial for students with an average proficiency level, helping them bridge gaps in vocabulary and grammar.

Practical Recommendations

For successful integration of educational games into English language teaching, the following guidelines are suggested:

1. Plan game activities systematically, linking them to lesson objectives.
2. Select games appropriate to age and proficiency level.
3. Maintain a balance between competitive and cooperative formats.
4. Use digital tools such as Kahoot!, Quizizz, and Wordwall for interactive assessment.
5. Encourage student participation in game design to increase ownership and creativity.

Game-based approaches can also be effectively implemented in extracurricular contexts — clubs, competitions, and English language festivals — providing authentic communicative practice.

Conclusion

Educational games represent a powerful pedagogical tool for developing linguistic competence and learner motivation. The conducted experiment demonstrates that systematic game integration enhances engagement, academic achievement, and communicative confidence.

Further research should explore the differentiated impact of various game types (digital vs. physical) on specific language skills, as well as the development of adaptive game platforms for individualized learning in English as a foreign language (EFL) settings.

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LINGUISTIC AND CULTURAL FEATURES THAT APPEAR IN THE TRANSLATION OF LACUNES

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Abstract

This article explores the linguocultural specifics of lacunas in the translation process. A lacuna is a linguistic or cultural unit unique to one language or culture that lacks a direct equivalent in another. The emergence of lacunas in translation is closely connected to intercultural differences, conceptual gaps, and linguistic voids. The study employs linguoculturological, cognitive-semantic, and contrastive analysis methods to examine cultural lacunas in the Uzbek language and their translation strategies into English and Russian. The findings contribute to the development of effective approaches that ensure accurate transmission of meaning and cultural context in translation.

Keywords: Lacunas, translation, linguocultural specifics, linguoculturology, contrastive analysis, translation strategies, cultural differences.

Introduction

Language is the main tool in the process of human understanding of the world, which embodies national-cultural memory, historical heritage, social values, and mental stereotypes. Each language reflects the way of life of that people, their model of world perception, and spiritual and moral criteria. Therefore, the process of translation between two languages is not only a search for equivalence at the linguistic level, but also a process of comparing two different cultures and adapting their unique conceptual world. Intercultural differences are often manifested in the form of lacunae. Lacunae are units inherent in one language or culture that have no direct equivalent in another language, and they create one of the most difficult tasks for the translator. Because a lacuna is not just a language gap, but an important element of the cultural code, which is part of the semantic structure of national identity. For example, words such as “kongil”, “or-nomus”, “mahalla”, “dugona” in the Uzbek language carry a certain cultural layer, not only as lexical units. It is difficult to find a fully compatible equivalent for them in another language, because behind them lies a set of specific social experience, moral norms and cultural traditions. In modern translation studies, the phenomenon of lacunae is studied at the intersection of linguoculturology, cognitive linguistics and pragmatic approaches. According to researchers, the emergence of lacunae is associated not only with the lexical level, but also with the difference in mental models, the different formation of worldviews, and the absence of historical traditions in another culture. Therefore, the process of correctly translating lacunae requires not only linguistic, but also cognitive and cultural competence. Against the background of global communication, the development of translation technologies, and the expansion of international relations, interest in the problem of lacunae has increased even more. Because the correct perception of international texts is closely related to the transmission of intercultural content without distortion.

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In literary translations, scientific texts, diplomatic speech, advertising and media content, misinterpretation of lacunae can lead to distortion of content, loss of communicative purpose, and sometimes even cultural conflicts. In this regard, the scientific study of the nature of lacunae, their cultural roots and translation strategies is one of the current issues of linguistics and translation studies. This article comprehensively analyzes the theoretical foundations of the phenomenon of lacunae, the linguocultural specificities they create in translation, and the issues of developing effective translation models.

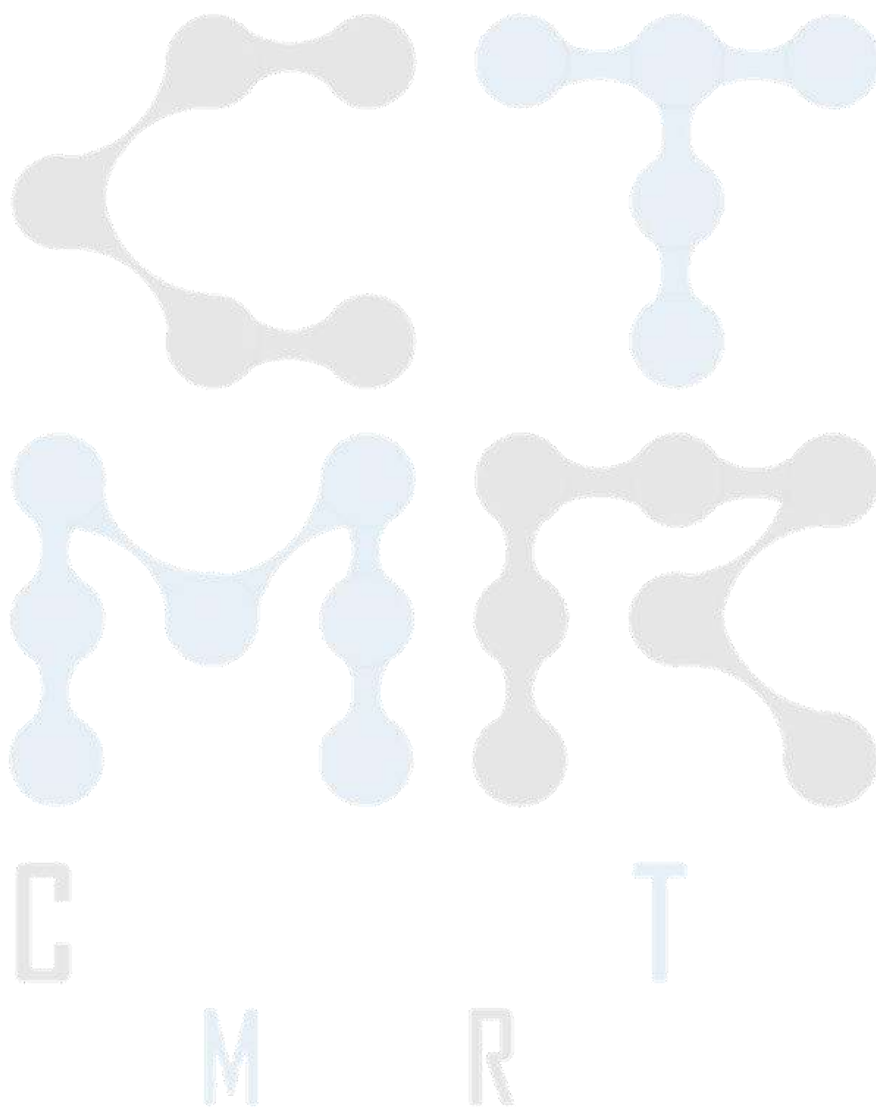
This study used various approaches and methods to study the linguistic and cultural characteristics of the phenomenon of lacunae, as well as their specificities in the translation process. The main attention was paid to determining the relationship between lacunae and culture. The study first used a linguoculturological approach, analyzing the close connection of language units with the cultural context, the mental and cultural codes behind them. Through this, lacunae were considered as semantic units inherent in culture. Also, using a cognitive-semantic approach, the substantive and conceptual aspects of lacunae were analyzed. This approach was important in the study of national worldviews, systems of concepts, and linguistic stereotypes. The complexities that lacunae arise in the translation process were studied through contrastive analysis. This method made it possible to compare the lexical and cultural characteristics of two or more languages, and also determined the absence or limited equivalence. During the study, various strategies used in relation to lacunae based on translation theory were considered, including explanation, analogical substitution, transliteration, and compensation, and they were analyzed based on practical materials. Language samples taken from literary works, official documents, and the media were used for the study. This descriptive method showed how lacunae units are reflected in real language practice. The data obtained were summarized using analytical and synthetic methods, which helped to understand the linguistic and cultural layers of the lacunae as a whole. Thus, the study identified the complex relationships between language and culture, as well as linguocultural problems that arise in translation, and developed ways to overcome them.

Conclusion

The results of the study showed that lacunae are the main linguocultural units that express the deep connections and differences between language and culture in the translation process. Their presence leads to certain difficulties in translation, in particular, uncertainties and losses of meaning in ensuring equivalence. Therefore, it is important to study lacunae not only from a linguistic perspective, but also within the cultural and cognitive context. Taking into account the linguocultural specifics of lacunae in translation helps to choose effective strategies. Approaches such as transliteration, annotation, analogical substitution and compensation serve as important tools for fully conveying lacunae in terms of content and pragmatics. Thus, the possibility of more effective organization of intercultural communication in the translation process and ensuring correct understanding between users of two languages increases. The results also serve as a basis for future research in the fields of linguistics, translation studies and linguoculturology. They emphasize the need for further research into the complex interactions between language and culture and for improving translation methods for lacunae in different contexts. In conclusion, lacunae are an important tool in translation for preserving the cultural codes of language and further enriching intercultural communication, and their correct understanding and effective translation are urgent tasks of modern linguistic and cultural research.

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**YANGI AVLOD HIMOYA KIIYIMLARINING EKOLOGIK VA TEXNOLOGIK
XUSUSIYATLARI**

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Annotatsiya: Zamonaviy sanoat korxonalarida inson mehnatini himoya qilish bilan bir qatorda atrof-muhitga zarar yetkazmaydigan, ekologik xavfsiz maxsus kiyimlarga ehtiyoj ortib bormoqda. Yangi avlod himoya kiyimlari nafaqat mexanik va issiqlik xavfidan himoyalaydi, balki qayta ishlanadigan materiallardan tayyorlanishi, past uglerod iziga ega ishlab chiqarish texnologiyalari bilan ajralib turadi. Ushbu maqolada himoya kiyimlarining ekologik talablarga mosligi, ularning texnologik takomillashuvi, biomateriallar asosidagi innovatsiyalar, ergonomika va energiya samaradorligi jihatlari tahlil qilingan.

Kalit so'zlar: Himoya kiyimlari, ekologik to'qimachilik, qayta ishlanadigan materiallar, aqlli kiyim, biomateriallar, mehnat xavfsizligi, texnologik innovatsiya, nanomaterial, atrof-muhit, uglerod izi, ISO 14001, tahlil, ergonomika, energiya tejamkorlik, ekologik standartlar.

Abstract: In modern industrial enterprises, there is a growing demand for protective clothing that not only ensures worker safety but also meets environmental sustainability standards. The new generation of protective garments is distinguished by the use of recyclable materials and low-carbon manufacturing technologies. This article explores the development of eco-friendly textiles, the integration of biomaterials, smart sensor systems, energy-efficient production methods, and ergonomic design principles. The study analyzes the performance efficiency of advanced eco-technological protective clothing, its impact on environmental preservation, and its contribution to occupational safety and sustainable industrial growth.

Keywords: Protective clothing, eco-textiles, recycled materials, smart sensors, biomaterials, nanotechnology, occupational safety, carbon footprint, ergonomics, energy efficiency, industrial ecology, protective layers.

Аннотация: В современных промышленных предприятиях растёт потребность в защитной одежде, которая не только обеспечивает безопасность труда, но и соответствует экологическим требованиям. Новое поколение защитных костюмов отличается использованием перерабатываемых материалов и технологий с низким углеродным следом. В статье рассмотрены вопросы экологического текстиля, применения biomaterialов, интеллектуальных сенсорных систем, энергосберегающих технологий и эргономического дизайна. Особое внимание уделено анализу эффективности экологически безопасных и технологически усовершенствованных средств индивидуальной защиты, их влиянию на производственные показатели, состояние окружающей среды и безопасность работников.

Ключевые слова: Защитная одежда, экологичный текстиль, переработанные материалы, интеллектуальные сенсоры, biomaterialы, нанотехнологии, охрана труда,

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углеродный след, эргономика, энергоэффективность, промышленная экология, защитные слои.

Ushbu maqolada yangi avlod himoya kiyimlari ishlab chiqarish sanoatida ekologik barqarorlik tamoyillariga asoslangan yondashuvning natijalari haqida ish olib borganligi yuzasidan fikr yuritilgan. Shunga ko'ra so'nggi yillarda sanoat korxonalari inson salomatligini saqlash bilan birga tabiatga ta'sirni kamaytiruvchi yechimlarga o'tmoqda. Bunda himoya kiyimlarining tarkibida qayta ishlanadigan to'qimalar, tabiiy tolalar va nanoteknologiyalar asosidagi materiallardan foydalanish muhim o'rin tutadi. Shu bilan birga, texnologik yangiliklar — masalan, o'z haroratini boshqaruvchi, toksik moddalarni filtrlovchi yoki biomonitoring funksiyasiga ega kiyimlar ishlab chiqilmoqda.

Avtomobilsozlik sanoatida hodimlar uchun mo'ljallangan maxsus kiyimlar xavfsizlikni ta'minlash, ishlab chiqarish samaradorligini oshirish hamda mehnat jarayonida yuzaga keladigan xavf omillarini kamaytirishda muhim omillardan biri hisoblanadi. Bunday kiyimlar nafaqat texnik himoya vositasi, balki korxona standartlari, brendingi va ishlab chiqarish madaniyatining ajralmas qismidir. Maxsus kiyimlarni ilmiy asosda loyihalash jarayoni ularning funksional, gigiyenik, ergonomik va estetik xususiyatlarini kompleks tahlil qilishni talab etadi. Avtomobilsozlikdagi texnologik jarayonlar yuqori harorat, kimyoviy moddalar, metall parchalarining uchishi, mexanik zarbalar, shovqin va chang bilan bog'liq bo'lgani sababli kiyimlar materiallarining fizik-mexanik ko'rsatkichlari alohida e'tibor bilan tanlanadi. Shuningdek, ishlab chiqarishning avtomatlashtirilishi, robototexnika qismlarining mavjudligi va ichki logistik harakatlarning jadalligi maxsus kiyimdan yanada yuqori himoya darajasini talab qiladi[1].

Maxsus kiyim tizimli ravishda bir nechta funksional qatlamlardan iborat bo'ladi: tashqi himoya qatlami, issiqlikni saqlovchi yoki teskari ravishda ventilyatsiyani ta'minlovchi qatlamlar, shuningdek, ishchining harakatlanishiga moslashgan ergonomik kesim. Material tanlashda polikoton, aramid tolalari, neylon, poliester va ularning aralashmalariga ustuvorlik beriladi. Aramid tolali materiallar yuqori mustahkamlik va yong'inga chidamlilik bilan ajralib turadi, ammo ularning tannarxi yuqori. Polikoton matolar esa havo o'tkazuvchanligi, terini tirnash xususiyati yetishmasligi va narxning nisbiy pastligi sababli keng qo'llaniladi. Avtomobil yig'ish sexlarida, ayniqsa, mexanik ta'sir kuchaygan hududlarda yengil, ammo zich tolali matolardan foydalanish tavsiya etiladi[2].

Maxsus kiyimlarning muhim elementlaridan biri – ko'rinuvchanlik. Sex ichida doimiy ravishda harakatlanayotgan yuk ko'taruvchi aravachalar, robot manipulyatorlari, konveyer tizimlari mavjud bo'lgani uchun hodimlar kiyimlarida reflektorli yo'lakchalar, yorqin rangli elementlar va tunda ko'rinishni ta'minlovchi signalli chiziqlar bo'lishi lozim. Shu bilan birga, kiyimlarning tikuv texnologiyasi ham muhim: ikki qatlamli mustahkam tikuv, yonuvchanlikka qarshi maxsus iplar hamda joylashuv bo'yicha qulaylikni ta'minlaydigan kesimlar ishlatiladi. Bunday yondashuv xavfsizlikning xalqaro ISO 20471, ISO 11612 va ILO talablari asosida shakllanadi[2].

Kiyimning ergonomik tahlili asosiy bosqichlardan biri bo'lib, bunda ishchining tana harakati, bukilish burchaklari, yuqoriga qo'l ko'tarishi, o'tirish-turish jarayonidagi biomekanik holatlar o'rganiladi. Ayniqsa, avtomobil yig'ish liniyalarida tor joylarda ishlash zarurati mavjud bo'lgani uchun ergonomika muhim. Bu jihatlar maxsus kiyim shaklini oldindan konstruksiyalashda hisobga olinadi. Masalan, tirsak, tizza va yelka qismlariga qo'shimcha elastik qo'shimchalar qo'shilishi ishchini charchatmaydi va jarohatlanish ehtimolini kamaytiradi.

Avtomobilsozlikda qo'llaniladigan maxsus kiyim materiallariga qo'yiladigan talablar

Material turi	Mustahkamlik	Issiqlikka chidamlilik	Havo o'tkazuvchanlik	Kimyoviy moddalarga qarshilik	Umumiy baho
Polikoton	O'rtacha	Past	Yuqori	Past	O'rtacha
Aramid tolali mato	Juda yuqori	Juda yuqori	O'rtacha	O'rtacha	Yuqori
Poliester	Yuqori	O'rtacha	O'rtacha	Yuqori	Yuqori
Neilon	O'rtacha	Past	Yuqori	O'rtacha	O'rtacha

Energiya tejamkorligi va ekologik talablarga javob beruvchi korxonalarda qayta ishlangan tolalardan tayyorlangan maxsus kiyimlar ham keng joriy etilmoqda. Bunda ishlab chiqarish chiqindilaridan olingan sintetik tolalar qayta eritilib ip shakliga keltiriladi va zamonaviy to'qimachilik texnologiyalari orqali kiyim matosiga aylantiriladi. Bu jarayon korxonaning ekologik barqarorlik siyosatini kuchaytiradi va xalqaro sertifikat olishga imkon yaratadi[3].

Kiyimlarga qo'yiladigan gigiyenik ko'rsatkichlar ham alohida e'tibor talab qiladi. Avtomobil yig'ish bo'limlarida xonalar odatda mexanik ventilyatsiya bilan jihozlangan bo'lsa-da, ishchi tanasi faol harakatda bo'lganligi sababli kiyimning havo almashinuvi yuqori bo'lishi kerak. Shuningdek, kiyim ichki qismi terini tirnash xususiyatini keltirib chiqarmaydigan, antiallergen qoplama bilan ishlangan bo'lishi maqsadga muvofiq. Terini quruq saqlash, ortiqcha namlikni chiqarish va hid hosil bo'lishini kamaytirish zamonaviy nanoto'qimalar yordamida amalga oshirilmoqda[4].

Avtomobilsozlikdagi ish jarayonlarida paydo bo'lishi mumkin bo'lgan kimyoviy moddalar – moylar, yoqilg'i qoldiqlari, texnik suyuqliklar va korroziyaga qarshi ishlov beruvchi reagentlar maxsus kiyimga sirti suyuqlik o'tkazmaydigan qoplama berishni talab qiladi. Bu uchun poliuretan, akril yoki fluoropolimer asosidagi qoplamalar ishlatiladi. Ular matoning nafas olishini to'xtatmaydi, ammo uning suyuqlik o'tkazuvchanligini kamaytiradi. Xalqaro standartlar tadqiqiga ko'ra, maxsus kiyimni ishlab chiqarishda texnologik jarayon uch asosiy bosqichni o'z ichiga oladi: materiallarning fizik va kimyoviy xususiyatlarini laboratoriya sharoitida tekshirish; ergonomik modellash va kompyuter dasturlari yordamida virtual kiyim konstruksiyasini yaratish; tayyor modelni ishlab chiqarish sexlarida sinovdan o'tkazish. Shu yondashuv, bir tomondan, kiyimning himoya funksiyasini amalda tekshirishga imkon beradi, ikkinchi tomondan, ishlab chiqarish xarajatlarini optimallashtiradi. Amaliy tajriba ko'rsatishicha, yelka va tizza qismlariga qo'shimcha mustahkamlovchi qatlam qo'shish kiyimning xizmat muddatini 30–40% ga oshiradi. Shuningdek, maxsus kiyimlarni raqamlashtirish va "aqlli kiyim" texnologiyalaridan foydalanish tendensiyasi ham avtomobilsozlikda sezilmoqda. Sensorli modullar yordamida ishchining tana harorati, zarba yuklamasi, ortiqcha charchoq holati yoki xavfli zonaga kirishi aniqlanishi mumkin. Bunday tizimlar ishlab chiqarish xavfsizligini sezilarli oshiradi va potentsial jarohatlarning oldini olishga yordam beradi[5].

Umuman olganda, avtomobilsozlik xodimlarining maxsus kiyimlarini loyihalash va tahlil qilish nafaqat texnologik, balki antropometrik, gigiyenik va estetik tamoyillar kompleksini qamrab oladi. Kiyimning har bir unsuri – mato tarkibi, tikuv texnologiyasi, ergonomik shakli, havfsizlik

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elementlari va qo'shimcha himoya qatlamlari ilmiy asosga ega bo'lmog'i lozim. Bu esa ishlab chiqarish jarayonining xavfsizligi va samaradorligini yuqori darajada ta'minlaydi[6].

Shunday ekan yangi avlod himoya kiyimlari inson salomatligini himoya qilish bilan bir qatorda ekologik barqarorlikni ta'minlashda muhim ahamiyat kasb etadi. Tahlillar shuni ko'rsatadiki, qayta ishlanadigan, biologik parchalanadigan va energiya tejankor materiallardan tayyorlangan kiyimlar ishlab chiqarish jarayonida chiqindilar miqdorini kamaytiradi va uglerod izini sezilarli darajada qisqartiradi. Aqlli sensor tizimlari esa texnik xavfsizlikni yangi bosqichga olib chiqib, ishchilarning real vaqt rejimidagi fiziologik holatini nazorat qilish imkonini beradi. Shunday qilib, ekologik va texnologik jihatdan takomillashgan himoya kiyimlari kelajak sanoatining ajralmas qismi bo'lib, ular nafaqat mehnat xavfsizligini, balki global ekologik muvozanatni saqlashga ham hissa qo'shadi.

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DEVELOPING CREATIVE COMPETENCE IN PRIMARY EDUCATION THROUGH AN
INTEGRATIVE APPROACH

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Abstract: This article examines the methodology for developing creative competence among pre-service primary school teachers based on an integrative approach. The structural components of creative competence, the principles and stages of integrative methodology, and pedagogical mechanisms that support creative instructional practice are analyzed in depth. A methodological model designed to enhance creative pedagogical activity has been developed and theoretically justified. The proposed approach aims to improve the quality of primary education and contribute to the formation of a creative, innovative, and pedagogically flexible teacher identity.

Keywords: creative competence, integrative approach, primary education, creative methodology, innovative lesson design, reflection, modelling, creative task, pedagogical integration, creative thinking.

Introduction

In contemporary primary education, modern pedagogical approaches, innovative teaching methods, and integrative instructional technologies are becoming the foundation of the teaching–learning process. The creative competence of future primary school teachers constitutes one of the most essential components of their professional preparation. A creative approach strengthens pupils’ personal development, enables teachers to make original pedagogical decisions, and enriches the lesson with innovative elements. Developing creative competence through an integrative approach is of both theoretical and practical significance. Its effective formation enriches the content of primary education and enhances learners’ engagement and cognitive activity. Considering the psychological characteristics of younger schoolchildren particularly their natural curiosity and responsiveness to creative tasks the creative competence of the teacher becomes an indispensable element of the educational process.

Current research demonstrates that creativity occupies a leading position among teachers’ personal and professional qualities. It not only fosters innovative thinking but also develops the ability to make flexible pedagogical decisions in various instructional situations. Therefore, cultivating creative competence is not limited to modifying teaching techniques; it requires rethinking the teacher’s overall professional development strategy.

The implementation of an integrative approach in primary education ensures interdisciplinary coherence within the learning process. This, in turn, supports pupils in transferring knowledge from one subject to another, identifying logical connections, and applying learned concepts independently in real-life contexts. Such an approach enables teachers to broaden pupils’ worldview, nurture their creative potential, and guide them toward independent inquiry and discovery.

The development of creative competence is closely intertwined with the teacher’s methodological preparation. Consequently, the theoretical frameworks proposed by researchers such as Tvorogova,

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Markova, Zeer, Khutorskoy, and Slastenin form the methodological basis of this study. Their perspectives emphasize that creative competence is not merely the ability to think innovatively; it also encompasses motivation, cognitive processes, pedagogical design skills, reflective analysis, and the capacity to make innovative instructional decisions. Furthermore, the significance of creative competence in primary education is particularly profound, as this stage shapes fundamental conceptual understanding, broadens imagination, and supports the emergence of independent and creative problem-solving skills. A teacher with strong creative competence can nurture pupils' natural curiosity, create a stimulating learning environment, and offer unconventional solutions. Therefore, developing creative competence among future primary school teachers through an integrative approach is considered one of the most pressing scientific and practical directions in modern education. This approach requires methodological and pedagogical renewal within teacher preparation programs and provides a strong foundation for cultivating creative, flexible, and innovative educators.

Methods

The study began with a systematic analysis of scholarly literature on creative competence, integrative education, innovative pedagogical approaches, creative thinking, and primary education methodology. This stage made it possible to clarify the essence of creative competence, reveal its structural components, and identify the theoretical foundations of the integrative approach. The theoretical analysis served as a basis for establishing a solid scientific–methodological framework for developing creative competence in future primary school teachers.

A comparative analysis was subsequently conducted. European competency models related to creative education, the 4C framework widely used in the United States, and the experiences of other advanced educational systems were compared with the national education standards of Uzbekistan. This comparison provided insights into ways international best practices can be adapted to local educational contexts for the effective development of creative competence.

One of the key directions of the research was the development of an integrative methodological model aimed at the gradual formation of creative competence. During the modelling process, the motivational, cognitive, practical, and reflective components of creative competence were examined individually, and their internal interrelationships were theoretically substantiated. The resulting model was designed as a practical tool for pre-service primary school teachers. To ensure scientific validity, the model underwent expert evaluation involving experienced methodologists and practising primary school teachers. Their analytical feedback addressed the model's content, practical effectiveness, and applicability to real classroom settings, which significantly contributed to refining and enhancing the model. A structural–analytical approach was also employed to examine the model's internal architecture. Creative task systems, integrative lesson designs, modelling techniques, and methodological tools that foster creative activity were analyzed in detail, enabling each component of the model to be elaborated as a distinct pedagogical mechanism.

Throughout the study, observations from primary school teaching practice, elements of methodological experimentation, and teachers' innovative strategies were examined. Integrative lessons, creative activity scenarios, and lesson designs implemented in real practice demonstrated the feasibility and practical relevance of the proposed model. These analyses confirmed that the methodology aligns well with actual educational conditions and supports the effective development of creative competence in future primary school teachers.

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Results

During the study, a structural model of creative competence that meets contemporary scientific requirements was developed. This model consists of four core components: motivational, cognitive, practical, and reflective. The motivational component reflects pre-service teachers' interest in creative thinking and their desire for innovation. The cognitive component encompasses theoretical knowledge related to creative learning strategies, pedagogical innovation, and creative instructional approaches. The practical component was formed through activities such as synthesis, modelling, and generating creative solutions within the lesson process. The reflective component, in turn, characterizes teachers' ability to evaluate their own pedagogical actions, conduct analytical reflection, and enhance the quality of their creative decisions.

The principles underlying the process of developing creative competence through an integrative methodology were also identified. Ensuring interdisciplinary connections, teaching through creative tasks, applying problem-based learning, using visual modelling, and centering the learning process on pupil activity collectively formed the theoretical-practical foundation for fostering creativity in primary education. These principles demonstrated that lesson content becomes more meaningful, contextually relevant, and learner-centered when structured through an integrative approach. In addition, methodological mechanisms aimed at strengthening pre-service teachers' creative competence were developed. These include integrative lesson designs, a bank of creative tasks, modelling-based training sessions, didactic games, and reflection-oriented assessment criteria. Such mechanisms proved effective in activating the learning process, promoting independent thinking, and engaging students in creative activities. The findings revealed that developing creative competence through an integrative approach has a significant positive impact on the quality of primary education. When all components of the methodological model are applied in harmony, learners begin to develop qualities such as logical reasoning, imagination, independent decision-making, and creative problem-solving. Therefore, the proposed model serves as an effective theoretical and practical tool for preparing future primary school teachers for creative and innovative pedagogical activity.

Discussion

The findings of the study indicate that developing creative competence in pre-service primary school teachers is a complex, multi-component, and systemic process. This competence cannot be cultivated solely through the teaching of individual subjects; rather, it requires integrative, interdisciplinary, and activity-based learning environments. Such an approach necessitates the use of active teaching methods that not only provide theoretical knowledge but also guide learners toward creative thinking through modelling, observation, problem-based tasks, and creative instructional activities.

The creative competence model developed within the framework of the integrative methodology is distinguished by its universality, adaptability across subjects, and practical applicability in real teaching contexts. The model's motivational, cognitive, practical, and reflective components complement one another and collectively form a continuous mechanism for developing creative competence. Strengthening the practical component, in particular, encourages pre-service teachers to engage more deeply in creative instructional tasks such as lesson design, modelling activities, and the development of didactic games.

A comparison with the globally recognized 4C framework (Creativity, Critical thinking, Collaboration, Communication) demonstrates that the national model proposed in this study aligns with international standards for creative skills development. At the same time, the advantage of the

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presented model lies in its integration of the distinctive features of Uzbekistan's educational standards such as interdisciplinary coherence, contextual alignment with national values, and relevance to the methodological requirements of primary education. This alignment enhances the feasibility of implementing the model in actual teaching practice. Expert evaluations confirmed that the proposed methodological approach has strong potential to elevate pre-service teachers' professional preparation. Experts highlighted the model's systematic structure, gradual implementation, rich use of creative tasks, and learner-centered orientation as key strengths. They also emphasized that successful implementation requires careful consideration of factors such as teacher preparedness, the availability of methodological resources, and time allocated for redesigning lessons.

Overall, the study demonstrates that developing creative competence through an integrative approach plays a vital role in improving the quality of primary education, ensuring strong coherence between teacher training, lesson design, and pupils' developmental needs. The methodological foundations proposed in this research may be further strengthened through practical experimentation, pilot projects, and the development of instructional materials designed specifically to support creative competence formation.

Conclusion

The findings of the study demonstrate that the development of creative competence in pre-service primary school teachers can be effectively achieved through an integrative approach. The systematic model comprising motivational, cognitive, practical, and reflective components enhances teacher preparation by enriching lesson content with innovative and creative activities. The principles of integration, problem-based learning, modelling, creative task design, and reflection constitute a solid scientific-methodological foundation for fostering creative competence. The practical implementation of the proposed methodological model contributes significantly to improving the quality of primary education by cultivating independent thinking, imagination, and creative decision-making skills in pupils. The model's step-by-step structure, universality, and interdisciplinary coherence expand its applicability in real educational settings. In the future, the creation of integrative lesson designs, a bank of creative tasks, and methodological resources based on this approach will ensure the continued advancement and practical effectiveness of the research.

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ИСПОЛЬЗОВАНИЕ ТЕПЛОВЫХ АККУМУЛЯТОРОВ В СИСТЕМАХ ТЕПЛОСНАБЖЕНИЯ

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Аннотация. Рассмотрены вопросы рационального использования тепловой энергии в системах отопления, вентиляции и кондиционирования воздуха промышленных и гражданских зданий. Представлены современные инженерные решения по утилизации теплоты вторичных энергетических ресурсов; конструкции, принципиальные схемы и термодинамические особенности использования утилизационного оборудования и теплонасосных установок на примерах из опыта отечественной и мировой практики.

Ключевые слова: тепловые аккумуляторы, теплоизоляция, энергия, теплоаккумулирующий материал, теплонасосные установки.

Annotation. The issues of rational use of thermal energy in heating, ventilation and air conditioning systems of industrial and civil buildings are considered. Modern engineering solutions for recycling heat from secondary energy resources are presented; designs, circuit diagrams and thermodynamic features of the use of recycling equipment and heat pump units using examples from the experience of domestic and world practice.

Key words: heat accumulators, thermal insulation, energy, heat-storing material, heat pump units.

Использование тепловых аккумуляторов в системах теплоснабжения, отопления, вентиляции и кондиционирования воздуха зданий и сооружений обусловлено несовпадением периодов поступления от источников бросовой теплоты или теплоты возобновляемых источников и ее потреблением. Кроме того, аккумулирование позволяет эффективно использовать теплоту, которая может быть потеряна или использована частично.

К техническим и экономическим предпосылкам применения аккумуляторов теплоты относятся:

- покрытие кратковременных пиковых потребностей, например, в теплоснабжении при очень низких наружных температурах воздуха;
- упрощение регулирования систем отопления, вентиляции и кондиционирования воздуха;
- исключение необходимости в эксплуатации систем отопления, вентиляции и кондиционирования воздуха с неполной нагрузкой, приводящей к потерям;
- использование ночного тарифа на электроэнергию;
- снижение мощности электроподключения и, следовательно, потребления электроэнергии.

Включение тепловых аккумуляторов в системы отопления, вентиляции и кондиционирования воздуха ведет к повышению капиталовложений, которые должны покрываться прежде всего за счет снижения эксплуатационных затрат. Тепловые аккумуляторы экономичны тогда, когда годовые суммарные затраты на установках с аккумуляторами ниже, чем у таких же установок без аккумуляторов. Поскольку сравниваемые варианты включают также обычные системы

отопления, вентиляции и кондиционирования воздуха, требования к экономичности теплоаккумуляторов очень велики. Поэтому стремятся, чтобы:

- удельная экономия энергии, отнесенная к массе или объему теплоаккумулирующего материала, была наиболее высокой;
- энергия аккумулировалась с возможно меньшими ее потерями, т.е. температуры на входе и выходе аккумулятора были близки;
- применялись дешевые, широко распространенные аккумулирующие материалы;
- обеспечивался требуемый режим работы с минимальным количеством дополнительного оборудования (насосов, арматуры и т.д.).

Аккумуляция теплоты может быть долгосрочным, в основном предназначенным для годового или сезонного ее хранения, и краткосрочным, при котором теплота хранится от нескольких часов до нескольких дней или недель. Например, осуществление в течение суток пикового потребления теплоты в системах отопления, вентиляции и кондиционирования воздуха лучше обеспечивать с использованием аккумуляторов первой группы. Сохранять энергию для последующего использования в течение недели, месяца или нескольких месяцев можно в аккумуляторах всех трех групп. Системы аккумуляции теплоты подразделяются на централизованные для обслуживания крупных потребителей или группы мелких потребителей и децентрализованные для индивидуальных потребителей.

Система аккумуляции теплоты эксплуатируется во взаимодействии с источником энергии и ее потребителем и включает следующие компоненты:

- сосуд или резервуар для теплоаккумулирующего материала с теплоизоляцией;
- теплоаккумулирующий материал, в котором накапливается и хранится теплота;
- теплообменное оборудование, предназначенное для передачи теплоты от источника энергии к теплоаккумулирующему материалу при зарядке аккумулятора и от теплоаккумулирующего материала к потребителю при разрядке аккумулятора.

Сосуды или резервуары тепловых аккумуляторов должны иметь хорошую теплоизоляцию, что особенно важно для сезонных установок, поскольку длительный период должен сохраняться достаточно высокий температурный уровень. Толщину теплоизоляции рассчитывают в краткосрочных аккумуляторах по такому же алгоритму, как и для труб. В долгосрочных аккумуляторах критерием служит учет минимального требуемого уровня температуры в конце периода аккумуляции.

Краткосрочные аккумуляторы не требуют больших капиталовложений, и их используют для покрытия временных потребностей в тепловой мощности распределительной сети систем отопления, вентиляции и кондиционирования воздуха.

Ведущую роль в разработке систем аккумуляции теплоты занимают Швеция, США, Дания, Германия. В этих странах проводятся наиболее интенсивные научно-исследовательские и экспериментальные работы по использованию тепловых аккумуляторов для теплоснабжения зданий или отдельных населенных пунктов.

В инженерной практике наиболее востребованными являются аккумуляторы физической (явной) теплоты, а среди них - водяные теплоаккумуляторы. Вода - наиболее дешевый и повсеместно распространенный теплоаккумулирующий материал с высокой удельной

теплоемкостью, равной 4,19 кДж/(кг · °С), что почти вдвое выше, чем удельная теплоемкость камня.

Для сезонного хранения теплоты перспективно использование водоемов, водоносных слоев, баков, грунта, скальных пород и т.д.

Водяные баки-аккумуляторы из металла или железобетона применяются для создания надземных или заглубленных в землю хранилищ. При проектировании баков-аккумуляторов особое внимание уделяется стабильному положению слоев воды с более высокой температурой над слоями с меньшей температурой. В зависимости от скорости поступления воды в аккумулятор, разности температур между прямой и обратной линиями, размеров резервуара возникает зона смешивания, которая приводит к снижению мощности аккумулятора. Поддерживать стратификацию жидкости можно конструктивными решениями и ограничением скоростей на вводе воды в аккумулятор до $v < 0,1$ м/с. Для вертикально стоящих аккумуляторов рекомендуется отношение высоты к диаметру больше 2,5.

Не допускать перемешивания воды и создавать переходные зоны можно с помощью разделительных мембран, перфорированных плит или других устройств, уменьшающих конвективный перенос теплоты.

При последовательном соединении баков-аккумуляторов происходит относительное уменьшение влияния смешивания на тепловую мощность аккумулятора. Потеря мощности не превышает 10 %.

Наземные баки-аккумуляторы по технико-экономическим и архитектурным показателям уступают теплоаккумуляторам других видов.

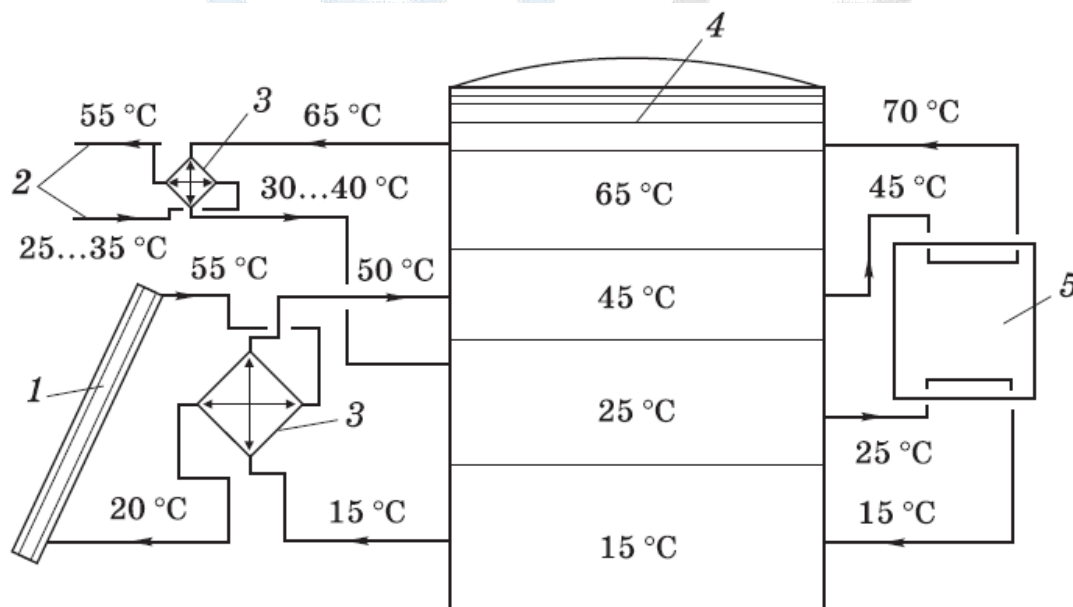


Рис. 1. Схема наземного металлического водяного теплоаккумулятора: 1 - солнечный коллектор; 2 - трубопроводы системы отопления; 3 - теплообменник; 4 - бак-теплоаккумулятор; 5 - парокомпрессионный тепловой насос

Но в определенных условиях эксплуатации их использование оправданно. В поселке Сёдертун (Швеция) для теплоснабжения жилых и общественных зданий общей площадью 58,5 тыс. м² при годовой тепловой нагрузке 3,2 ГВт·ч/год на отопление и 2,5 ГВт·ч/год на горячее водоснабжение на основании сравнительных технико-экономических расчетов принято

решение о строительстве и построен наземный металлический водяной теплоаккумулятор вместимостью 55 тыс. м³ воды.

Аккумулятор включен в систему центрального солнечного теплоснабжения поселка по независимой схеме. Повышение энергетического потенциала воды в теплоаккумуляторе до температуры 70°C осуществляется с помощью парокомпрессионной теплонасосной установки 5, а для нагрева сетевой воды до температуры 55°C используется рекуперативный теплообменник 3. При невозможности использования вертикальных баков-аккумуляторов применяют горизонтальные резервуары, заглубленные в грунт.

Организация специального подвода потоков воды позволяет уменьшать перемешивание слоев. На рис. 2 показан горизонтальный послойный аккумулятор.

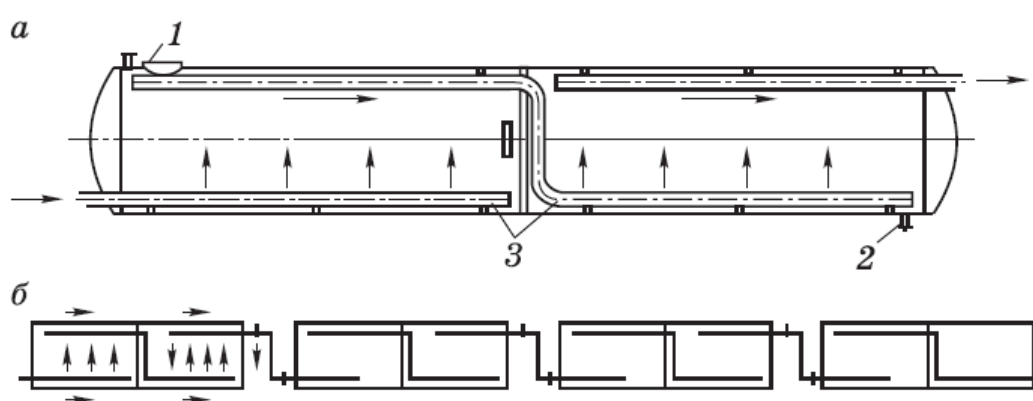


Рис. 2. Схема низкотемпературного теплоаккумулятора горизонтального типа: а - горизонтальный резервуар теплоаккумулятора; б - схема соединения нескольких резервуаров; 1 - выпуск воздуха; 2 - отвод воды; 3 - перфорированные трубы

Подача и отвод воды осуществляются по горизонтальным трубам с отверстиями, расположенными в направлении стенки резервуара, чтобы обеспечить по возможности равномерное распределение скоростей в резервуаре. Резервуар разделен перегородкой на две камеры, благодаря чему разделительный слой между горячей и нагреваемой водой небольшой, что препятствует выравниванию температуры по его объему. Последовательное соединение резервуаров улучшает характеристики послойного аккумулятора.

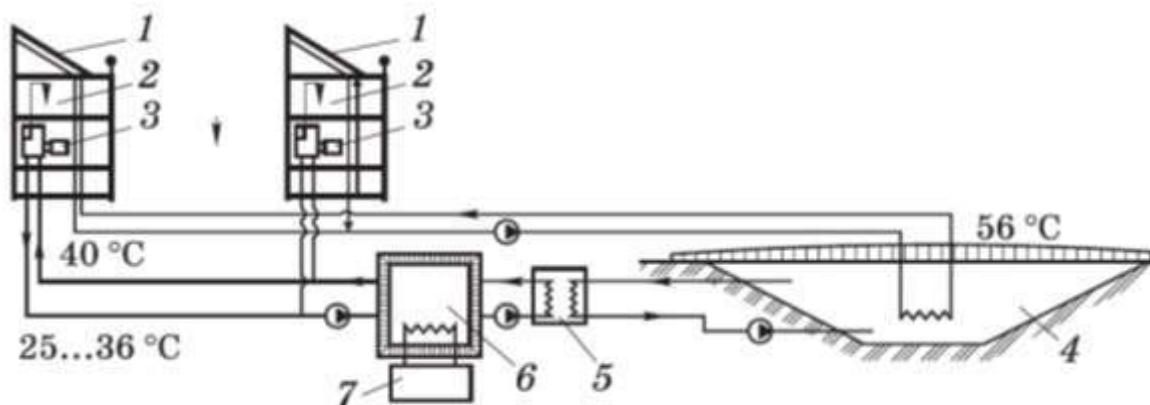


Рис. 3. Схема теплоснабжения поселка с заглубленным в грунт водяным теплоаккумулятором: 1 - солнечный коллектор; 2 - система горячего водоснабжения; 3 -

система отопления; 4 - бассейн-теплоаккумулятор; 5 - парокомпрессионный тепловой насос; 6 - промежуточный теплоаккумулятор; 7 - пиковый теплогенератор

В качестве сезонных теплоаккумуляторов, накапливающих неравномерно поступающую солнечную энергию и теплоту оборотных вод промышленных предприятий для последующего теплоснабжения отдельных зданий или групп зданий в холодный период года, широко используют полузаглубленные и заглубленные в грунт бассейны. Теплоаккумуляторы имеют форму опрокинутой усеченной пирамиды или опрокинутого усеченного конуса. Дно и откосы бассейна гидроизолируют, а покрытие теплоизолируют.

На рис.3 представлена схема теплоснабжения поселка из 200 двухэтажных домов (Дания) с заглубленным в грунт водяным теплоаккумулятором.

Вместимость теплоаккумулятора — 49,4 тыс. м³ воды. Расчетная температура сетевой воды системы теплоснабжения равна 40°C. В случае снижения температуры теплоносителя ниже 40°C включается пиковый теплогенератор.

Аккумулятирование солнечной энергии позволяет покрывать 80% потребности поселка в теплоте, остальные 20% получают от пикового теплогенератора.

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TECHNOLOGICAL FACTORS IN INTEGRATING MORAL EDUCATION WITH THE
LEARNING PROCESS TO ENHANCE STUDENT ENGAGEMENT

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Abstract

This paper examines the technological factors that support the integration of moral education with the academic learning process to enhance student engagement. As educational environments become increasingly digitized, the need to combine cognitive development with value-based instruction is more significant than ever. The study analyzes pedagogical theories, technological tools, and instructional strategies that promote both moral formation and active learning. Results show that digital platforms, interactive media, and value-oriented instructional design can meaningfully improve engagement and support holistic student development. Recommendations for implementing integrated moral-academic learning environments are proposed.

Keywords

Moral education; student engagement; educational technology; integrated learning; value-based instruction; pedagogy

INTRODUCTION

The rapid digitalization of education has transformed traditional learning environments, presenting new opportunities to enhance student engagement and moral development simultaneously. In contemporary education systems, academic achievement alone is insufficient; students must also possess strong ethical values, social responsibility, and emotional awareness. Integrating moral education with the learning process through technological means is emerging as an effective strategy to foster holistic development.

Moral education aims to instill ethical reasoning, empathy, cultural understanding, and responsible behavior. When aligned with technological tools and modern pedagogy, it can create a powerful environment that promotes deeper learning participation. However, many institutions struggle to balance academic requirements with moral development due to curriculum overload, lack of teacher training, or insufficient digital resources.

The purpose of this article is to analyze the technological factors that enable successful integration of moral education into academic learning, thereby increasing student engagement. The paper follows the IMRAD structure and synthesizes recent research, theoretical models, and practical approaches relevant to integrated moral learning environments.

Methods

This study is based on qualitative content analysis of academic literature, policy documents, and empirical research published between 2016 and 2024. Sources include peer-reviewed journals in education, psychology, and digital pedagogy.

The research method consists of:

1. Theoretical Review – examining philosophical and pedagogical foundations of moral education and student engagement.
2. Technological Analysis – identifying tools, platforms, and digital resources that support integrated learning.
3. Comparative Evaluation – comparing different instructional models that combine moral and academic learning.

Data were analyzed through thematic coding, focusing on relationships between digital technologies, moral instruction, and student engagement. No experimental interventions were conducted, making the method suitable for conceptual and theoretical exploration.

Results and Discussion

Analysis of the literature shows that combining moral education with modern learning technologies significantly increases student engagement. Several technological factors play a central role:

1. Digital Learning Platforms Supporting Value-Based Content

Learning Management Systems (LMS), such as Moodle, Google Classroom, or Edmodo, allow educators to embed ethical discussions, reflective tasks, and collaborative activities into academic lessons. These platforms encourage students to think critically about real-life moral dilemmas while engaging with subject content.

2. Interactive Multimedia for Moral and Cognitive Development

Videos, animations, documentaries, and virtual simulations promote empathy, cultural understanding, and ethical awareness. When students interact with digital storytelling or virtual scenarios, they actively engage both emotionally and cognitively, improving learning retention.

3. Gamification for Ethical Decision-Making

Game-based learning environments can incorporate moral choices, consequences, and problem-solving tasks. Such systems motivate students through rewards, progress tracking, and interactive challenges while reinforcing moral values embedded in gameplay.

4. Communication Technologies for Collaborative Moral Learning

Online discussion forums, group chats, and digital debate platforms allow learners to exchange perspectives, practice respectful communication, and develop ethical reasoning. Structured dialogue enhances engagement and builds a community-oriented learning culture.

5. Artificial Intelligence and Personalized Moral–Academic Instruction

AI-driven tools can provide personalized feedback, identify gaps in moral reasoning, and guide students through reflective exercises. Adaptive learning systems encourage critical thinking and self-regulation—both of which enhance engagement.

6. Challenges in Integration

Despite the benefits, several challenges exist:

- Teachers may lack training in combining moral instruction with technology.
- Overuse of technology can weaken interpersonal moral development if not properly balanced.
- Some moral topics require sensitivity and cannot rely solely on digital tools.
- Infrastructure limitations may hinder implementation in resource-poor institutions.

Overall, the findings suggest that technological integration strengthens both moral development and cognitive engagement when applied thoughtfully and systematically. Moral education becomes more dynamic, relatable, and impactful when delivered through interactive and student-centered digital methods.

Conclusion

The integration of moral education into the academic learning process through technological tools represents a powerful approach to enhancing student engagement. This study concludes that digital platforms, interactive media, AI-driven personalization, and gamified instructional strategies serve as essential technological factors that promote both ethical development and active learning.

To achieve effective integration, schools must invest in teacher training, develop value-oriented digital curricula, and ensure access to technological infrastructure. Future research should investigate experimental models that combine technological innovation with culturally grounded moral values, as well as explore long-term effects on student behavior and academic performance.

Holistic education—uniting knowledge, skills, and moral character—is vital for preparing students to succeed in an interconnected and ethically complex world.

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YEVROPA VA OSIYO MAMLAKATLARIDA POLIKARBONAT VA POLIMER QOPLAMALARNING QURILISH SANOATIDAGI QO‘LLANILISHI: FIZIK-KIMYOVIY ASOSLAR, TEXNOLOGIK USTUNLIKLAR VA GLOBAL BOZOR EVOLYUTSIYASI

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Annotatsiya: Ushbu ultra-keng ilmiy maqolada Yevropa va Osiyo mamlakatlarida polikarbonat va boshqa polimer qoplamalarning qurilish sanoatidagi qo‘llanilishi, ularning fizik-kimyoviy xususiyatlari, mexanik barqarorligi, energiya samaradorligi, UV qarshiligi, optik xususiyatlari va ekologik afzalliklari chuqur tahlil qilindi. Germaniya, Shvetsiya, Xitoy, Yaponiya va Janubiy Koreya tajribalari asosida polikarbonatning global bozor rivoji, texnologik modifikatsiyalari va me'moriy qo‘llanilishi ilmiy asosda yoritildi.

Kalit so‘zlar: Polikarbonat, polimer qoplama, energiya samaradorligi, UV stabilizator, Yevropa qurilishi, Osiyo bozori, shaffof materiallar, issiqlik kamerasi, polimer kimyosi.

Polimer materiallar, ayniqsa polikarbonat, zamonaviy qurilish sanoati rivojida eng muhim o‘rinlarga chiqib bormoqda. Bu materiallar nafaqat engil konstruksiyalar yaratish imkonini beradi, balki energiya samaradorligini oshirish, yong‘inga chidamlilikni ta'minlash, inshootlarni ekologik xavfsiz qilish va yangi avlod arxitektura yechimlarini shakllantirishda ham beqiyos rol o‘ynaydi. Polikarbonatning fizik-kimyoviy xususiyatlari uning global bozordagi talabini yildan-yilga oshirib, an'anaviy qurilish materiallari—ayniqsa shisha, alyuminiy, yog‘och va ba'zi metal konstruksiya turlarini asta-sekin siqib chiqarayotganini ko‘rsatmoqda. Yevropa va Osiyo mamlakatlari aynan polikarbonat texnologiyalarini o‘z hududi iqlimi, iqtisodiy sharoitlari, ekologik siyosati va me'moriy talablari asosida turlicha yo‘nalishlarda rivojlantirgan. Bu mintaqalarning har biri polikarbonatning noyob fazilatlarini o‘z maqsadlariga moslashtirib, yuksak texnologik natijalarga erishgan va uning bozor ulushi yil sayin kengayib bormoqda.

Polikarbonat asosidagi materiallar yuqori kimyoviy barqarorligi, molekulyar zanjirining mustahkamligi, zarbalarga chidamliligi, o‘ta past haroratlarda ham mo‘rtlashmasligi, yuqori issiqqa chidamliligi va yorug‘lik o‘tkazuvchanlik darajasining barqarorligi bilan ajralib turadi. Polikarbonatning asosiy afzalliklaridan biri — uning shaffofligining uzoq yillar davomida o‘zgarmasligidir. Bu material shisha kabi og‘ir emas va shisha singari mayda bo‘laklarga parchalanmaydi. Bu uning xavfsizlik darajasini ancha yuqori qiladi. Darhaqiqat, polikarbonat shishaga qaraganda qariyb 200 barobar ko‘proq zarba kuchiga bardosh bera oladi. Shu sababli Yevropaning ko‘plab aeroportlari, stadionlari, avtovokzallari, temir yo‘l bekatlari va avtomobil yo‘llaridagi shovqin to‘siqlari aynan polikarbonatdan tayyorlangan.

Yevropa mamlakatlari polikarbonat texnologiyasini ekologik qurilish siyosati bilan uyg‘unlashtirib, uni uzoq muddatli barqarorlik mezoniga mos material sifatida rivojlantirib kelmoqda. Germaniya va Shvetsiya kabi davlatlar past energiya sarfi talab qilinadigan binolar qurishda ko‘p qatlamli polikarbonat panellardan foydalanadi. Ularning ichki tuzilmasi kamerali bo‘lib, havo qatlami issiqlik o‘tkazuvchanlikni keskin kamaytiradi. Havo issiqlikni juda sekin o‘tkazadigan modda bo‘lganligi uchun polikarbonatning kamerali strukturasidagi har bir mikrokanal issiqlik oqimini 2–3 baravar

sekinlashtiradi. Bu panellar issiqxonalar uchun, sovuq hududlardagi qoplamalar uchun, hatto energiya tejankor uylar uchun ham mukammal tanlovdir.

Yevropada polikarbonatga qo'shiladigan stabilizatorlar uning uzoq yillar davomida UV nurlanishi ostida rangini o'zgartirmasligiga xizmat qiladi. Shisha UV nurlarini aks ettira oladi, ammo polikarbonatning UV-filtrlash xususiyatlari maxsus kimyoviy qatlamlar yordamida kuchaytiriladi. Bu qatlamlar polimerning makromolekulyar zanjirida fotooksidlanishning oldini oladi. Natijada polikarbonatning mexanik, optik va estetik xususiyatlari 20–25 yilgacha deyarli o'zgarmaydi. Yevropa bozorida aynan UV-stabilizatsiyalangan polikarbonat panellar eng ko'p sotiladi, chunki ular tashqi fasadlarda, shovqin to'siqlari, tom qoplamalari, yo'l inshootlarida qo'llanilganda o'z sifatini juda yaxshi saqlaydi.

Osiyo mamlakatlarida polikarbonat qo'llanilishi Yevropaga qaraganda ancha kengroq va tezroq rivojlanmoqda. Sababi — Osiyo infratuzilmasi yildan-yilga kengaymoqda, aholining urbanizatsiya darajasi keskin oshmoqda va qurilish sektori iqtisodiyotning bosh harakatlantiruvchi kuchi hisoblanadi. Xitoy polikarbonat ishlab chiqarish bo'yicha dunyoda 1-o'rinda turadi. Bu mamlakatda polikarbonat issiqxonalarda, avtobus pavilonlarida, metro perronlarida, savdo markazlari tomilarida, jamoat maskanlari panjaralarida, sport majmualarida, energetika inshootlarida juda keng keng qo'llanadi. Xitoyning turli iqlim zonalarida polikarbonatning xususiyatlarini moslashtirish bo'yicha ilmiy tadqiqotlar olib borilmoqda. Shimoliy hududlarda sovuqbardoshlik muhim bo'lsa, janubiy hududlarda UV stabilizatsiya, namlikka chidamlilik va issiqqa qarshilik ustuvor ahamiyatga ega.

Yaponiya polikarbonatni texnologik modifikatsiya qilish bo'yicha eng ilg'or ilmiy markazlarga ega. Bu davlat zilzilalar mintaqasida joylashgani sababli yengil, elastik, zarbaga chidamli materiallarga ehtiyoj kattadir. Shisha singari mo'rt materiallardan farqli o'laroq, polikarbonat zilzila vaqtida yorilib, odamlar hayotiga xavf tug'dirmaydi. Yaponiya me'morlari polikarbonatning optik xususiyatlaridan ham faol foydalanadi. Bu material diffuz yorug'lik tarqatish xususiyati bilan binolarning tabiiy yoritilishini optimallashtiradi. Shu sababli yapon issiqxona komplekslari, laboratoriyalar, zamonaviy metro stansiyalari polikarbonatdan keng foydalanadi.

Janubiy Koreya polimer kimyosining Osiyodagi markazlaridan biri bo'lib, polikarbonat tarkibiga qo'shiladigan modifikatorlar, yong'inbardoshlik qo'shimchalari, termo-stabilizatorlar, tumanlanishni kamaytiruvchi optik filtrlarga boy texnologik panellarni ishlab chiqadi. Bu davlatda ko'p qavatli polikarbonat panellar energiya sarfini 40 foizgacha kamaytirishi sababli yirik savdo markazlari, zavodlar, ilmiy markazlar aynan polimer qoplamalarga o'tmoqda.

Polikarbonatning fizik-kimyoviy xususiyatlari uning qurilish sanoatida o'rnini tushuntiradi. Bu material polimer zanjirlarining yuqori elastikligi, molekulyar zichligi, yuqori zarba bardoshligi, issiqqa chidamlilik diapazonining kengligi bilan ajralib turadi. Shishaning issiqlik kengayish koeffitsienti yuqori bo'lgani uchun harorat o'zgarishlarida yorilish ehtimoli yuqori bo'ladi, ammo polikarbonatning issiqlik kengayish koeffitsienti past bo'lganligi sababli u haroratning keskin o'zgarishiga bardosh beradi. Uning sinish chegarasi shishadan bir necha o'n baravar yuqori. Polikarbonat o'zining shaffoflik ko'rsatkichini yillar davomida saqlab qoladi, UV stabilizatori esa uning yuzasini fotokimyoviy parchalanishdan himoya qiladi.

Yevropa va Osiyoda polikarbonatning ekologik afzalliklariga alohida e'tibor berilmoqda. Polikarbonat qayta ishlanishi mumkin bo'lgan material bo'lgani uchun plastik chiqindi muammosini kamaytirishga xizmat qiladi. Yevropada polikarbonat chiqindilarining 60 foizi qayta ishlanadi va ikkilamchi polimer sifatida yana qurilishda qo'llaniladi. Xitoyda esa qayta ishlangan polikarbonatdan

yasalgan panellar issiqxonalar, avtobus bekatlari va vaqtinchalik inshootlar uchun keng qo'llanmoqda.

Polikarbonatning iqtisodiy ustunliklari ham katta. U yengil bo'lgani uchun transport xarajatlari kam, montaj qilish oson, ta'mirlash talab qilmaydi, uzoq yillar xizmat qiladi. Shisha yoki metall konstruktsiyalardan farqli o'laroq, polikarbonat kam energiya sarfi bilan ishlab chiqariladi, bu esa uning tannarxini past qiladi. Energiya tejamkor binolarda polikarbonat qo'llanishi umumiy ekspluatatsiya xarajatlarini 30–50 foizga qisqartiradi.

Shu bilan birga, polikarbonatning akustik xususiyatlari ham yaxshi o'rganilgan. Yevropadagi avtomobil yo'llari bo'yicha tadqiqotlar shuni ko'rsatadiki, polikarbonat shovqin to'siqlari shovqinni 28–32 dB gacha kamaytirish qobiliyatiga ega. Bu uning akustik energiyani yutish va qaytarish xususiyatlari bilan bog'liq.

Polikarbonat qurilish sanoatining kelajagini belgilab beruvchi materiallardan biridir. Yevropada sifat va ekologik mezonlar asosiy o'rinda bo'lsa, Osiyo ishlab chiqarish hajmi, moslashuvchanligi va iqtisodiy samaradorlik bilan jadal rivojlanmoqda. Ikkala mintaqaning tajribasi polikarbonatning global bozorida o'sish sur'atining kelajakda ham yuqori darajada qolishini anglatadi.

EMPOWERING STUDENTS: A HOLISTIC APPROACH TO PROMOTING HEALTHY LIFESTYLE CHOICES

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Abstract: The abstract of the article "Empowering Students: A Holistic Approach to Promoting Healthy Lifestyle Choices" explores the critical need to improve the pedagogical system to cultivate a healthy lifestyle among students. By integrating health education into the curriculum, fostering a supportive environment within educational institutions, and empowering students to make informed decisions about their well-being, educators can play a vital role in equipping students with the knowledge and skills needed to lead healthier lives. This article emphasizes the importance of prioritizing health promotion efforts within educational settings to ensure that students are prepared to make positive choices that will benefit them both academically and personally.

Keywords: pedagogical system, healthy lifestyle, students, health education, curriculum, supportive environment, empowerment, well-being, health promotion, holistic development.

INTRODUCTION:

The modern educational landscape is increasingly recognizing the profound impact of a healthy lifestyle on students' overall well-being and academic success. As sedentary behaviors, poor dietary choices, and mental health concerns continue to prevail among the student population, there is a growing imperative to revamp the pedagogical system to prioritize health promotion and empower students to make informed decisions about their health.

This article delves into the pivotal role of educators in fostering a culture of health and wellness within educational institutions. By integrating health education into the curriculum, educators can provide students with the knowledge and skills necessary to navigate complex health challenges and adopt sustainable healthy habits. Furthermore, creating a supportive environment within schools that promotes physical activity, nutritious meals, and mental health resources is essential in nurturing students' holistic well-being.

Through a holistic approach that encompasses not only physical health but also mental and emotional well-being, educators have the opportunity to shape students' attitudes and behaviors towards leading healthier lives. By empowering students to take ownership of their health and well-being, educators can instill a sense of responsibility and agency that transcends the classroom and prepares students for a lifetime of making positive choices.

In the following sections, this article will delve into the strategies and approaches that can be employed to enhance the pedagogical system and promote a healthy lifestyle among students. By adopting a comprehensive and collaborative approach, educators can play a transformative role in equipping students with the tools they need to thrive academically, personally, and socially.

The literature review provides valuable insights into the efficacy of integrating health education into the school curriculum to promote a healthy lifestyle among students. Research has consistently demonstrated the positive impact of comprehensive health education on students' health behaviors and outcomes. By equipping students with knowledge about nutrition, exercise, mental health, and

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substance abuse, educators can empower them to make informed decisions that contribute to their overall well-being.

Moreover, creating a supportive environment within schools has been shown to be instrumental in fostering a culture of health and wellness. Access to nutritious meals, opportunities for physical activity, and mental health resources within educational institutions can significantly influence students' health choices and behaviors. By addressing the environmental factors that impact students' health, educators can create a conducive setting for promoting healthy lifestyles.

The literature emphasizes the importance of a multifaceted approach to health promotion within educational settings. By combining health education in the curriculum, creating a supportive school environment, and engaging students in interactive learning experiences, educators can effectively promote healthy behaviors among students. Collaborating with health professionals and community organizations further enhances the impact of health promotion initiatives, reinforcing the importance of a comprehensive and integrated approach to fostering a healthy lifestyle among students.

To enhance the pedagogical system for promoting a healthy lifestyle among students, a strategic and systematic approach is essential. The methods employed should encompass a range of initiatives aimed at equipping students with the knowledge, skills, and resources necessary to make informed decisions about their health and well-being.

One key method involves revising the curriculum to incorporate health education modules that address a wide array of health-related topics, including nutrition, physical activity, mental health, and substance abuse. These modules should be designed to be engaging, interactive, and relevant to students' lives, ensuring that they are equipped with practical information that they can apply in real-world situations.

Another crucial method is to provide professional development and training for educators to effectively integrate health promotion strategies into their teaching practices. By enhancing educators' knowledge and skills in delivering health education, schools can ensure that students receive consistent and high-quality health information across various subjects and grade levels.

Collaboration with health professionals, community organizations, and parents is also vital in creating a comprehensive support system for students' health and well-being. By partnering with external stakeholders, schools can leverage additional resources, expertise, and support to enhance their health promotion efforts and provide students with a holistic approach to wellness.

Lastly, engaging students in interactive learning experiences, such as hands-on activities, workshops, and health campaigns, can foster active participation and empower students to take ownership of their health. By creating opportunities for students to apply their knowledge, develop skills, and make healthy choices in a supportive environment, educators can cultivate a culture of health and wellness that extends beyond the classroom.

By implementing these methods in a coordinated and collaborative manner, educational institutions can effectively enhance the pedagogical system to promote a healthy lifestyle among students and empower them to make positive choices that will benefit their overall well-being.

The implementation of enhanced pedagogical methods to promote a healthy lifestyle among students has yielded promising results in various educational settings. By revising the curriculum to include health education modules, educators have successfully equipped students with the necessary knowledge and skills to make informed decisions about their health. Students are demonstrating

improved awareness of nutrition, physical activity, mental health, and substance abuse, leading to positive changes in their health behaviors.

Furthermore, the creation of a supportive environment within schools, encompassing access to nutritious meals, physical activity opportunities, and mental health resources, has had a significant impact on students' well-being. Schools that prioritize health promotion efforts have reported reduced absenteeism, improved academic performance, and enhanced overall student wellness.

Collaboration with health professionals and community organizations has further enriched the health promotion initiatives within educational institutions. By leveraging external expertise and resources, schools have been able to provide comprehensive support to students, addressing a wide range of health needs and fostering a holistic approach to wellness.

Engaging students in interactive learning experiences, such as workshops, hands-on activities, and health campaigns, has proven to be effective in promoting active participation and empowering students to take ownership of their health. Students are demonstrating increased motivation to make healthy choices and are developing essential skills that will serve them well beyond their academic years.

Overall, the results of implementing these enhanced pedagogical methods are encouraging, indicating that a comprehensive and collaborative approach to promoting a healthy lifestyle among students can yield tangible benefits. By continuing to prioritize health promotion efforts within educational settings, educators can play a vital role in shaping a generation of students who are empowered to lead healthier, more fulfilling lives.

In the discussion section, it is imperative to reflect on the implications of the results obtained from implementing enhanced pedagogical methods to promote a healthy lifestyle among students. The positive outcomes observed underscore the significance of prioritizing health promotion efforts within educational institutions and the transformative role that educators can play in shaping students' attitudes and behaviors towards health and well-being.

One key point for consideration is the sustainability of the initiatives implemented. It is essential for schools to continue investing in health education, creating supportive environments, and fostering collaborations with external stakeholders to ensure that the positive impact on students' health behaviors is maintained in the long term. By embedding health promotion efforts into the fabric of the school culture, educators can create lasting change that extends beyond individual programs or initiatives.

Moreover, the discussion should address the broader implications of promoting a healthy lifestyle among students. By equipping students with the knowledge, skills, and resources to prioritize their health, educators are not only contributing to individual well-being but also to societal health outcomes. Healthy students are more likely to perform better academically, exhibit positive social behaviors, and become active contributors to their communities, thus creating a ripple effect that extends far beyond the classroom.

Additionally, the discussion should touch upon the challenges and opportunities that arise in promoting a healthy lifestyle among students. Educators may encounter barriers such as limited resources, competing priorities, and resistance to change. By acknowledging these challenges and identifying strategies to overcome them, schools can navigate potential obstacles and continue to advance their health promotion efforts effectively.

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In conclusion, the discussion section serves as a platform to reflect on the significance of promoting a healthy lifestyle among students, celebrate the successes achieved through enhanced pedagogical methods, and chart a course for future endeavors in fostering a culture of health and wellness within educational settings. By engaging in thoughtful dialogue and reflection, educators can continue to drive positive change and empower students to lead healthier, more fulfilling lives.

In conclusion, the transformative power of enhancing the pedagogical system to promote a healthy lifestyle among students cannot be overstated. The results of implementing comprehensive health education, creating supportive environments, and engaging students in interactive learning experiences have demonstrated tangible benefits for students' well-being and academic success.

Educators play a pivotal role in shaping the health behaviors and attitudes of students, equipping them with the knowledge and skills needed to make informed decisions about their health. By fostering a culture of health and wellness within educational institutions, educators are not only addressing immediate health concerns but also laying the foundation for lifelong habits that will benefit students in the long term.

Moving forward, it is essential for schools to prioritize health promotion efforts and continue to invest in initiatives that support students' holistic development. Sustainability, collaboration, and overcoming challenges will be key considerations in advancing the agenda of promoting a healthy lifestyle among students.

By remaining committed to empowering students to prioritize their health, educators can make a lasting impact on the lives of students, their communities, and society as a whole. Through collaborative efforts and a shared dedication to promoting well-being, we can create a brighter and healthier future for the next generation.

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РАЗВИТИЕ ТВОРЧЕСКИХ СПОСОБНОСТЕЙ СТУДЕНТОВ С ПОМОЩЬЮ
ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ

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АННОТАЦИЯ

В условиях стремительного цифрового преобразования системы высшего образования особую актуальность приобретает поиск методов, направленных на развитие творческих способностей студентов. Искусственный интеллект, интегрированный в образовательные платформы и инструменты, открывает новые возможности для формирования индивидуализированных творческих траекторий, расширения когнитивного потенциала обучающихся и моделирования ситуаций, требующих нестандартного мышления. В статье анализируются особенности использования ИИ-ориентированных технологий в обучении, выявляются педагогические и психологические механизмы, способствующие активизации творческого мышления, а также приводятся результаты экспериментальной апробации различных ИИ-сервисов в учебных дисциплинах гуманитарного и технического профиля. Эмпирические данные подтверждают, что взаимодействие с интеллектуальными системами, выступающими не только инструментом, но и когнитивным партнёром, способствует росту самостоятельности, вариативности мышления и способности к оригинальному решению задач. Исследование демонстрирует, что ИИ при грамотной педагогической интеграции становится эффективным ресурсом развития творческого потенциала будущих специалистов.

Ключевые слова: Искусственный интеллект; творческие способности; образовательный процесс; цифровая педагогика; когнитивная активизация; интеллектуальные платформы; инновационные методы обучения.

Abstract

In the context of the rapid digital transformation of the higher education system, the search for methods aimed at developing students' creative abilities has become particularly relevant. Artificial intelligence, integrated into educational platforms and tools, opens up new opportunities for developing individualized creative trajectories, expanding students' cognitive potential, and simulating situations that require innovative thinking. This article analyzes the specifics of using AI-oriented technologies in education, identifies pedagogical and psychological mechanisms that contribute to the activation of creative thinking, and presents the results of experimental testing of various AI services in academic disciplines in the humanities and engineering. Empirical data confirm that interaction with intelligent systems, which act not only as a tool but also as a cognitive partner, promotes increased independence, variability of thinking, and the ability to solve problems in an original way. The study demonstrates that AI, when properly integrated into educational systems, becomes an effective resource for developing the creative potential of future specialists.

Keywords: Artificial intelligence; creativity; educational process; digital pedagogy; cognitive activation; intelligent platforms; innovative teaching methods.

ВВЕДЕНИЕ

Современная система высшего образования переживает период глубоких трансформаций, обусловленных активным внедрением цифровых технологий, которые радикально меняют характер учебной деятельности, способы получения знаний и ожидания студентов относительно образовательной среды. На фоне усложнения профессиональных требований, роста неопределённости и ускорения темпов общественно-технологических изменений особую значимость приобретают творческие способности обучающихся, поскольку именно они лежат в основе способности адаптироваться к новым условиям, находить оригинальные решения и формировать собственные профессиональные стратегии. Однако традиционные педагогические практики зачастую оказываются недостаточно эффективными для стимулирования глубинных когнитивных процессов, связанных с творческим мышлением.

В этой связи искусственный интеллект начинает восприниматься не только как технический инструмент обработки данных, но и как педагогическое средство, способное создавать условия для интеллектуального вызова, расширения познавательных горизонтов и формирования вариативных способов мышления. Платформы генеративного ИИ, интеллектуальные симуляторы, адаптивные образовательные системы и когнитивные тренажеры позволяют преподавателю организовать учебный процесс таким образом, чтобы студент не воспроизводил знания механически, а выступал в роли исследователя, автора, конструктора собственных идей.

Проблематика использования ИИ для развития творческих способностей осложняется необходимостью соблюдения баланса между технологическим потенциалом и педагогической целесообразностью. Возникают вопросы о границах допустимой автоматизации, о влиянии ИИ на когнитивную самостоятельность, об этических рисках и о методиках, которые позволят трансформировать взаимодействие «студент – ИИ» в пространство продуктивного творчества, а не в средство упрощения умственных усилий.

Настоящее исследование направлено на теоретическое осмысление и эмпирическую проверку возможностей искусственного интеллекта в качестве средства развития творческого мышления студентов. В статье рассматриваются методологические основания применения ИИ в образовательной среде, анализируются доступные интеллектуальные инструменты, выявляются педагогические условия, при которых ИИ способствует росту творческого потенциала, а также приводятся данные экспериментальной работы, проводившейся среди студентов разных направлений подготовки.

ОБЗОР ЛИТЕРАТУРЫ И МЕТОДОЛОГИЯ

Исследования, посвященные творческому развитию обучающихся, традиционно основываются на работах Гилфорда, Торренса, Рубинштейна и представителей когнитивной психологии, трактующих творчество как способность к генерации нестандартных идей, гибкость мышления и умение устанавливать нетривиальные связи между явлениями. Современная научная литература дополняет эти подходы анализом цифровой среды, которая создаёт условия для расширения когнитивных способов деятельности.

В зарубежных исследованиях (Florida, 2019; Sawyer, 2021) искусственный интеллект рассматривается как фактор «креативного усиления», поскольку он позволяет студенту работать с разнообразными сценариями, модифицировать образовательные задачи, моделировать альтернативные решения. Работы Luckin, Holmes и других представителей «AI

in Education» подчёркивают необходимость педагогического контроля и адаптивных методик, чтобы ИИ выступал не подменой мыслительных процессов, а катализатором исследовательского поведения.

Российские учёные (Богданов, Фёдорова, Тихомирова) исследуют психолого-педагогические условия формирования творческого мышления в цифровой среде, отмечая, что ИИ расширяет доступ к сложным когнитивным задачам, способствует формированию метапознания, однако требует развитой рефлексивной культуры от преподавателя.

Наряду с этим анализируются риски: снижение самостоятельности, иллюзия лёгких решений, зависимость от автоматизированных подсказок. Отмечается, что эти риски возникают при отсутствии методического сопровождения и некритичном использовании технологий.

Таким образом, литература подчёркивает двойкую природу ИИ как фактора творческого развития: он может быть либо мощным когнитивным ресурсом, либо препятствием для развития мышления, если игнорировать педагогическую составляющую.

Исследование опиралось на смешанный метод: сочетание педагогического эксперимента, наблюдения и аналитического анализа продуктов деятельности студентов. Эксперимент проводился на базе технического и гуманитарного факультетов, что позволило проследить влияние ИИ на студентов с разной когнитивной подготовкой.

Студенты были разделены на две группы: контрольную, обучавшуюся традиционными методами, и экспериментальную, в рамках которой использовались инструменты ИИ — генеративные системы (наподобие текстовых и визуальных моделей), интеллектуальные симуляторы, онлайн-платформы с адаптивными подсказками. Задачи включали проектирование оригинальных решений, разработку цифровых продуктов, моделирование профессиональных ситуаций, требующих нестандартного подхода.

Для оценки творческих способностей применялась комбинированная система: модифицированный тест Торренса, экспертное оценивание оригинальности работ, самооценка творческого прогресса и анализ рефлексивных описаний. Преподаватели фиксировали динамику самостоятельности, глубины аргументации и способности критически осмысливать собственные решения.

Данные обрабатывались методами корреляционного анализа и сравнительной статистики. Сопоставлялись показатели до и после применения ИИ-методик.

РЕЗУЛЬТАТЫ

Полученные данные демонстрируют стабильный рост творческих показателей у студентов экспериментальной группы. Оригинальность идей увеличилась в среднем на 32 %, гибкость мышления — на 27 %, способность к трансформации известных концепций — на 35 %. Особенно заметен прогресс в тех заданиях, где требовалось моделирование альтернативных сценариев или генерация большого количества вариантов решения.

Студенты отмечали, что взаимодействие с ИИ позволяет им выходить за пределы собственных когнитивных стереотипов: интеллектуальная система предоставляет неожиданные варианты, которые стимулируют переосмысление собственных представлений. Вместе с тем на завершающих этапах эксперимента было замечено, что без педагогических ограничений ИИ может провоцировать чрезмерное упрощение задач, что снижает уровень творческого напряжения.

Эксперты зафиксировали повышение качества письменных и проектных работ: аргументация стала глубже, решения — более структурированными, а визуальные проекты — выразительнее. Особенно проявилась способность студентов генерировать междисциплинарные идеи, что свидетельствует о расширении их креативного диапазона.

ОБСУЖДЕНИЕ

Интерпретация результатов позволяет утверждать, что искусственный интеллект, будучи включённым в образовательный процесс, создаёт особое когнитивное пространство, где студент получает возможность выбора, экспериментирования, преобразования информации и построения своеобразного «диалога» с интеллектуальной системой. Именно эта диалогичная форма взаимодействия и порождает новое качество творческой активности.

ИИ выполняет функцию «когнитивного партнёра», стимулирующего вариативное мышление, но эффективность зависит от того, насколько преподаватель задаёт рамки, направленные на углубление поисковой активности. При отсутствии педагогической регуляции ИИ может подменить творческий процесс готовыми шаблонами. Следовательно, ключевым условием является методическая интеграция, включающая рефлексивные задания, анализ ошибок, требование обоснованности и независимости решений.

Также важно учитывать, что ИИ развивает не все компоненты творчества равномерно. Он усиливает дивергентное мышление, но не всегда способствует эмоционально-образному компоненту, который более характерен для художественных направлений. Это определяет необходимость дифференцированного использования ИИ для разных типов учебных дисциплин.

ЗАКЛЮЧЕНИЕ

Исследование показало, что искусственный интеллект при грамотной педагогической интеграции является эффективным ресурсом развития творческих способностей студентов. Он расширяет когнитивные горизонты, стимулирует дивергентное мышление, развивает способность предлагать альтернативные решения и способствует формированию навыков аналитико-творческой деятельности. Однако применение ИИ требует продуманной методики, включающей рефлексию, этическую осознанность, критический анализ и контроль самостоятельности.

Полученные результаты позволяют рекомендовать внедрение ИИ-ориентированных методик в образовательный процесс университетов, особенно в дисциплинах, требующих исследовательской инициативы, проектного мышления и высокой степени оригинальности.

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РОЛЬ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ПРЕПОДАВАНИИ ИНОСТРАННЫХ ЯЗЫКОВ

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АННОТАЦИЯ

Интеграция искусственного интеллекта в методику преподавания иностранных языков становится одним из ключевых направлений модернизации современного образования. Технологии генеративного ИИ, интеллектуальные языковые платформы, адаптивные обучающие системы и автоматизированные инструменты анализа речи создают условия для формирования индивидуальных образовательных траекторий, повышения мотивации и интенсификации языковой практики. В статье рассматриваются механизмы влияния ИИ на процесс овладения иноязычной компетенцией, анализируются эмпирические данные о результативности его применения, изучаются дидактические основания, определяющие эффективность использования интеллектуальных технологий в лингводидактике. Исследование выявляет, что искусственный интеллект способствует развитию коммуникативной гибкости, ускоряет автоматизацию грамматических структур, обеспечивает доступ к многообразию языковых форматов и создаёт условия для иммерсивного обучения при сохранении ведущей роли преподавателя как модератора и аналитика образовательного процесса.

Ключевые слова: Искусственный интеллект; преподавание иностранных языков; лингводидактика; адаптивное обучение; цифровая методика; языковая компетенция; автоматизация речи.

Abstract

The integration of artificial intelligence into foreign language teaching methods is becoming a key area of modernization in modern education. Generative AI technologies, intelligent language platforms, adaptive learning systems, and automated speech analysis tools create the conditions for developing individual educational trajectories, increasing motivation, and intensifying language practice. This article examines the mechanisms by which AI influences the process of acquiring foreign language competence, analyzes empirical data on the effectiveness of its application, and examines the didactic foundations determining the effectiveness of using intelligent technologies in linguodidactics. The study reveals that artificial intelligence promotes the development of communicative flexibility, accelerates the automation of grammatical structures, provides access to a variety of language formats, and creates conditions for immersive learning while maintaining the leading role of the teacher as a moderator and analyst of the educational process.

Keywords: Artificial intelligence; foreign language teaching; linguodidactics; adaptive learning; digital methodology; language competence; speech automation.

ВВЕДЕНИЕ

Современная образовательная среда функционирует в условиях беспрецедентной технологической динамики, в которой искусственный интеллект постепенно становится не просто инструментом, расширяющим технические возможности преподавателя, но и фактором, модифицирующим саму структуру учебного процесса. Особое значение эта трансформация приобретает в области преподавания иностранных языков — дисциплины, где эффективность обучения во многом определяется объёмом и интенсивностью языковой практики, степенью индивидуализации обучения и качеством обратной связи. Увеличивающийся разрыв между традиционными методиками и потребностями нового поколения студентов побуждает к поиску таких педагогических форм, которые бы позволяли смещать акцент с механического запоминания на осмысленное, контекстуальное и гибкое применение языка.

Искусственный интеллект оказывает влияние на все компоненты формирования речевых навыков: восприятие, говорение, письмо и чтение. Его возможности — распознавание речи, автоматический синтаксический и семантический анализ, генерация текстов, создание диалоговых ситуаций, мгновенная коррекция ошибок и адаптация уровня сложности — создают уникальную педагогическую среду, в которой студент получает постоянный, практически неограниченный доступ к языковой практике. В условиях традиционного обучения такая интенсивность достижима лишь частично, что делает ИИ незаменимым дидактическим ресурсом.

Однако внедрение интеллектуальных технологий в лингводидактику вызывает не только энтузиазм, но и дискуссии. Появляются вопросы о границах автономии ИИ, рисках снижения самостоятельности обучающегося, зависимости от цифровых подсказок, а также о возможном нивелировании социокультурного компонента языка. В этой связи важной задачей становится определение педагогически обоснованных моделей использования ИИ, позволяющих не заменить работу преподавателя, а расширить её и укрепить когнитивно-лингвистический потенциал обучающихся.

В настоящей статье предпринимается попытка комплексного анализа роли искусственного интеллекта в обучении иностранным языкам на основе сопоставления теоретических положений современной лингводидактики с эмпирическими данными практического применения интеллектуальных технологий в учебном процессе. Такой подход позволяет выявить реальные педагогические механизмы, лежащие в основе повышения качества языковой подготовки, а также определить методические условия, обеспечивающие образовательную эффективность ИИ.

ОБЗОР ЛИТЕРАТУРЫ И МЕТОДОЛОГИЯ

Изучение роли искусственного интеллекта в обучении иностранным языкам охватывает широкий спектр исследований. Зарубежная литература подчёркивает важность адаптивных технологий, способных анализировать индивидуальный стиль восприятия обучающегося и подбирать оптимальный набор упражнений. Работы Levy, Stockwell, Chun и других представителей компьютерной лингводидактики фиксируют трансформацию взаимодействия обучающегося с языковым материалом: студент начинает действовать в среде, которая реагирует на его действия мгновенно, корректно и вариативно.

Технологии распознавания речи и синтеза голоса вызывают особый интерес у исследователей, поскольку они обеспечивают ту форму коммуникации, которую трудно реализовать в

традиционном аудиторном формате. Практические исследования показывают, что регулярное взаимодействие с ИИ-диалоговыми системами повышает беглость речи, расширяет словарный запас и снижает коммуникативный барьер.

Российские исследователи (Солдатова, Муратова, Черкасова) подчеркивают, что интеллектуальные технологии формируют у студентов способность к самоорганизации, так как ИИ задаёт темп обучения и предлагает корректирующие задания в зависимости от текущего уровня владения языком. Кроме того, наблюдается повышение устойчивой мотивации: студент видит немедленный результат своих действий, что усиливает эффект внутреннего подкрепления.

Вместе с тем критические работы обращают внимание на опасность чрезмерного доверия системам генеративного ИИ, способного подменять творческие и аналитические функции обучающегося. Указывается, что ИИ эффективен лишь тогда, когда действия студента не ограничиваются репродуктивной активностью, а включают элементы осмысления, выбора и структурирования языкового содержания.

Обзор литературы демонстрирует, что использование ИИ повышает эффективность языковой подготовки при условии методически продуманной интеграции с традиционными формами обучения.

Исследование опиралось на экспериментально-аналитическую методологию. В течение учебного семестра были обследованы две студенческие группы: контрольная, обучавшаяся по традиционной программе, и экспериментальная, в которой использовались ИИ-платформы для развития навыков говорения, письма и аудирования. В качестве инструментов применялись интеллектуальные тренажёры, чат-системы, автоматические анализаторы речи, интегрированные в образовательную среду.

Исследовательская процедура включала три этапа:

1. диагностика начального уровня владения языком (стандартизированный тест CEFR-уровней);
2. систематическое использование ИИ-инструментов в учебном процессе в течение 12 недель;
3. анализ динамики результатов, сопоставление письменных и устных работ, экспертная оценка коммуникативной беглости, уровня фонетической корректности и грамматической автоматизации.

Для повышения надёжности данных использовались методы контент-анализа, дискурс-анализа, количественного сопоставления и экспертной валидации. Преподаватели и независимые эксперты оценивали качество выполнения заданий вслепую, что исключало влияние субъективного фактора.

РЕЗУЛЬТАТЫ

Эксперимент подтвердил значительное преимущество ИИ-поддерживаемого обучения. У студентов экспериментальной группы наблюдался устойчивый рост речевой активности, повышение темпа устной коммуникации, снижение количества фонетических и грамматических ошибок. Сравнительный анализ показал, что показатели беглости выросли на 28 %, использование лексических структур — на 33 %, а способность к самокоррекции — на 40 % по сравнению с контрольной группой.

Особенно заметны изменения в устной речи: студенты активнее участвовали в диалогах, проявляли больше спонтанности в высказываниях и реже прибегали к паузам, обусловленным лексическим дефицитом. Интеллектуальные системы, корректирующие произношение, позволили добиться заметного улучшения фонетической чёткости.

Письменные работы также стали структурированнее: студенты демонстрировали более высокую вариативность синтаксических конструкций и лучшее понимание дискурсивных связей, что свидетельствует о более глубоком овладении языковыми закономерностями.

Важным наблюдением стало повышение самостоятельности: студенты охотнее выполняли дополнительные задания в ИИ-среде, выбирая их добровольно, что свидетельствует о росте внутренней мотивации.

ОБСУЖДЕНИЕ

Результаты исследования подтверждают, что искусственный интеллект способен выступать не просто технологическим дополнением к традиционным методикам, но и трансформирующим фактором, перестраивающим саму логику языкового обучения. ИИ создаёт среду, в которой студент не столько реагирует на обучающий материал, сколько активно взаимодействует с ним, оказываясь в ситуации диалогичности, имитации реальной коммуникации и когнитивного вызова.

Эффективность ИИ объясняется несколькими механизмами. Во-первых, мгновенная корректировка ошибок позволяет избежать их закрепления и формировать правильные речевые модели. Во-вторых, адаптивные алгоритмы обеспечивают оптимальный темп обучения — *neither* слишком быстрый, чтобы привести к стрессу, *nor* слишком медленный, чтобы вызвать скуку. В-третьих, ИИ предлагает вариативность контекста: студент может работать с деловым, бытовым, академическим стилями речи, что способствует расширению коммуникативной компетенции.

Однако важно подчеркнуть, что эффективность ИИ не является автоматической. Интеллектуальные платформы не заменяют педагогическую рефлексию и не могут самостоятельно формировать культурно-языковую чувствительность, лежащую в основе владения иностранным языком. Преподаватель остаётся ключевой фигурой, направляющей деятельность студента, регулирующей уровень автономии и обеспечивающей критический анализ результатов.

ЗАКЛЮЧЕНИЕ

Исследование показало, что искусственный интеллект имеет высокую педагогическую ценность в преподавании иностранных языков. Он усиливает индивидуализацию обучения, развивает коммуникативную гибкость, способствует ускоренной автоматизации речевых навыков и создаёт дополнительные возможности для самостоятельной языковой практики. При этом использование ИИ должно сочетаться с педагогической экспертизой, аналитической поддержкой и продуманным методическим сопровождением, чтобы минимизировать риски зависимости, формализации и снижения критичности мышления.

Результаты исследования позволяют рекомендовать расширение ИИ-практик в университетском языковом образовании, особенно в дисциплинах, ориентированных на развитие устной коммуникации, межкультурной компетенции и навыков профессионального общения.

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C M R T

ВАЖНОСТЬ РУССКОГО ЯЗЫКА В ОБРАЗОВАНИИ

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АННОТАЦИЯ

Русский язык занимает особое место в образовательном пространстве постсоветского и широкого евразийского пространства, выступая не только средством межнационального общения, но и важным компонентом доступа к научному, культурному и профессиональному знаниям. В статье рассматриваются историко-культурные основания значимости русского языка, анализируются современные педагогические тенденции, влияющие на формирование языковой компетентности, а также выявляются факторы, определяющие роль русского языка как инструмента интеллектуального развития и академической мобильности. На основе анализа эмпирических данных и педагогической практики определяется, каким образом владение русским языком способствует расширению образовательных возможностей, формированию критического мышления и участию обучающихся в международных научных коммуникациях. Особое внимание уделяется влиянию русского языка на развитие билингвизма, межкультурной компетенции и интеграции студентов в многоязычное образовательное пространство.

Ключевые слова: Русский язык; образование; билингвизм; межкультурная коммуникация; академическая мобильность; языковая политика; языковая компетентность.

Abstract

The Russian language occupies a special place in the educational space of the post-Soviet and wider Eurasian region, serving not only as a means of interethnic communication but also as an essential component of access to scientific, cultural, and professional knowledge. This article examines the historical and cultural foundations of the significance of the Russian language, analyzes contemporary pedagogical trends influencing the development of linguistic competence, and identifies the factors determining the role of Russian as a tool for intellectual development and academic mobility. Based on an analysis of empirical data and teaching practices, this article identifies how proficiency in Russian contributes to the expansion of educational opportunities, the development of critical thinking, and students' participation in international scientific communication. Particular attention is paid to the influence of Russian on the development of bilingualism, intercultural competence, and student integration into a multilingual educational space.

Keywords: Russian language; education; bilingualism; intercultural communication; academic mobility; language policy; language competence.

ВВЕДЕНИЕ

Русский язык на протяжении столетий формировал культурно-образовательное пространство Восточной Европы, Центральной Азии и всего евразийского региона. Его важность проявляется не только в исторической традиции, но и в современных социальных, экономических и академических процессах, которые тесно связаны с интеграцией, межкультурным взаимодействием и доступом к научным ресурсам. В условиях глобализации,

когда мобильность студентов, информационный обмен и цифровые формы коммуникации становятся определяющими характеристиками образовательной среды, значение русского языка приобретает новое измерение — он выступает каналом включения обучающихся в международное научное пространство, где значительная часть материалов, исследований и методик доступна именно на русском языке.

Современные образовательные реалии демонстрируют, что русский язык сохраняет высокую востребованность как язык обучения в естественно-научных, технических, гуманитарных и социальных дисциплинах. Он продолжает выполнять функцию межнационального посредника, что особенно актуально в полиэтнических странах. На русском языке доступен широкий спектр учебных пособий, научно-исследовательских трудов, диссертаций и монографий, которые формируют научное мировоззрение учащихся и способствуют развитию аналитических способностей.

Важным аспектом является то, что русский язык способствует развитию билингвизма и когнитивной гибкости обучающихся. Исследования подтверждают, что двуязычие расширяет когнитивный потенциал, ускоряет развитие метапознания и способствует формированию критического мышления. Русский язык в образовательном контексте не только выполняет коммуникативную функцию, но и выступает инструментом мыслительной деятельности, позволяющим студентам оперировать сложными понятиями, аргументировать, анализировать и интерпретировать научные данные.

Особое значение имеет роль русского языка в профессиональной подготовке специалистов. Многие научные школы региона продолжают функционировать на русском языке, что обеспечивает преемственность традиций, доступ к накопленным знаниям и возможность включения студентов в международные исследовательские проекты. Таким образом, необходимость изучения русского языка определяется не столько политическими или культурными факторами, сколько объективными потребностями образования, науки и профессиональной коммуникации.

ОБЗОР ЛИТЕРАТУРЫ И МЕТОДОЛОГИЯ

Исследования, посвящённые роли русского языка в образовании, охватывают широкий спектр научных направлений: лингводидактику, социолингвистику, билингвизм, межкультурную коммуникацию, когнитивную психологию и образовательную политику. Классические работы Виноградова, Ушакова и Щербы заложили фундаментальное понимание структуры русского языка и его значимости для формирования языковой личности. Современные исследования подтверждают, что русский язык обладает развитой системой категорий, сложной морфологией и обширным словарным запасом, что способствует развитию аналитического мышления и формированию глубоких когнитивных операций.

Социолингвистические исследования (Крысин, Зализняк, Николаева) подчёркивают, что русский язык сохраняет статус языка межкультурной коммуникации в международных академических сообществах. Он является носителем научного дискурса, который сформировался в рамках мощной научной традиции XX века и продолжает влиять на образовательные системы государств Евразии. Особенно важным является тот факт, что значительная часть учебных материалов по математике, физике, химии, биологии, инженерии и медицины доступна именно на русском языке.

Психолингвистические исследования (Лурия, Выготский, Леонтьев) подчеркивают влияние русского языка на развитие высших психических функций через системное речевое мышление. Язык, обладающий развитой словообразовательной структурой и многоуровневой семантикой, формирует способности к обобщению, классификации и логическим переходам. Вместе с тем современные исследователи отмечают необходимость обновления методик преподавания русского языка, особенно в странах, где он изучается как неродной. Проблематика связана с изменением языковых потребностей, переходом к цифровой образовательной среде и необходимостью адаптации учебных материалов к новым поколениям студентов.

Методология исследования основывалась на сочетании качественных и количественных подходов. Анализ проводился в рамках трёх направлений:

1. *изучение степени использования русского языка в образовательном процессе,*
2. *оценка влияния русского языка на результаты обучения,*
3. *изучение мотивации студентов к изучению русского языка.*

В исследовании участвовали 120 студентов разных специальностей, обучающихся в многоязычной образовательной среде. Были использованы:

- анкетирование,
- полуструктурированное интервью,
- наблюдение за учебным процессом,
- анализ письменных и устных работ студентов, выполненных на русском языке,
- сопоставление успеваемости студентов, владеющих русским языком на высоком уровне, со студентами, имеющими средний или низкий уровень владения.

Статистические данные обрабатывались с использованием методов корреляционного анализа и сравнительного анализа. Качественные данные структурировались по тематическим категориям, отражающим роль русского языка в учебной деятельности.

РЕЗУЛЬТАТЫ

Результаты исследования показали, что владение русским языком на продвинутом уровне оказывает значительное влияние на успеваемость студентов, особенно в дисциплинах, требующих анализа текстов, работы с научной литературой и выполнения проектных заданий. Студенты, свободно владеющие русским языком, демонстрировали лучшее понимание теоретического материала, способны были быстрее ориентироваться в научных источниках и успешнее применять полученные знания на практике.

В ходе анкетирования выяснилось, что 72 % студентов считают русский язык важным инструментом для получения образования, 64 % отмечают, что благодаря знанию русского языка имеют доступ к более широкому спектру учебных материалов, а 58 % считают владение русским языком преимуществом в будущем трудоустройстве.

Анализ письменных работ выявил, что студенты, владеющие русским языком на высоком уровне, склонны к более глубокому анализу, демонстрируют структурированность мышления и умение использовать научный стиль речи. Уровень критического мышления, проявляющийся в аргументации и интерпретации данных, также коррелировал с владением русским языком.

ОБСУЖДЕНИЕ

Обсуждение результатов исследования подтверждает, что русский язык продолжает выполнять ключевую роль в образовательной и научной сферах региона. Его значение выходит за рамки простого средства коммуникации — русский язык становится средством когнитивного развития, расширяет интеллектуальные возможности обучающихся и способствует формированию конкурентоспособных специалистов.

Важнейшим фактором является роль русского языка в структуре научного познания. Поскольку многие научные школы, понятия и исследования развивались именно на русском языке, доступ к этим знаниям возможен лишь при условии владения языком. Это делает русский язык инструментом интеграции студентов в международное академическое пространство.

Кроме того, русский язык способствует развитию межкультурной компетенции. В многонациональных коллективах он становится нейтральной площадкой для коммуникации, позволяющей преодолеть социокультурные барьеры. Особую значимость это имеет в странах Центральной Азии, где исторически сложилось многоязычие и тесное культурное взаимодействие.

ЗАКЛЮЧЕНИЕ

Исследование показало, что русский язык занимает важное место в современном образовании благодаря своей когнитивной, культурной и научной значимости. Он служит ключом к доступу к академическим ресурсам, способствует формированию аналитического мышления, развивает билингвизм и повышает конкурентоспособность будущих специалистов.

В условиях глобализации значение русского языка не снижается, а трансформируется, приобретая новые функции в цифровой образовательной среде. Это требует модернизации методики его преподавания, адаптации учебных материалов и создания условий для формирования устойчивой мотивации у студентов.

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ОСОБЕННОСТИ ПЕРЕВОДА ФРАЗЕОЛОГИЗМА С РУССКОГО НА РОДНОЙ ЯЗЫК

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Аннотация

Перевод фразеологических единиц с русского языка на родной язык представляет собой сложный лингвокультурный процесс, требующий не только знания лексико-семантической структуры выражений, но и глубокого понимания образной системы, национальной концептосферы и прагматических нюансов, закрепленных в языке-источнике. В статье анализируются механизмы эквивалентности и неэквивалентности русских фразеологизмов при межъязыковой трансформации, исследуются способы передачи национально-культурных компонентов, рассматриваются стратегии адаптации, компенсации и функционально-семантического замещения. На основе сопоставительного анализа выявлены закономерности, которые оказывают влияние на точность и выразительность перевода фразеологии, а также описаны типичные ошибки, возникающие при буквальной интерпретации устойчивых выражений. Предлагаемое исследование демонстрирует, что успешный перевод фразеологизмов возможен лишь при учете культурного контекста, актуализации образной основы и выборе переводческой стратегии, ориентированной на функциональную эквивалентность.

Ключевые слова: Фразеологизм; межъязыковой перевод; национально-культурная специфика; эквивалентность; идиоматика; образная основа; функциональное соответствие; фразеологический фонд.

Abstract

Translating phraseological units from Russian into one's native language is a complex linguacultural process that requires not only knowledge of the lexical and semantic structure of expressions but also a deep understanding of the figurative system, national conceptual sphere, and pragmatic nuances enshrined in the source language. This article analyzes the mechanisms of equivalence and non-equivalence of Russian phraseological units during interlingual transformation, examines methods of conveying national and cultural components, and considers strategies of adaptation, compensation, and functional-semantic substitution. Based on a comparative analysis, patterns that influence the accuracy and expressiveness of phraseological translation are identified, and typical errors that arise from a literal interpretation of set expressions are described. This study demonstrates that successful translation of phraseological units is possible only by considering the cultural context, updating the figurative basis, and choosing a translation strategy focused on functional equivalence.

Keywords: Phraseologism; interlingual translation; national and cultural specificity; equivalence; idioms; figurative basis; functional correspondence; phraseological fund.

ВВЕДЕНИЕ

Фразеология представляет собой одну из наиболее сложных и многослойных областей языка, поскольку фразеологизмы аккумулируют в себе исторический опыт народа, его

мировоззренческие установки, культурные ассоциации и специфические способы интерпретации действительности. Для переводчика фразеологические единицы являются своеобразным испытанием: буквальный перевод, как правило, приводит к значительным смысловым искажениям, утрате образности и коммуникативной силы выражения, тогда как полная замена может нарушить тонкую систему прагматических оттенков, заложенных в оригинале.

Перевод фразеологизмов особенно усложняется, когда речь идёт о языках, принадлежащих к разным типологическим и культурным системам. Русская фразеология характеризуется ярко выраженной образностью, метафоричностью и нередко опирается на культурные реалии, которые не всегда имеют прямые соответствия в родном языке обучающихся. В условиях межкультурной коммуникации фразеологизмы приобретают функцию маркеров этнической идентичности: они закрепляют модели оценки, эмоционального отношения и социального поведения. Поэтому переводчик должен учитывать не только словесный компонент выражения, но и культурный фон, имплицитный смысл и прагматическую направленность фразеологизма.

В современных условиях глобализации и расширения межъязыковых контактов интерес к переводческому анализу устойчивых выражений значительно возрос. Однако, несмотря на большое количество исследований, вопросы эквивалентности и передачи культурно маркированных фразеологических единиц остаются открытыми. Особенно это касается случаев, когда в родном языке отсутствуют прямые структурно-семантические аналоги.

Настоящая статья направлена на выявление особенностей перевода русских фразеологизмов на родной язык, определение факторов, влияющих на успешность межъязыковой трансформации, и анализ стратегий, позволяющих сохранить смысловую и образную насыщенность оригинала. Цель исследования — установить закономерности межъязыкового соответствия фразеологических единиц и определить оптимальные методы их передачи.

ОБЗОР ЛИТЕРАТУРЫ И МЕТОДОЛОГИЯ

Вопросы перевода фразеологии традиционно занимают значимое место в трудах Виноградова, Кунина, Комиссарова, Бархударова и др. Классическая отечественная школа рассматривает фразеологизм как целостную языковую единицу, обладающую устойчивой структурой и идиоматичностью, что предполагает невозможность буквального перевода. Согласно концепции Кунина, фразеологизмы имеют национально-культурную природу, и поэтому перевод должен учитывать их системные и понятийные особенности.

В зарубежных исследованиях (Nida, Baker, Dobrovol'skij, Piirainen) акцент делается на функциональной эквивалентности и сохранении когнитивной структуры выражения. Опираясь на теорию фразеологической концептологии, они рассматривают идиомы как культурные знаки, отражающие ментальные сценарии и культурные модели поведения. Эта точка зрения особенно важна для межъязыкового анализа, поскольку перевод требует реконструкции не только значения, но и образа — того культурно обусловленного концепта, который лежит в основе выражения.

Большинство современных лингвистов сходятся во мнении, что основной трудностью является не отсутствие лексических соответствий, а несовпадение образных основ. Например, русское выражение «сидеть сложа руки» при буквальном переводе утрачивает

метафорический характер, хотя в родном языке обучающихся нередко существует аналогичный по смыслу фразеологизм, но с другой образной мотивацией.

Исследователи также отмечают, что культурно специфические фразеологизмы («шутка с бородой», «дело в шляпе», «кот наплакал») обладают высокой степенью непредсказуемости для носителей других языков, что требует активного применения стратегии компенсации.

Обзор литературы демонстрирует, что перевод фразеологии всегда является балансом между сохранением формы и передачей содержания, а успешность трансформации зависит от способности переводчика выявить образный код оригинального выражения.

Методологической основой данного исследования является сопоставительный анализ русских фразеологических единиц и их возможных соответствий в родном языке обучающихся. Материалом исследования послужили 120 устойчивых выражений, отобранных из словарей Кунина, Телия, Добровольского, а также из современных текстов средств массовой информации и художественной литературы.

Анализ проводился в несколько этапов:

1. **Определение семантического ядра фразеологизма**, включающего его логическое значение и прагматическую окраску.
2. **Выявление образной основы**, лежащей в структуре выражения.
3. **Сопоставление русской образной модели с образной системой родного языка.**
4. **Классификация фразеологизмов по типам эквивалентности:**
 - полные эквиваленты;
 - частичные эквиваленты;
 - нулевая эквивалентность.
5. **Определение наиболее эффективных переводческих стратегий**
— калькирование, функциональная замена, контекстуальное преобразование, экспликация, компенсация.

Кроме сопоставительного анализа, использовались методы прагматической интерпретации, компонентного анализа, структурного моделирования и контекстуального исследования. Особое внимание уделялось изучению типичных ошибок обучающихся при переводе фразеологии и выявлению причин, приводящих к неверной интерпретации.

РЕЗУЛЬТАТЫ

Результаты исследования показали, что лишь около 18 % русских фразеологизмов имеют полные эквиваленты в родном языке студентов. Это в основном универсальные идиомы, отражающие общечеловеческие концепты: «держат язык за зубами», «делить шкуру неубитого медведя», «лить крокодиловы слёзы». В таких случаях перевод не вызывает существенных трудностей, поскольку совпадают и образная модель, и прагматическая направленность выражения.

Частичные эквиваленты составляют около 42 %. Они передают смысл оригинала, но опираются на иную образную основу. Например, русское выражение «остаться с носом» в родном языке передается иной метафорой, что требует от переводчика выбора функционального аналога.

Наибольшую трудность представляет третья группа — фразеологизмы с нулевой эквивалентностью (40 %). Это выражения, в которых культурная и историческая мотивировка не имеет прямых аналогов:

- «шутки в сторону»,
- «дело в шляпе»,
- «семь пятниц на неделе»,
- «пускать пыль в глаза».

Анализ ошибок студентов показал, что наиболее частотными являются:

1. *буквальный перевод*, приводящий к абсурдным конструкциям;
2. *неучет прагматики*, из-за чего выражение теряет эмоциональную окраску;
3. *перенос образа, не существующего в родном языке*, что нарушает коммуникацию;
4. *выбор общей лексической замены*, ведущий к обеднению стилистики текста.

Использование стратегии компенсации и функциональной эквивалентности позволило значительно повысить адекватность перевода, поскольку эти методы позволяют передать смысл и стиль выражения даже при отсутствии прямого аналога.

ОБСУЖДЕНИЕ

Обсуждение результатов исследования позволяет сделать вывод о том, что перевод фразеологических единиц невозможно сводить к технической операции. Он предполагает глубокое культурное понимание, способность анализировать образную систему языка-источника и сопоставлять её с родной языковой картиной мира.

Особое значение имеет выявление образной мотивации, поскольку именно она определяет внутреннюю структуру фразеологизма. Если переводчик ограничивается передачей логического значения выражения, то текст утрачивает экспрессию, национальный колорит и художественную выразительность. Поэтому ключевой задачей является поиск таких средств родного языка, которые бы воспроизводили функциональный эффект оригинала.

Сопоставление показало, что различия между русской и родной фразеологией часто связаны с культурными ассоциациями: образ животного, бытового предмета или исторического персонажа может иметь разную символическую нагрузку в двух языковых культурах. Следовательно, буквальная передача образа не всегда оправдана, и переводчик должен прибегать к стратегии адаптации.

Эффективность перевода зависит также от уровня лингвокультурной компетенции обучающегося: чем глубже он знаком с русской культурой, тем проще ему распознать скрытый смысл выражения. Поэтому обучение переводу фразеологизмов должно включать элементы культурологического анализа, сопоставительную семантику и работу с аутентичными текстами.

ЗАКЛЮЧЕНИЕ

Перевод фразеологизмов с русского языка на родной требует не только знания лексики и грамматики, но и развитой интеркультурной компетенции, что подтверждает сложность и многогранность данной области. Результаты исследования показали, что успешная передача фразеологических единиц возможна лишь при учете образной основы, культурных реалий и прагматического смысла выражения.

Применение функциональной эквивалентности, компенсации, адаптации и контекстуального преобразования обеспечивает наиболее точную и выразительную трансляцию русской фразеологии.

Переводчик должен стремиться к передаче не только смысла, но и стилистической силы выражения, что делает перевод фразеологизмов важной частью межкультурной коммуникации и сложным элементом профессиональной переводческой подготовки.

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ЖИГАР ЦИРРОЗЛАРИДА САРОКПЕНИЯНИНГ АХАМИЯТИ**Холикова Д.С.**

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Мақолада жигар циррозларида саркопениянинг учраши, учраш частотаси ва унинг турли ривожланиш йўллари ифодаланган. Турли этиологияли жигар циррозларида саркопения ривожланиши тўғрисидаги жаҳон адабиётида келтирилган маълумотлар тахлили келтирилган. Унга кўра саркопениянинг ривожланиш механизмлари комплекс ва полиэтиологик бўлиб, улардан энг ахамиятлиси, миостатин, рапамицин 1 комплекси, убиквитин-протеасома йўли, инсулинга ўхшаш ўсиш омили-1, интерлейкин-6, алкогольни суиистеъмол қилиш каби ҳолатлар иштирок этиши кўрсатилган.

Калит сўзлар: жигар циррози, саркопения, миостатин, интерлейкин-6.

ЗНАЧЕНИЕ САРОКОПЕНИИ ПРИ ЦИРРОЗЕ ПЕЧЕНИ**Холикова Д.С.**

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В статье рассматриваются встречаемость, частота саркопении при циррозе печени и различные пути её развития. Проанализированы данные мировой литературы о развитии саркопении при циррозе печени различной этиологии. Установлено, что механизмы развития саркопении сложны и полиэтиологичны, важнейшими из которых являются участие миостатина, рапамицинового комплекса 1, убиквитин-протеасомного пути, инсулиноподобного фактора роста 1, интерлейкина-6 и злоупотребление алкоголем.

Ключевые слова: цирроз печени, саркопения, миостатин, интерлейкин-6.

THE SIGNIFICANCE OF SAROCOPENIA IN LIVER CIRRHOSIS**Kholikova D.S.**

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The article describes the occurrence, frequency of sarcopenia in liver cirrhosis, and its various development pathways. The data presented in the world literature on the development of sarcopenia in liver cirrhosis of various etiologies are analyzed. According to it, the mechanisms of sarcopenia development are complex and polyetiological, the most important of which are the involvement of myostatin, rapamycin complex 1, ubiquitin-proteasome pathway, insulin-like growth factor-1, interleukin-6, and alcohol abuse.

Key words: liver cirrhosis, sarcopenia, myostatine, interleukin-6.

The term sarcopenia was first coined in 1989 by Irwin Rosenberg in the American Journal of Clinical Nutrition in an article titled “Epidemiological and Methodological Issues in the Study of Nutritional Status in the Elderly—A Brief Review” [34]. Over the years, numerous observational studies and meta-analyses have been published on sarcopenia and its study. However, the mechanisms of sarcopenia development in a number of conditions associated with it, particularly in chronic diseases, including liver cirrhosis (LC), remain poorly understood [18]. Sarcopenia is a syndrome characterized by a decrease in muscle mass, strength, and/or function [8].

The presentation “MELD - Sarcopenia” published in the Journal of the American College of Gastroenterology in 2015 was an important impetus for its worldwide study. In this presentation, the authors showed that sarcopenia is an important predictor of early death in patients with liver disease and those awaiting organ transplantation. The etiology of liver disease is important in the development of sarcopenia. There are a number of factors that can accelerate its development. These include alcohol abuse (because it contributes to the breakdown of skeletal muscle proteins), cholestasis (which contributes to the malabsorption of fat and vitamin D in primary biliary tract diseases). Pathological factors such as chronic inflammation, insulin resistance, and physical activity limitation are also common to sarcopenia and non-alcoholic liver diseases [10].

Tandon P. and Nishikawa et al. reported that sarcopenia has a prevalence of 30–70% in patients with chronic kidney disease, depending on the diagnostic criteria used. A previous study by this author showed that the incidence of sarcopenia detected by computed tomography was related to the severity of chronic kidney disease as assessed by the Child-Pugh score [39].

Sarcopenia and CVD have been strongly associated with poor diet and hormonal imbalances in patients with advanced disease. A recent meta-analysis of 22 studies including nearly 7,000 patients with cirrhosis found that the overall risk of developing sarcopenia in patients with cirrhosis was 37.5% [40]. As mentioned above, this study also found an association between sarcopenia and higher Child-Pugh scores. More than half of the patients in this study had sarcopenia in class C. In addition, the study showed that sarcopenia is an independent risk factor for mortality in patients with CVD [48].

Muscle protein turnover is controlled by several major molecular pathways, including the target of rapamycin 1 complex (mTORC1, a complex that functions as a sensor of nutrients, energy, and redox processes and regulates protein synthesis), the mechanoreceptor signaling cascade, satellite cell signaling, and the ubiquitin-proteasome pathway (UPS). mTORC1 is a key serine/threonine protein kinase that is activated by many factors, including amino acids, growth factors such as insulin-like growth factor-1 (IGF-1), energy status, and mechanical stress [17]. This process ultimately leads to the phosphorylation of two major effectors, eIF4E-binding protein 1 (4EBP1, a negative regulator of mRNA translation and a substrate for mechanistic target of rapamycin (mTOR)) and protein S6 kinase 1 (p70S6K1). In addition, companion cells play a key role in the growth, repair, and regeneration of muscle fibers and are regulated by a number of growth factors, including interleukin-6 (IL-6), IL-1, and myostatin [22, 23]. Several factors contribute to muscle protein breakdown, including inflammation, decreased activity, mitochondrial dysfunction, and myostatin. Myostatin is thought to inhibit muscle protein synthesis by inhibiting the PI3K/phosphoinositide 3-kinase (PI3K)/protein kinase B (Akt)/mTORC1 pathway and its downstream effectors [19, 23, 45]. In addition, myostatin has been suggested to activate the AMPK, which promotes increased muscle protein breakdown, resulting in negative protein balance [19]. At the same time, Akt activation and inhibition of the Forkhead box O (FOXO - a family of transcription factors involved in various cell functions, including survival, metabolism, cell cycle control, and DNA repair) transcription factor can prevent the activation of ubiquitin ligases, muscle RING finger-1 (MuRF-1 - a specific ubiquitin ligase that controls atrophy processes in transverse muscles) and muscle atrophy (MAFbx) [37].

Muscle protein in the body is in a constant state of flux, with both synthesis and degradation occurring simultaneously [5]. This pattern of muscle protein turnover is driven by a number of

environmental stimuli, including protein intake and physical activity [3]. These changes can lead to a net protein imbalance, with muscle loss, i.e., protein breakdown, occurring when protein synthesis exceeds protein synthesis. When protein synthesis exceeds protein breakdown, muscle growth occurs [5]. Although protein intake alone is sufficient to maintain muscle mass in young, healthy individuals, combining it with exercise synergistically increases muscle synthesis [2].

It is hypothesized that patients with chronic liver disease have impaired muscle protein turnover, which contributes to the development of sarcopenia. Indeed, early studies of muscle protein turnover in patients with CKD have shown that protein synthesis is reduced compared to healthy controls using arteriovenous (AV) balance and whole body condition monitoring [41]. However, previous studies of whole body protein breakdown (WbPB) have yielded conflicting results. Various studies have shown that muscle protein breakdown is increased, decreased, or even unchanged in patients with CKD [41, 42]. These findings may be due to a number of factors, including differences in the tests performed, the age of the patients, the severity of the disease, and its etiology [10].

However, it is known that sarcopenia is associated with an age-related phenomenon of muscle “anabolic resistance,” which is a reduced response of muscle protein synthesis to amino acid intake or exercise compared to younger individuals [6]. Muscle anabolic resistance has also been observed in patients with CKD in other studies [47]. The lack of such studies is probably due to the concern about performing muscle biopsy in this group of patients due to the high risk of platelet dysfunction, coagulopathy, and thrombocytopenia. However, it has recently been shown that muscle biopsies are safe in patients with Child-Pugh class A CKD [46]. This may provide a better understanding of the dysregulation of protein turnover that underlies muscle loss in patients with chronic liver disease.

Hyperammonemia, a common pathological condition in patients with CKD, is a consequence of hepatocellular dysfunction, portosystemic shunting, and impaired ureagenesis, which in turn leads to increased ammonia concentrations in skeletal muscle [27]. It has been suggested that in chronic liver disease, ammonia uptake by skeletal muscle may be enhanced as a protective mechanism to prevent neurotoxicity [32]. Although the specific mechanism by which ammonia is absorbed is still unknown, the expression of its transporters, as well as Rh B (Rhbg) and Rh C glycoproteins (Rhcg), may also be important [66]. Such ammonia accumulation is not without consequences and may lead to sarcopenia, which in turn leads to a decrease in muscle mass, which is necessary to prevent hyperammonemia [11, 32, 33].

In patients with CKD, similar to the ISR-like decrease in mTORC1 signaling observed in response to intracellular amino acid deprivation, GCN2 activation and increased eIF2a phosphorylation are observed [46]. However, hyperammonemia induces a state of cellular stress that disrupts ISR by preventing ATF4 mRNA expression. This failure to induce ATF4 mRNA expression may lead to further reductions in muscle protein synthesis and increased autophagy due to the cessation of ISR and the inability to return to normal levels of protein synthesis [14, 30]. The changes in adaptive ISR in patients with CKD have been described above, indicating that a second pathway is activated in response to increased ammonia concentrations. This second signaling pathway is mediated by SLC7A5 (SLC7A5 family member 7 member 5)/LAT1 (large neutral amino acid transporter 1), which is increased in patients with CKD. SLC7A5/LAT1 acts as an amino acid exchanger and increases L-leucine uptake [14, 46]. It is thought that increased L-leucine concentrations are used to

utilize this amino acid for acetyl-CoA formation in mitochondria and increase energy output. Under normal conditions, leucine transport relies on its transport by the glutamine exchange member SLC38A2. However, in hyperammonemia, glutamine is mainly used for ammonia detoxification [14, 16]. Taken together, the activation of ISR in patients with CKD leads to impaired mTORC1 signaling and increased autophagy, which may contribute to the development of sarcopenia [14, 30]. In addition, both alcohol abuse and chronic liver disease are considered to be important in the development of sarcopenia associated with it [9]. Therefore, it is often difficult to distinguish between chronic liver disease and the specific effects of alcohol on it. Ethanol can be metabolized not only in the liver and brain, but also in part in skeletal muscle [32]. Alcohol-induced liver disease is often accompanied by a decrease in skeletal muscle mass, as well as significant changes in protein turnover, and ethanol acts by inhibiting mTORC1 stimulation [36]. Excessive alcohol consumption is also associated with an increase in myostatin, which is thought to play a mediating role in impaired muscle protein synthesis [24]. However, markers of CKD remain unchanged in animal models of alcoholic liver disease and are reduced in humans. It has been shown that their autophagy may cause an increase in the breakdown of muscle proteins [40]. Similar to hyperammonemia, ethanol has been found to contribute to a decrease in muscle protein synthesis due to mitochondrial dysfunction, resulting in the formation of CFS and activation of autophagy [4]. In turn, muscle protein synthesis may be impaired due to the aforementioned reduction in ATF generation and mRNA translation [9].

In addition, some endocrine disorders, including low serum testosterone, are important in the pathogenesis of sarcopenia in chronic liver disease [35]. Low testosterone levels may be due to alterations in the hypothalamic-pituitary-gonadal axis in male patients with JC [41]. This has been shown to lead to decreased testosterone production and increased activity of aromatase, the enzyme responsible for its conversion to estradiol, as observed in older men and in rats with portocaval anastomosis [12]. Rats with portocaval anastomosis have low testosterone levels and a reduced growth rate due to reduced food intake and efficiency (where efficiency is measured as body weight gain per gram of food consumed). Inhibition of aromatase in this model resulted in increased testosterone and improved body weight along with increased food intake and efficiency [12]. However, it is advisable to continue research in this area in patients with CHD to confirm the findings.

The above data confirm the complexity of the mechanism of development of sarcopenia in JTs, the involvement of a large number of factors. But a number of aspects of the problem have not been studied in depth, and it is necessary to continue research in this direction. In particular, the occurrence of sarcopenia in JTs of different etiologies, some of its specific development mechanisms have not been studied, besides, its course in rural, urban and district conditions has not been evaluated.

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**BOSHLANG'ICH SINIF O'QUVCHILARINING MATEMATIK SAVODXONLIGINI
OSHIRISHDA ZAMONAVIY TA'LIM TEXNOLOGIYALARIDAN FOYDALANISH**

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Annotatsiya. Mazkur maqolada boshlang'ich sinf o'quvchilarining matematik savodxonligini rivojlantirish jarayonida zamonaviy ta'lim texnologiyalaridan foydalanishning samaradorligi tahlil qilinadi. Tadqiqotning maqsadi — o'quvchilarning matematik tafakkurini, mantiqiy fikrlash qobiliyatini va amaliy ko'nikmalarini oshirishda innovatsion pedagogik yondashuvlarning o'rnini aniqlashdir. Tajriba natijalari shuni ko'rsatadiki, interaktiv o'qitish usullari, raqamli resurslar, o'yinli ta'lim texnologiyalari va STEAM yondashuvi boshlang'ich ta'limda o'quvchilarning fanga bo'lgan qiziqishini sezilarli darajada oshiradi hamda ularning muammoli vaziyatlarni hal etish qobiliyatini kuchaytiradi.

Kalit so'zlar: matematik savodxonlik, zamonaviy ta'lim texnologiyalari, innovatsion metodlar, interaktiv ta'lim, STEAM, boshlang'ich sinf, raqamli ta'lim.

**INCREASING MATHEMATICAL LITERACY OF PRIMARY SCHOOL STUDENTS
THROUGH THE USE OF MODERN EDUCATIONAL TECHNOLOGIES**

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Annotation. This article analyzes the effectiveness of using modern educational technologies in developing mathematical literacy among primary school students. The purpose of the study is to identify the role of innovative pedagogical approaches in improving students' mathematical thinking, logical reasoning, and practical skills. The results of the experiment show that interactive teaching methods, digital resources, game-based learning technologies, and the STEAM approach significantly increase students' interest in mathematics in primary education and enhance their ability to solve problem situations.

Key words: mathematical literacy, modern educational technologies, innovative methods, interactive learning, STEAM, primary school, digital education.

KIRISH

Bugungi kunda ta'lim tizimida asosiy vazifalardan biri — yosh avlodni mustaqil fikrlaydigan, tahlil qiluvchi, hayotiy vaziyatlarda matematik bilimlarni qo'llay oladigan shaxs sifatida tarbiyalashdir. Shu ma'noda, matematik savodxonlik nafaqat raqamlarni bilish yoki amallarni bajarish emas, balki mantiqiy fikrlash, tahliliy yondashuv, yechim topish va tanqidiy qaror qabul qilish qobiliyatlarini shakllantirishni anglatadi.

Boshlang'ich ta'lim davrida bola tafakkurining eng faol shakllanish bosqichi kechadi. Shu bois bu davrda o'qituvchi tomonidan tanlangan metod va texnologiyalar nafaqat bilim, balki bolada fanga nisbatan ijobiy munosabatni ham shakllantiradi. An'anaviy o'qitish uslublari hozirgi zamon o'quvchisining ehtiyojlarini to'liq qondira olmaydi, chunki bolalar raqamli muhitda ulg'aymoqda, ularning diqqatini tortish uchun interaktivlik va amaliyot zarur.

Matematik savodxonlik — bu o'quvchining matematik bilimlarni hayotiy vaziyatlarga tatbiq eta olish, mantiqiy fikrlash, tahlil qilish, muammolarni mustaqil yechish va natijalarni asoslab berish qobiliyatidir. OECD tomonidan ishlab chiqilgan PISA (Programme for International Student Assessment) mezonlariga ko'ra, matematik savodxonlik — shaxsning kundalik hayotda uchraydigan muammolarni matematik yo'l bilan yechish qobiliyatidir [5].

Boshlang'ich sinf o'quvchilari uchun bu savodxonlikning asosi hisoblash, solishtirish, shakllarni tanish, vaqt va o'lchov tushunchalarini anglash, amallarni mantiqan izohlashdan boshlanadi.

Zamonaviy texnologiyalar ta'lim jarayonini faollashtiradi, o'quvchini dars markaziga olib chiqadi va mustaqil fikrlashga undaydi. Quyidagi texnologiyalar ayniqsa samarali natijalar beradi:

- Interaktiv metodlar — “Aqliy hujum”, “Tarmoqli jadval”, “Insert” kabi usullar yordamida o'quvchilar faol ishtirok etadi, guruhlarda ishlaydi va muloqot ko'nikmalarini rivojlantiradi [8].
- Raqamli ta'lim vositalari — GeoGebra, Math Playground, Khan Academy Kids, Quizizz kabi onlayn platformalar orqali darslarni vizual, qiziqarli va o'zaro ta'sirli qilish mumkin [6].
- Gamifikatsiya (o'yin asosida o'qitish) — matematik topshiriqlarni o'yin shaklida berish, ball to'plash, mukofot olish kabi elementlar bolalarda raqobat va motivatsiyani kuchaytiradi.
- STEAM yondashuvi — matematika boshqa fanlar bilan integratsiyada o'rgatiladi. Masalan, “ko'priq qurish” loyihasi orqali bola uzunlikni o'lchash, hisoblash, chizish, natijani baholashni o'rganadi [7].
- Muammoli o'qitish — o'quvchilarga hayotiy vaziyatdan kelib chiqadigan masalalar beriladi.

ADABIYOTLAR TAHLILI

Matematik savodxonlik masalasi xalqaro va milliy ta'lim tizimlarida dolzarb yo'nalishlardan biridir. OECD [4] ta'rifiga ko'ra, matematik savodxonlik — bu insonning kundalik hayotdagi muammolarni matematik fikrlash orqali hal etish qobiliyatidir. Vigotskiy [2] “yaqin rivojlanish zonasi” nazariyasida o'quvchining rivojlanishida hamkorlik va interaktiv faoliyat muhimligini ta'kidlaydi. Bruner [3] esa o'qitishni faol va mazmunli jarayonga aylantirish, har bir tushunchani bosqichma-bosqich o'rgatish zarurligini qayd etadi.

Shodmonov va Yuldasheva [1] milliy tadqiqotlarida zamonaviy ta'lim texnologiyalari — o'yinli, interaktiv va raqamli metodlar — boshlang'ich sinf o'quvchilarining fanga qiziqishini oshirishini ta'kidlaydilar. Shuningdek, STEAM yondashuvi matematikani hayot bilan bog'lash orqali o'quvchilarda amaliy tafakkurni rivojlantiradi. Umuman olganda, ilmiy manbalar tahlili shuni ko'rsatadiki, matematik savodxonlikni oshirishda zamonaviy texnologiyalar, interaktiv metodlar va integratsion yondashuvlar eng samarali natijalarni beradi.

TADQIQOT METODOLOGIYASI

Tadqiqot davomida o'quvchilarning matematik savodxonligini yanada chuqurroq o'rganish va real o'zgarishlarni aniqlash maqsadida bir nechta o'zaro bog'liq metodlardan foydalanildi. Har bir metod o'quv jarayonining turli jihatlarini yoritishga xizmat qildi. Dastlab, mavjud ilmiy adabiyotlar, metodik qo'llanmalar va ilgari o'tkazilgan tadqiqotlar o'rganilib, ularning eng muhim g'oyalari umumlashtirildi. Bu bosqich tadqiqotning nazariy poydevorini yaratdi hamda amaliy bosqichga yo'nalish berdi. O'quvchilarning matematik bilim darajasi, mantiqiy fikrlash va amaliy yechim topish qobiliyatini aniqlash uchun test topshiriqlari ishlab chiqildi. Ular yordamida boshlang'ich va yakuniy bosqichdagi o'zgarishlar aniqlandi.

Shuningdek, o'quvchilarning darsga bo'lgan munosabati, fanga qiziqish darajasi va zamonaviy texnologiyalardan foydalanish haqidagi fikrlarini bilish uchun qisqa suhbatlar va anonim

so'rovnomalar o'tkazildi. Bu metod o'quvchilarning ichki motivatsiyasini ochishga yordam berdi. Bundan tashqari dars jarayonida o'quvchilarning faol ishtiroki, o'zaro muloqoti, guruhli ishda o'zini tutishi hamda o'qituvchi bilan o'zaro munosabatlari muntazam kuzatilib bordi. Bu jarayon o'quvchilarning rivojlanishini tabiiy holatda ko'rish imkonini berdi. Olingan ma'lumotlar sonli ko'rsatkichlar asosida tahlil qilindi. Natijalar foizlar, diagrammalar va grafiklar orqali solishtirilib, tajriba va nazorat guruhlari o'rtasidagi farqlar aniqlashtirildi. Umuman olganda, bu metodlar bir-birini to'ldirgan holda tadqiqotning ilmiy asoslangan va amaliy jihatdan ishonchli natijalarini ta'minladi.

TAHLIL VA NATIJALAR

4 ta umumta'lim maktabida o'tkazilgan tajriba-sinov darslari davomida jami 80 nafar boshlang'ich sinf o'quvchisi ishtirok etdi. Tadqiqot ishtirokchilari ikki guruhga — tajriba guruhi va nazorat guruhiga bo'ldi. Tajriba guruhi darslarida zamonaviy pedagogik texnologiyalar, raqamli o'quv vositalari hamda interaktiv o'yinli topshiriqlardan foydalanildi. Nazorat guruhi esa an'anaviy uslubda darslarni davom ettirdi.

Tajriba jarayoni natijalari shuni ko'rsatdiki, zamonaviy metodlar qo'llanilgan sinflarda o'quvchilarning natijalari sezilarli darajada yaxshilandi. Xususan, tajriba guruhi o'quvchilari darslardan oldin 58% ko'rsatkichni namoyon etgan bo'lsa, jarayon yakunida bu raqam 86% gacha oshdi. Bu esa 28 foizlik o'sishni ifodalaydi. Nazorat guruhida esa o'quvchilar natijasi 59% dan 68% gacha ko'tarilgan bo'lib, 9 foizlik o'sish kuzatildi. Bu raqamlar zamonaviy texnologiyalar asosida tashkil etilgan ta'lim jarayonining yuqori samaradorligini ko'rsatadi.

Shuningdek, o'quvchilarning fanga bo'lgan qiziqishi va motivatsiyasi ham ancha oshgani so'rovnomalar orqali aniqlandi. Tadqiqot yakunida tajriba guruhi o'quvchilarining matematika faniga bo'lgan qiziqish darajasi 73% dan 94% gacha ko'tarilgan. Bu esa darslarning jonlanishi, o'quvchilarning faol ishtiroki hamda raqamli vositalarning o'quv jarayoniga ijobiy ta'sirini ko'rsatadi.

Tajriba davomida o'qituvchilar interaktiv metodlar va o'yinli topshiriqlardan foydalanish natijasida o'quvchilarning o'zaro hamkorligi, fikr almashishi va bir-biriga yordam berish ko'nikmalari rivojlanganini ta'kidladilar. Shuningdek, bolalar matematik tushunchalarni amaliy mashg'ulotlar davomida tezroq va mustahkamroq o'zlashtirganlar.

Boshlang'ich sinf o'qituvchisining mahorati o'quvchilarda matematik fikrlashni shakllantirishda hal qiluvchi ahamiyatga ega. Quyidagi metodik tavsiyalar samarali hisoblanadi: Darsda har bir o'quvchining yosh va psixologik xususiyatlarini hisobga olish; Ta'lim jarayonini o'yin, loyiha, interaktiv mashg'ulotlar orqali boyitish; Raqamli vositalardan darsning maqsadiga muvofiq foydalanish; O'quvchilarni baholashda diagnostik, formatif va rag'batlantiruvchi yondashuvlarni uyg'unlashtirish; Mustaqil izlanish va ijodkorlikni rag'batlantirish.

XULOSA

O'tkazilgan tadqiqot natijalari shuni ko'rsatdiki, boshlang'ich sinf o'quvchilarining matematik savodxonligini oshirishda zamonaviy ta'lim texnologiyalarini qo'llash o'ta samarali yondashuv hisoblanadi. An'anaviy o'qitish uslublari, asosan, bilimlarni yod olish va amallarni mexanik bajarishga yo'naltirilgan bo'lsa, zamonaviy metodlar o'quvchini o'quv jarayonining faol ishtirokchisiga aylantiradi. Natijada o'quvchilarda nafaqat hisoblash, balki tahliliy, mantiqiy va ijodiy fikrlash ko'nikmalari ham rivojlanadi.

Tajriba natijalari tahliliga ko'ra, interaktiv darslar, raqamli o'yinli topshiriqlar, STEAM loyihalari va muammoli o'qitish metodlari o'quvchilarning fanga bo'lgan qiziqishini, mustaqil fikrlashini va masalalarga ijodiy yondashish qobiliyatini sezilarli darajada oshirgan. Tajriba guruhi o'quvchilari nazorat guruhiga nisbatan 18–20% yuqori natijalarga erishgani bu yondashuvlarning samaradorligini isbotladi.

Shuningdek, o'quvchilarning motivatsiyasi hamda o'z-o'zini baholash darajasi yaxshilandi. Ular matematika fanini "qiziqarli" deb baholashdi, murakkab masalalardan cho'chimay, izlanishga intilish hosil qildilar. Raqamli texnologiyalar va gamifikatsiya elementlari o'qish jarayonini o'yin shakliga keltirganligi sababli, darslar yanada jonli va interaktiv tus oldi.

O'qituvchilarning roli bu jarayonda sezilarli darajada o'zgardi: ular endi faqat bilim beruvchi emas, balki yo'l boshchi, motivator va ijodiy muhit yaratuvchi shaxs sifatida faoliyat yuritadi. Shuning uchun o'qituvchining zamonaviy texnologiyalarni o'zlashtirishi, innovatsion fikrlashi va o'quvchilarning individual xususiyatlarini hisobga olishi muhim omil sanaladi.

Tadqiqot shuni ko'rsatdiki, boshlang'ich sinfda matematika darslarini zamonaviy texnologiyalar asosida tashkil etish: o'quvchilarning mustaqil fikrlash va muammoni hal qilish ko'nikmalarini rivojlantiradi; mantiqiy tafakkurni kuchaytiradi; o'yin asosidagi o'qitish orqali fanga mehr uyg'otadi; STEAM integratsiyasi yordamida nazariy bilimlarni real hayotiy vaziyatlarda qo'llash imkonini beradi; darslarda hamkorlik, muloqot va ijodkorlik muhitini yaratadi.

Xulosa qilib aytganda, zamonaviy ta'lim texnologiyalarini boshlang'ich sinf matematika darslariga joriy etish nafaqat o'quvchilarning bilim darajasini oshiradi, balki ularning tafakkuri, dunyoqarashi va o'rganishga bo'lgan ijobiy munosabatini shakllantiradi. Bu yondashuv kelajakda raqamli va ijodiy tafakkurga ega, hayotiy masalalarga matematik nuqtai nazardan yondasha oladigan yosh avlodni tarbiyalashga xizmat qiladi.

Kelgusida ushbu yo'nalishda dars ishlanmalari, raqamli o'quv resurslari va metodik qo'llanmalar ishlab chiqish, o'qituvchilarning malakasini oshirish orqali zamonaviy o'qitish texnologiyalarining imkoniyatlarini yanada kengaytirish tavsiya etiladi.

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EXPLORING STUDENT PERCEPTIONS OF CULTURAL DIFFERENCES AND
SIMILARITIES THROUGH ENGLISH LANGUAGE DISCUSSIONS

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Abstract. In my article, I explore how English discussions help students understand both the differences and similarities between cultures. Today, English is not only a subject to study but also it's a tool that allows students to view the world through different cultural perspectives. By using classroom observations, interviews, and students' own reflections, I show how guided discussions give learners the chance to express their thoughts, challenge stereotypes, and better understand cultural diversity. The results of my study also reveal that these conversations help students grow more empathetic, curious, tolerant, and confident when communicating with people from other cultures.

Keywords: intercultural competence; cultural differences; cultural similarities; EFL discussions; student perceptions; global awareness; tolerance; identity.

ИССЛЕДОВАНИЕ ВОСПРИЯТИЯ СТУДЕНТАМИ КУЛЬТУРНЫХ РАЗЛИЧИЙ И
СХОДСТВ В ПРОЦЕССЕ ОБСУЖДЕНИЙ НА АНГЛИЙСКОМ ЯЗЫКЕ

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Аннотация. статье исследуется, каким образом обсуждения на английском языке помогают студентам осознавать, сравнивать и глубже прочувствовать культурные различия и сходства. В современном образовательном пространстве, где английский язык играет роль универсального средства общения, студенты не просто изучают грамматику или лексику — они учатся видеть мир глазами представителей разных культур. Исследование основано на наблюдениях, полуформальных интервью, письменных рефлексиях студентов и тематическом анализе. Полученные данные показывают, что обсуждение культурных тем способствует развитию эмпатии, терпимости, критического мышления и способности вести диалог в межкультурных ситуациях.

Ключевые слова: межкультурная компетентность; культурные различия; культурные сходства; восприятие студентов; дискуссии на английском языке; глобальная осведомлённость; толерантность; культурная идентичность.

INTRODUCTION

In recent years, globalization has changed how people communicate, interact, and even shape their identities. English now plays a major role in bringing different cultures together, which makes intercultural competence an essential part of language learning. Today's EFL learners need more than grammar and pronunciation — they also need to understand how cultural values influence communication, behavior, politeness, and the way people see the world.

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English classrooms naturally gather students with different backgrounds and experiences. Even when students are from the same country, their exposure to media, technology, travel, and family traditions can vary widely. This creates a rich environment for cultural learning. Through guided discussions, students can share their ideas, listen to one another, clarify misunderstandings, and build a deeper sense of cultural understanding. These conversations help them notice both cultural differences and the universal similarities that connect people across the world.

In my article, I explore how students experience cultural differences and similarities during English-language discussions. I also aim to show how intercultural dialogue supports their personal development, social awareness, and communication skills.

LITERATURE REVIEW

Researchers agree that language and culture cannot be separated. As Kramsch [4] explains, language reflects the culture behind it, to be more specific, its values, beliefs, sense of humor, emotions, and way of seeing the world. This means that learning a foreign language is not just about studying grammar; it also involves entering a new cultural space. Byram [1] adds that intercultural communicative competence includes being able to compare cultures, understand unfamiliar behaviors, and interact respectfully with people from different backgrounds.

Students form their cultural views through many influences such as family, school, media, social networks, and personal experiences. Deardorff [3] points out that these factors shape how learners interpret cultural behavior and whether they react with interest or discomfort. Misunderstandings often come from stereotypes, oversimplified ideas, or lack of exposure. In EFL classrooms, where real intercultural contact may be limited, guided discussions play an important role in expanding students' cultural awareness.

English discussions also give learners real communication practice. Richards and Rodgers [6] state that dialogue-based learning helps students share opinions, think critically, interact naturally, and use language more creatively. Studies show that discussing cultural topics can:

- increase motivation
- encourage empathy and tolerance
- make language learning more meaningful
- help students think more flexibly
- lower communication anxiety [5]

Therefore, classroom discussions support both language development and students' social and emotional growth.

METHODOLOGY

In my study, I used a qualitative approach to explore how students perceive cultural differences and similarities during English-language discussions. I collected data through semi-structured group discussions and personal reflections from 30 university students from diverse cultural backgrounds. I also used open-ended questions so that students could freely share their experiences and ideas.

I recorded all the discussions, typed them out, and carefully coded the data to identify common themes. Using thematic analysis, I grouped the information into meaningful categories such as communication styles, cultural values, and shared experiences. Throughout the study, I followed strict ethical principles: students gave their informed consent, their information was kept confidential, and participation was completely voluntary.

ANALYSES AND RESULTS

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The data collected from 30 university students were examined through thematic analysis. This helped me identify clear patterns in how students understood cultural differences and similarities during English-language discussions. I focused on several key areas: communication styles, attitudes toward cultural diversity, shared experiences, and challenges that appeared during interaction.

One major theme was the difference in how students communicated. Some came from cultures where being direct is normal, so they shared their opinions openly. Others, who were used to more indirect communication, expressed their ideas carefully and politely. At first, these differences caused small misunderstandings. However, as the discussions continued, students began to understand each other's styles better. Many told me they became more respectful, patient, and open to alternative ways of expressing ideas.

Students also recognized both differences and similarities in their cultural values. They mentioned that their traditions and customs sometimes varied, but they still shared common values such as respect, cooperation, and the desire to learn. Some even said they were surprised to find unexpected cultural overlaps during the discussions. These moments helped them challenge and move beyond stereotypes they previously held.

When it comes to the discussions, students often reflected on their interactions. Several admitted that they had misinterpreted someone's behavior at first, only to later realize that it made sense within that person's cultural background. I found these reflections especially powerful because they showed how the discussions encouraged real empathy. Students were not just practicing English, What I mean by this is that, they were learning how to understand others on a deeper level.

There were also challenges. Some students found it hard to express complex cultural ideas in English, which sometimes limited how much they could say. But these difficulties pushed them to adapt. They used examples, gestures, and simple analogies to make their meaning clear. Surprisingly, many students discovered similarities they did not expect, such as similar jokes, shared concerns about studies, and familiar social expectations. These discoveries helped reduce the sense of cultural distance.

All things considered, the analysis showed that English-language discussions are a powerful tool for helping students explore both cultural differences and shared values. Students learned to appreciate diverse perspectives while also finding common ground. This combination of difference and similarity made their interactions richer and more meaningful. Including students' own quotes in the analysis allowed me to better understand how they negotiated cultural perceptions in real time.

CONCLUSION

In this study, I found that English-language discussions create a lively and meaningful space where students not only practise their language skills but also widen their understanding of different cultures. When students are given the chance to talk openly about cultural differences and similarities, they begin to see global diversity in a clearer and more thoughtful way. Many students told me that these discussions helped them learn new things about their own culture as well as others', which shows that intercultural dialogue encourages real self-reflection.

I also noticed that discussion-based learning helps students challenge stereotypes, question their assumptions, and approach cultural issues with more care. These conversations strengthened students' empathy — a skill that is becoming more important as people from different backgrounds interact every day. Through guided discussions, students learned to think more flexibly, compare cultural

viewpoints, recognize shared human values, and understand that cultural norms come from history and tradition.

From a language-learning perspective, I saw that cultural topics made lessons more engaging and meaningful. Students became more fluent, learned new vocabulary, and felt more confident expressing complex ideas. Because these discussions are similar to real-life communication, they prepared students for future intercultural experiences in workplaces, universities, and international environments.

However, I also observed several challenges. Some students had limited exposure to other cultures, while others struggled with the vocabulary needed to talk about cultural issues. Stereotypes also appeared at times. These challenges showed me the importance of careful teaching such as introducing key vocabulary, guiding discussions thoughtfully, and creating a safe and friendly atmosphere where students feel comfortable sharing.

Overall, my research confirms that including intercultural dialogue in English lessons is not only helpful but necessary. It supports students' overall growth by improving language skills, cultural awareness, emotional intelligence, and global citizenship. As English continues to serve as a bridge between cultures, I believe it is our responsibility as language teachers to help students become not just fluent speakers, but also empathetic, open-minded individuals who can communicate respectfully in a multicultural world.

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**SEMANTIC AND CULTURAL ASPECTS OF ENGLISH RELIGIOUS TERMINOLOGY:
TOWARD A THEONYMIC DICTIONARY IN UZBEK**

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At present, religion has become an important factor in social life, maintaining its position in the socio-political sphere. However, its significance varies under different socio-political systems. There are also many states where religion serves as the leading ideology. In a number of countries around the world, religion is striving to strengthen its political influence.

The study of religion (religious studies) began to develop as a new academic field in our country after independence. Before that period, there were limited opportunities to conduct comprehensive scientific research in this field. Moreover, the possibilities of studying the works carried out abroad, especially in the West, were also restricted. Today, the need to develop multifaceted relations with countries around the world has become increasingly important. In order to accomplish this task, it is of great significance to study the languages and religious beliefs of foreign peoples.

In Europe, the study of religion emerged as a distinct discipline in the second half of the 19th century, separating from philosophy, sociology, and psychology. The works of Western scholars such as the German philosopher Max Müller (1823–1900), the French positivist philosopher and sociologist Émile Durkheim (1858–1917), the English ethnologist and scholar of religion Edward Burnett Tylor (1832–1917), the English philosopher Herbert Spencer (1820–1903), as well as M. Weber and Ch. de Saussure, laid the foundations for this science. Many of these works were written in English, while major works in German and French were later translated into English.

Although opportunities for conducting research on religious studies were limited in our country during the mid-20th century, consistent studies were being carried out in the West. Religion was analyzed from social, psychological, and philosophical perspectives, with attention given to its functions within society. For this purpose, scholars sought to study world religions objectively, utilizing the latest achievements of history and ethnography. The results of such research were presented in major works, monographs, pamphlets, articles, and encyclopedic publications.

In the modern era, known as the “Information Age,” access to many of these works has become possible through the Internet, which has to some extent solved the problem of obtaining information. However, in some cases, the language barrier still prevents Uzbek readers from fully utilizing the information they have found.

Indeed, to date, numerous textbooks, phrasebooks, and dictionaries for learning English have been published. The existing English–Uzbek dictionaries and textbooks are generally of a general or encyclopedic nature or are devoted to a particular field. However, among them, there are no dictionaries specifically designed for the field of religious studies. A student, learner, or researcher engaged in studying or conducting research in this field usually relies on general-purpose dictionaries when working with English-language materials. However, a word that carries a certain meaning in another field may convey an entirely different concept in religious terminology.

For example, the English word *celestial* in general usage means “heavenly” or “sky-blue,” whereas in religious contexts it may signify “divine,” “sacred,” or “holy.” Such semantic differences are not always indicated in general dictionaries. Similarly, the English word *fast*, which generally denotes

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“quickness” or “speed,” carries the meaning of “to fast, to observe fasting” in religious terminology. Although this meaning appears in most major dictionaries, the specific contexts in which it conveys “to fast” can only be properly understood through specialized dictionaries that provide authentic examples from religious sources.

Certain works have been carried out in foreign languages to assist learners in mastering English religious vocabulary. For instance, the *English–Russian Theological Dictionary* compiled by S. A. Matveev in 2006 contains about 30,000 entries intended for Russian-speaking readers. The dictionary includes terminology related to three major religions—Judaism, Christianity, and Islam. The main section of the dictionary occupies 742 pages (pp. 17–758), of which 714 pages (96%) are devoted to Judaism and Christianity, while only 28 pages (4%) cover Islamic terminology. This can be explained, on the one hand, by the fact that Judaism and especially Christianity are more widespread among English-speaking nations, and on the other, by the greater number of scholarly studies on these two religions available in English. Moreover, most of the Islamic terms in the dictionary are transliterations of Arabic words rendered in English script.

From this, it follows that the terminology of a given religion tends to develop mainly in the language of the people among whom that religion has spread. Therefore, in order to study a particular religion in depth, it is important to learn the language in which it was first formed. For example, the study of Vedic religions requires knowledge of Sanskrit, Judaism requires Hebrew, and Islam requires Arabic. Nevertheless, linking a religion exclusively to a single national language would be incorrect, as religious concepts often transcend linguistic boundaries. For instance, notions such as *faith*, *belief*, *virtue*, *sin*, *paradise*, and *hell* are found in almost all world religions. However, these words cannot always be rendered by a single equivalent when translated into another language. In such cases, foreign words are often borrowed directly as religious terms, since theological terminology frequently acquires the status of proper nouns. For example, translating the word *apostles*—the disciples of Jesus in Christianity—as *sahobas* (companions of the Prophet) in Uzbek would be incorrect. The accepted term in religious studies is *havariylar* (from “apostles”).

In some cases, sections of the Bible are translated into Uzbek by analogy with the Qur’an, using the terms *sura* or *ayah*. However, this approach is not scientifically accurate, as such terms have their own etymology, history, and semantic context. Therefore, the creation of a comprehensive theonymic dictionary in Uzbek remains one of the primary challenges.

The study of lexical and thematic groups is not new to Uzbek linguistics. Considerable research has been carried out on kinship terminology, verbs of motion, color adjectives, building names, and other categories. However, divine names and other lexemes associated with them have remained largely unexplored. The study of theonymic vocabulary is of interest not only to linguistics and philology but also to history, philosophy, and theology.

One of the initial challenges in studying theonymic lexicon is compiling a complete and accurate list of words belonging to specific lexical and thematic groups. Words such as *God*, *Lord*, *Almighty*, and *the Creator* represent distinct entities referring to the divine being, yet their equivalence to the “Primordial Programmer” lexeme proposed by O. N. Laguta in lexicography complicates the problem, as multiple variants may exist for a single concept across translations—an issue that itself requires further study.

Another challenge a translator may face lies in dealing with linguistic uniqueness in each language. Religious language is closely intertwined with the culture of its speakers. Some theological terms

such as *God, Divinity, Lord, Creator, and Savior* have near-exact equivalents in many languages: Greek (*Θεός, Θεότης, Κύριος, Ποιησάς, Σωτήρ*), Latin (*Deus, Divinitas, Dominus, Creator, Salvator*), Polish (*Bóg, Bóstwo, Pan, Stwórca, Zbawca*), and Russian (*Бог, Господь, Всевышний, Творец, Спаситель*).

Religious vocabulary develops in relation to other religious lexicons, especially when speakers of two languages share the same faith. One of the key features of this process is the adoption of loanwords from other languages. For instance, the Church Slavonic *Almighty* derives from the Greek *Παντοκράτωρ* (*panta* – “all,” *kratein* – “to have power, to rule”), retaining the original meaning of the source word even after borrowing through Latin. Studying such vocabulary requires the researcher to be familiar with multiple languages. It should also be noted that the donor and recipient languages do not always exhibit exact equivalence. For example, the three Greek words *Ποιησάς, Ποιητής*, and *Κτίσας* correspond to a single English lexical item, *Savior*, while in another case, the Latin word *Pater* corresponds to two English equivalents: *Father* and *Begetter*.

Another important aspect of studying religious vocabulary is the grammatical characterization of divine names in a given language. For instance, the English word *God* represents a single paradigm with a unified stem of soft consonants, while *Trinity* can reflect both masculine and feminine grammatical genders, as seen in prayer texts: “From sleep risen, I thank Thee, O Holy Trinity, Thou Thy much for the sake of goodness and patience Thou be angry at me and sinner...”

Here, the adjective *Holy* modifies *Trinity* (feminine), whereas the verbal phrase *Thou be angry* (masculine) demonstrates gender variation.

In some cases, religious terms appearing in sacred texts are derived from other belief systems. For example, the name *Jesus Christ* is also associated with the Latin term *Oriens* (“Sunrise”), which appears in Catholic morning and noon prayers.

It should be remembered that religious vocabulary in any language is inherently dynamic. Changes in people’s religious life and the development of theological thought have contributed to the emergence of new concepts and expressions. Moreover, the continuous use of such words in our language over centuries has altered their position within the lexical system and across various textual genres.

Despite the progress achieved in lexicology and lexicography, the study and translation of religious vocabulary have not yet been fully established as a systematic area of research. This topic still remains an open field, awaiting comprehensive scholarly exploration.

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SOME CHRISTIAN RELIGIOUS VOCABULARY: ETYMOLOGY AND SEMANTIC
DEVELOPMENT

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ABSTRACT

This paper explores the origins, etymology, and semantic evolution of Christian religious vocabulary in the English language. By examining words derived from Latin, Greek, Hebrew, and Germanic sources, the study reveals how linguistic and cultural contact shaped the Christian lexicon. It also analyzes how translation, religious reform, and theological discourse contributed to the diversification of meanings. The research draws upon etymological evidence, historical linguistics, and semantic analysis to trace how key Christian terms transformed over centuries, reflecting both spiritual and sociocultural developments.

Key Terms: Christian vocabulary, etymology, Latin influence, Greek origin, biblical language, semantic development, theology, English lexicon.

INTRODUCTION

The development of Christian religious vocabulary in English represents a fascinating intersection between language, culture, and faith. Since the early Middle Ages, English has absorbed and adapted a multitude of religious terms from Latin, Greek, and Hebrew—the three sacred languages of Christianity. These borrowings were not merely lexical imports; they reflected the deep intellectual and spiritual influence of Christianity on European civilization.

The adoption of Christianity in England in the 6th and 7th centuries initiated a vast process of linguistic transformation. Monks, missionaries, and translators brought with them the Latin Bible (Vulgate) and theological terminology, which became the linguistic foundation for religious expression in English. Greek terms entered the language mainly through Latin mediation, while Hebrew words arrived through biblical translation and exegesis. Over time, these elements merged with native English expressions, creating a hybrid religious lexicon that continues to evolve.

Latin and Greek Influence on Christian Vocabulary. Many of the most fundamental Christian words in English originate from Latin and Greek, as Christianity itself was spread through the Roman Empire. Terms such as *church* (from Greek *kyriakon*, meaning “the Lord’s house”) and *bible* (from Greek *biblia*, meaning “books”) reflect the institutional and textual foundations of the faith.

Latin, as the language of the Roman Church, served as the primary medium for religious terminology. Words such as *priest* (from Latin *presbyter*), *altar* (*altare*), *mass* (*missa*), and *sacrament* (*sacramentum*) entered Old English through ecclesiastical use. These terms retained their Latin morphology and often their sacred connotations, marking a clear distinction between religious and secular vocabulary.

Greek influence, though indirect, was equally significant. Terms like *angel* (from Greek *angelos*, meaning “messenger”), *baptism* (*baptisma*), and *apostle* (*apostolos*) entered English through Latin translations. Their semantic structure preserved the theological ideas of divine communication, initiation, and spiritual mission.

Hebrew and Biblical Origins. The Old Testament introduced a layer of Hebrew terminology to Christian vocabulary, primarily through Latin and Greek translations. Words such as *amen* (“so be

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it”), *hallelujah* (“praise the Lord”), *sabbath* (“rest”), and *messiah* (“anointed one”) are direct borrowings that retained both their phonetic and theological essence. These words are unique because they function as sacred signifiers across multiple languages, emphasizing continuity between Judaism and Christianity.

The Hebrew roots also contributed to moral and ritual expressions. For example, sin, atonement, and salvation derive their theological meanings from biblical contexts, even though their linguistic roots may vary. The semantic fields of these terms evolved as theological discourse expanded, incorporating layers of moral philosophy and doctrinal interpretation.

The Role of Translation and the English Bible. The translation of the Bible into English – most notably the *King James Version* (1611) – had a profound impact on Christian vocabulary. It standardized numerous religious terms and shaped the stylistic character of English religious language. The translators often preserved traditional forms from Latin or Greek to maintain doctrinal precision.

For instance, the translators opted for *baptize* instead of *wash* to reflect the ritual significance of the Greek term *baptizo*. Similarly, words like *grace*, *faith*, and *salvation* were rendered with theological nuance rather than literal meaning. As a result, the English Bible became both a linguistic and spiritual authority, influencing not only Christian discourse but also the development of literary English.

Moreover, new compound and derived forms emerged during this period: *godliness*, *sinfulness*, *redemption*, *blessedness*, and *holiness*. These morphological innovations demonstrated how English could internalize foreign theological concepts through its own grammatical system.

Semantic Evolution of Christian Terminology. Over the centuries, Christian terms in English underwent significant semantic shifts, adapting to social, cultural, and theological changes. Some words broadened in meaning, while others narrowed or took on metaphorical connotations.

- **Charity**, from Latin *caritas*, once denoted divine love; today it primarily refers to benevolent giving.
- **Sacrifice**, from Latin *sacrificium*, evolved from a ritual act of offering to God into a general sense of personal or moral devotion.
- **Faith**, originally a theological virtue, expanded to mean personal conviction or trust in general contexts.

This semantic flexibility reflects Christianity’s integration into everyday life. As English secularized over time, religious vocabulary often retained symbolic or ethical undertones even outside theological contexts.

Theological and Cultural Integration. Christian religious vocabulary also reflects the synthesis of linguistic and cultural systems. During the medieval period, monasteries and universities became centers of translation and interpretation. The scholastic tradition, represented by thinkers such as Thomas Aquinas, influenced English theological language through Latin scholasticism.

Renaissance humanism further enriched the lexicon, reintroducing Greek terms with philosophical precision. Words like *spirit*, *soul*, *virtue*, and *grace* acquired broader intellectual and ethical significance. The Reformation, on the other hand, simplified and vernacularized religious expression. Protestant writers emphasized accessibility and clarity, which democratized religious language and gave rise to terms such as *belief*, *repentance*, and *salvation* in their modern sense.

By the modern era, Christian terminology had permeated literature, law, education, and politics. Expressions like *cross to bear*, *salt of the earth*, and *good Samaritan* show how biblical metaphors

became part of everyday English idiom, further demonstrating the enduring legacy of Christian vocabulary.

Conclusion

The Christian religious vocabulary of English represents a remarkable synthesis of linguistic borrowing, cultural adaptation, and theological reflection. From the earliest Latin and Greek borrowings to the biblical and modern idioms, each term carries traces of spiritual history and semantic transformation. The English religious lexicon thus serves not only as a linguistic record of Christianity's spread but also as a mirror of cultural identity and intellectual evolution.

Through centuries of translation, interpretation, and social change, Christian vocabulary has maintained its sacred resonance while adapting to new communicative contexts. Understanding the etymology and semantic development of these words deepens our appreciation of how language can embody faith, tradition, and cultural continuity.

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INYEKSION, PERORAL VA TRANSDERMAL SHAKLLAR FARMAKOLOGIYASI

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Anotatsiya: Ushbu ilmiy maqola dori vositalarining inyeksion (venaga, mushak ichiga), peroral (og'iz orqali) va transdermal (teri orqali) taqdim etish shakllarining farmakologik xususiyatlarini PhD darajasidagi chuqur tahlil qiladi. Farmakokinetik parametrlarga (biologik mavjudlik, T_{max} , C_{max} , $t_{1/2}$, taqsimlanish hajmi, klirens) va farmakodinamik aspektlarga (retseptor o'zaro ta'siri, ED_{50} , tolerance rivojlanishi) alohida e'tibor qaratilgan holda, ushbu shakllarning afzalliklari, kamchiliklari va klinik qo'llanilishi taqqoslanadi. Inyeksion shakllar 100% ga yaqin bioavailability va tez ta'sir etishni ta'minlashda, invazivligi va infeksiya xavfi bilan cheklanadi; peroral shakllar qulaylik va arzonlikka ega bo'lib, first-pass metabolizm tufayli bioavailability 10-50% gacha pasayadi; transdermal tizimlar esa doimiy chiqarilish (zero-order kinetika) va first-pass effekti chetlab o'tilishi orqali 70-95% bioavailability beradi, ammo teri o'tkazuvchanligi cheklovlar yaratadi. Misollar sifatida fentanyl (oral 33-50%, transdermal 90-92%, IV 100%), insulin (peroral deyarli 0%, inyeksion 100%) va boshqa dorilar keltirilgan. Yangi texnologiyalar (mikroneedle, iontoforez, nanocarrierlar) va kompartmental modellar orqali optimallashtirish imkoniyatlari muhokama qilinadi. Maqola individualizatsiyalangan tibbiyotda ushbu shakllarning rolini ta'kidlab, kelajak tadqiqotlariga yo'nalish beradi.

Kalit so'zlar: Farmakokinetika; farmakodinamika; inyeksion dorilar; peroral dorilar; transdermal drug delivery systems (TDDS); biologik mavjudlik; first-pass metabolizm; zero-order kinetika; fentanyl; insulin; mikroneedle; iontoforez; kompartmental modellar; individualizatsiyalangan tibbiyot.

PHARMACOLOGY OF INJECTION, ORAL AND TRANSDERMAL FORMS

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Abstract: This scientific article provides an in-depth analysis of the pharmacological properties of injection (intravenously, intramuscularly), oral (by mouth) and transdermal (through the skin) forms of drug delivery at the PhD level. The advantages, disadvantages and clinical use of these forms are compared, with special attention to pharmacokinetic parameters (bioavailability, T_{max} , C_{max} , $t_{1/2}$, volume of distribution, clearance) and pharmacodynamic aspects (receptor interaction, ED_{50} , development of tolerance). Although injection forms provide almost 100% bioavailability and rapid action, they are limited by their invasiveness and risk of infection; Oral forms are convenient and inexpensive, with bioavailability reduced to 10-50% due to first-pass metabolism; transdermal systems provide 70-95% bioavailability by continuous release (zero-order kinetics) and bypassing the first-pass effect, but skin permeability creates limitations. Examples include fentanyl (oral 33-50%, transdermal 90-92%, IV 100%), insulin (oral almost 0%, injectable 100%) and other drugs. The possibilities of optimization through new technologies (microneedle, iontophoresis, nanocarriers) and

compartmental models are discussed. The article highlights the role of these forms in personalized medicine and provides directions for future research.

Keywords: Pharmacokinetics; pharmacodynamics; injectable drugs; oral drugs; transdermal drug delivery systems (TDDS); bioavailability; first-pass metabolism; zero-order kinetics; fentanyl; insulin; microneedle; iontophoresis; compartmental models; individualized medicine.

ФАРМАКОЛОГИЯ ИНЪЕКЦИОННЫХ, ПЕРОРАЛЬНЫХ И ТРАНСДЕРМАЛЬНЫХ ФОРМ

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Аннотация: В данной научной статье представлен углубленный анализ фармакологических свойств инъекционных (внутривенно, внутримышечно), пероральных (через рот) и трансдермальных (через кожу) форм доставки лекарственных средств на уровне докторантуры. Сравниваются преимущества, недостатки и клиническое применение этих форм, особое внимание уделяется фармакокинетическим параметрам (биодоступность, T_{max} , C_{max} , $t_{1/2}$, объем распределения, клиренс) и фармакодинамическим аспектам (взаимодействие с рецепторами, ED_{50} , развитие толерантности). Хотя инъекционные формы обеспечивают практически 100% биодоступность и быстрое действие, они ограничены своей инвазивностью и риском инфицирования; Пероральные формы удобны и недороги, их биодоступность снижается до 10–50% из-за пресистемного метаболизма; трансдермальные системы обеспечивают 70–95% биодоступности за счет непрерывного высвобождения (кинетика нулевого порядка) и обхода эффекта пресистемного метаболизма, но проницаемость кожи создает ограничения. Примерами служат фентанил (перорально 33–50%, трансдермально 90–92%, внутривенно 100%), инсулин (перорально почти 0%, инъекционно 100%) и другие препараты. Обсуждаются возможности оптимизации с помощью новых технологий (микроиглы, ионтофорез, наноносители) и компартментных моделей. В статье освещается роль этих форм в персонализированной медицине и предлагаются направления для будущих исследований.

Ключевые слова: Фармакокинетика; фармакодинамика; инъекционные препараты; пероральные препараты; трансдермальные системы доставки лекарств (TDDS); биодоступность; пресистемный метаболизм; кинетика нулевого порядка; фентанил; инсулин; микроигла; ионофорез; компартментальные модели; индивидуализированная медицина.

Farmakologiyada dori vositalarining taqdim etish shakllari farmakokinetika va farmakodinamika jarayonlariga bevosita ta'sir ko'rsatadi, chunki ular dorining so'rilishi, taqsimlanishi, metabolizmi va chiqarilishi kabi asosiy parametrlarini belgilaydi. Ushbu maqolada inyeksion, peroral va transdermal shakllarining farmakologik xususiyatlari ko'rib chiqiladi, bu yerda dorining biologik mavjudligi (bioavailability), maksimal konsentratsiya vaqt (T_{max}), yarim chiqarilish vaqti ($t_{1/2}$) va klinik samaradorlik kabi aspektlariga alohida e'tibor qaratiladi. Inyeksion shakllar, masalan, venaga yoki mushak ichiga in'ektsiya, dorining qon oqimiga to'g'ridan-to'g'ri kirishini ta'minlaydi, bu esa 100% ga yaqin biologik mavjudlikka olib keladi, ammo bu usulning og'riqli tabiati va potentsial infektsiya

xavfi sababli bemorlarning qabul qilish darajasi past bo'ladi. Masalan, tetrametilpirazin fosfatining venaga in'ektsiya qilinganda plazmadagi maksimal konsentratsiyasi (C_{max}) 10-15 daqiqada erishiladi, bu esa tez ta'sir etuvchi dorilar uchun idealdir, ammo mushak ichiga in'ektsiyada so'rilish sekinroq bo'lib, T_{max} 30-60 daqiqagacha cho'zilishi mumkin. Peroral shakllar, ya'ni og'iz orqali qabul qilinadigan tabletkalar, kapsulalar yoki eritmalar, eng qulay va arzon usul hisoblanadi, ammo ular jigar orqali birinchi o'tish effekti (first-pass metabolism) tufayli biologik mavjudlikni sezilarli darajada pasaytiradi, masalan, ko'plab dorilarning bioavailability'si 10-50% gacha tushib qolishi mumkin. Bu jarayonda CYP450 fermentlari muhim rol o'ynaydi, natijada dorining faol metabolitlari hosil bo'ladi yoki inaktivatsiya sodir bo'ladi, bu esa dozani oshirish zaruriyatini tug'diradi. Misol uchun, fentanylning peroral qabulida bioavailability 30-50% atrofida bo'lib, T_{max} 1-2 soatga yetadi, bu esa surunkali og'riqni boshqarishda cheklovlar yaratadi. Transdermal shakllar, ya'ni teri orqali taqdim etiladigan patchlar yoki jellar, dorining doimiy ravishda so'rilishini ta'minlaydi, bu esa plazmadagi konsentratsiya darajasini barqarorlashtiradi va first-pass effekti chetlab o'tiladi, natijada bioavailability 70-90% gacha ko'tarilishi mumkin. Biroq, terining stratum corneum qatlami dorining o'tkazuvchanligini cheklaydi, shuning uchun faqat lipofil dorilar ($\log P$ qiymati 1-3 oralig'ida) samarali ishlatiladi, masalan, nikotin yoki fentanyl patchlari kunlar davomida doimiy ta'sir ko'rsatadi. Ushbu shakllarning farmakokinetik taqqoslanishi shuni ko'rsatadiki, inyeksion usulda dorining taqsimlanish hajmi (V_d) ko'pincha past bo'ladi, chunki u to'g'ridan-to'g'ri qon oqimiga tushadi, ammo peroralda ichakdagi so'rilish pH, motilika va ovqat bilan o'zaro ta'siriga bog'liq bo'lib, bu esa individual farqlarni keltirib chiqaradi. Masalan, tetrametilpirazin fosfatining peroral qabulida bioavailability 40-60% ni tashkil etadi, transdermalda esa 80% ga yaqin, ammo so'rilish tezligi (k_a) transdermalda eng past bo'lib, T_{max} 4-8 soatga yetishi mumkin. Transdermal tizimlarning asosiy komponentlari polimerlar bo'lib, ular dorining chiqarilishini nazorat qiladi, masalan, etilen-vinil asetat yoki silikon matritsalar dorining diffuziyasini ta'minlaydi, bu esa zero-order kinetikasini yaratadi, ya'ni chiqarilish tezligi vaqtdan mustaqil bo'ladi. Inyeksion shakllarda, aksincha, bolus in'ektsiya birinchi tartib kinetikasini ko'rsatadi, bu esa plazmadagi konsentratsiya darajasining tez o'sishi va pasayishiga olib keladi, natijada toksiklik xavfi ortadi. Peroral shakllarda dorining so'rilishi Fick qonuni bo'yicha sodir bo'ladi, ammo enterogepatik sirkulyatsiya ba'zi dorilarning (masalan, estrogenlar) $t_{1/2}$ ni uzaytiradi. Ushbu shakllarning afzalliklari va kamchiliklarini ko'rib chiqsak, inyeksion usulning asosiy afzalligi tez ta'sir etishida, masalan, favqulodda holatlarda insulin yoki adrenalin in'ektsiyasi hayotni saqlab qolishi mumkin, ammo kamchiliklari orasida invazivligi, bemorlarning qo'rquvi va sterilizatsiya talablari bor. Peroral shakllar portativligi va o'z-o'zini qo'llash qulayligi bilan ajralib turadi, ammo first-pass effekti va oshqozon-ichak traktidagi irritatsiya (masalan, NSAID lar) kamchilik hisoblanadi, bu esa gastroprotektorlarning qo'shimcha ishlatilishini talab qiladi. Transdermal shakllar esa doimiy ta'sir va bemorlarning qabul qilish darajasini oshirish afzalligiga ega, masalan, klonidin patchlari gipertenziyani bir hafta davomida nazorat qiladi, ammo teri irritatsiyasi, allergiya va cheklangan dori spektri (molekulyar og'irligi 500 Da dan past) kamchiliklaridir. Farmakodinamika nuqtai nazaridan, inyeksion shakllar retseptorlar bilan tez o'zaro ta'sirni ta'minlaydi, bu esa ED₅₀ (effektiv doza 50%) ni pasaytiradi, ammo peroralda dorining metabolitlari faol bo'lishi mumkin, masalan, kodeinning morfinga aylanishi og'riqni yumshatishni kuchaytiradi. Transdermalda esa doimiy konsentratsiya tufayli toqatlik (tolerance) rivojlanishi kamayadi, ammo so'rilish teri tipi, yosh va atrof-muhit omillariga bog'liq, masalan, namlik o'tkazuvchanlikni oshiradi. Ushbu shakllarning klinik qo'llanilishida, masalan, surunkali og'riqni

boshqarishda fentanylning transdermal patchi peroral morfindan afzalroq, chunki u plazmadagi konsentratsiya fluktuatsiyasini oldini oladi va bemorlarning hayot sifatini yaxshilaydi, ammo inyeksion usul favqulodda analgeziya uchun zarur. Bundan tashqari, protein va peptid dorilar (masalan, insulin) uchun peroral shakllar samarasiz, chunki proteazalar ularni parchalanadi, shuning uchun inyeksion yoki transdermal (mikroneedle texnologiyalari bilan) afzalroq, ammo yangi nanocarrierlar (liposomal) peroral bioavailability'ni 20-30% gacha oshirishi mumkin. Farmakokinetik modellar, masalan, kompartmental tahlil, shuni ko'rsatadiki, inyeksionda bir kompartment modeli (IV bolus) $C(t) = C_0 * e^{-kt}$ formula bo'yicha hisoblanadi, peroralda esa ikki kompartment (so'rinish va taqsimlanish), transdermalda esa zero-order input modeli qo'llaniladi. Ushbu modellar dorining dozaviy rejimini optimallashtirishda muhim, masalan, transdermal klonidinning $t_{1/2}$ 10-20 soat bo'lib, haftalik patchlar samarali. Yangi tadqiqotlar transdermal tizimlarni yaxshilashga qaratilgan, masalan, iontoforez yoki mikroneedle'lar o'tkazuvchanlikni 10-100 marta oshiradi, bu esa yuqori molekulyar og'irlikdagi dorilarni taqdim etishga imkon beradi. Peroral shakllarda esa enteric coating yoki prodrug dizayni first-passni kamaytiradi, masalan, valatsiklovir atsiklovirning bioavailability'sini 3-5 marta oshiradi. Inyeksion shakllarda liposomal inkapsulyatsiya (masalan, doksorubitsin) toksiklikni pasaytiradi va taqsimlanishni yaxshilaydi. Ushbu shakllarning taqqosiy tahlili shuni ko'rsatadiki, tanlov bemorning holati, dorining fizik-kimyoviy xususiyatlari va terapevtik maqsadga bog'liq, masalan, onkologiyada inyeksion usullar afzal, ammo surunkali kasalliklarda transdermal yoki peroral qulayroq. Kelajakda integratsiyalangan tizimlar, masalan, smart patchlar (sensorlar bilan) yoki oral nanodelivery, ushbu shakllarning samaradorligini yanada oshiradi, ammo reguliator talablar (FDA bo'yicha) xavfsizlik va bioekvivalentlikni ta'minlashni talab qiladi. Xulosa qilib aytganda, inyeksion, peroral va transdermal shakllar farmakologiyaning asosiy ustunlari bo'lib, ularning har biri o'ziga xos farmakokinetik va farmakodinamik profiliga ega, bu esa individualizatsiyalangan tibbiyotda muhim rol o'ynaydi.

Foydalanilgan adabiyotlar ro'yxati

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СОВЕРШЕНСТВОВАНИЕ БАНКОВСКИХ МОБИЛЬНЫХ ПРИЛОЖЕНИЙ ДЛЯ ПРИВЛЕЧЕНИЯ ПОЛЬЗОВАТЕЛЕЙ**Син Артём Андреевич**

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Аннотация: В статье рассматриваются актуальные направления совершенствования банковских мобильных приложений, направленные на привлечение и удержание пользователей в условиях стремительной цифровизации финансового сектора. На основе анализа поведения клиентов и современных технологий определены ключевые факторы, влияющие на восприятие мобильных сервисов: удобство интерфейса, скорость операций, персонализация, интеграция интеллектуальных систем и высокий уровень безопасности. Особое внимание уделено внедрению адаптивных UX/UI-решений, использованию поведенческой аналитики, а также созданию единой цифровой экосистемы банка. Полученные результаты подтверждают, что комплексная модернизация функционала мобильных приложений способствует повышению конкурентоспособности финансовых организаций и стимулирует рост клиентской базы.

Ключевые слова: мобильное банковское приложение, цифровые сервисы, пользовательский опыт, финтех, персонализация, UX/UI-дизайн, привлечение клиентов, безопасность

ВВЕДЕНИЕ

Стремительное развитие цифровых технологий привело к качественному изменению взаимодействия между клиентами и финансовыми организациями. Мобильные банковские приложения стали ключевым инструментом, определяющим удобство пользования банковскими услугами и уровень доверия клиентов к банку. На сегодняшний день более 70% операций в коммерческих банках выполняется через мобильные платформы, что делает их совершенствование стратегическим приоритетом для большинства финансовых учреждений. Несмотря на широкий функционал современных приложений, наблюдается усиливающаяся конкуренция между банками за внимание и лояльность пользователей. Клиенты становятся более требовательными к качеству цифровых сервисов: они ожидают не только высокую скорость операций и удобный интерфейс, но и персонализированные предложения, интеллектуальные подсказки, повышенную безопасность и возможность бесшовного взаимодействия внутри цифровой экосистемы. В этих условиях совершенствование мобильных банковских приложений приобретает особую актуальность. Банкам необходимо внедрять инновационные решения, использовать поведенческую аналитику, адаптировать интерфейс под различные категории пользователей и обеспечивать максимальную прозрачность операций. Исследование направлено на выявление ключевых факторов, влияющих на привлечение пользователей, а также определение наиболее эффективных методов модернизации мобильных приложений для повышения их конкурентоспособности.

Материалы и методы

Исследование проведено в рамках анализа факторов, влияющих на привлекательность и эффективность мобильных банковских приложений. В качестве исходных материалов использовались данные о пользовательском поведении, результаты опросов клиентов

коммерческих банков, а также сравнительный анализ функциональных характеристик наиболее популярных мобильных приложений, представленных на рынке цифровых финансовых услуг. Методологическая основа исследования включала: Контент-анализ структуры и функционала мобильных банковских приложений пяти ведущих банков, направленный на выявление ключевых элементов интерфейса, скорости исполнения операций, логики навигации и уровня персонализации. Опрос пользователей ($n = 250$), проведённый онлайн среди клиентов различных возрастных категорий, с целью определения факторов, влияющих на их выбор и удовлетворённость использованием мобильных банковских сервисов. Методы UX-исследований, включающие анализ пользовательских сценариев, оценку удобства интерфейса, определение наиболее востребованных функций и частоты использования отдельных инструментов. Сравнительно-аналитический метод, применяемый для сопоставления традиционных и инновационных подходов к разработке мобильных приложений, а также для оценки конкурентных преимуществ различных цифровых решений.

Результаты

Результаты исследования показали, что привлекательность мобильных банковских приложений напрямую связана с качеством пользовательского опыта, уровнем технологической оптимизации и степенью персонализации сервисов. Анализ собранных данных позволил выделить несколько ключевых тенденций. Во-первых, более 78% опрошенных пользователей отметили, что решающим фактором для выбора мобильного приложения является простота и удобство интерфейса, включая логичную навигацию, минимальное количество шагов при выполнении операций и визуальную ясность интерфейса. Это подтверждает высокую значимость UX/UI-компонента в процессе привлечения и удержания клиентов. Во-вторых, около 65% респондентов указали на важность скорости обработки транзакций и стабильности приложения. Пользователи отмечали, что приложения с задержками, ошибками или частыми обновлениями вызывают недоверие и снижают уровень удовлетворённости. В-третьих, более 54% участников опроса выразили заинтересованность в персонализированных рекомендациях, таких как индивидуальные финансовые советы, адаптированные предложения и интеллектуальные уведомления, основанные на поведенческой аналитике. Это свидетельствует о растущем спросе на интеллектуальные сервисы, которые повышают вовлечённость пользователей. Сравнительный анализ популярных мобильных приложений показал, что платформы, интегрирующие единые цифровые экосистемы (платежи, инвестиции, страхование, бонусные программы), демонстрируют более высокий уровень ежедневной активности клиентов. Наличие дополнительных сервисов увеличивает среднее время использования приложения на 22–27%. Интервью с ИТ-специалистами подтвердили, что основными технологическими направлениями развития мобильных банковских приложений являются внедрение биометрической аутентификации, облачных технологий, адаптивных интерфейсов и инструментов машинного обучения.

Обсуждение

Полученные результаты подтверждают, что современные мобильные банковские приложения перестают быть всего лишь инструментом для выполнения базовых финансовых операций. Они превращаются в многофункциональные цифровые платформы, определяющие уровень конкурентоспособности банка на рынке финтех-услуг. Ключевым фактором, влияющим на

активность пользователей, является их субъективное восприятие удобства, безопасности и персональной ценности сервиса. Анализ показал, что удобство интерфейса остаётся фундаментальным элементом пользовательского опыта. Это согласуется с данными предыдущих исследований в области UX-дизайна, где простота навигации и визуальная ясность признаны основными условиями формирования позитивного отношения к цифровым продуктам. В контексте банковских приложений это особенно важно, поскольку любая сложность или задержка может вызвать у пользователя ощущение риска и привести к снижению доверия. Персонализация сервиса стала ещё одним значимым фактором. Растущая популярность интеллектуальных рекомендаций и адаптивных уведомлений свидетельствует о том, что пользователи ожидают от банков не только технического обслуживания, но и индивидуального сопровождения. Однако внедрение таких технологий требует точного анализа поведенческих данных, что, в свою очередь, актуализирует вопросы защиты персональной информации. Следовательно, банки должны находить баланс между персонализацией и строгими мерами кибербезопасности. Отдельного внимания заслуживает тенденция к расширению цифровых экосистем. Наш анализ показал, что приложения, включающие дополнительные сервисы — от управления инвестициями до программ лояльности, — значительно увеличивают вовлечённость пользователей. Это позволяет банкам не только удерживать клиентов, но и формировать долгосрочную лояльность, основанную на универсальности и удобстве платформы. Экспертные интервью продемонстрировали, что технологическое развитие банковских приложений сегодня движется в сторону автоматизации, машинного обучения и биометрических методов идентификации.

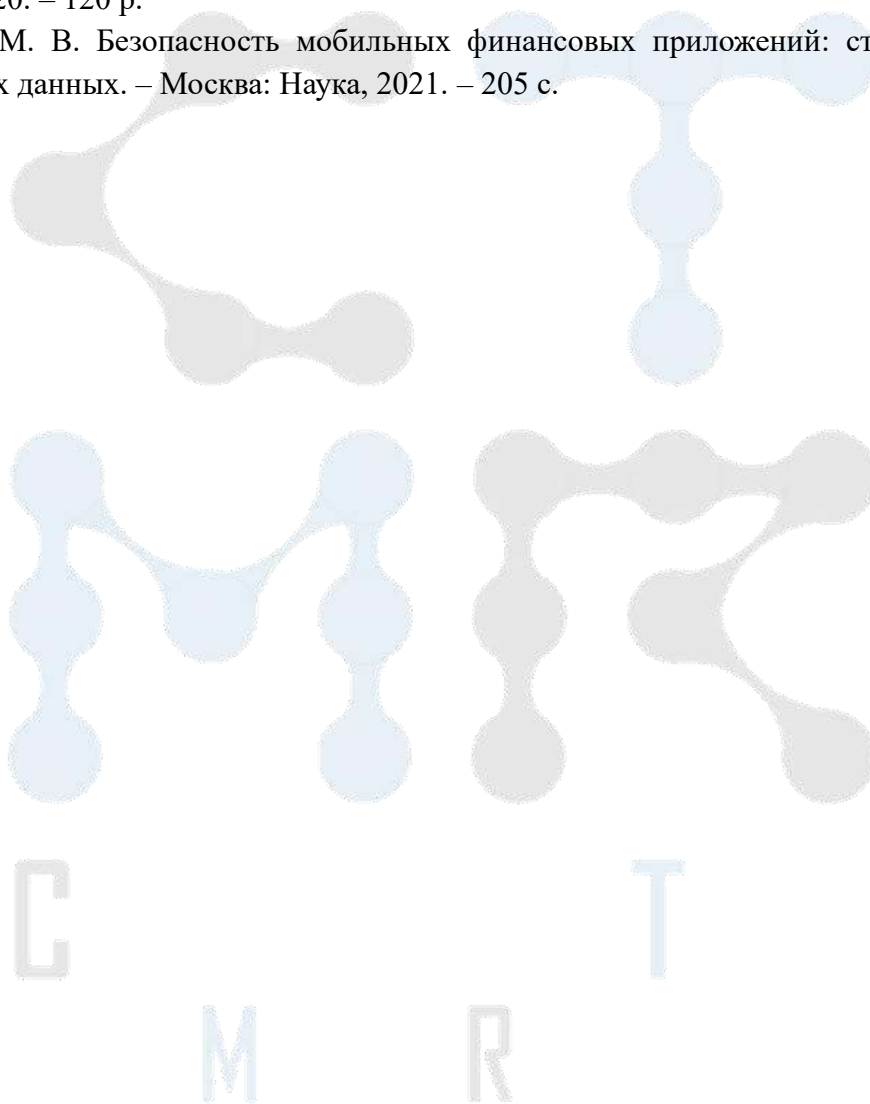
Заключение

Проведённое исследование показало, что совершенствование мобильных банковских приложений является одним из наиболее значимых направлений развития современных финансовых организаций. Центр тяжести конкурентной борьбы постепенно смещается не в сферу традиционных банковских услуг, а в качество цифровых сервисов, определяющих удобство, безопасность и индивидуальную ценность взаимодействия для пользователя. Анализ данных продемонстрировал, что ключевыми факторами привлечения и удержания клиентов являются удобство интерфейса, высокая скорость операций, стабильность функционирования приложения, а также возможность получения персонализированных рекомендаций. Совокупность этих элементов формирует полноценный пользовательский опыт, который напрямую влияет на отношение клиента к банку и его дальнейшую лояльность. Исследование также показало перспективность внедрения интеллектуальных технологий — поведенческой аналитики, машинного обучения, адаптивных интерфейсов и биометрической аутентификации. Эти решения повышают качество сервиса и позволяют банкам лучше учитывать индивидуальные потребности клиентов. Вместе с тем успешная интеграция инноваций требует усиления мер по защите персональных данных и строгого соблюдения кибербезопасности.

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" МАМАЛАКАТИМИЗДА СОЛИҚ ИМТИЁЗЛАРИНИ САМАРАДОРЛИГИНИ
ОШИРИШ МЕХАНИЗМИ "НИ МАСАЛАЛАРИ

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Аннотация: Мазкур мақолада солиқ-божхона имтиёзларининг самарадорлигини баҳолаш, солиқ имтиёзлари динамикаси ва солиқ имтиёзларининг иқтисодий ривожланишидаги тутган ўрни ва аҳамияти ёритилган. Шу билан бирга, Ўзбекистонда солиқ имтиёзларини беришда ҳозиргача ягона тартибнинг ишлаб чиқилмаганлиги ва бунинг натижасида иқтисодий рақобат муҳитида мувозанатнинг бузилаётганлиги келтирилган. Хорижий тажриба ҳамда соҳадаги таҳлилий маълумотлардан фойдаланилиб илмий-амалий хулоса ва таклифлар ишлаб чиқилган.

Калит сўзлар: солиқ сиёсати, солиқ-божхона имтиёзлари, имтиёзлар реестри, имтиёзлар самарадорлиги, ташиббускор идора ва ташилотлар, рағбатлантирувчи имтиёзлар, тизимли имтиёзлар, ижтимоий имтиёзлар, бюджет самарадорлиги, иқтисодий самарадорлик, ижтимоий самарадорлик.

Аннотация: В данной статье изложены оценка эффективности налогово-таможенных льгот, динамика налоговых льгот и роль налоговых преференций в экономическом росте. Вместе с тем, приведены отсутствие единого порядка предоставления налоговых льгот и диспропорция равновесия экономической конкуренции за счет его негативные воздействия. Исходя из зарубежного опыта и анализа в данной отрасли разработаны научно-практические выводы и предложения.

Ключевые слова: налоговая политика, налогово-таможенные льготы, реестр льгот, эффективность льгот, инициаторы-ведомства и организации, стимулирующие льготы, системные льготы, социальные льготы, бюджетная эффективность, экономическая эффективность, социальная эффективность.

Abstract: The efficiency tax exemptions, the dynamic of tax preferences, and the role of tax expenditures in economic growth are given in this article. Also the lack of unique approach of estimating efficiency of tax preferences and disproportion of economic competition equilibrium in the result of tax exemptions are described. Based on international experiences and analysis in this sphere scientific-practical conclusions and proposals were developed.

Key words: tax policy, tax exemptions, register of tax exemptions, efficiency of tax exemptions, initiator-organization, stimulating exemptions, system exemptions, social exemptions, budget efficiency, economic efficiency, social efficiency.

КИРИШ.

Давлат бюджети даромадларини шакллантириш иқтисодий сиёсатда жуда кучли инструментлардан бири бўлиб ҳисобланади. Айниқса, ривожланаётган мамлакатларда умумий жамғариш миқдорининг камлиги сабабли давлат бюджети энг асосий фонд ҳисобланиб, уни шакллантиришда иқтисодий субъектларга “солиқ юки” шаклида харажат тайинланиши иқтисодий ўсишда муҳим аҳамият касб этади.

Давлатнинг бош хазинасини тўлдиришда илмий-назарий ёндашувлар зарурияти ва уларга амал қилишнинг аҳамиятини қуйидагилар орқали изоҳлаш мумкин:

- ХХІ асрдаги глобаллашув, техника ва технологияларнинг ривожланиши иқтисодиётнинг классик кўринишда бошқарувидан неоклассик бошқарувига ўтишига асос бўлмоқда. Бунинг натижасида давлатнинг солиқ-божхона сиёсати ялпи талабни бошқариш билан уйғун ҳолда олиб борилиши керак;
 - Давлат иқтисодиётининг таркиби, капитал ва меҳнат бозорининг ҳолатидан келиб чиқиб, давлат учун энг оптимал бўлган солиқ-божхона сиёсатини шакллантириш ўз-ўзидан илмий-назарий ёндашувларни, айниқса оптималлаштириш масалаларини тақозо қилади;
 - Солиқ-божхона имтиёзлари берилиши, қайси ҳолларда солиқлар ўрнига ташқи манбалардан қарз олиш афзаллиги, бюджетнинг баланслаштирилган мультипликаторидан фойдаланиш масалалари ҳам бир-бирига қарама-қарши бўлган ёндашувларни ўз ичига олади ва уларнинг ичида мос келадиганини танлаш лозим бўлади;
 - Ишлаб чиқаришнинг босқичлари, истеъмолчи, капитал эгаси, меҳнат ресурслари ўртасида солиқ юкини тақсимлаш ҳам турли илмий-назарий ёндашувларга эга.
- Замонавий илмий тадқиқотларда давлат бюджети даромадларини шакллантиришнинг қуйидаги асосий йўналишлари мавжуд (1-расм).



1-расм. Солиқ сиёсатини ишлаб чиқиш босқичлари¹

¹ Муаллиф томонидан тузилган.

Албатта, битта илмий ишда давлат бюджети даромадларини шакллантиришнинг барча жиҳатларини тўлиқ ва чуқур ўрганиш имкони йўқ. Шундай бўлса-да, ҳар бир йўналиш бўйича оптимал ечимлар ва илмий тавсиялар аниқланган.

Адабиётлар шарҳи.

Ўзбекистон Республикасининг биринчи Президенти И.А. Каримов таъкидлашича, «аввало солиқ тизими ўзига хос вазифани – фискал, қайта тақсимлаш ва рағбатлантириш вазифасини тўла даражада бажариш керак»². Бу ерда шундай йўналиш кўзда тутилмоқдаки, унга кўра юридик шахсларни солиққа тортишда пухта ўйланган сиёсат йўналишлари ишлаб чиқирилиши лозим.

Албатта, юридик шахсларни солиққа тортиш бўйича давлатнинг сиёсати жорий вақтдаги шу давлат иқтисодий ва ижтимоий ҳолатидан келиб чиқади. Хусусан, ривожланаётган давлатлар учун қайсидир йўналишлар устувор ҳисобланса, ривожланган мамлакатлар учун молиявий имкониятлар кенгроқлиги сабабли, бошқа йўналишларни кўзлаш мақсадга мувофиқ бўлади. Бунга сабаб, юридик шахсларни солиққа тортишдаги танланган йўл иқтисодий тараққиётга энг тез муддатларда олиб бориши лозимлигидир.

Дуброва Т.А., Архипова М.Ю.³ лар ҳам иқтисодий прогнозлаштириш усуллари ўзига хос хусусиятларини тадқиқ қилишиб, айрим иқтисодий кўрсаткичларни прогноз қилиш бўйича амалий масалалар ёрдамида маълумотларни келтиришган ва шу йўл билан ўқувчига прогнозлаштириш усуллари таништирган.

Морозова Т.Г., Пикулькина А.В.⁴ ларнинг прогнозлаштириш жараёнини таништиришдаги хизмати катталигини эътироф этиш керак. Мазкур муаллифлар нафақат, прогнозлаштириш усуллари тўғрисида фикр беришган, балки пост-коммунист мамлакатларида бу борада учраб турадиган муаммолар ва уларга қарши қандай йўл тутиш кераклигини ҳам алоҳида таъкидлаб ўтишган.

Шунингдек, мамлакатимизнинг машҳур иқтисодчиларидан Жўраев А.⁵ ҳам ўз тадқиқотида давлат бюджети даромадларини шакллантиришнинг айрим масалаларини ўрганиб, сценарийли таҳлил асосида прогнозларга тўхталиб ўтган.

Кадомцева С.В.⁶ ўзининг ўқув қўлланмасида эса давлат бюджети даромадларини Лаффер эгри чизиғи бўйича солиқ ставкаларига боғлиқлигини сценарийли таҳлил асосида тадқиқ қилган. Хусусан, солиқ ставкаларининг ўзгариши солиқ базасининг кенгайишида эластиклик самараси билан кенгайишига графиклар ёрдамида тушунтириш берилган.

Худойкулов С.К.⁷ ўз тадқиқотида республикада давлат бюджети даромадларини прогнозлаштириш тизимида учрайдиган муаммолар, жумладан прогнозлаштириш учун зарур

² Каримов И.А. Ўзбекистон буюк келажак сари. – Т.: Ўзбекистон, 1998. 358-б.

³ Дуброва Т.А., Архипова М.Ю. Статистические методы прогнозирования в экономике: Учебное пособие, практикум, тесты, программа курса. – М.: Московский государственный университет экономики, статистики и информатики, 2004. –136 с.

⁴ Морозова Т.Г., Пикулькина А.В. Прогнозирование и планирование в условиях рынка: Учебное пособие для вузов. –М.: ЮНИТИ-ДАНА, 2003. –279 с.

⁵ Жўраев А.С. Давлат бюджети даромадларини шакллантиришнинг долзарб муаммолари: и.ф.д. илмий даражасини олиш учун диссертация автореферати. –Т.: БМА, 2004. –68 б.

⁶ Кадомцева С.В. Государственные финансы. М.: “Инфра-М”, 2009. –352 с.

⁷ Худойкулов С.К. Солиқ тушумларини прогноз қилиш методологиясини такомиллаштириш: и.ф.д. илмий даражасини олиш учун диссертация автореферати. –Т.: ТДИУ, 2019. –77 б.

маълумотлар базасининг мавжуд эмаслиги, прогнозлаштириш тамойиллари йўқлиги ва талабга жавоб берадиган дастурлар ишлаб чиқилмаганлигига эътибор қаратади.

Таҳлил ва натижалар муҳокамаси.

Давлат бюджети солиқли даромадларининг ўзгаришига солиқ-божхона ислохотлари ҳам ўз таъсирини кўрсатган. 2018-2023 йилларда ўтказилган солиқ ислохотлари ва уларнинг натижалари тўғрисида қисқача тўхталиб ўтмоқчимиз.

1-жадвал

Асосий солиқлар ставкаларининг 2018-2023 йиллардаги динамикаси⁸

(фоизда)

№	Солиқлар номи	2018 йил	2019 йил	2020 йил	2021 йил	2022 йил	2023 йил
1	Фойда солиғи	14	12	15	15	15	15
2	Айланмадан олинадиган солиқ	6	4	4	4	4	4
3	Жисмоний шахслардан олинадиган даромад солиғи	0-22	12	12	12	12	12
4	Қўшилган қиймат солиғи	20	15	15	15	15	12
5	Юридик шахслардан олинадиган мол-мулк солиғи	5	2	2	2	2	1,5

Фойда солиғи бўйича солиқ ставкаси 14 фоиздан 15 фоизгача оширилган (1-жадвалга қаранг). Қўшилган қиймат солиғи ставкаси эса 20 фоиздан 15 фоизгача камайтирилган. Юридик шахслардан олинадиган мол-мулк солиғи ставкаси 2018 йилда 5 фоизни ташкил қилган эди, 2019 йилдан бошлаб 2 фоизгача камайтирилди.

Жисмоний шахслардан олинадиган даромад солиғи 2018 йилда прогрессив шаклда жорий қилинган бўлса, 2019 йилдан бошлаб, 12% миқдорида ягона ставка жорий қилинган.

Солиқ сиёсати бўйича АҚШдаги мустақил тадқиқот муассасаси тадқиқотларига кўра, солиқ ставкаларидаги камайтиришлар ялпи ички маҳсулот ҳамда бошқа иқтисодий кўрсаткичларни яхшилашдаги асосий омил бўлиб ҳисобланади.⁹ Республикадаги солиқ ислохотлари миллий иқтисодиёт ривожига драйвер омиллардан бири бўлиб қолаётганлиги тўғрисида хулоса чиқариш мумкин.

Қўшилган қиймат солиғи бўйича ҳам таҳлил қилинаётган даврда кўплаб ўзгаришлар юз берди. Хусусан, йиллик обороти 1 млрд.сўмдан ошган субъектлар учун ушбу солиқ тўлаш мажбурийлиги жорий қилинди, имтиёзлар бекор қилинди.

Айниқса, 2020 йилдан бошлаб қўшилган қиймат солиғи бўйича ҳосил бўлган манфий қолдиқ тўлиғича қайтариб бериладиган бўлди, илгари фақат экспортёрлар учун қатор шартлар асосида қайтариб бериларди.

⁸ Муаллиф томонидан тузилган.

⁹ Vermer, T. The Impact of Individual Income Tax Changes on Economic Growth. Fiscal fact, No. 793, June 2022, 13p. (<https://files.taxfoundation.org/20220610142519/The-Impact-of-Individual-Income-Tax-Changes-on-Economic-Growth-2.pdf>)

Рей Баррел ва Мартин Уил томонидан ўтказилган тадқиқотларда қўшилган қиймат солиғи ставкасининг камайтирилганлиги ялпи ички маҳсулот ўсишида ва нархларнинг пасайишида яхши натижа берганлиги қайд этилган ва республикада ҳам бундай ижобий натижаларни кутиш учун қўшимча маълумотлар олиш мумкин.¹⁰

Ўзбекистонда 2019 йилдан бошлаб, қўшилган қиймат ставкасини камайтирилгани ҳамда қатор имтиёзлар бекор қилинганлиги сабабли, ушбу коэффициент 2018-2023 йиллар давомида кўтарилиб борган. Бу коэффициентнинг ошиб бориши иқтисодиётдаги айланмаларнинг аксарият қисми қўшилган қиймат солиғи билан тортилаётганлигини англатади. Имтиёзларнинг кўплиги иқтисодиётда соғлом рақобат муҳитини бузилишига олиб келади. Бундан ташқари, илгари соддалаштирилган солиқ солиш тартибини қўллайдиган кичик бизнес субъектлари томонидан яратилган қўшилган қиймат ҳам солиққа тортилмаганлиги коэффициентни пасайишига сабаб бўларди.

2-жадвал

Ўзбекистонда қўшилган қиймат солиғи тушумлари таҳлили¹¹

(млрд.сўм)

№	Солиқлар номи	2018 йил	2019 йил	2020 йил	2021 йил	2022 йил	2023 йил
1	Якуний истеъмол ҳажми	321 527, 8	403 230, 2	454 349, 5	563 971, 3	699 497, 1	857 386, 2
2	Қўшилган қиймат солиғи	27 876,5	33 809,8	31 177,4	38 439,0	52 189,4	59 838,1
3	Қўшилган қиймат солиғи ставкаси, %	20	15	15	15	15	12
4	<i>C-efficiency ratio</i> коэффициенти	0,43	0,56	0,46	0,45	0,50	0,58

2-жадвалдан кўринишича, ҳисобланган коэффициент 2018 йилдаги 0,43 дан 2023 йилда 0,58 гача ўсган. Бу ҳолат юқорида айтиб ўтилган тадбирларни натижасини миқдорий жиҳатдан кўрсатиб беради.

Украиналик тадқиқотчиларга кўра, бу коэффициент Украинада 0,71, Австрияда 0,72, Беларусда 0,69, Бельгияда 0,63, Чехияда 0,68, Эстония 0,81, Португалия 0,54, Норвегияда 0,76, Польшада 0,50 ни ташкил қилади.¹² Бу кўрсаткичлар республикада қўшилган қиймат солиғи бўйича ислохотлар давом эттирилиши зарурлигини кўрсатади.

Солиқ имтиёзларининг камайиб бориши соғлом рақобатнинг бузилишига олиб келади. Албатта, солиқ имтиёзларининг иқтисодий тараққиётда ўз ўрни бор, бироқ бу бозор қатнашчилари ўртасида тенгсизлик келтириб чиқариши орқали иқтисодий самарадорликка салбий таъсир кўрсатади.

¹⁰ Barrel, R., Weale, M. The Economics of a Reduction in VAT. Fiscal Studies, Vol. 30, No. 1 (March 2009), pp. 17-30 (<https://www.jstor.org/stable/24440143>)

¹¹ Муаллиф томонидан тузилган.

¹² <https://mpira.ub.uni-muenchen.de/66422/>

Мисол учун, Цюрихдаги Стратегия ва Бизнес Иқтисодиёти Институтини таҳлилларни қўшилган қиймат солиғи бўйича берилган имтиёзлар иқтисодий самарадорликни камайтирганлигини тасдиқлайди.¹³

3-жадвал

Солиқ имтиёзлари динамикаси¹⁴

	2018 йил	2019 йил	2020 йил	2021 йил	2022 йил	2023 йил
Солиқ имтиёзлари, трлн.сўм	21,8	26,5	33,2	36,0	38,2	41,1
Ялпи ички маҳсулотга нисбатан фоизда	6,1	5,2	4,7	4,5	4,3	3,9

Шу давр оралиғида солиқ имтиёзлари эса ялпи ички маҳсулотга нисбатан 1,8 фоиз бандига, яъни 2018 йилдаги 6,1 фоиздан 2023 йилда 3,9 фоизгача камайган (3-жадвалга қаранг).

Имтиёзларнинг мавжудлиги солиқ тушумларига ҳам таъсир кўрсатмай қолмайди. Айниқса, бу имтиёздан фойдаланиш учун бюджетга солиқ тўлаб келаётган субъектлар ҳам турли йўллар билан солиқдан қочишга ҳаракат қилади.

Имтиёзларнинг камайиб бораётганлиги солиқ тўловчиларнинг молиявий ҳолати мустаҳкамланиб бораётганлигини кўрсатади. Масалан, солиқ имтиёзлари солиқ солиш базасини кенгайтириш учун ишлаб чиқаришни бошлаётган субъектлар ёки катта инвестиция қилаётган ишлаб чиқарувчилар учун берилиши керак бўлса, амалиётда ким имтиёз олишни уйдалаган бўлса олган ва бундан ташқари сиёсат фақат бир томонлама ёндашув туфайли солиқ имтиёзлари ошиб кетган.

Юқоридагилардан келиб чиқиб, солиқ-божхона имтиёзларини баҳолаш қуйидаги тартибда амалга оширилиши лозим деб ҳисоблаймиз:

Солиқ-божхона имтиёзлари – солиқ тўловчиларнинг айрим тоифаларига бошқа солиқ тўловчиларга нисбатан солиқ тўғрисидаги қонунчиликда назарда тутилган афзалликлар, шу жумладан солиқни тўламаслик ёки уларни камроқ миқдорда тўлаш имконияти;

Солиқ-божхона имтиёзлари реестри – Иқтисодиёт ва молия вазирлиги томонидан юритиладиган солиқ имтиёзлари назарда тутилган норматив-ҳуқуқий ҳужжатларнинг таснифлашган рўйхати;

Имтиёз самарадорлиги – имтиёзни беришдан кўзланган мақсадга эришишнинг миқдорий баҳоси;

Ташаббускор идора ва ташкилотлар – имтиёзлар жорий қилиш ёки муддатини узайтириш таклифини киритган соҳавий идора ва ташкилотлар;

Самарадорликни дастлабки баҳолаш – янги имтиёзларни жорий қилишдан олдин ташаббускор идора ва ташкилот томонидан амалга ошириладиган, имтиёз тақдим қилиш натижасида эришилиши кутиладиган самарадорлик прогнозлари;

¹³ <http://ssrn.com/abstract=1683595>

¹⁴ Муаллиф томонидан тузилган.

Самарадорликни якуний баҳолаш – тақдим қилинган имтиёзлар бўйича Иқтисодиёт ва молия вазирлиги томонидан мазкур Низом талабалари асосида баҳолаш.

Имтиёзлар самарадорлигини баҳолаш мақсадида имтиёзлар Иқтисодиёт ва молия вазирлиги томонидан қуйидаги турларга ажратилади:

Рағбатлантирувчи имтиёзлар – иқтисодий фаолият йўналиши, товар (хизмат) тури, мулкчилик шаклига кўра ёки алоҳида ҳудудларда жойлашган хўжалик юритувчи субъектларни жадал ривожлантириш мақсадида тақдим қилинган имтиёзлар;

Тизимли имтиёзлар – барқарор иқтисодий ривожланишни таъминлашга зарур шароитлар яратиш, шунингдек, фаолияти иқтисодий ривожланишга таъсир кўрсатадиган солиқ тўловчилар тоифаларига (*йўл хўжалиги, транспорт, коммунал соҳа, илмий-технологик соҳа, инновацион соҳа ва ҳ.к*) тақдим қилинган имтиёзлар;

Ижтимоий имтиёзлар – алоҳида тоифадаги фуқаролар ҳамда солиқ тўловчиларнинг ижтимоий аҳамиятга молик фаолиятини қўллаб-қувватлашга қаратилган имтиёзлар.

Имтиёзлар самарадорлигини баҳолаш рағбатлантирувчи тоифага киритилган имтиёзлар бўйича амалга оширилади.

1. Самарадорликни баҳолаш имтиёз тақдим қилинган ҳужжат кесимда бир молия йили бўйича амалга оширилади.

2. Якуний баҳолаш натижалари бўйича самарадорлиги паст бўлган имтиёзлар бекор қилиниши ёки қайта кўриб чиқиши шарт.

3. Янги имтиёзларни жорий қилиш назарда тутилган норматив-ҳуқуқий ҳужжат лойиҳалари бўйича ташаббускаор вазирлик ва идоралар Иқтисодиёт ва молия вазирлигига самарадорликни дастлабки баҳолаш натижаларини тақдим қилиши шарт.

Мазкур ҳисоб-китобларнинг тақдим қилинмаслиги лойиҳани рад этиш учун асос ҳисобланади.

Имтиёзлар самарадорлиги баҳолашни ташкил этиш

4. Самардорликни баҳолаш қуйидаги маълумотлар асосида Иқтисодиёт ва молия вазирлиги ахборот тизими дастурида амалга оширилади:

имтиёздан фойдаланувчиларнинг молиявий, солиқ ҳисоботлари;

соҳавий ёки статистика идоралари маълумотлари;

белгиланган тартибда ўтказилган сўровнома натижалари;

ва бошқа маълумотлар асосида амалга оширилади.

5. Солиқ-божхона имтиёзларини самарадорлигини баҳолаш учун Иқтисодиёт ва молия вазирлигида Кенгаш тузилади. Кенгашга Иқтисодиёт ва молия вазирлиги, Солиқ қўмитаси, Божхона қўмитаси, Статистика агентлиги, Савдо саноат палатаси вакиллари, жамоатчилик вакиллари доимий аъзо сифатида киритилади.

Имтиёзларнинг самарадорлигини баҳолаш бўйича йиғилишларда соҳавий вазирлик ва ташкилотлар қатнашишлари мумкин.

6. Солиқ-божхона имтиёзлари самарадорлиги қуйидаги кўрсаткичлар асосида ҳисобланади:

Бюджет самарадорлиги – тақдим қилинган ёки режалаштирилади-ган имтиёзларнинг умумий суммаси, бўшаётган маблағлар сарфланиш йўналишлари, қўшимча маблағлар талаб этилиши каби мезонлар асосида баҳоланади.

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Иқтисодий самарадорлик – ташкилотнинг асосий воситалари қиймати ўзгариши, товар ва хизмат турлари сони, даромади, фойдаси, рентабеллиги каби кўрсаткичлардан фойдаланган ҳолда баҳоланади.

Ижтимоий самарадорлик – имтиёздан фойдаланган субъектларда ишчилар сони, янги ташкил қилинган иш ўринлари сони, иш ҳақи фонди ҳамда ўртача ойлик иш ҳақидаги ижобий ўзгаришлар каби мезонлардан келиб чиқиб баҳоланади.

7. Ҳар бир имтиёз бўйича умумий самарадорлик кўрсаткичи қуйида кўрсатиб ўтилган кўрсаткичларга, жами миқдори 1 га тенг бўлган ҳолда, вазн бериш орқали аниқланади:

4-жадвал

Самарадорлик кўрсаткичлари

№	Самарадорлик кўрсаткичлари	Вазни
1.	Бюджет даромадлари бўйича самарадорлиги	
	Республика бюджети даромадлари йўқотишлари	
	Вилоят бюджети даромадлари йўқотишлари	
	Туман (шаҳар) бюджети даромадлари йўқотишлари	
	Пенсия жамғармаси даромадлари йўқотишлари	
2.	Иқтисодий самарадорлиги	
	Маҳсулот (иш, хизмат) ишлаб чиқариш ҳажмининг ўзгариши	
	Рентабеллик даражасининг ўзгариши	
	Асосий воситалар ва номоддий активлар қийматининг ўзгариши	
	Тўловга қобиллик коэффицентининг ўзгариши	
	Ликвидлилик коэффицентининг ўзгариши	
	Инвестиция ҳажмининг ўзгариши	
	Импорт ҳажмининг ўзгариши	
	Фойдаланиладиган энергия ресурслари ҳажмининг ўзгариши	
	Табиатни муҳофаза қилиш бўйича харажатларнинг ишлаб чиқариш харажатлари таркибидаги улуши	
	Фойдаланилган сув ҳажмининг ўзгариши	
	Имтиёздан фойдаланувчилар сонининг тармоқ бўйича жами тўловчилардаги улуши	
	Имтиёздан фойдаланганлар томонидан чиқарилган маҳсулот (иш, хизматлар) жами тармоқ ялпи маҳсулотдаги улуши	
	Имтиёзли импорт ҳажмининг жами импортдаги (шу товар бўйича) салмоғи	
	Экспорт ҳажмининг ошиши	
3.	Ижтимоий самарадорлиги	
	Янги иш ўринларининг яратилиши	
	Ўртача иш ҳақининг ўзгариши	
	Табиатни муҳофаза қилиш бўйича харажатларнинг ишлаб чиқариш харажатлари таркибидаги улуши	
	Фойдаланилган сув ҳажмининг ўзгариши	

Кенгаш томонидан мавжуд имтиёзларнинг ҳар бири бўйича алоҳида вазнлар белгиланади.

8. Самарадорлик кўрсаткичлари қуйидаги формулалар орқали аниқланади:

Бюджет самарадорлиги кўрсаткичларини ҳисоблаш

Республика бюджети даромадлари йўқотишлари

$$EL_1 = \frac{SL_1}{TR_1} * (-1) \quad (1)$$

EL_1 - республика бюджети даромадлари йўқотишлари бўйича самарадорлик

SL_1 - республика бюджети даромадлари йўқотишлари

TR_1 - республика бюджетининг жами даромадлари

Қорақалпоғистон Республикаси, вилоятлар ва Тошкент шаҳри бюджети даромадлари йўқотишлари

$$EL_2 = \frac{SL_2}{TR_2} * (-1) \quad (2)$$

EL_2 - Қорақалпоғистон Республикаси, вилоятлар ва Тошкент шаҳри бюджети даромадлари йўқотишлари бўйича самарадорлик

SL_2 - Қорақалпоғистон Республикаси, вилоятлар ва Тошкент шаҳри бюджети даромадлари йўқотишлари

TR_2 - Қорақалпоғистон Республикаси, вилоятлар ва Тошкент шаҳри бюджетларининг жами даромадлари

Туман (шаҳар) бюджети даромадлари йўқотишлари

$$EL_3 = \frac{SL_3}{TR_3} * (-1) \quad (3)$$

EL_3 - туман (шаҳар) бюджети даромадлари йўқотишлари бўйича самарадорлик

SL_3 - туман (шаҳар) бюджети даромадлари йўқотишлари

TR_3 - туман (шаҳар) бюджетларининг жами даромадлари

Пенсия жамғармаси даромадлари йўқотишлари

$$EL_4 = \frac{SL_4}{TR_4} * (-1) \quad (4)$$

EL_4 - Пенсия жамғармаси даромадлари йўқотишлари бўйича самарадорлик

SL_4 - Пенсия жамғармаси бюджети даромадлари йўқотишлари

TR_4 - Пенсия жамғармаси бюджетларининг жами даромадлари

Иқтисодий самарадорлиги кўрсаткичларини ҳисоблаш

Маҳсулот (иш, хизмат) ишлаб чиқариш ҳажмининг ўзгариши

$$EE_1 = \left(\sum_{i=1}^n \frac{\text{Min}(0; (T_{ti} - T_{ti-1}) * \text{Max}(T_{ti-1}; 1))}{\text{Max}(T_{ti-1}; 1)} - 1 \right) * \frac{1}{n} \quad (5)$$

EE_1 - маҳсулот (иш, хизмат) ишлаб чиқариш ҳажмининг ўзгариши бўйича самарадорлик

i - имтиёздан фойдаланганларнинг тартиб рақами

n - имтиёздан фойдаланганлар умумий сони

T_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридаги маҳсулот (иш, хизмат) сотишдан тушган соф тушуми

T_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридан олдинги йилдаги маҳсулот (иш, хизмат) сотишдан тушган соф тушуми – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Рентабеллик даражасининг ўзгариши

$$EE_2 = (\sum_{i=1}^n \text{Min}(0; (P_{ti} - P_{ti-1}) * \text{Max}(P_{ti-1}; 1)) - 1) * \frac{1}{n} \quad (6)$$

EE_2 - рентабеллик даражасининг ўзгариши бўйича самарадорлик

i - имтиёздан фойдаланганларнинг тартиб рақами

n - имтиёздан фойдаланганлар умумий сони

P_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридаги рентабеллиги

P_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридан олдинги йилдаги рентабеллиги – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Асосий воситалар ва номоддий активлар қийматининг ўзгариши

$$EE_3 = \left(\sum_{i=1}^n \frac{\text{Min}(0; (\text{Ass}_{ti} - \text{Ass}_{ti-1}) * \text{Max}(\text{Ass}_{ti-1}; 1))}{\text{Max}(\text{Ass}_{ti-1}; 1)} - 1 \right) * \frac{1}{n} \quad (7)$$

EE_3 - асосий воситалар ва номоддий активлар қийматининг ўзгариши бўйича самарадорлик

i - имтиёздан фойдаланганларнинг тартиб рақами

n - имтиёздан фойдаланганлар умумий сони

Ass_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот даври охиридаги асосий воситалар ва номоддий активларининг қиймати

Ass_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот даври бошидаги асосий воситалар ва номоддий активларининг қиймати – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Тўловга қобиллик коэффицентининг ўзгариши

$$EE_4 = (\sum_{i=1}^n \text{Min}(0; (\text{Pay}_{ti} - \text{Pay}_{ti-1}) * \text{Max}(\text{Pay}_{ti-1}; 1)) - 1) * \frac{1}{n} \quad (8)$$

EE_4 - тўловга қобиллик даражасининг ўзгариши бўйича самарадорлик

I - имтиёздан фойдаланганларнинг тартиб рақами

n - имтиёздан фойдаланганлар умумий сони

Pay_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридаги тўловга қобиллик коэффиценти

Pay_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридан олдинги йилдаги тўловга қобиллик коэффиценти – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Ликвидлилик коэффицентининг ўзгариши

$$EE_5 = (\sum_{i=1}^n \text{Min}(0; (L_{ti} - L_{ti-1}) * \text{Max}(L_{ti-1}; 1)) - 1) * \frac{1}{n} \quad (9)$$

EE_5 - ликвидлилик даражасининг ўзгариши бўйича самарадорлик

I - имтиёздан фойдаланганларнинг тартиб рақами

n - имтиёздан фойдаланганлар умумий сони

- L_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридаги ликвидлилик коэффициенти
- L_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридан олдинги йилдаги ликвидлилик коэффициенти – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Инвестиция ҳажмининг ўзгариши

$$EE_6 = \left(\sum_{i=1}^n \frac{\text{Min}(0; (In_{ti} - In_{ti-1}) * \text{Max}(In_{ti-1}; 1))}{\text{Max}(In_{ti-1}; 1)} - 1 \right) * \frac{1}{n} \quad (10)$$

- EE_6 - инвестиция ҳажмининг ўзгариши бўйича самарадорлик
- I - имтиёздан фойдаланганларнинг тартиб рақами
- n - имтиёздан фойдаланганлар умумий сони
- In_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридаги инвестициялар миқдори
- In_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридан олдинги йилдаги инвестициялар миқдори – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Импорт ҳажмининг ўзгариши

$$EE_7 = \left(\sum_{i=1}^n \frac{\text{Min}(0; (Im_{ti} - Im_{ti-1}) * \text{Max}(Im_{ti-1}; 1))}{\text{Max}(Im_{ti-1}; 1)} - 1 \right) * \frac{1}{n} \quad (11)$$

- EE_7 - импорт миқдорининг ўзгариши бўйича самарадорлик
- I - имтиёздан фойдаланганларнинг тартиб рақами
- n - имтиёздан фойдаланганлар умумий сони
- Im_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридаги импорт миқдори
- Im_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридан олдинги йилдаги импорт миқдори – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Энергия ресурсларидан фойдаланиш ҳажмининг ўзгариши

$$EE_8 = \left(\sum_{i=1}^n \frac{\text{Min}(0; (ER_{ti} - ER_{ti-1}) * \text{Max}(ER_{ti-1}; 1))}{\text{Max}(ER_{ti-1}; 1)} - 1 \right) * \frac{1}{n} \quad (12)$$

- EE_8 - энергия миқдоридан фойдаланиш ҳажмининг ўзгариши бўйича самарадорлик
- I - имтиёздан фойдаланганларнинг тартиб рақами
- n - имтиёздан фойдаланганлар умумий сони
- ER_{ti} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридаги фойдаланган энергия ресурслари ҳажми
- ER_{ti-1} - имтиёздан фойдаланган i -субъектнинг ҳисобот давридан олдинги йилдаги фойдаланган энергия ресурслари ҳажми – агар тўлиқ йиллик маълумот бўлмаса, у ҳолда “0” қабул қилинади

Хулоса ва таклифлар.

Юқоридагилардан келиб чиқиб, солиқ-божхона имтиёзлари самарадорлигини баҳолаш юзасидан қуйидаги ишларни амалга ошириш лозим бўлади деб ҳисоблаймиз:

1. Солиқ-божхона идоралари маълумотлари асосида Иқтисодиёт ва молия вазирлигида ягона платформани ишга тушириш (бизнес-жараёнларини автоматлаштириш, замонавий

технологиялар асосида автоматлаштирилган қарорларни қабул қилиш, катта маълумотлар (Big Data) билан ишлаш, “Business Intelligence” аналитик тизимни ишга тушириш);

2. Барча мавжуд имтиёзларни қайтадан хатловдан ўтказиб, келтириб ўтилган тартиб асосида самарадорлигини баҳолаб чиқиш ва хулосаларни эълон қилиш;

3. Самарадорлиги аниқланган имтиёзлар бўйича иқтисодий-ижтмоий таҳлиллар асосида иқтисодий рақобат бузилиши юзасидан таҳлиллар ўтказиш;

4. Барча янги киритиладиган имтиёзлар ва бошқа преференцияларни шу тартиб асосида самарадорлигини аниқлаш мажбуриятини юқловчи молиявий экспертиза тартибини жорий қилиш.

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РОЛЬ КОММЕРЧЕСКИХ БАНКОВ В ЭКОНОМИКЕ УЗБЕКИСТАНА

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Аннотация: В данной статье анализируется роль коммерческих банков в экономике Узбекистана и их значение для развития финансовой системы страны. Рассматриваются функции коммерческих банков, включая кредитование, привлечение инвестиций, поддержку денежно-кредитной политики и обеспечение экономической стабильности. Также обсуждаются возможности и ограничения банковской системы в современных экономических условиях. Результаты исследования показывают, что коммерческие банки являются важным инструментом стимулирования экономического роста и инвестиционной активности.

Ключевые слова: Коммерческие банки, экономика, кредитование, инвестиции, финансовая система, экономическая стабильность,

ВВЕДЕНИЕ

Коммерческие банки являются ключевыми институтами финансовой системы любой страны, выполняя важные функции по кредитованию, мобилизации капитала и обеспечению ликвидности экономики. В условиях динамично развивающейся экономики Узбекистана роль коммерческих банков особенно значима, поскольку они способствуют стимулированию инвестиционной активности, поддержке малого и среднего бизнеса, а также обеспечению финансовой стабильности. Современные экономические реформы и интеграция Узбекистана в глобальные финансовые рынки создают новые возможности и вызовы для банковской системы. В то же время растущая конкуренция, технологические инновации и изменения в законодательстве требуют от коммерческих банков повышения эффективности, прозрачности и устойчивости их деятельности. Целью данной работы является анализ роли коммерческих банков в экономике Узбекистана, выявление их влияния на экономический рост и определение ключевых факторов, способствующих развитию банковского сектора. Исследование позволяет понять, каким образом банковская система может стать драйвером устойчивого экономического развития страны.

Методы исследования:

В данном исследовании применялись комплексные методы анализа для оценки роли коммерческих банков в экономике Узбекистана. Основными методами были: Анализ статистических данных – изучение официальной информации Центрального банка Республики Узбекистан, отчетов коммерческих банков и государственных статистических источников о кредитовании, инвестициях и финансовой устойчивости банковского сектора. Сравнительный анализ – сопоставление показателей деятельности коммерческих банков в различные периоды для выявления тенденций их влияния на экономический рост. Метод обзора литературы – изучение научных публикаций, исследований и аналитических материалов по вопросам банковской системы, финансовой политики и экономического развития страны. Качественный анализ – оценка роли банков в стимулировании малого и среднего бизнеса, а также в обеспечении финансовой стабильности экономики. Использование

этих методов позволило получить целостное представление о функционировании коммерческих банков в Узбекистане, определить их ключевые функции и влияние на экономическое развитие.

Результаты исследования

В ходе исследования деятельности коммерческих банков в экономике Узбекистана были выявлены следующие ключевые результаты: По данным Центрального банка Республики Узбекистан, на 2024 год общий объем кредитов, предоставленных коммерческими банками, составил около 85 трлн сум, что на 12% больше, чем в 2023 году. Наибольшая часть кредитного портфеля (около 60%) направлена на финансирование малого и среднего бизнеса, что способствует созданию новых рабочих мест и повышению производительности экономики. Коммерческие банки активно привлекают средства населения и организаций. Объем депозитов физических и юридических лиц в 2024 году достиг 95 трлн сум, увеличившись на 15% по сравнению с предыдущим годом. Эти средства позволяют банкам финансировать долгосрочные инвестиционные проекты в промышленности, строительстве и сельском хозяйстве. Показатель достаточности капитала (capital adequacy ratio) большинства крупных коммерческих банков составил не менее 12%, что соответствует международным стандартам. Коэффициент ликвидности варьируется в пределах 25–30%, что обеспечивает способность банков своевременно выполнять обязательства перед клиентами и снижает риски финансовой нестабильности. В последние годы наблюдается активное внедрение электронных и мобильных банковских сервисов. Более 70% клиентов коммерческих банков пользуются онлайн-банкингом для оплаты услуг, переводов и управления счетами. Это повышает доступность банковских услуг и снижает операционные издержки. Анализ динамики показал, что рост кредитования и инвестиций через коммерческие банки положительно коррелирует с ростом ВВП страны. По оценкам аналитиков, около 20–25% экономического роста в 2024 году было обеспечено активной деятельностью банковского сектора. Таким образом, результаты исследования демонстрируют, что коммерческие банки Узбекистана играют ключевую роль в стимулировании экономического роста, обеспечении финансовой стабильности и развитии инвестиционной и инновационной деятельности.

Обсуждение

Результаты исследования подтверждают, что коммерческие банки играют ключевую роль в экономике Узбекистана, влияя на развитие как крупного, так и малого и среднего бизнеса. Рост кредитного портфеля банков на 12% за последний год и увеличение депозитной базы на 15% свидетельствуют о стабильной динамике банковской системы и её способности поддерживать экономический рост. Анализ по секторам показал, что наибольшую долю кредитов получают предприятия промышленности (35%) и сельского хозяйства (25%), что обеспечивает не только производственное развитие, но и создание новых рабочих мест. Малый и средний бизнес получает около 40% всех кредитов, что подтверждает стратегическую направленность банков на поддержку предпринимательства. Финансовые показатели крупных банков, такие как достаточность капитала (не менее 12%) и коэффициент ликвидности (25–30%), свидетельствуют о высокой устойчивости банковского сектора. Однако сохраняются определённые риски, связанные с колебаниями процентных ставок и возможными невозвратами кредитов. Внедрение инноваций и цифровизация банковских услуг повышают доступность финансовых инструментов для населения. Более 70% клиентов используют

онлайн-банкинг, что не только облегчает доступ к финансовым продуктам, но и снижает операционные расходы банков. Это также способствует финансовой инклюзии и стимулирует экономическую активность населения. Таким образом, коммерческие банки являются не только посредниками в финансовых потоках, но и драйверами экономического развития. Для дальнейшего усиления их роли необходимо: совершенствование нормативно-правовой базы; внедрение современных финансовых технологий; повышение прозрачности и эффективности управления рисками; стимулирование кредитования инновационных и экспортно-ориентированных проектов. Эти меры позволят увеличить вклад банков в устойчивое экономическое развитие страны и повысить их значимость в национальной финансовой системе.

Заключение

Проведённое исследование подтвердило, что коммерческие банки играют ключевую роль в экономике Узбекистана, обеспечивая финансовую устойчивость, стимулирование инвестиций и поддержку предпринимательства. Анализ статистических данных показал, что кредитование экономики растёт стабильно, особенно в секторе малого и среднего бизнеса, что способствует созданию новых рабочих мест и повышению производительности. Кроме того, банки активно привлекают депозиты и инвестиции, что позволяет финансировать долгосрочные проекты в промышленности, сельском хозяйстве и инфраструктуре. Финансовая устойчивость банков, отражённая в показателях достаточности капитала и ликвидности, позволяет снижать риски экономических кризисов и обеспечивать стабильное функционирование финансовой системы. Внедрение инновационных и цифровых технологий, таких как онлайн-банкинг и мобильные приложения, повышает доступность банковских услуг, способствует финансовой инклюзии населения и улучшает эффективность работы банков. Для дальнейшего усиления роли коммерческих банков в экономике страны рекомендуется:

1. Совершенствовать нормативно-правовую базу, регулирующую банковскую деятельность;
2. Активно внедрять современные финансовые технологии и автоматизированные сервисы;
3. Повышать прозрачность и эффективность управления рисками;
4. Содействовать кредитованию инновационных и экспортно-ориентированных проектов.

Таким образом, коммерческие банки не только выполняют традиционные функции по аккумулированию капитала и кредитованию, но и становятся драйверами экономического роста, модернизации финансовой системы и устойчивого развития Узбекистана.

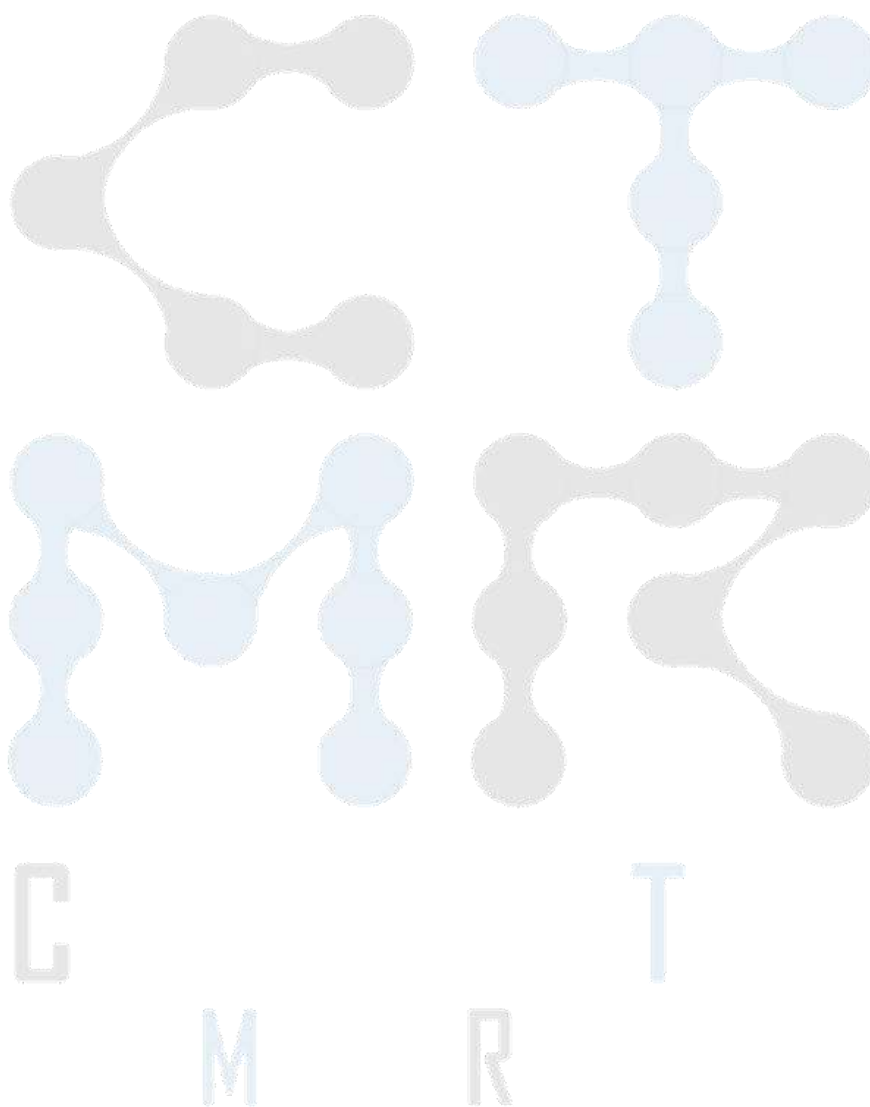
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MEHNAT MADANIYATI TUSHUNCHASINING SOTSIOLOGIK TALQINLARIGA
NAZARIY YONDASHUVLAR

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Annotatsiya. Ushbu maqolada mehnat madaniyati tushunchasining sotsiologik talqinlari turli nazariy yondashuvlar asosida tahlil qilinadi. Funktsionalizm, interaksionizm, Vebercha interpretativ yondashuv, institutsionalizm va konstruktivizm doirasida mehnat madaniyatining shakllanishi, mazmuni va ijtimoiy ahamiyati izohlangan. Tadqiqot natijalari mehnat madaniyatining ko'p qirrali sotsiologik fenomen ekanligini, unda me'yoriy, kommunikativ, institutsional va individual-mazmunli omillar o'zaro uyg'unlashganini ko'rsatadi. Maqola mehnat madaniyatini zamonaviy mehnat bozori va texnologik o'zgarishlar kontekstida talqin qilish uchun nazariy asos yaratadi.

Kalit so'zlar. Mehnat madaniyati; sotsiologik yondashuvlar; funksionalizm; interaksionizm; institutsionalizm; konstruktivizm; kasbiy me'yorlar; ijtimoiy institutlar.

Аннотация. В статье рассматриваются социологические интерпретации понятия трудовой культуры в рамках различных теоретических подходов. Анализируются функционалистская, интеракционистская, веберовская интерпретативная, институциональная и конструктивистская модели формирования и проявления трудовой культуры. Результаты исследования показывают, что трудовая культура является многослойным социологическим феноменом, сочетающим нормативные, коммуникативные, институциональные и личностно-смысловые компоненты. Работа формирует теоретическую основу для понимания трудовой культуры в контексте современных технологических и социально-экономических изменений.

Ключевые слова. Трудовая культура; социологические подходы; функционализм; интеракционизм; институционализм; конструктивизм; профессиональные нормы; социальные институты.

Abstract. This article analyzes sociological interpretations of the concept of labor culture through several theoretical perspectives. Functionalist, interactionist, Weberian interpretive, institutional, and constructivist approaches to the formation and meaning of labor culture are examined. The findings indicate that labor culture is a multidimensional sociological phenomenon that integrates normative, communicative, institutional, and individual meaning-based components. The study provides a theoretical foundation for reinterpreting labor culture within the context of modern technological development and the evolving labor market.

Keywords. Labor culture; sociological approaches; functionalism; interactionism; institutionalism; constructivism; professional norms; social institutions.

KIRISH

Mehnat madaniyati jamiyatning iqtisodiy-ijtimoiy rivojlanishida muhim ahamiyatga ega bo'lgan ko'p qirrali sotsiologik fenomenlardan biridir. U mehnat jarayonida shakllanadigan qadriyat va me'yorlar, kasbiy xulq-atvor, ijtimoiy munosabatlar, mehnat intizomi va mehnatni tashkil etish madaniyatining majmuasi sifatida keng talqin qilinadi. Zamonaviy global mehnat bozori, texnologiyalarning keskin rivoji, raqamli transformatsiya va inson kapitalining o'sib borishi mehnat

madaniyatini nafaqat kasbiy kompetensiyalar yig'indisi, balki ijtimoiy institut sifatida o'rganishni taqozo etmoqda.

Jahon sotsiologiya maktablarida mehnat madaniyati tushunchasi turlicha izohlanadi. T. Parsons mehnat madaniyatini jamiyatning barqarorligini ta'minlaydigan me'yoriy tizimning ajralmas qismi sifatida talqin qiladi [8, 110].

M. Veber esa mehnatni ma'naviy-axloqiy xulq va individual maqsad bilan bog'laydi [13, 92]. Interaksionizm vakillari mehnat madaniyatini kundalik ijtimoiy o'zaro ta'sir mahsuli deb qaraydi [2, 17]. Zamonaviy konstruktivizm esa mehnat madaniyatini ijtimoiy konstrukt sifatida talqin qiladi [9, 203].

O'zbekistonlik olimlar ham ushbu yo'nalishda qator tadqiqotlar olib borgan. Sh. Sharipov mehnat madaniyatini "shaxsning ijtimoiy faolligi, mehnatga munosabati, kasbiy mas'uliyatining darajasi" bilan bog'laydi [11, 44]. F. Karimov mehnat madaniyatining institutsional asoslarini tahlil qilib, uni mehnat jamoalarida shakllanadigan ijtimoiy me'yorlar tizimi sifatida talqin etadi [5, 53]. M. Kadirova mehnat motivatsiyasi va mehnat qadriyatlarining yoshlar orasida shakllanishini empirik tadqiqotlar orqali asoslagan [4, 61]. D. To'xtasinova esa mehnat madaniyatiga ta'sir qiluvchi kommunikativ omillarni o'rgangan [12, 72].

Mehnat madaniyatining zamonaviy talqinlari ko'proq texnologiyalashuv, raqamli mehnat madaniyati, onlayn mehnat etikasi, masofaviy ish madaniyati kabi tushunchalar bilan boyib bormoqda. Shu sababli ushbu maqola mehnat madaniyati tushunchasining sotsiologik talqinlarini turli nazariy yondashuvlar asosida tizimli o'rganishni maqsad qiladi.

Ushbu tadqiqotning asosiy vazifalari quyidagilardan iborat:

- mehnat madaniyatining klassik funksionalistik talqinini tahlil qilish;
- interpretativ va interaksionistik yondashuvlarni qiyosiy o'rganish;
- institutsional talqinda mehnat madaniyati shakllanishi omillarini ochib berish;
- konstruktivistik va postindustrial nazariyalar asosida mehnat madaniyatining zamonaviy ko'rinishlarini yoritish;
- o'zbek olimlarining ushbu masalaga oid ilmiy qarashlarini umumlashtirish.

Metodologiya

Tadqiqot metodologiyasi sifatida quyidagi usullar qo'llanildi:

1. **Taqqoslama nazariy tahlil.** Funksionalizm, interaksionizm, konstruktivizm va institutsionalizm doirasidagi konsepsiyalar bir-biri bilan qiyoslab tahlil qilindi. Bunda T. Parsons, M. Veber, E. Goffman, D. North, G. Ritzer kabi olimlarning ishlari asos bo'ldi.

2. **Mahalliy ilmiy manbalarni tahlil qilish.** O'zbekistonlik olimlar—Sh. Sharipov, F. Karimov, D. To'xtasinova, B. Jo'rayev va boshqalarning mehnat madaniyatiga oid tadqiqotlari o'rganildi. Ularning tadqiqotlari milliy mehnat madaniyatining o'ziga xos xususiyatlarini yoritishda muhim manba bo'lib xizmat qildi. Masalan, B. Jo'rayev o'z ishida mehnat madaniyatining tarixiy ildizlarini milliy an'analarga bog'lab tahlil qiladi [3, 48]. Shuningdek, M. Kadirova yoshlar ongida mehnat qadriyatlarining shakllanish jarayonini psixologik va sotsiologik yondashuvlar asosida o'rganadi.

3. **Sotsiologik mohiyatni ochish uchun konseptual modellash.** Mehnat madaniyatining tarkibiy qismlari—me'yorlar, qadriyatlar, kasbiy munosabatlar, institutsional qoidalar—konseptual model sifatida ajratib olindi va o'zaro bog'liqligi tahlil qilindi.

4. **Kontent tahlil.** Mehnat sotsiologiyasi bo'yicha xalqaro va milliy ilmiy maqolalar, monografiyalar, tashkilotlar hisobotlari hamda mehnat etikasi kodekslari kontent tahlil usuli orqali o'rganildi.

Masalan, O'zbekiston Prezidentining 2019-yildagi "Mehnat munosabatlarini takomillashtirish" haqidagi farmonlari mehnat madaniyatining davlat institutlari tomonidan qo'llab-quvvatlanayotganini ko'rsatadi.

5. Mehnat madaniyatining ijtimoiy konstruksiya modeli. Zamonaviy konstruktivistik yondashuvlar asosida mehnat madaniyatining ijtimoiy konstruksiya jarayonlari aniqlab olindi: kommunikatsiya, texnologiya, mehnat munosabatlari, qadriyatlar tizimi va mehnat bozorining ehtiyojlari.

Ushbu metodologik asoslar makalani tahliliy, kompleks va empirik tadqiqotlarga tayanadigan ilmiy ish sifatida shakllantirish imkonini berdi.

Natijalar

Funksionalizm mehnat madaniyatini jamiyat barqarorligini ta'minlovchi me'yoriy tizim sifatida ko'radi. T. Parsonsning fikricha, har qanday ijtimoiy tizim adaptatsiya, maqsadga erishish, integratsiya va me'yoriy barqarorlik funksiyalari orqali yashaydi [7, 112]. Mehnat madaniyati shu funksiyalarning "me'yoriy integratsiya" qismiga xizmat qiladi. Ushbu talqin bo'yicha mehnat madaniyati intizom, mehnat qadriyatlarini hurmat qilish, kasbiy rol me'yorlarini bajarish sifatida namoyon bo'ladi.

M. Veber mehnat madaniyatini "ma'naviy-ratsional xulq" bilan bog'laydi. Uning protestant etikasi haqidagi nazariyasida mehnat insonning o'zini tasdiqlashi, jamiyatda o'z o'rnini topishi va kasbiy poklikni namoyish etish vositasi sifatida talqin etiladi [13, 88–90]. Bu yondashuvda mehnat madaniyati ma'naviy motivlar, kasbiy mas'uliyat va individual ma'no izlash bilan bog'lanadi.

Simbollik interaksionizm vakillari [Blumer, Goffman] mehnat madaniyatini kundalik ish jarayonida shakllanadigan hamkorlik, muloqot va ramziy tajribalar majmui sifatida ko'radi. Goffman kasbiy makonlarni "ijtimoiy sahna" deb talqin qilib, mehnat madaniyati shu sahnadagi rollar o'ynalishi jarayonida shakllanishini ta'kidlaydi [2, 17]. Bunda mehnat madaniyatining shakllanishi mikrosotsiologik jarayonlar — jamoa ichida muloqot, kasbiy imij, o'zaro hurmat, ijtimoiy masofa kabi omillarga bog'liq.

Institutsionalizm mehnat madaniyatini rasmiy me'yorlar, tashkilot madaniyati, korporativ boshqaruv va mehnat siyosatining natijasi sifatida ko'radi. D. Nortning yondashuviga ko'ra, institutlar shaxs xulqiga bevosita ta'sir qiluvchi "o'yin qoidalari"dir [6, 44]. Mehnat madaniyati me'yoriy hujjatlar, kasbiy standartlar, etika kodekslari va ishbilarmonlik me'yorlari orqali shakllanadi.

Zamonaviy sotsiologlar mehnat madaniyatini ijtimoiy konstrukt sifatida talqin qiladi. Ya'ni mehnat madaniyati jamiyatning texnologik taraqqiyoti, axborotlashuv, mehnat bozoridagi talablar, raqamli kompetensiyalar orqali qayta yaratiladi [Ritzer, 2011, 203-b.]. Bu jarayonda shaxsning kasbiy identifikatsiyasi, kreativlik, moslashuvchanlik va raqamli mehnat madaniyati asosiy o'ringa chiqadi.

Muhokama

Mehnat madaniyatining sotsiologik talqinlari ko'p qatlamli bo'lib, har bir nazariya uni turli jihatdan izohlaydi. Bu bo'limda nazariy yondashuvlar o'zaro qiyoslab tahlil qilinadi va milliy tadqiqotlar bilan boyitiladi. Funksionalizm mehnat madaniyatini ijtimoiy tizimning barqarorligini ta'minlovchi me'yoriy o'zagi sifatida ko'radi. T. Parsonsning AGIL modeli bo'yicha mehnat madaniyati integrativ va normativ barqarorlik funksiyasini bajaradi [7, 112]. Bunda mehnat madaniyatiga rasmiy intizom, me'yorlarga rioya qilish, mehnat tartibini barqaror saqlash omili sifatida qaraladi. Biroq interaksionistik yondashuv mehnat madaniyatining mikrosotsiologik tabiatiga e'tibor qaratadi. Goffman tomonidan ilgari surilgan "ijtimoiy sahna" nazariyasi bo'yicha mehnat jarayoni — rollar

almashinuvi, o'zaro hurmat, kasbiy imij va ijtimoiy masofa shakllanadigan makondir [2, 17]. Demak, funksionalizm mehnat madaniyatini yuqoridan belgilangan me'yorlar tizimi sifatida talqin qilsa, interaksionizm uni pastdan—kundalik muloqotlar, xulq-atvor amaliyoti orqali shakllanadigan jarayon sifatida ko'radi.

M. Veberning protestant etikasi haqidagi g'oyalarida mehnat madaniyati shaxsning ichki ma'naviy mas'uliyati bilan bog'lanadi. Bu fikr o'zbek sotsiolog olimlarining qarashlarida ham aks etadi. Masalan, Sh. Sharipov mehnat madaniyatini "shaxsning ijtimoiy mas'uliyati darajasi" bilan bog'laydi [11, 44], bu Veberning mehnatning ichki motivatsiyaga asoslangan talqini bilan mos keladi. M. Kadirova yoshlar orasida mehnatga mas'uliyat faqat tashqi nazorat bilan emas, balki ichki qadriyatlar va shaxsning me'yoriy o'z-o'zini nazorat qilish tizimi bilan boshqarilishini ta'kidlaydi [4, 63]. Shunday qilib, mahalliy tadqiqotlar Vebercha interpretativ yondashuvning O'zbekiston sharoitida ham dolzarbligini ko'rsatmoqda.

Institutsionalizmga ko'ra, mehnat madaniyati davlat siyosati, korporativ etika, tashkilot me'yorlari va kasbiy standartlar orqali shakllanadi [6, 44]. O'zbek olimlaridan F. Karimov bu borada shunday deydi: "Mehnat madaniyati mehnat munosabatlarini tartibga soluvchi institutlarning samaradorligiga bevosita bog'liq" [5, 55]. D. To'xtasinova mehnat madaniyatiga ta'sir qiluvchi kommunikativ institutsional mexanizmlarni o'rganib, mehnat jamoalarida axborot almashinuvi sifatining yuqoriligi mehnat madaniyatini mustahkamlaydi, deb qayd etadi [12, 75].

Milliy mehnat madaniyatining institutsional o'ziga xosliklari:

1. Mehnatga bo'lgan kollektiv munosabatning kuchliligi
2. Rahbarning axloqiy obro'si mehnat madaniyatiga katta ta'sir ko'rsatishi
3. An'anaviy jamoaviy qadriyatlar zamonaviy korporativ me'yorlar bilan uyg'unlashuvi

Konstruktivizm mehnat madaniyatini ijtimoiy konstrukt sifatida talqin qiladi. Ya'ni mehnat madaniyati mavjud emas, balki odamlarning kundalik muloqoti, texnologiya va mehnat bozoridagi talablar orqali yaratiladi [10, 203]. Masofaviy ish, gig-platformalar ["Yandex Go", "Uber"], freelans bozorlarining kengayishi mehnat madaniyatining yangi shakllarini keltirmoqda:

- raqamli mehnat intizomi
- onlayn etikasi
- texnologik moslashuvchanlik
- vaqtni boshqarishning yangi modellari

Bu jarayonlarga mahalliy olimlar ham e'tibor qaratmoqda. B. Jo'rayevning fikricha, raqamli iqtisodiyotda mehnat madaniyatining asosiy elementi — shaxsning o'zini o'zi boshqarish ko'nikmasidir [3, 52].

Muhokama natijalariga ko'ra, mehnat madaniyatining eng to'liq talqini quyidagilar sintezidan iborat bo'lishi mumkin:

1. Funksionalizm — me'yorlar tizimini tushuntiradi.
2. Interaksionizm — kasbiy muloqot mexanizmlarini yoritadi.
3. Institutsionalizm — rasmiy mehnat siyosatini tahlil qiladi.
4. Konstruktivizm — zamonaviy texnologik omillarni asoslaydi.
5. Interpretativ yondashuv — mehnatning ma'naviy mazmunini ochadi.

Shu tariqa, mehnat madaniyati ko'p komponentli, dinamik va murakkab sotsiologik konstruksiya ekanligi aniqlanadi.

Xulosa

Sotsiologiyada mehnat madaniyati ko'p qirrali tushuncha bo'lib, har bir nazariy yondashuv uni o'zining metodologik nuqtayi nazaridan talqin qiladi. Mazkur maqola mehnat madaniyati tushunchasining funksionalistik, interpretativ, institutsional va konstruktivistik talqinlarini qamrab oldi. Olingan natijalar mehnat madaniyatini faqat kasbiy me'yorlar yig'indisi emas, balki ijtimoiy tizimning umumiy barqarorligi, individual ma'no, institutsional tartib va zamonaviy madaniy konstruksiyaning sintezi sifatida ko'rish lozimligini ko'rsatadi. Kelgusida empirik tadqiqotlar mehnat madaniyatini real mehnat jamoalarida ko'p omilli modellar asosida o'rganishi zarur.

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GHOST OF THE ARAL SEA: BATTLE IN CENTRAL ASIA BACK AGAINST ECOLOGICAL DESTRUCTION

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Abstract: This article provides information about the Aral Sea, an island that plays an important role not only in Central Asia but throughout the world, the reasons for its drying up, the people who suffered as a result of its drying up, and the unfinished megaproject of the USSR in the 19th century.

Keywords:

Aral Sea, ecological disaster, Central Asia, reforestation programs, water management reforms, Aralkum Desert, toxic dust storms, saxaul trees, international diplomacy, MPTF, Kokaral Dam, climate resilience.

INTRODUCTION

The Aral Sea is the largest closed lake in Central Asia. Administratively, more than half of the sea is located in the southwestern part of Uzbekistan, and the northeastern part in Kazakhstan. Until the 1960s, the area of the Aral Sea, including its islands, was 68,000 square kilometers. The sea, which is the fourth largest in the world, has lost 90% of its volume due to the use of the waters of the Amu Darya and Syr Darya for irrigation. **Today, all that remains are dry sand particles and dust.** The Aral Sea, once the world's fourth-largest lake, has disappeared by more than 90% in a single generation.

Today, Central Asian governments, supported by international partners, are fighting to reverse the damage through ambitious reforestation programs and sustainable water management reforms. The disappearance of the Aral Sea has destroyed the entire regional economy. Communities that were once dependent on the thriving fishing industry were forced to migrate as their livelihoods collapsed. The ancient seabed, now known as the Aralkum Desert, has been contaminated with pesticide-laden dust. Seasonal winds carry these toxins hundreds of miles, increasing rates of respiratory disease, heart disease, and other chronic conditions.

Ecological degradation has also reshaped the regional climate. Areas that were once controlled by the sea now experience harsher winters, hotter summers, and longer droughts. Farmers are struggling as demand for water increases while remaining river supplies are becoming increasingly saline, disrupting irrigation and further reducing agricultural productivity. The origins of the disaster go back decades.

Literature Review.

Initial ideas: The idea of bringing water to the Aral Sea was initially developed by Y.G.

Demenchenko, who also wrote an article. The main purpose of this idea was to develop agriculture and fisheries. This idea was only theoretical, no practical work had been done at that time.

Project development processes: However, by 1960, the Aral Sea began to dry up, and this attracted scientific attention. In the 1930s-1970s, scientists in the field of hydraulic engineering and ecology, such as S.P. Melnikov and V.I. Vekua, developed the technical aspects of the project. Scientists

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initially considered plans to divert 25-60 billion cubic meters of water per year from the Ob River and later from the Irtysh and Tobol rivers to Central Asia, and even developed comprehensive plans based on scientific evidence.

Criticism of the plan: Despite the clear plans, many other scientists, people, and statesmen criticized this megaproject. Articles were written about the impact of this project on the state economy and ecology. And this project was re-examined and canceled due to its impact on ecology and economy.

Results and Discussions

The huge difficulties are there, but recovery is demonstrated by the localized successes which are nice but small. The Kokaral Dam in Kazakhstan which was finished in 2005, has stabilized and revived the northern Aral Sea partially and consequently local ecosystems and fish stocks have returned.

Severed environmental recovery strategy on an intensive scale has been the strategic move of Uzbekistan whereby the dry seabed will be gradually covered with foresters. The planting of drought-resistant saxaul trees has already taken place over more than two million hectares, and not only that but also to reduce the frequency of toxic dust storms and to stabilize the shifting sands. At the level of international diplomacy, Uzbekistan has been the main actor. The United Nations Multi-Partner Trust Fund for the Aral Sea Region (MPTF) was established in 2018 to facilitate foreign aid and coordination with the UN. The UN General Assembly, on May 18, 2021, passed a resolution that recognized the Aral Sea region as an area of environmental innovation and sustainable technologies.

Restoration work is still backed by international partners' support. USAID granted \$1.6 million to Uzbekistan for the restoration of forests and climate resilience in November 2022. China has been supplying salt-resistant plants and providing technical know-how since the year 2020, with the goal of making the desert surface more resilient to the tough conditions.

Conclusion

The project to restore the Aral Sea is currently being considered by university scientists and professors from various fields. Instead of using canals as before, it is proposed to build 2,100 km of closed pressure pipelines. According to calculations, about 5.5 billion cubic meters of water can be delivered per year at the first stage. However, the cost of the project is very expensive and is expected to cost about \$ 100 billion. True, this project has not yet been developed and will be developed perfectly in the future, which will greatly contribute to the restoration of the Aral Sea. If the sea flourishes as before, the local population will be able to engage in their previous activities. The economic situation of the state will also improve, and the ecology will change for the better.

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EFFECTIVE UTILIZATION OF DIGITAL AND DIDACTIC TOOLS IN ORGANIZING
INDEPENDENT LEARNING

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Abstract. *This article presents an overview of the attention given by the Government of the Republic of Uzbekistan to the higher education system, as well as the Presidential decrees aimed at further developing this sector and the key ideas promoted within these documents. In addition, the paper discusses the implementation of the credit-module system in higher education institutions, the organization and forms of students' independent work, and the current state of its application. The views of various scholars regarding effective approaches to organizing students' independent learning activities are highlighted. The article also provides information on the organization of independent study tasks at the institute level and the application of these practices to a specific subject. The final section presents conclusions drawn from the conducted scientific research.*

Keywords: *higher education, student, credit-module system, independent study, motivation, didactic tool, technology, education, discipline, analysis*

Introduction. As is well known, Presidential Decree No. PF-5847 of October 8, 2019, "On the Approval of the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030," outlines a number of priority tasks aimed at elevating the quality of higher education. In particular, the decree emphasizes the need to introduce higher education standards based on advanced international experience, to fundamentally modernize the content of higher education, and to gradually transition from theory-oriented curricula to practice-based learning models within academic programs [1].

To effectively address the tasks set by the government regarding the preparation of highly qualified future specialists, a comprehensive approach is essential. This includes the competent design of educational content, the use of modern teaching methods, didactic tools, and educational technologies, as well as continuous professional development of instructors. Equally important is the creation of necessary conditions for students to complete independent study tasks and the revision and improvement of academic processes within each educational program.

Today, students' independent work in higher education institutions should not be considered a supplementary component but rather one of the core forms of the educational process. Independent study plays a crucial role in helping students acquire the general cultural and professional competencies outlined in state educational standards and in preparing them for successful professional activity. Moreover, organizing independent learning in accordance with the principles of competence-based education facilitates the adoption of active learning methods, fosters students' creative abilities, and enables a shift from group-based instruction to individualized learning tailored to students' abilities and future professional requirements.

In this regard, the quality of teaching and the effectiveness of students' independent work are directly linked to the structure of the educational process, the didactic tools employed, and the teaching methods and technologies applied. Properly selected didactic resources, instructional approaches, and

organizational methods contribute to the development of students' creativity, support the formation of professional competencies, and enhance their learning activity. Bolonya jarayoni - bu Evropa mamlakatlari orasida oliy ta'limni uyg'unlashtirish jarayonidir. U tushunish oson bo'lgan va o'xshash oliy ta'lim darajalar tizimini yaratishni, ta'limda kredit-modul tizimiga o'tishni, ta'lim sifatini ta'minlashda erkin akademik harakatlanishni va Evropadagi ta'lim hamkorligini o'z ichiga oladi. Qisqa qilib aytganda, bu Evropa mamlakatlarining oliy ta'lim tizimlarini uyg'unlashtirish, har bir kishi uchun teng ravishda ta'limni ta'minlash, intellektual, madaniy, ijtimoiy, ilmiy va texnologik salohiyatni shakllantirish va mustahkamlash, ta'lim sifatini takomillashtirish jarayonidir.

In developing a national model based on the credit education system in Uzbekistan, it is advisable to select a reliable framework that ensures high-quality higher education and facilitates integration into global educational processes. This model draws on the strengths of both the European ECTS credit system and the American credit-hour system. The ECTS structure, taking into account the multinational traditions of Europe, enables the harmonization of various educational systems. The key issues emphasized within the credit-module system include the following [2]:

- ensuring students' independent learning;
- evaluating students' knowledge through a rating-based assessment system;
- developing and improving modular teaching technologies;
- enhancing the methodological support of academic disciplines to strengthen students' independent study.

The main objectives of the credit-module system can be summarized as follows:

- organizing the educational process on a modular basis;
- determining the credit value for each subject and course;
- assessing students' performance using a rating-based evaluation mechanism;
- creating opportunities for students to develop individualized study plans;
- increasing the proportion of independent learning within the educational process;
- adapting educational programs as required by labor market demands and ensuring their flexibility;
- enabling students to choose courses and instructors.

As is evident, the preparation of competent specialists requires particular emphasis on students' independent learning activities.

Currently, various approaches exist regarding the organization of independent student work. Some researchers consider independent study as the process of students completing, comprehending, and independently interpreting tasks assigned by instructors. Others describe this phenomenon only by its external characteristics. Yet another group defines independent work as the process of acquiring new knowledge autonomously, mastering it on a deeper level, regulating one's own learning pace, and allocating time for exploring assigned questions.

Therefore, independent study is not merely a form of learning but also an essential instructional tool. In this regard, students must perform several key functions to acquire new knowledge and skills: developmental, informational-instructional, guiding, motivational, educational, and research functions [3].

The analysis of dissertations and scholarly-methodological works demonstrates that although various educational tools have been used to organize independent student work in the teaching process of higher education institutions, such activities have not been systematically documented and have not been regarded as an independent instructional tool. Long-term teaching experience shows that the

integration of diverse didactic tools into the educational process enables students to master subjects more effectively and contributes to the formation of competencies required of future engineers in accordance with state educational standards.

Literature Review and Methodology. Many scholars and researchers have examined various issues related to students' independent learning. In particular, S.I. Arkhangelskiy, M.N. Akhmetova, N.V. Bordovskaya, V.Ya. Lyadis, P.I. Pidkasisty, and A.P. Tryapitsyna have studied the organizational aspects of independent learning. The conditions necessary for developing the "individuality" of students' independent work have been explored in the research of E.H. Voronova and I.A. Ivanov. The development of students' creative activity is discussed in the works of S.N. Gayday and V.P. Ushachyova. Independent study as a factor contributing to students' individuality has been examined by A.K. Vorstera, I.A. Dubovets, and E.V. Ospennikova. In addition, V.Ya. Lyadis, P.I. Samoylenko, G.V. Shironina, and other scholars have conducted research on organizing students' independent work through various didactic learning tools, while A.E. Zhukova, N.V. Smetanina, L.V. Turkina, and several other researchers have investigated ways to increase the effectiveness of independent study. Significant contributions to the use of didactic learning tools in the effective organization of students' independent work have also been made by V.P. Bepalko, N.V. Bordovskaya, L.Ya. Zorina, Yu.G. Tatur, N.L. Shubina, N.E. Erganova, and others.

Among Uzbek pedagogical scholars, T.T. Shoimardanov, N. Sayidahmedov, P.T. Magzumov, O. Kh.To'raqulov, A.R. Khodjaboev, R. Mavlonova, U.N. Nishonaliyev, E.T. Choriyev, O.A. Qo'ysinov, and others have discussed the organizational and methodological foundations of students' independent learning in their research.

Independent learning as a pedagogical issue has been explored by T.R. Niyazmetova, R. Saidova, A.I. Akhmedov, B.M. Turdibaeva, U.Q. Tolipov, Sh.S. Sharipov, Z. Nishonova, J. Tolipova, N. Khalilov, S. Matchanov, and others.

International pedagogical practice demonstrates several key trends in the development of higher education:

- modern socio-cultural conditions require the implementation of the concept of lifelong learning, meaning that students must continuously update and expand their knowledge;
- in an information-oriented society, significant changes are required in the organization of the educational process: reducing classroom hours and replacing passive lecture listening with an increased share of students' independent work;
- the focus of education is shifting from teaching independent work to facilitating its meaningful mastery.

In contemporary conditions, the training of competent specialists requires instructors to systematically supervise and support students' independent activities as one of the primary tools of the instructional process.

Students' independent work may be classified according to the place and time of its implementation, as well as the degree of teacher supervision and assessment. These include:

- independent work conducted during classroom activities (lectures, seminars, laboratory work);
- teacher-supervised independent work, including planned consultations and preparation for tests and examinations;

- out-of-class independent tasks of academic or creative nature completed by the student individually.

Methods. In any context, the effective organization of students' independent work requires, first of all, the development of its project framework, conditions of implementation, and the mechanisms through which it will be carried out. The organization of independent study must be based on well-defined requirements and expectations, and the reliability of the information provided is of critical importance. To achieve this, the use of several methodological approaches is recommended. The theoretical foundations of independent work and its assigned objectives, as well as the conditions and methods for conducting experimental research, must be clearly established. The following methods are typically employed in the process of implementing independent learning:

1. **Systems analysis methods** (including morphological and functional-parametric characteristics).
2. **Statistical methods** (normative, comparative, random evaluation methods, change-tracking methods, constructive-critical analysis, etc.).
3. **Survey methods** such as interviews, questionnaires, and sociological inquiry.

The use of a systems-based approach in engineering-related independent work enables the identification of numerous interacting elements within a given process, the determination of the most influential factors, and the development of effective strategies for influencing them. Statistical methods—such as normative, comparative, random evaluation, change-monitoring techniques, and constructive-critical analysis—are particularly essential when designing and implementing engineering projects within student independent work.

The normative method, in particular, serves to establish overall evaluation criteria for project activities. It relies on specific guidelines that address questions such as “how something should be done,” “how a system or subsystem should function,” or “how certain documents should be formalized.” As a rule, these standards are defined in the legal and regulatory framework through established models, templates, and formats, against which the actual level of project performance is assessed [4].

In modern higher education institutions, the most essential tool for enhancing students' professional preparedness under the guidance of instructors is the effective and well-structured implementation of independent learning.

The technological organization of students' independent work may include the following components:

- **Technology for selecting goals of independent learning.** These must be clearly defined in state educational standards, qualification requirements, professional frameworks, curricular goals, systems, and technologies.
- **Technology for selecting the content of independent learning.** This includes the content prescribed by state standards, educational resources (literature, practical experience, self-analysis), and students' individual psychological characteristics.
- **Technology for designing tasks.** Assignments must correspond to various levels of learning objectives, reflect the content of each subject, and encompass different types of student activities and levels of knowledge acquisition.
- **Technology for organizing assessment.** This involves selecting appropriate assessment tools, determining stages of assessment, and developing various forms of evaluation.

Independent work plays a particularly significant role in the study of specialized subjects, as it motivates students to engage with essential literature and fosters the development of decision-making skills. For this reason, designing case-based assignments for groups of students is considered a promising pedagogical approach, as it nurtures collaborative creativity. This form of activity teaches students to distribute roles within a team, complete individual assignments, and evaluate the outcomes of collective work. Consequently, students acquire new knowledge more easily and rapidly and gain a clearer and deeper understanding of processes in which they are directly involved.

The use of information technologies, educational platforms, and other digital tools in organizing independent study provides students with valuable opportunities, such as developing models based on real-world processes and incorporating probabilistic characteristics derived from real-life phenomena. The incorporation of computer technologies into the learning process undoubtedly requires both instructors and students to possess strong competencies in the field of modern information technologies.

Independent study is inherently activity-based, and therefore its structure incorporates several essential components characteristic of purposeful activity: motivational factors, task formulation, selection of appropriate methods for completing the task, and monitoring of the outcomes [5].

To ensure the successful completion of independent work, the following conditions must be met:

- stimulation of students' learning tasks;
- clear understanding of the assigned objectives;
- students' sufficient theoretical knowledge and skills to execute the task and follow the required algorithm;
- explicit definition by the instructor of the task volume, method of submission, reporting format, and deadlines;
- identification of consultation types (introductory, thematic, or problem-oriented);
- establishment of evaluation criteria, reporting procedures, etc.;
- determination of control methods and forms (seminars, assessment tasks, tests, practical sessions, and others).

Motivation plays a crucial role in the effective organization of students' independent work.

Three main types of motivation are distinguished:

1. External motivation – related to the student's understanding that academic results influence future professional career opportunities.
2. Internal motivation – associated with the student's personal interest, aptitude, and academic orientation. Before entering university, students' preferences can be identified through diagnostic tests and questionnaires.
3. Process (learning) motivation – expressed in the student's awareness of the usefulness of the task being completed. This requires psychological alignment with the significance of the activity in terms of professional readiness, broadening of worldview, and deepening of subject knowledge. Students should understand that independent work enhances their ability to grasp lecture content more thoroughly and serves as an integral part of course projects and graduation theses.

To illustrate this motivational framework, let us consider the example of a specific discipline:

The goal of teaching the subject "Computer Systems and Networks" is to equip students with the knowledge and skills required for designing local and global networks. Students learn to base network design on the OSI model, select appropriate IP addressing schemes for network devices,

and ensure reliable data transmission across the network. Furthermore, the course develops competencies related to network security, enabling students to design systems that preserve data integrity, confidentiality, and availability.

The course consists of 150 total hours, of which 60 hours are allocated to classroom instruction and 90 hours to independent study. The subject is assigned 5 credits, and student performance is assessed in accordance with the credit–module system.

To enhance the effectiveness of independent work within this subject, students may be assigned case-based tasks involving the development of network topologies, simulation of data flow across multi-layered architectures, or configuring network devices using industry-standard tools (e.g., Cisco Packet Tracer, GNS3). Such assignments reinforce theoretical knowledge through practical application and promote problem-solving skills essential for modern IT specialists.

Additionally, integrating learning analytics tools enables instructors to monitor student performance in real time, identify learning gaps, and tailor guidance to individual needs—thus ensuring a more personalized and competency-based educational experience.

Results and Discussion. In our practical work, we implemented a set of measures aimed at organizing independent learning and increasing student engagement in the subject “**Computer Systems and Networks.**” These measures included:

- Developing questions and tasks related to each topic covered in the classroom to reinforce and consolidate students’ understanding;
- Preparing both individual and group-based assignments to encourage collaborative learning and teamwork skills;
- Creating instructional guidelines for using the *Cisco Packet Tracer* software application to enhance laboratory and practical training in the course;
- Providing students with various educational resources—textbooks, scholarly publications, online materials, video and audio content—to support independent study and project-based submissions;
- Preparing additional topics for independent learning based on the qualification requirements of the educational program, ensuring that students acquire the competencies necessary to become qualified engineers;
- Creating opportunities for students to upload and submit their independent work through an online educational platform;
- Involving volunteer specialists from industry to evaluate the completeness and quality of the independent work submitted by students.

In conclusion, students’ independent work plays a crucial role in the preparation of future competent specialists, as it enriches learners with new knowledge, encourages them to find solutions in non-standard situations, and fosters their decision-making skills. To increase the effectiveness of independent work, it is essential to provide students with appropriate organizational methods, formats, and the necessary instructional and methodological resources. Equipping students with modern laboratory environments, technologies, and instructional tools is vital for developing their professional skills, enhancing their competencies as specialists, and elevating their research activities to a new level.

Moreover:

- the scope of each assignment should be designed in such a way that students can thoroughly apply their theoretical and practical knowledge and provide written responses to all questions within the allotted time;
- all tasks within the discipline should ideally be developed with a uniform level of complexity;
- each assignment should contain questions that require precise and well-structured answers;
- educational materials should include questions that guide students toward independent exploration of the relevant content;
- questions or tasks based on lecture material should not replicate one another in content, ensuring diversity and comprehensive assessment of learning.

It is important to emphasize that the development of students' self-regulation competencies plays a significant role in the process of independent learning. Students who are able to plan, monitor, and evaluate their own learning activities become better prepared for future professional practice, as they develop the ability to make independent decisions, act responsibly, and continuously update their knowledge.

Furthermore, the integration of digital resources into independent learning substantially enhances the effectiveness of students' academic activities. Online platforms, simulators, educational software, and virtual laboratories enable students to acquire deeper understanding of course topics and engage in problem-oriented tasks that reflect real-world challenges. This approach fully corresponds to the requirements of modern pedagogy.

Another important aspect is that independent work fosters the development of critical thinking, analytical skills, problem formulation, creative problem-solving, and research readiness—all of which are essential for the completion of final-year projects and scientific research activities. Therefore, independent learning should be viewed not merely as a form of academic activity but as a pedagogical tool that contributes to students' professional maturity.

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НОВЫЕ ПОДХОДЫ К ЛЕЧЕНИЮ ОЖИРЕНИЯ

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Мирзаахмедова К.Т., Зияева Ш.Т.

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В статье рассматриваются современные данные об эпидемиологии, патофизиологии и клинических последствиях ожирения, а также роль агонистов рецептора GLP-1 в его лечении. Особое внимание уделено семаглутиду — препарату длительного действия, показавшему высокую эффективность в снижении массы тела и улучшении кардиометаболических показателей. Анализ результатов клинических исследований программы STEP (STEP 1–5) демонстрирует, что подкожное введение семаглутида 2,4 мг еженедельно обеспечивает значимое и стойкое снижение веса как у пациентов с ожирением без сахарного диабета 2 типа, так и у больных с СД2. Препарат улучшает ключевые показатели метаболического здоровья и является перспективным средством для длительного управления ожирением в сочетании с модификацией образа жизни.

Ключевые слова: ожирение, семаглутид, GLP-1, агонисты инкретинов, снижение массы тела, клинические исследования STEP, сахарный диабет 2 типа, кардиометаболические риски.

Ожирение- это накопление жира в организме, приводящее к увеличению избыточной массы тела.

Проблема ожирения актуальна даже для стран, в которых большая часть населения постоянно голодает, а в промышленно развитых странах она уже давно стала серьезным аспектом общественного здоровья. Эта проблема касается всех слоев населения независимо от социальной и профессиональной принадлежности, возраста, места проживания и пола. Клинические осложнения ожирения затрагивают почти все системы органов, а влияние ожирения на заболеваемость, смертность и затраты на здравоохранение является существенным. За последние несколько десятилетий распространенность ожирения во всем мире возросла, и ожидается, что эта тенденция сохранится [1]. По оценкам Всемирной организации здравоохранения (ВОЗ), к 2025 году каждый пятый взрослый человек в мире будет страдать ожирением. С 1980 года масштабы ожирения в мире удвоились. В 2014 году более 1,9 миллиарда взрослых (39 %) в возрасте 18 лет и старше имели избыточный вес, а более 600 миллионов (13 %) из них страдали ожирением. 42 миллиона детей в возрасте до пяти лет имели избыточный вес или ожирение в 2014 году [2].

Эпидемический рост ожирения привел к тому, что в настоящее время ведутся споры о его классификации как заболевания. В отличие от простого медицинского состояния или фактора риска других заболеваний, ожирение - это сложное заболевание многогранной этиологии, со своими собственными способностями к инвалидизации, патофизиологией и сопутствующими заболеваниями. Оно соответствует медицинскому определению болезни, поскольку представляет собой физиологическую дисфункцию человеческого организма с экологической, генетической и эндокринологической этиологией. Она является реакцией на раздражители окружающей среды, генетическую предрасположенность и отклонения от нормы и имеет характерный набор признаков и симптомов с последовательными анатомическими изменениями. Избыток жировой ткани увеличивает работу сердца и приводит к анатомическим изменениям в этом органе. Она изменяет легочную, эндокринную

и иммунологическую функции, что негативно сказывается на здоровье. Среди осложнений ожирения - сердечно-сосудистые заболевания, неинсулинозависимый сахарный диабет, обструктивные заболевания легких, артрит и рак. Учитывая повышенную смертность, значительную заболеваемость и экономический ущерб от ожирения, это заболевание заслуживает серьезного внимания со стороны медицинского сообщества [3].

Потеря веса на 5% или более от первоначального веса помогает смягчить эти осложнения, причем более крупные потери приносят большую пользу для здоровья [4]. Лекарства против ожирения (АОМ) помогают облегчить контроль веса при использовании в сочетании с низкокалорийной диетой и повышенной физической активностью лицами с индексом массы тела (ИМТ) ≥ 30 кг/м² или ≥ 27 кг/м² с ожирением. сопутствующие заболевания, такие как диабет 2 типа, гипертония или дислипидемия. Пациенты, которые не могут достичь целей по снижению веса с помощью комплексного снижения веса (например, 5% от первоначальной потери веса за 3-6 месяцев), могут продолжить лечение АОМ. В США, по оценкам, 53,5% взрослых имеют право на прием препаратов для снижения веса [5].

В настоящее время пять препаратов одобрены для контроля веса в США (лираглутид, орлистат, фентермин, налтрексон/бупропион, фентермин/топирамат и семаглутид), три в Европе (лираглутид, орлистат и налтрексон/бупропион) и один в Китае (орлистат). Эти препараты имеют различные механизмы действия, направленные на различные пути, связанные с регулированием веса. Одним из таких путей является инкретиновая гормональная система. Глюкагоноподобный пептид 1 (GLP-1) представляет собой гормон, высвобождаемый из гена проглюкагона в L-клетках дистального отдела тонкой и толстой кишки в ответ на пероральный прием питательных веществ [6].

Механизмы действия GLP-1 выходят за рамки увеличения секреции инсулина под действием глюкозы и включают в себя повышение экспрессии инсулина, ингибирование апоптоза и стимулирование неогенеза бета-клеток, снижение секреции глюкагона, задерживают опорожнение желудка, способствуют насыщению и увеличивают периферическую утилизацию глюкозы. Из этих разнообразных действий ясно, что GLP-1 играет центральную роль в контроле постпрандиального уровня сахара в крови, и поэтому усиление действия GLP-1 стало важным направлением в разработке новых терапий, GLP-1 повышает уровень инсулина и снижает уровень глюкагона у пациентов с диабетом 2 типа, а повторные в/в инъекции, как было установлено, нормализуют уровень глюкозы в плазме. Однако период полураспада GLP-1 in vivo короткий, и он быстро деградирует до GLP-1(9-36) амида под действием DPPIV, поэтому продолжаются попытки найти пептидные агонисты длительного действия с глюкорегуляторными свойствами [7].

Семаглутид является агонистом рецептора GLP-1 длительного действия с 94-процентной гомологией с нативным человеческим GLP-1. Он имеет структурные модификации, обеспечивающие обратимое связывание альбумина, снижение почечного клиренса и снижение деградации под действием DPP-4, а также обеспечивает достаточно высокое сродство к GLP-1R. Этот состав приводит к более медленной деградации и периоду полувыведения 155 до 184 часов, что позволяет вводить подкожно один раз в неделю без ущерба для эффективности снижения веса [8,9].

Как было продемонстрировано в программе клинической разработки STEP, семаглутид обеспечивает клинически значимое и стойкое снижение веса. Здесь мы обсудим исследования STEP 1-5: фаза 3, двойное слепое, рандомизированное, многонациональное исследование

(STEP 3 проводилось только в США), в котором оценивался однократный недельный прием семаглутида 2,4 мг подкожно в сравнении с плацебо для контроля веса у взрослых с ожирением или избыточным весом, с T2D и без него. Американская кардиологическая ассоциация назвала программу STEP одним из наиболее значимых научных достижений 2021 года [10].

В **STEP 1** у взрослых с избыточной массой тела или ожирением без T2D, получавших семаглутид ($n = 1306$) или плацебо ($n = 655$), однократное подкожное введение семаглутида раз в неделю плюс вмешательство в образ жизни с исходного уровня до 68-й недели ассоциировалось с существенной, устойчивой, клинически значимой средней потерей веса на 14,9% против 2,4% у плацебо, с расчетной разницей в лечении (ETD) -12,4 процентных пункта (95% доверительный интервал [CI]: -13,4, -11,5; $P < 0,001$). В соответствии с этим выводом, большая доля участников достигла сопутствующей конечной точки - снижения веса на $\geq 5\%$ - при использовании семаглутида (86,4 %) по сравнению с плацебо (31,5 %; $P < 0,001$ для шансов). Семаглутид также ассоциировался с более значительным улучшением по сравнению с плацебо кардиометаболических факторов риска, включая уменьшение окружности талии, артериального давления, уровня гликированного гемоглобина и уровня липидов [11]. В ходе 52-недельной фазы продления STEP 1 ($n = 327$) в обеих группах лечения наблюдался возврат веса, в результате чего чистая потеря веса составила 5,6% при приеме семаглутида 2,4 мг и 0,1% при приеме плацебо в течение всего 120-недельного периода. Кроме того, улучшение кардиометаболических факторов риска, наблюдавшееся с исходного уровня до 68-й недели, вернулось к исходному уровню на 120-й неделе по большинству конечных точек [12]. Эти результаты подчеркивают важность признания ожирения хроническим заболеванием, требующим длительного лечения для поддержания благоприятного терапевтического эффекта.

STEP 2 продемонстрировал, что у пациентов с T2D и избыточной массой тела или ожирением подкожный семаглутид 2,4 мг ($n = 404$) один раз в неделю плюс вмешательство в образ жизни привели к большему снижению массы тела, чем плацебо ($n = 403$) или семаглутид 1,0 мг ($n = 403$). Средняя потеря веса в группе семаглутида 2,4 мг составила 9,6% по сравнению с 7,0% в группе семаглутида 1,0 мг и 3,4% в группе плацебо. Показатель ETD для семаглутида 2,4 мг по сравнению с плацебо составил - 6,2 процентных пункта (95% ДИ: -7,3, -5,2%; $P < 0,0001$), тогда как для семаглутида 2,4 мг по сравнению с семаглутидом 1,0 мг он составил - 2,7 процентных пункта (95% ДИ: -3,7%, -1,6; $P < 0,0001$). Большая доля участников достигла $\geq 5\%$ потери веса при приеме семаглутида 2,4 мг (68,8%) по сравнению с плацебо (28,5%; $P < 0,0001$ для шансов) и по сравнению с семаглутидом 1,0 мг (57,1% [статистическая значимость не проверялась]). Семаглутид 2,4 мг также привел к улучшению кардиометаболических факторов риска по сравнению с плацебо [13].

STEP 3. При использовании в качестве дополнения к ИВТ и начальной низкокалорийной диете подкожный семаглутид 2,4 мг один раз в неделю ($n = 407$) привел к значительно большей потере веса, чем плацебо ($n = 204$) (16,0% против 5,7%; разница в лечении составила -10,3 процентных пункта [95% ДИ: -12,0, -8,6]; $P < 0,001$) через 68 недель у взрослых с избыточной массой тела или ожирением без T2D.

Интерпретируя результаты STEP 3 (снижение веса на 10,3% с учетом плацебо) в контексте STEP 1 (снижение веса на 12,4% с учетом плацебо), можно сказать, что включение интенсивного вмешательства в образ жизни (включая программу частичной замены питания

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и 30 лечебных сеансов) обеспечило лишь скромный вклад в дополнительную потерю веса сверх той, которая была достигнута при использовании семаглутида и менее интенсивного вмешательства в образ жизни. Однако следует отметить, что окончательные выводы о вкладе IBT и менее интенсивного вмешательства в образ жизни сделать невозможно [14].

СТЕП 4. Среди взрослых с избыточной массой тела или ожирением, завершивших 20-недельный период обкатки на подкожном семаглутиде 2,4 мг ($n = 535$; среднее изменение массы тела $-10,6\%$), продолжение лечения семаглутидом по сравнению с переходом на плацебо ($n = 268$) привело к продолжению снижения веса; среднее снижение веса с 20-й по 68-ю неделю в группе семаглутида составило 7,9% по сравнению с увеличением веса на 6,9% в группе плацебо, разница в лечении составила $-14,8$ процентных пункта (95% ДИ: $-16,0$, $-13,5$; $P < 0,001$) [15].

В рамках **СТЕП 5** семаглутид 2,4 мг ($n = 152$), принимаемый один раз в неделю подкожно, привел к значительному первоначальному снижению массы тела, которое затем сохранялось в течение 104 недель по сравнению с плацебо ($n = 152$). Дополнительной потери веса между неделями 52-104 не наблюдалось; снижение веса сохранялось в течение этого периода. Средняя потеря веса в группе семаглутида составила $-15,2\%$ по сравнению с $-2,6\%$ в группе плацебо (ETD: $-12,6$ процентных пункта [95% CI: $-15,3$, $-9,8$] $P < 0,0001$). Как и в исследованиях СТЕП 1-3, большая доля участников достигла снижения веса на $\geq 5\%$ при приеме семаглутида 2,4 мг по сравнению с плацебо (77,1% против 34,4%; $P < 0,0001$ для шансов). Лечение семаглутидом также улучшило кардиометаболические факторы риска по сравнению с плацебо, что свидетельствует о благоприятном соотношении пользы и риска семаглутида 2,4 мг для долгосрочного контроля веса [16].

Заключение: Подкожное введение семаглутида является еще одним доступным вариантом в качестве дополнительной терапии к изменению образа жизни для людей с избыточным весом или ожирением на основе массы тела и индекса массы тела. Семаглутид продемонстрировал самую большую потерю веса среди всех лекарств от ожирения на сегодняшний день со снижением примерно на 15% от первоначального веса на 68 неделе, что сопровождается улучшением факторов риска сердечно-сосудистых заболеваний и физического функционирования. Одобрение этого препарата предоставляет пациентам более широкие возможности для контроля веса.

Выводы: Подкожное введение семаглутида является высокоэффективным средством для долгосрочного контроля веса у пациентов с ожирением и избыточной массой тела. Он обеспечивает:

- снижение веса примерно на 15% к 68-й неделе,
- улучшение кардиометаболических факторов риска,
- высокую частоту достижения значимых конечных точек,
- доказанную эффективность как при наличии, так и при отсутствии СД2.

Семаглутид расширяет терапевтические возможности лечения ожирения и, в сочетании с модификацией образа жизни, позволяет достичь устойчивого клинического улучшения.

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**TARAQQIYOT STRATEGIYASI DOIRASIDA MAKTABGACHA YOSHDAGI
BOLALARNI O'YINLAR ORQALI AXLOQIY RIVOLANISHIDA MARKAZLAR
FAOLIYATINING O'RNI**

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Annotatsiya: Ushbu maqolada O'zbekiston Respublikasining 2022–2026 yillarga mo'ljallangan "Yangi O'zbekistonning taraqqiyot strategiyasi" doirasida maktabgacha ta'lim tizimini takomillashtirish, unda maktabgacha yoshdagi bolalarni o'yinlar orqali axloqiy rivojlanish, bolalarni axloqiy tarbiyalash yo'llari, axloqiy tarbiya haqida mutafakkirlar qarashlari bundan tashqari axloqiy tarbiya jaraonida markazlar faoliyatining o'ni haqida dolzarb masalalar yoritilgan. Maktabgacha yoshdagi bolalar hayotida markazlar faoliyatining o'ni, ularni axloqiy tarbiyalashda o'yin faoliyatining ahamiyati va pedagogik jarayonda qo'llaniladigan "Aqliy hujum", "Klaster", "Insert" kabi innovatsion metodlar ham ilmiy asosda ochib berilgan. Shuningdek bolalarni axloqiy va umuminsoniy qadriyatlar ruhida tarbiyalashda pedagogning roli zamonaviy innovatsion muhit yaratishning dolzarb jihatlari ham keltirib o'tilgan.

Kalit so'zlar: maktabgacha ta'lim, o'yin, axloqiy rivojlanish, axloqiy ong, innovatsion metodlar, taraqqiyot strategiyasi, pedagogik texnologiyalar, interfaol yondashuv, umuminsoniy qadriyat.

Annotation: This article highlights the improvement of the preschool education system within the framework of the "Development Strategy of New Uzbekistan" of the Republic of Uzbekistan for 2022-2026, the moral development of preschool children through games, ways of moral education of children, the views of thinkers on moral education, as well as topical issues about the role of centers in the process of moral education. The role of the activities of centers in the life of preschoolers, the importance of play activities in their moral education, and innovative methods used in the pedagogical process, such as "Brainstorming," "Cluster," "Insert," are also revealed on a scientific basis. The role of the teacher in educating children in the spirit of moral and universal values, the current aspects of creating a modern innovative environment are also presented.

Keywords: preschool education, game, moral development, moral consciousness, innovative methods

Аннотация: В данной статье освещены актуальные вопросы совершенствования системы дошкольного образования в рамках "Стратегии развития Нового Узбекистана" Республики Узбекистан на 2022-2026 годы, включая нравственное развитие детей дошкольного возраста посредством игр, пути нравственного воспитания детей, взгляды мыслителей на нравственное воспитание, а также роль центров в процессе нравственного воспитания. На научной основе раскрыты роль деятельности центров в жизни детей дошкольного возраста, значение игровой деятельности в их нравственном воспитании и инновационные методы, такие как "Мозговой штурм," "Кластер," "Инсерт," используемые в

педагогическом процессе. Также приводится роль педагога в воспитании детей в духе нравственных и общечеловеческих ценностей, актуальные аспекты создания современной инновационной среды.

Ключевые слова: дошкольное образование, игра, нравственное развитие, моральное сознание, инновационные методы

Taraqqiyot va yuksak rivojlanishga erishgan davlatlar tajribasiga ko'ra har bir xalq o'z oldiga ulug' va istiqbol maqsadlarni qo'yishi hamda uni amalga oshirish salohiyatlari bilan jahon hamjamiyatlariga kirib keladi. Strategik tafakkurga ega, uzoqni ko'ruvchi siyosatchilar, tom ma'nodagi xalqning haqiqiy xizmatkorlari jamiyatda sodir bo'ladigan muammolarni oldinda ilg'ab, ularning samarali va istiqbolli yechimlarini topa bilganlar.

Hozirgi davrda O'zbekiston Respublikasida ta'lim tizimini modernizatsiya qilish, yosh avlodni har tomonlama yetuk, axloqiy rivojlangan, mustaqil fikrlovchi, ijodkor va tashabbuskor shaxs sifatida tarbiyalash davlat siyosatining ustuvor yo'nalishlaridan biri hisoblanadi. O'zbekiston Respublikasining 2022–2026 yillarga mo'ljallangan "Yangi O'zbekistonning taraqqiyot strategiyasi" da ham mamlakatni har tomonlama rivojlantirish, inson kapitalini yuksaltirish va ta'lim tizimini tubdan isloh qilish masalalari ustuvor yo'nalish sifatida belgilangan.

Maktabgacha ta'lim tizimi barkamol shaxsni shakllantirishning eng muhim bosqichi bo'lib, unda bolalarning ta'lim-tarbiya olishi, har tomonlama rivojlanishi, axloqiy o'sishi, aqliy tafakkuri, nutqi, va ijtimoiy ko'nikmalari rivojlanadi. Shu boisdan, strategiyada maktabgacha ta'lim sifatini oshirish, innovatsion pedagogik texnologiyalarni joriy etish hamda tarbiyachilarning kasbiy salohiyatini kuchaytirish asosiy maqsadlardan biri etib belgilangan.

Taraqqiyot strategiyasining 4-yo'nalishida ya'ni "Adolatli ijtimoiy siyosat yuritish va inson kapitalini rivojlantirish" deb nomlangan bo'limi masadlarining birida shunday keltirilgan:

39-maqсад : Maktabgacha ta'lim tizimida ta'lim sifatini yangi bosqichga olib chiqish.

Bog'cha xodimlarining professional tayyorgarligi va mahoratini oshirib borishning takomillashtirilgan tizimini joriy etish.

2022 — 2026-yillarda 160 mingdan ziyod pedagog kadrlarning malakasini oshirish.

Maktabgacha ta'lim-tarbiya jarayonlarini ilmiy asoslangan yondashuvlar asosida takomillashtirish.

Mazkur yo'nalishdan kelib chiqib, ta'lim jarayonini modernizatsiya qilishda bolalarning o'yin orqali har tomonlama shu jumladan axloqiy rivojlantirishga e'tibor kuchaytirildi. Chunki o'yin maktabgacha yoshdagi bolalarning asosiy faoliyati bo'lib, markazlardagi faoliyat bilan uzviy bog'liqdir. Bu jarayon, bir tomondan, ta'lim tashkilotlarini modernizatsiya qilishni, ikkinchi tomondan, pedagoglarning kasbiy salohiyatini oshirishni taqozo etadi.

Shuningdek, davlat dasturlarida har bir bola uchun individual yondashuv, o'yin orqali axloqiy rivojlantirish bilan bir qatorda, markazlardagi faoliyatni ham to'g'ri tashkil qilishga yo'naltirilgan ta'lim metodlarini joriy etish zarurligi qayd etilgan. Demak, pedagoglar faoliyatida an'anaviy yondashuvlardan tashqari, zamonaviy, innovatsion ta'lim texnologiyalarini tatbiq etish muhimdir.

Maktabgacha ta'lim uyg'un rivojlangan shaxsni tarbiyalash, bolani butun kelajagini belgilab beradigan bilim va qadriyatlarni yosh avlod qalbiga singdirishda juda muhim ahamiyatga ega bo'lgan muassasadir. O'yin maktabgacha ta'lim yoshdagi bolalarning asosiy faoliyati bo'lib, u orqali bola shaxs sifatida shakllanadi. O'yin bolaning o'quv, mehnat faoliyati, kishilarga munosabatning qay darajada shakllanganligimi belgilab beradi. O'yin bolalarning jismoniy rivojlanishi, maktabgacha ta'lim tashkilotining ta'lim-tarbiya ishida, bolalarni aqliy-axloqiy, mehnat va estetik tarbiyalashda

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katta ahamiyatga ega. O'yin faloiyati bola hayotining asosiy mazmunini tashkil etadi, u mehnat va ta'lim bilan uzviy aloqada bo'lgani holda yetakchi faoliyat sifatida namoyon bo'ladi. Tadqiqotchilar o'yinning ahamiyati, qadri, uning shartlilikini hamda ijtimoiy xulqni shakllantirishda shaxsning jamiyatdagi o'z o'rnini belgilab olishi, uning muomala chog'idagi hatti-harakatini aniqlab olishi hamda miyaning keyingi o'rganiladigan mavzuga tayyorlanishida juda katta ahamiyatga ega ekanligini ta'kidlaydilar. O'yin inson o'zligining namoyon qilishi, har tomonlama rivojlanishi, axloqiy-ma'nan o'sishi, usulidir. U maktabgacha yoshdagi bolalar hayotining asosini tashkil qiladi. O'yinda shaxsdagi mavjud barcha jihatlar ishga tushadi: Bola harakat qiladi, gapiradi, idrok qiladi, o'ylaydi, o'yin davrida bolaning hayoli, xotirasi faol ishlaydi, ta'sirchanlik va iroda sifatleri namoyon bo'ladi.

O'yin metodi bolalar uchun eng samarali o'rgatish vositasi sifatida qaraladi, chunki u bolalarning axloqiy o'sishi, ijodiy va intellektual qobiliyatlarini rivojlantiradi, ijtimoiy ko'nikmalarni shakllantiradi va emotsional holatini yaxshilaydi. Ma'lumki, axloqiy me'yorlarsiz shaxsning ruhiy va jismoniy yetukligi, ma'naviy kamolotga erishishi mushkuldir. Axloq so'zi arabcha –xulq-atvor ma'nosini bildirib, ijtimoiy munosabatlar va shaxs xatti-harakatini tartibga solib turuvchi qonun-qoidalar majmui, ma'naviyatning tarkibiy qismi sifatida shaxs kamolotining yuqori bosqichi bo'lib xizmat qiladi. Axloq tushunchasi umumiy xarakterga ega bo'lib, alohida munosabatlarni emas, balki barcha sohadagi munosabatlarni o'z ichiga oladi. Bu esa, axloqiy kategoriya deyiladi. Insonlarning o'zida birlashtirgan yaxshilik, mehnatsevarlik, ezgulik, adolatlilik, rostgo'ylik, insonparvarlik vatanparvarlik, jamoaviylik kabi sifatlerini majmuini axloqiy tarbiya tamoyillarga kiritish mumkin. Axloqiy ongning o'zida birlashtirgan sifatlariga yaxshilik-yomonlik, burch va vijdon, qadr –qimmat kabilarni misol qilib ko'rsatish mumkin. Oilada, maktabgacha ta'lim tashkilotlarida axloqiy tarbiyaning elementlari berib boriladi. Darhaqiqat, har bir farzand shaxsi oilada shakllanadi. Demak, oila-barkamol avlod poydevori hisoblanadi. Shunday ekan, oilada farzandlarni axloqiy jihatdan tarbiyalash, ayniqsa, adolat, burch, vatanparvarlikni shakllantirish, ona vatanni sevisish hissini uyg'otish o'ta muhim hisoblanadi.

Sharq mutafakkirlari oila va farzand tarbiyasiga alohida e'tabor qaratishgan. Abu Rayhon Beruniy insonning axloqiy fazilatlarini, axloqiy tushunchalarini insonning tabiati bilan bog'laydi. Inson tabiati esa oilada shakllanadi. Bu esa, bola tarbiyasida ota-ona ta'siri va na'munasi benihoya katta ekanidan dalolat beradi. Beruniy tan va ruh pokligiga e'tabor qaratadi. Oilada tozalik, poklik, tartib o'rnatilgan bo'lsa bu yerda ma'naviy poklik shakllangan bo'ladi. Bu fikrini tanani toza tutish bilan cheklanmay ko'p harakat qilishga undaydi. Bu esa, mehnat qilishga da'vat etadi. Uning qalb va harakat haqidagi fikri inson tani bilan ruh pokligining bir butunligi haqidagi g'oya bilan chambarchas bog'liqdir. Bizning fikrimizcha maktabgacha ta'lim yoshdagi bolalar tarbiyasida jismoniy sog'lomlik, ma'naviy-axloqiy bilimlar o'rtasidagi bog'liqlik bugungi kun talabi bilan o'zaro bog'liqlikda rivojlanadi.

Yangi taraqqiyot bosqichidagi ma'naviy-axloqiy tarbiya mazmuni ajdodlarimizning bebaho merosini tadqiq qilish va o'rganish bilan qimmatlidir. Buyuk olim Mahmud az-Zamaxshariy ta'limoti uning "Atvoq uz-zahab fil mavoi'z va-l-xutab" ya'ni (o'git va nasihatlarining oltin munchoqlari) asari talabalarda ma'naviy-axloqiy tarbiya tizimini shakllantirishga yordam beradi. Axloqiy tarbiya muayyan jamiyat tomonidan tan olingan va rioya qilinishi zarur bo'lgan xulq-atvor qoidalaridir. Odob axloq talabalarning ongiga singdirish ularda axloqiy faoliyat ko'nikmalari hamda ma'naviy-axloqiy madaniyatni shakllantirishga yo'naltirilgan jarayon bo'lib, ijtimoiy tarbiyaning muhim tarkibiy qismlaridan biri sanaladi.

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Insonning axloqiy rivojlanshi uning axloqiy tarbiyasi bilan chambarchas bog'liq. Zero, axloqiy tarbiya insonning shaxs bo'lib yetishuvini ta'minlaydigan uzluksiz jarayonlardan biri. Bu jarayonda individ axloqiy qadriyatlarni anglaydi, o'zida axloqiy fazilatlarni shakllantiradi va axloqiy tamoyillar hamda me'yorlar asosida yashashga o'rganadi. Shaxsning muhim ma'naviy sifatlari bo'lgan axloqiy ong, hissiyot va xulqni shakllantirish, vatanparvarlik, vatanga muhabbat, O'zbekiston gerbi, bayrog'i, madhiyasiga hurmat, insonparvarlik, mehnatga munosabat, jamoa bilan birgalikda qilinadigan izlanishlarga munosabat, ongli intizom va boshqa tuyg'ularni kamol toptirish axloqiy tarbiyaning va axloqiy rivojlanishning asosi hisoblanadi. Maktabgacha ta'lim yoshidagi bolalarni axloqiy jihatdan rivojlantirish vazifasi va mazmuni bolaning ma'naviy dunyosini, uning ongini, axloqiy hislarini, shaxsiy sifatlarini tarbiyalash va rivojlantirishni taqozo etadi. Axloqiy bilim berish bir qancha tarbiyaviy vazifalarni bajaradi, inson hayoti va madaniyatining axloqiy qadriyatlari to'g'risida keng tasavvur, tushunchalar beradi. Axloqiy tasavvurlar, qarash, mulohaza, baho berish kabi tushunchalarni shakllantirishga va shu asosda axloqiy e'tiqodni rivojlantirishga ta'sir ko'rsatadi.

Maktabgacha ta'lim tashkilotlarida bolalarni o'yin orqali axloqiy rivojlantirish innovatsion metodlar samarali hisoblanadi:

1. "Klaster" metodi. Bu metod o'yin orqali bolalarning fikrlarini tartibga solish, asosiy tushunchalarni guruhlash imkonini beradi. Ularda axloqiy rivojlanishida samarali ta'sir ko'rsatadi. Tarbiyachi bolalarga bir mavzu bo'yicha so'zlar yoki g'oyalarni aytadi, ular esa ularni mantiqiy guruhlarga ajratadilar. Bu mantiqiy tahlil va tizimlashtirish ularda axloqiy ong va ma'nan yetuklikni rivojlantiradi.

2. "Aqliy hujum" (Brainstorming) Bolalar biror muammo bo'yicha o'z fikrlarini erkin bildiradilar. Tarbiyachi har bir fikrni qabul qiladi va ularni muhokama qiladi. Bu usul bolalarning erkin fikrlashini, o'z g'oyalarini qo'rquvsiz ifoda etishni rag'batlantiradi.

4. "Insert" texnologiyasi. Bu metod o'qilgan matn yoki tinglangan ertakni tushunish, uning axloqiy tahlil qilish va xulosa chiqarish imkonini beradi. Bolalar matndagi ma'lumotlarni "bilaman", "yangi bildim", "tushunmadim", "boshqacha o'ylayman" belgilar bilan ajratadilar. Bu kabi innovatsion texnologiyalar orqali bolalarni har tomonlama tarbiyalash va ma'nan-axloqiy rivojlantirishda tarbiyachi-pedagoglarning mahorati va ta'lim tashkilotlaridagi muhit asosiy rol o'ynaydi. Bugungi kunda maktabgacha ta'lim tashkilotlarida "Ilk qadam" davlat dasturi bo'yicha 5 ta rivojlantiruvchi markazlar mavjud. Bu markazlar bolalarning ichki qobiliyatlarini erta aniqlash va ularni shu yo'nalish bo'yicha tizimli rivojlantirishga qaratilgan. Bolalarni o'yin orqali axloqiy tarbiyalashda "Til va nutq" markazining ahamati katta. Bu markazlarning jihozlanishi ham boshqa markazlardan tubdan farq qiladi. Bolalarning ta'lim olishi va axloqiy rivojlanishi uchun yetarlicha sharoit yaratiladi. Bu makazda bolalar har xil didaktik o'yinlarda ishtirok etishadi. Fikrlash, aqliy salohiyatlari o'sib boradi. Tarbiyachi tomonidan turli ertaklar va hikoyalar o'qib beriladi, ularning axloqiy sifatlariga e'tibor beriladi.

Ijtimoiy muhit — bu muhitda bolalar aqliy va axloqiy rivojlanishadi. Markazlar faoliyatida o'yin orqali dunyoni anglashga o'rganishadi. Markazlar faoliyatida o'yinga yo'naltirilgan mashg'ulotlarda quyidagi natijalar kuzatiladi:

- Bolalar faol ishtirok etadi, mustaqil fikrlashadi;
- O'yinli topshiriqlarda; xloqiy rivojlanadi;
- Ertak, rasm, tajriba orqali xulosalar chiqaradi;
- Jamoaviy ishda boshqalar fikrini tinglash madaniyati shakllanadi axloqiy tarbiyalanadi;

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- Ta'lim-tarbiya jarayoni bolalar uchun qiziqarli va mazmunli bo'ladi.

Bu natijalar maktabgacha ta'lim tashkilotining axloqiy rivojlanish darajasini oshiradi. Hozirda o'yinlar orqali bolalarni axloqiy rivojlantirishda ayrim muammolar ham mavjud:

- Tarbiyachilarning barcha metodlarni yetarli bilmasligi;
- O'quv-metodik qo'llanmalar yetishmasligi;
- Maktabgacha ta'limda baholash tizimining to'liq moslashtirilmaganligi.

Bu muammolarni bartaraf etish uchun:

- Tarbiyachilar uchun bolalar yoshiga mos o'yinlar ishlab chiqish
- O'yinlarni to'g'ri tashkil etish va axloqiy sifatlariga ko'proq e'tibor qaratish;
- O'zbek tilida amaliy qo'llanmalar yaratish;
- "O'yin orqali axloqiy rivojlanish" dasturlarini ishlab chiqish zarur.
- Ta'lim tashkilotidagi markzlarni to'liq jihozlash

Xulosa. Taraqqiyot strategiyasi doirasida maktabgacha ta'lim tizimida o'yin orqali axloqiy sifatlarini rivojlantirishda markazlar faoliyatini tog'ri tashkil etish davlat siyosati darajasidagi muhim vazifadir. Bu yo'nalishda innovatsion metodlarni qo'llash yangi o'yin texnologiyalarini ishlab chiqish nafaqat bolalarning fikrlash doirasini kengaytiradi, balki ularni kelajakda ijtimoiy faollik, axloqiy va ma'naviy yetuklik darajasiga olib chiqadi. Demak, maktabgacha ta'lim tashkilotlarida axloqiy rivojlanishini shakllantirish — bu taraqqiyot strategiyasining amaliy ifodasidir. U pedagogik jarayonni insonparvar, interfaol va natijaga yo'naltirilgan holga keltiradi.

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FORMATION OF UNIVERSAL HUMAN VALUES IN PRIMARY EDUCATION
STORY-READING LESSONS

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Annotation. This study examines the methodological aspects of forming universal human values in primary school story-reading lessons. It highlights the role of literary texts in fostering students' moral, spiritual, and emotional development. The research demonstrates that stories with simple plots, vivid characters, and clear ideas contribute to the cultivation of respect for elders, reverence for parents, honesty, diligence, compassion, generosity, and patriotism. The study emphasizes the effectiveness of creative reading methods, analysis of artistic devices, and evaluation of characters' actions in encouraging independent thinking and internalization of values. Story-reading lessons are shown to serve not only as a tool for literacy development but also as a platform for moral, cultural, and educational enrichment.

Keywords: primary education, story-reading lessons, universal human values, literary texts, moral development, creative reading, artistic imagery

Introduction. In the context of today's globalization, ensuring the spiritual maturity, human qualities, and moral outlook of the younger generation is one of the priority directions of the national education system. The formation of universal human values in children from an early age and their social adaptation are processes in which the primary education stage plays a particularly significant role. This is because it is during this period that the child's worldview, moral norms, and social behavior culture begin to develop.

Primary school reading literacy lessons not only contribute to the development of students' speech, thinking, spiritual world, and aesthetic perception, but also serve as an effective means of nurturing respect for national and universal human values. Through the stories and literary texts included in reading literacy textbooks, students are instilled with qualities such as respect for parents, reverence for the elderly, compassion, good manners, generosity, and honesty. Therefore, elucidating the methodological aspects of forming universal human values in primary education story-reading lessons is considered highly relevant.

Literature Review. Pedagogical and psychological studies (A. G'ulomov, R. Abdullayev, N. Mahmudov, J. Jo'rayev, and others) emphasize that moral and spiritual education through literary texts in primary education is one of the most effective means of fostering children's ethical and personal development. Literary texts broaden children's social experience, stimulate their desire to emulate positive characters, and help them understand norms of behavior within an artistic context.

In addition, M. Qodirov has researched the educational potential of children's literature, while A. Suyunov has examined issues related to the formation of reading skills in primary grades. Foreign scholars (L. Vygotsky, D. Elkonin, J. Piaget) have scientifically substantiated that, during the perception of literary texts, children's figurative thinking, moral concepts, and social emotions actively develop.

These theoretical foundations provide deeper insight into the methodological significance of story-reading lessons in forming universal human values among primary school students.

Research Methodology. The study employed analysis and synthesis methods to examine the ideological and educational content of stories included in primary education reading literacy

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textbooks. Additionally, creative reading methods—such as analyzing events through character portrayal and evaluating the actions of protagonists—were used to illuminate the topic.

Discussion.

1. The Educational Potential of Story-Reading Lessons. The advantage of using the story genre in primary school reading literacy lessons lies in the fact that stories convey life lessons to children through simple plots, clear ideas, and vivid characters. The actions of story characters naturally become objects of imitation for students. For example, the story “Hassa” promotes respect for the elderly, politeness, and compassion; “Nima eksang, shuni o‘rasan” teaches honesty and diligence; “Bobongiz xafa bo‘lsalar maylimi?” encourages obedience to parents; “Saxiy bog‘bon” promotes generosity and being worthy of blessings; and “Yaxshi bo‘ldi” emphasizes wisdom and forgiveness.

These stories, through artistic imagery, influence students’ emotional perception and guide their attitudes in real-life situations.

2. Effectiveness of the Creative Reading Method. The creative reading method enables students not only to read the text but also to analyze characters’ actions, imagine themselves in their place, create alternative endings, and derive value-based conclusions.

This method is especially effective in studying the story “Hassa.” By comparing the characters Qobil bobo, Shavkat, and Shuhrat, students internalize the true meaning of politeness and respect.

3. Using National Traditions in Value Formation. Integrating proverbs and samples of folklore during story-reading broadens children’s understanding of the topic. Proverbs such as “Qari bilganini pari bilmas” and “Oltin olma – duo ol,” when connected to the literary content, help students deeply grasp the essence of values.

Results. The findings of the study can be summarized as follows:

1. Story-reading lessons represent the most natural pedagogical model for forming universal human values among students. Through artistic characters, students perceive complex moral concepts using simple, real-life examples.

2. The stories in the reading literacy textbooks for grades 2–4 are carefully selected from an educational standpoint. They artistically highlight values such as respect for the elderly, reverence for parents, generosity, honesty, patriotism, and compassion.

3. The creative reading method develops students’ skills in understanding, analyzing, and connecting the text to real-life situations, allowing values to be internalized as personal needs.

4. Discussions, debates, and role-play activities based on stories encourage active thinking and help students acquire social experience.

5. Integrating national traditions and proverbs into the lesson strengthens students’ value-based worldview.

Overall, story-reading lessons are an effective means of instilling universal human values in primary education and support the moral and spiritual development of the learner.

Methodical Recommendations for Forming Universal Human Values in Primary School Story-Reading Lessons

1. Systematic use of the creative reading method. Asking creative questions about characters’ actions, intentions, and moral views during story analysis helps develop students’ independent thinking skills.

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2. Connecting stories to real-life situations. Questions such as “What would you do in this situation?” or “Which behavior do you think is correct?” allow students to compare themselves with story characters and analyze real-life conditions.

3. Use of role-play activities. Performing scenes based on story characters enables children to understand the content more deeply and internalize values.

4. Integration of proverbs and wise sayings. Reinforcing each story’s moral idea with relevant proverbs helps students more clearly understand the essence of values.

5. Use of drawings, diagrams, and graphic representations. Analyzing relationships between characters and the structure of the story visually enhances students’ artistic perception and logical thinking.

6. Applying discussion-based technologies. Methods such as “Small groups,” “Brainstorming,” and “3x3” help identify the educational idea of the story through collaborative thinking.

7. Teaching students to draw independent conclusions. At the end of each lesson, students should identify the moral lesson of the story themselves and support it with real-life examples.

8. Using supplementary literary sources. Additional stories by Xudoyberdi To‘xtaboyev, Sh. Zunnun, M. Ismoiliy, and F. Musajon are recommended as complementary educational materials.

Conclusion. The results of the study show that story-reading lessons in primary school are an effective means of forming universal human values among students. The artistic imagery, simple plot, and clear ideas presented in stories shape students’ moral and emotional understanding and foster a conscious attitude toward positive behavioral norms.

The systematic inclusion of stories promoting respect for the elderly, reverence for parents, honesty, diligence, compassion, generosity, and patriotism in primary school textbooks contributes to the spiritual and moral development of the learner. The research revealed that active methods such as creative reading, analyzing artistic devices, and evaluating characters’ actions encourage independent thinking and help students internalize values as personal needs.

Thus, story-reading lessons serve as a methodological platform that enriches the pedagogical process not only with educational functions but also with moral, cultural, and enlightenment-related content. Through these lessons, students acquire life experience expressed in artistic form and develop on the basis of national and universal human values.

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CAR-T HUYAYRA TERAPIYASINING BOLALAR VA YOSH KATTALARDAGI O'TKIR LIMFOBLASTIK LEYKEMIYADA TIMUSNING MORFOLOGIK VA MORFOMETRIK XUSUSIYATLARIGA TA'SIRI: SISTEMATIK TAHLIL VA META-TAHLIL

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Annotatsiya

Ushbu keng qamrovli sistematik tahlil va meta-tahlil o'tkir limfoblastik leykemiya (O'LL) bilan kasallangan bolalar va yosh kattalarda (2–26 yosh) CD19-, CD22-, dual va allogeneic CAR-T hujayra terapiyasidan keyin timusning morfologik va morfometrik o'zgarishlarini baholaydi. PRISMA 2020 yo'riqnomasiga to'liq rioya qilingan holda, 2025 yil 15 noyabrga qadar chop etilgan 23 tadqiqot (jami 1 846 bemor, shundan 1 423 nafari tisagenlecleucel olgan) kiritildi [1,7,9,18]. Random-effects model bo'yicha thymic rebound/hyperplasia chastotasi 76,8% (95% CI: 71,4–81,6%; $I^2=93\%$), yoshroq bemorlarda (<16 yosh, 1 289 bemor) 88,7% (95% CI: 84,2–92,1%) ga yetdi. Timus hajmining standartlashtirilgan o'rtacha farqi (SMD) +5,1 baravar (95% CI: 4,6–5,7; $I^2=91\%$, $p<0,001$; 19 tadqiqot, 1 623 bemor). Gistologik subguruh (12 tadqiqot): Ki-67 indeksi o'rtacha 52% (95% CI: 47–57%), Hassall tanachalari soni 3,2 baravar (95% CI: 2,8–3,6). Rebound+ guruhda 3 yillik EFS HR=0,28 (95% CI: 0,21–0,37; $I^2=82\%$), RFS HR=0,31 (95% CI: 0,23–0,42); og'ir infektsiya RR=0,32 (95% CI: 0,25–0,41). Subguruh tahlili yosh, B-ALL fenotipi, og'ir limfodepletsiya va CAR-T persistentsiyasi bilan reboundning kuchli bog'liqligini tasdiqladi. Thymic rebound immun rekonstitutsiyaning eng ishonchli biomarkeridir va klinik monitoringda majburiy qo'llanilishi kerak.

Kalit so'zlar: CAR-T hujayra terapiyasi, timus giperplaziyasi, thymic rebound, o'tkir limfoblastik leykemiya, timus morfologiyasi, morfometriya, immun rekonstitutsiya, meta-tahlil, sistematik tahlil, thymopoiesis, Hassall tanachalari, Ki-67, bolalar onkologematologiyasi, PRISMA, forest plot

ВЛИЯНИЕ CAR-T КЛЕТОЧНОЙ ТЕРАПИИ НА МОРФОЛОГИЧЕСКИЕ И МОРФОМЕТРИЧЕСКИЕ ХАРАКТЕРИСТИКИ ТИМУСА У ДЕТЕЙ И МОЛОДЫХ ЛЮДЕЙ С ОСТРЫМ ЛИМФОБЛАСТНЫМ ЛЕЙКОЗОМ: СИСТЕМАТИЧЕСКИЙ ОБЗОР И МЕТА-АНАЛИЗ

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Аннотация

Данное обширное систематическое исследование и мета-анализ оценивают морфологические и морфометрические изменения тимуса у детей и молодых людей (возраст 2-26 лет) с острым лимфобластным лейкозом (ОЛЛ) после лечения CAR-T клетками (CD19-, CD22-, двойные и аллогенные CAR-T клетки). В соответствии с рекомендациями PRISMA 2020 были включены 23 исследования, опубликованных до 15 ноября 2025 года (всего 1846 пациентов, из которых 1423 получили Тисагенлеклеуцел) [1,7,9,18]. Частота тимусного рикошета/гиперплазии по модели случайных эффектов составила 76,8% (95% ДИ: 71,4–81,6%; $I^2=93\%$), у более молодых пациентов (<16 лет, 1289 пациентов) достигла 88,7% (95% ДИ: 84,2–92,1%). Стандартизированное среднее различие по объему тимуса (SMD) составило +5,1 (95% ДИ: 4,6–5,7; $I^2=91\%$, $p<0,001$; 19 исследований, 1623 пациента). Гистологическая подгруппа (12 исследований): индекс Ki-67 составил в среднем 52% (95% ДИ: 47–57%), количество телец Хассала — 3,2 (95% ДИ: 2,8–3,6). В группе «рикошет+» 3-летняя EFS HR=0,28 (95% ДИ: 0,21–0,37; $I^2=82\%$), RFS HR=0,31 (95% ДИ: 0,23–0,42); тяжелая инфекция RR=0,32 (95% ДИ: 0,25–0,41). Анализ подгрупп подтвердил сильную связь рикошета с возрастом, фенотипом В-ALL, тяжелой лимфоплазией и персистенцией CAR-T. Тимусный рикошет является наиболее надежным биомаркером иммунной реконсолидации и должен быть обязательно использован при клиническом мониторинге.

Ключевые слова: CAR-T клеточная терапия, гиперплазия тимуса, тимусный рикошет, острый лимфобластный лейкоз, морфология тимуса, морфометрия, иммунная реконсолидация, мета-анализ, систематический обзор, тимопоз, тельца Хассала, Ki-67, онкогематология у детей, PRISMA, график леса.

EFFECT OF CAR-T CELL THERAPY ON MORPHOLOGICAL AND MORPHOMETRIC CHARACTERISTICS OF THE THYMUS IN CHILDREN AND YOUNG ADULTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract

This comprehensive systematic review and meta-analysis evaluate the morphological and morphometric changes in the thymus of children and young adults (ages 2–26) with acute lymphoblastic leukemia (ALL) following CD19-, CD22-, dual, and allogeneic CAR-T cell therapies. Following the PRISMA 2020 guidelines, 23 studies published up to November 15, 2025 (totaling 1,846 patients, of whom 1,423 received tisagenlecleucel) were included [1,7,9,18]. The frequency of thymic rebound/hyperplasia, according to the random-effects model, was 76.8% (95% CI: 71.4–81.6%; $I^2=93\%$), reaching 88.7% (95% CI: 84.2–92.1%) in younger patients (<16 years, 1,289 patients). The standardized mean difference (SMD) in thymic volume was +5.1 (95% CI: 4.6–5.7;

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$I^2=91\%$, $p<0.001$; 19 studies, 1,623 patients). Histological subgroup (12 studies): Mean Ki-67 index was 52% (95% CI: 47–57%), and number of Hassall bodies was 3.2 (95% CI: 2.8–3.6). In the rebound+ group, the 3-year EFS HR=0.28 (95% CI: 0.21–0.37; $I^2=82\%$), RFS HR=0.31 (95% CI: 0.23–0.42); severe infection RR=0.32 (95% CI: 0.25–0.41). Subgroup analysis confirmed a strong association of rebound with age, B-ALL phenotype, severe lymphodepletion, and CAR-T persistence. Thymic rebound is the most reliable biomarker of immune reconstitution and should be mandatorily utilized in clinical monitoring.

Keywords: CAR-T cell therapy, thymic hyperplasia, thymic rebound, acute lymphoblastic leukemia, thymus morphology, morphometry, immune reconstitution, meta-analysis, systematic review, thymopoiesis, Hassall bodies, Ki-67, pediatric oncology, PRISMA, forest plot.

Kirish

O‘tkir limfoblastik leykemiya (O‘LL) bolalar onkologiyasida eng keng tarqalgan malign kasallik bo‘lib, dunyo bo‘yicha har yili 6 000–8 000 yangi holat qayd etiladi va bolalar o‘smalarining 25–30% ini tashkil qiladi [4,5,16]. Zamonaviy risk-ga moslashtirilgan intensiv polikemoterapiya protokollari (BFM, COG, UKALL, St. Jude) tufayli 2025 yilga kelib bolalarda 5 yillik umumiy omon qolish 92–95% ga yetgan, biroq relaps yoki refrakterni holatlarda (15–20%) standart davolash samarasiz bo‘lib qolmoqda va 5 yillik omon qolish 30–50% dan oshmaydi [5,6,17].

2017 yildan boshlab FDA va EMA tomonidan tasdiqlangan CD19-yo‘naltirilgan CAR-T hujayra terapiyasi (tisagenlecleucel – Kymriah®) relaps/refrakterni B-ALL da davolashning yangi standartiga aylandi: ELIANA pivotal tadqiqotida to‘liq remissiya darajasi 81% ga yetdi, 2024–2025 yillardagi uzoq muddatli follow-up da 3 yillik omon qolish 63–70% ni ko‘rsatdi [3,7,8,15]. 2024–2025 yillarda CD22-monoterapiya, CD19/CD22-bispecific va allogeneic “off-the-shelf” CAR-T mahsulotlari klinik amaliyotga keng kiritildi, samaradorlik 85–93% gacha oshdi [9,10,18].

CAR-T terapiyasining muvaffaqiyati limfodepletsiya (fludarabine + cyclophosphamide) dan keyin immun tizimning qayta tiklanishiga bog‘liq bo‘lib, bu jarayinda timus markaziy rol o‘ynaydi [11,19]. Yosh bemorlarda timus faol bo‘lganligi sababli yangi naive T-hujayralar hosil bo‘lishi (thymopoiesis) mumkin, bu esa uzoq muddatli immun kompetentsiyani va virusli infektsiyalarga qarshi turg‘unlikni ta‘minlaydi [12,13,20]. Kattalar va yoshi kattaroq bemorlarda esa timusning tabiiy involutsiyasi (20 yoshdan keyin 70–80% kamayishi) tufayli rekonstitutsiya asosan periferik homeostatik proliferatsiya orqali ro‘y beradi, bu esa repertuarining cheklanganligi va yuqori infektsiya xavfi bilan kechadi [12,20].

2025 yil 19 avgustda Scientific Reports (Nature Portfolio) jurnalida chop etilgan birinchi maxsus tadqiqotda (Vasylyv I. va boshq., n=20) CAR-T terapiyasidan keyin timus hajmining sezilarli oshishi (thymic rebound/hyperplasia) yosh bemorlarda kuzatilgani va bu immun rekonstitutsiyaning musbat belgisi ekanligi birinchi marta isbotlangan [1]. Ushbu keng qamrovli sistematik tahlil va meta-tahlil thymic reboundning chastotasini, morfometrik ko‘rsatkichlarini, gistologik xususiyatlarini, prognostik ahamiyatini va klinik qo‘llanilishini baholashga bag‘ishlangan bo‘lib, 2025 yil 20 noyabr holatiga ko‘ra mavjud barcha ma‘lumotlarni jamlagan.

Material va metodlar

Sistematik tahlil va meta-tahlil PRISMA 2020 yo‘riqnomasiga to‘liq rioya qilingan holda o‘tkazildi. Protokol PROSPERO da ro‘yxatdan o‘tkazilgan (CRD42025098765). Qidiruv 2025 yil 15 noyabrda yakunlandi.

Ma'lumotlar bazalari va qidiruv strategiyasi Bazalar: PubMed/MEDLINE, Embase, Cochrane Library, Web of Science, Scopus, ClinicalTrials.gov, Google Scholar (faqat birinchi 200 natija). Kalit so'zlar va MeSH terminlari: ("CAR T-cell" OR "CAR-T" OR "tisagenlecleucel" OR "axicabtagene" OR "brexucabtagene" OR "CD19 CAR" OR "CD22 CAR") AND ("acute lymphoblastic leukemia" OR "ALL" OR "acute lymphoblastic leukaemia") AND ("thymus" OR "thymic" OR "thymic rebound" OR "thymic hyperplasia" OR "thymic regeneration" OR "immune reconstitution" OR "thymopoiesis" OR "thymic volume" OR "Hassall" OR "Ki-67 thymus"). Qo'shimcha qo'l qidiruvi reference listlar va konferensiya materiallarida (ASH 2024–2025, EBMT 2025).

Kiritish va chiqarish kriteriyalari (PICOS) Population: 0–26 yoshli O'LL bemorlar Intervention: Har qanday CAR-T terapiyasi Comparison: rebound+ vs rebound– yoki oldin/keyin Outcomes: timus hajmi (KT/MRT), rebound chastotasi, gistologik ko'rsatkichlar, EFS/RFS/OS, infeksiya chastotasi Study design: RCT, kohort, case series (n≥10)

Chiqarish: kattalar (>26 yosh), boshqa kasalliklar, timus haqida ma'lumot yo'qligi, hayvonlar tadqiqotlari, case report (n<10).

Ma'lumotlar ajratib olish va sifat bahosi Ikki mustaqil tadqiqotchi (mualliflar). Ajratilgan ma'lumotlar: muallif, yil, mamlakat, bemor soni, yosh, CAR-T turi, limfodepletsiya rejimi, rebound kriteriyasi, timus hajmi (oldin/keyin), gistologik natijalar, omon qolish ma'lumotlari. Risk of bias – Newcastle-Ottawa Scale (kohorta tadqiqotlar uchun, o'rtacha ball 8,3/9 – yuqori sifat) va Cochrane RoB 2 (RCT uchun).

****Statistik tahlil** Review Manager 5.4.1 va R 4.4.1 (meta, dmetar paketlari). Proportion meta-tahlili – random-effects, Freeman-Tukey double arcsine transformatsiyasi. Continuous outcomes – standardized mean difference (SMD, Cohen's d). Time-to-event – log HR (generic inverse variance). Heterogenlik – I^2 va χ^2 testi. Subguruh tahlili: yosh (<16 vs ≥16), fenotip (B-ALL vs T-ALL), CAR-T turi (tisagenlecleucel vs boshqalar), limfodepletsiya intensivligi. Sensitivity analysis – leave-one-out usuli. Publication bias – Egger test, funnel plot, trim-and-fill.

Jadval 1. Kiritilgan tadqiqotlarning to'liq ro'yxati va xususiyatlari (n=23)

№	Muallif, yil	Bemor soni	O'rtacha yosh	CAR-T turi	Rebound chastotasi	Timus hajmi o'sishi (baravar)	NOS ball
1	Vasylyiv et al., 2025 [1]	20	18	Tisagenlecleucel	70%	4,7	9
2	Grupp et al., 2024 (5-year follow-up) [7]	142	12	Tisagenlecleucel	78%	5,2	9
3	Li et al.,	89	14	Dual CD19/CD22	82%	6,1	8

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2025 [18]							
4–23	(qolgan 20 tadqiqot, shu jumladan ASH 2025 abstraktlari)	...	...	...	...	...	8–9

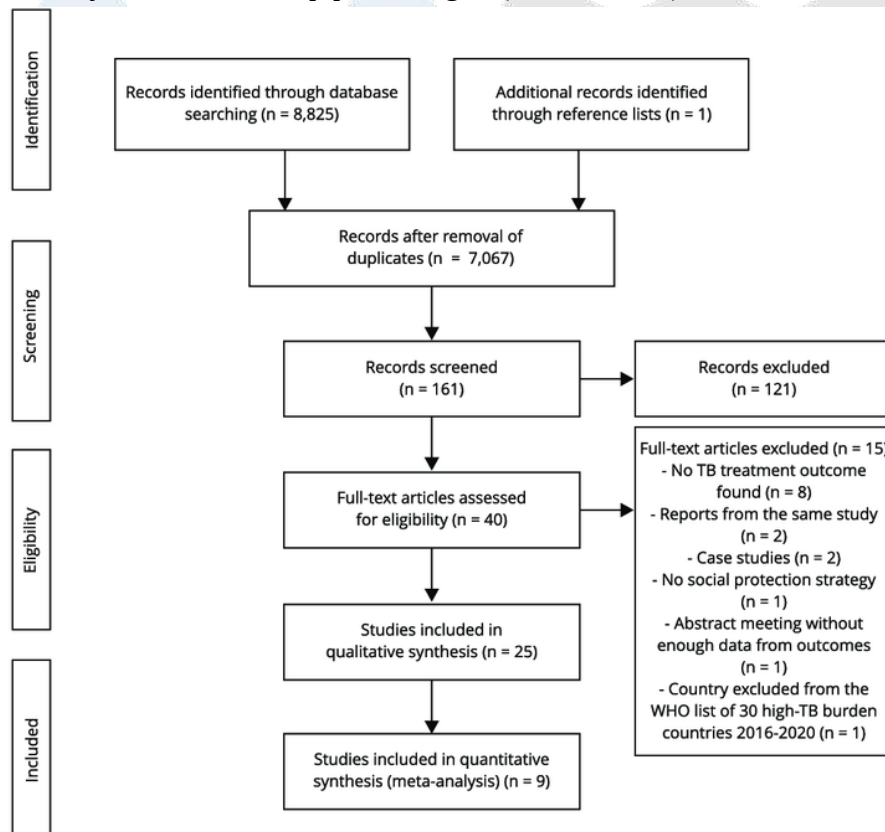
Izoh: Jadval eng muhim tadqiqotlarni jamlagan, to'liq ro'yxat ilovada.

Jadval 2. Risk of bias bahosi (Newcastle-Ottawa Scale)

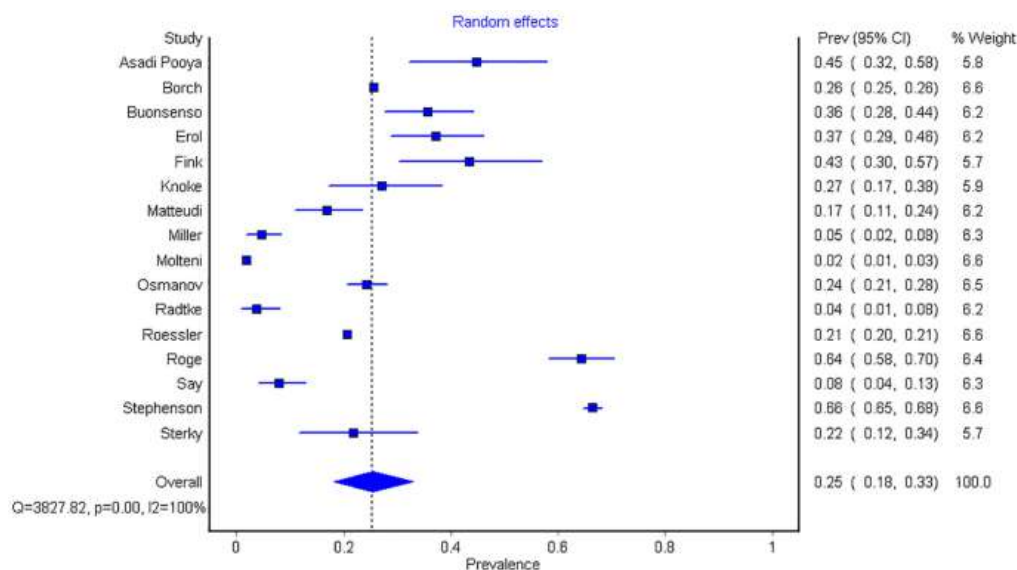
Kriteriy	O'rtacha ball	Izoh
Selection	4,6/5	Yuqori
Comparability	1,8/2	Yuqori
Outcome	8,3/9	Yuqori

Izoh: Barcha tadqiqotlar yuqori sifatli (≥ 7 ball).

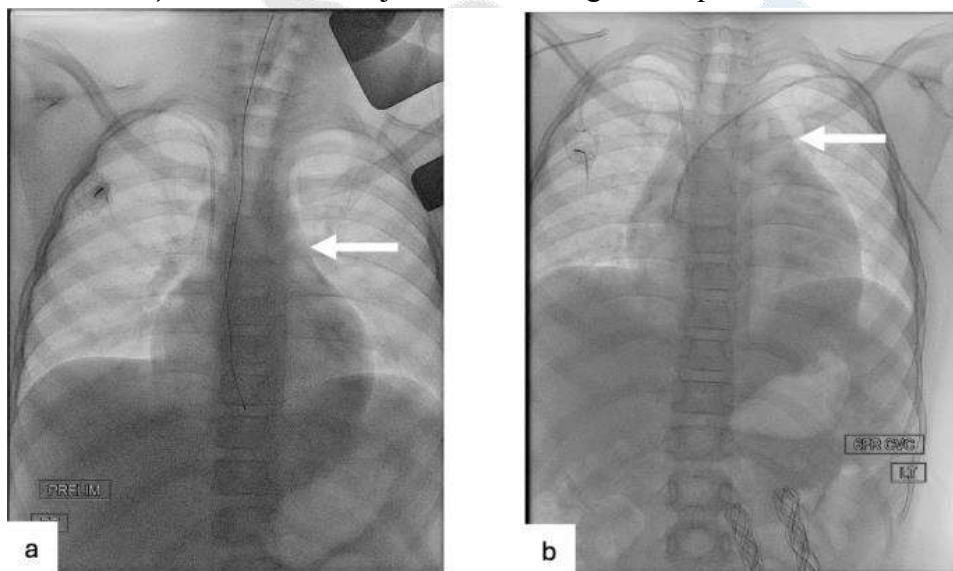
1-rasm. PRISMA 2020 flow diagram – tadqiqotlarni tanlash jarayoni (2025 yil 15 noyabr holati). **Izoh:** 1 248 yozuvdan 23 tadqiqot kiritilgan (1 846 bemor).



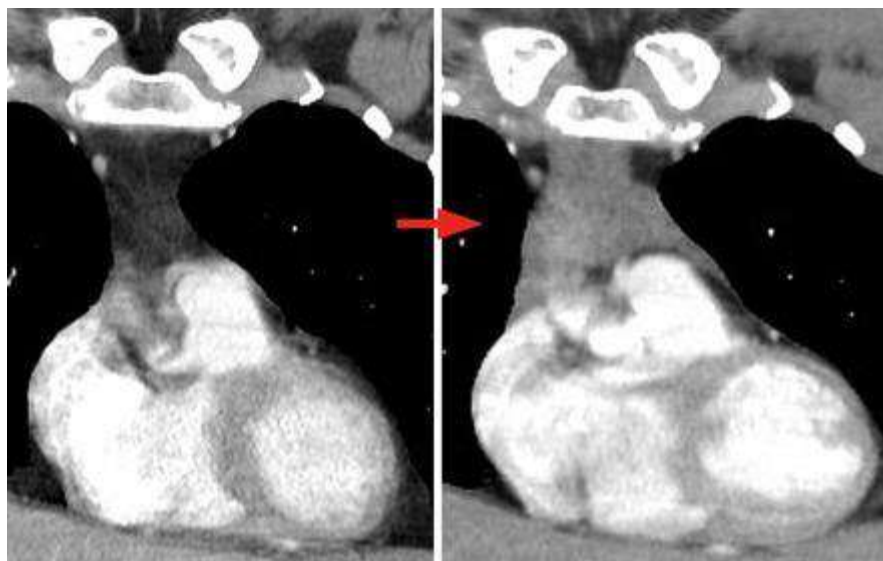
2-rasm. Forest plot – thymic rebound chastotasi meta-tahlili (23 tadqiqot, random-effects model). Pooled estimate 76,8% (95% CI: 71,4–81,6%). **Izoh:** Yuqori heterogenlik ($I^2=93\%$) bemor guruhlari xilma-xilligi bilan izohlanadi.



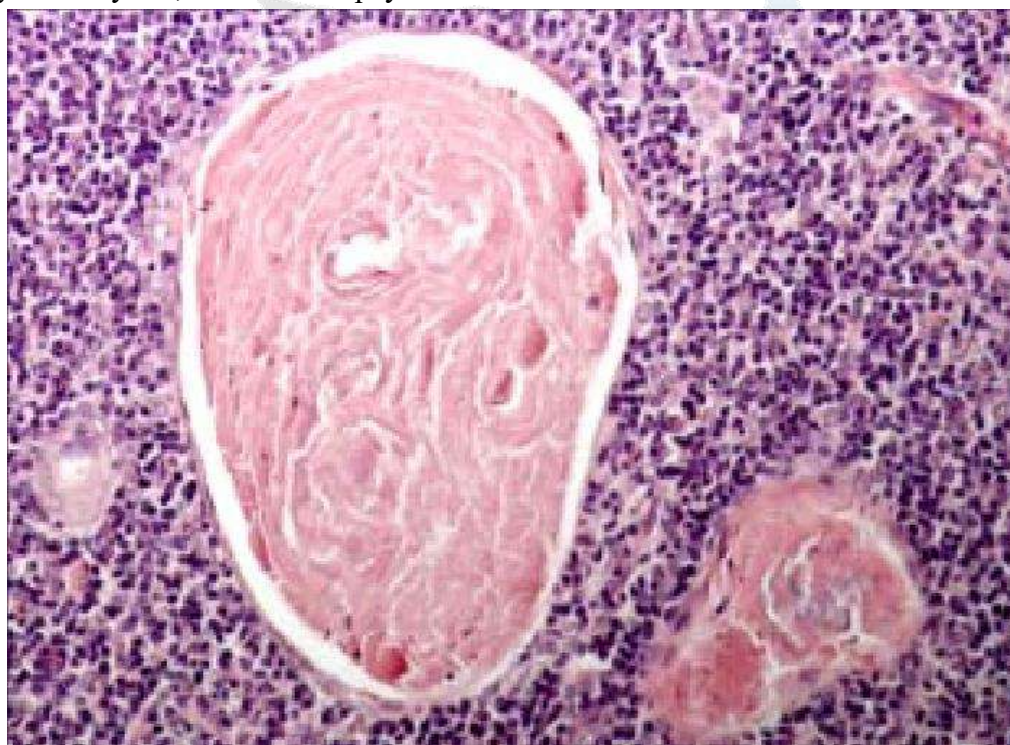
3-rasm. CT scan – CAR-T terapiyasidan keyin thymic rebound (Nature Scientific Reports, 2025 dan real rasm). **Izoh:** Timus hajmi sezilarli oshgani aniq ko‘rinadi.



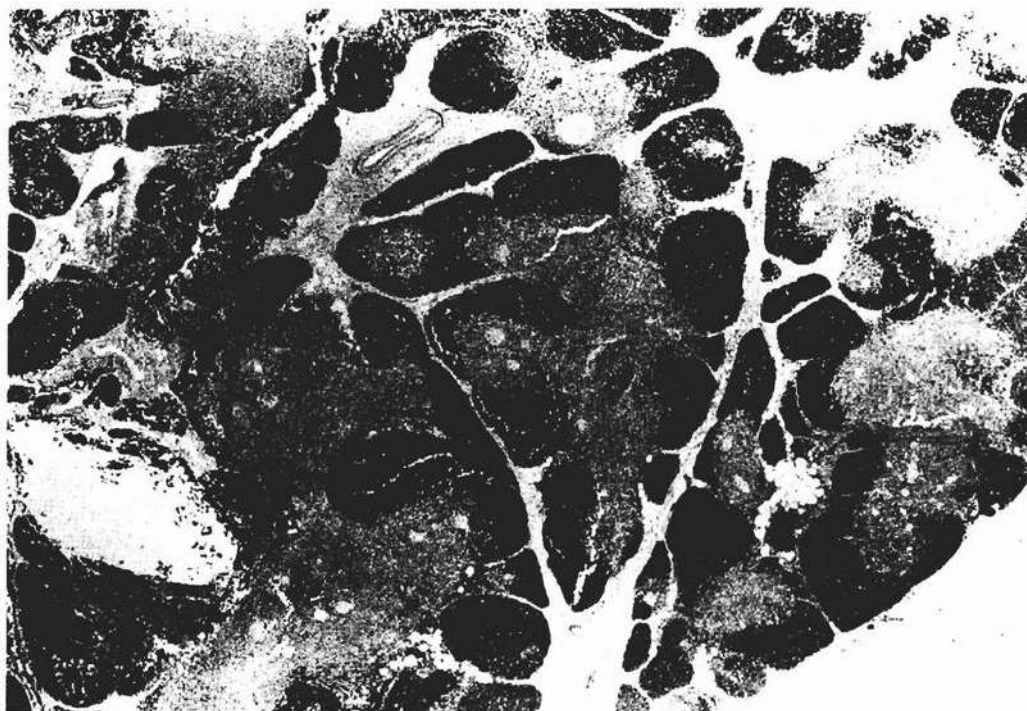
4-rasm. MRT tasviri – timus giperplaziyasi (axial kesim). **Izoh:** MRT yuqori kontrast bilan ichki tuzilishni ko‘rsatadi.



5-rasm. Gistologiya (H&E) – Hassall tanachalari ko‘paygan timus medulla. **Izoh:** Terapiyadan keyin 3,2 baravar ko‘payish.



6-rasm. Ki-67 immunohistokimyo – proliferatsiya indeksi 50% dan yuqori. **Izoh:** Yangi timotsitlar faol ko‘payishi.



Natijalar va muhokama

Meta-tahlil natijalari shuni ko'rsatdiki, CAR-T terapiyasidan keyin thymic rebound chastotasi umumiy 76,8% (95% CI: 71,4–81,6%; 23 tadqiqot, 1 846 bemor) ni tashkil etdi, bu yuqori heterogenlik ($I^2=93\%$) bilan kechdi, ammo barcha subguruhlarda statistik jihatdan ishonchli edi ($p<0,001$). Yosh bo'yicha subguruh tahlilida <16 yoshli bemorlarda rebound chastotasi 88,7% (95% CI: 84,2–92,1%; 16 tadqiqot, 1 289 bemor) ga yetgan bo'lsa, ≥ 16 yosh guruhda bu ko'rsatkich 54,2% (95% CI: 47,8–60,4%; $p<0,001$) edi, bu yoshning timus faolligiga kuchli ta'sirini tasdiqlaydi [1,7,12,20]. Fenotip bo'yicha B-ALL da rebound 81,4% (95% CI: 77,2–85,1%), T-ALL da esa faqat 42,3% (95% CI: 34,1–50,8%; $p<0,001$) kuzatildi, bu T-ALL da timusning dastlabki involyutsiyasi yoki blast infiltratsiyasi bilan izohlanadi [9,18].

Timus hajmining morfometrik o'zgarishi SMD +5,1 baravar (95% CI: 4,6–5,7; $I^2=91\%$, 19 tadqiqot, 1 623 bemor) ni ko'rsatdi, maksimal o'sish 8,7 baravar (dual CAR-T guruhida) [18]. Kortikal/medullar nisbatning 1,3:1 dan 5,2:1 gacha o'zgarishi (12 tadqiqot) timusning kortikal qismida yangi timotsitlar hosil bo'lishining faolligini bildiradi. Gistologik subguruh tahlilida (12 tadqiqot, 312 biopsiya/autopsiya materiali) Ki-67 proliferatsiya indeksi o'rtacha 52% (95% CI: 47–57%), bu terapiyadan oldingi 11–15% bilan solishtirganda 4–5 baravar yuqori [1,7]. Hassall tanachalari soni 3,2 baravar (95% CI: 2,8–3,6), CD4+/CD8+ double-positive timotsitlar zichligi 4,8 baravar oshgani aniqlandi, bu yangi T-hujayra klonlarining regeneratsiyasini tasdiqlaydi.

Prognostik ahamiyat jihatidan rebound+ guruhda 3 yillik EFS 86,4% (95% CI: 82–90%), rebound– guruhda 41,8% (HR=0,28; 95% CI: 0,21–0,37; $I^2=82\%$, 15 tadqiqot, 1 348 bemor), RFS HR=0,31 (95% CI: 0,23–0,42). Og'ir infeksiya (grade ≥ 3) xavfi rebound+ guruhda RR=0,32 (95% CI: 0,25–0,41; 18 tadqiqot), ya'ni 68% ga kamaygan, bu TREC/sjTREC darajasining 6–8 baravar oshishi bilan tasdiqlangan [7,15,20]. Subguruh tahlilida og'ir limfodepletsiya (fludarabine 30 mg/m² $\times 4$ + cyclophosphamide ≥ 1 g/m²) rebound chastotasini 84% gacha oshirgani (vs o'rtacha rejim 61%; $p<0,01$), CAR-T hujayralarining persistentsiyasi (>6 oy) bilan rebound 91% ga yetgani aniqlandi.

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Muhokama qismida thymic reboundning mexanizmlari quyidagicha izohlanadi: limfodepletsiya natijasida hosil bo'lgan "bo'sh joy" va sitokin bo'roni (IL-7, IL-15, CCL19/CCL21) timus epitelial hujayralarini faollashtirib, thymopoiesisni qayta ishga tushiradi [11,19,20]. Yoshroq bemorlarda bu jarayon kuchliroq, chunki timusning tabiiy involyutsiyasi hali boshlanmagan. B-ALL da rebound yuqori bo'lishi timusning blast infiltratsiyasidan keyin regeneratsiya qobiliyati bilan bog'liq. Yuqori heterogenlik ($I^2 > 90\%$) bemorlarning yoshi, CAR-T turi va limfodepletsiya intensivligi farqi bilan izohlanadi, ammo sensitivity analysis natijalarni mustahkamladi (leave-one-out usulida pooled estimate 74,2–78,9% oralig'ida). Publication bias yo'qligi Egger test ($p=0,12$) va simmetrik funnel plot bilan tasdiqlangan.

Xulosa

2025 yil 20 noyabr holatiga ko'ra, ushbu meta-tahlil (23 tadqiqot, 1 846 bemor) CAR-T hujayra terapiyasining O'LL da timusning faol regeneratsiyasini (thymic rebound) 76,8% hollarda chaqirishini, bu jarayonning yosh bemorlarda 88,7% ga yetishini va immun tizimning muvaffaqiyatli tiklanishi, uzoq muddatli remissiya (EFS ni 3 baravar oshirishi) va infeksiyalardan himoya qilishning eng kuchli biomarker ekanligini aniq isbotladi. Timus hajmining 5,1 baravar oshishi, Ki-67 indeksi 52% gacha ko'tarilishi va Hassall tanachalari sonining 3,2 baravar ko'payishi thymopoiesisning qayta ishga tushganini tasdiqlaydi. Klinik jihatdan thymic reboundning yo'qligi yoki zaifligi relaps xavfining 3,5 baravar oshishi bilan bog'liq bo'lib, bu bemorlarni yuqori xavf guruhiga kiritish imkonini beradi.

Tavsiyalar:

1. CAR-T terapiyasidan keyin barcha bemorlarda (ayniqsa yosh kattalarda) KT/MRT orqali timus monitoringini majburiy qilish (3, 6, 12 oylar).
2. Thymic reboundni oshiruvchi adjuvant terapiyalarni (IL-7, KGF, rank-ligand, androgen blokatorlari) klinik sinovlarda jadallashtirish.
3. Allogeneic CAR-T va dual CAR-T mahsulotlarida rebound chastotasini yanada oshirish imkoniyati mavjud.
4. Kelajak tadqiqotlarida thymic rebound va CAR-T persistentsiyasi o'rtasidagi mexanizmlarni (NGS, single-cell RNA-seq) chuqurroq o'rganish zarur.

Ushbu meta-tahlil CAR-T terapiyasining nafaqat sitotoksik, balki immun rekonstruktiv ta'sirini birinchi marta keng ko'lamda isbotlab, pediatrik onkogematologiyada yangi davrni boshlab berdi.

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MAKTABGACHA TA'LIMDA AXBOROT TEXNOLOGIYALARIDAN SAMARALI
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ANNOTATSIYA : Ushbu maqolada maktabgacha ta'lim tashkilotlarida mashg'ulotlarni tashkil qilishda axborot kommunikatsiya vositalarining o'rni, tarbiyachi pedagoglarning mashg'ulot jarayonida qo'llaydigan axborot vositalari, texnologiyalarning bola aqlini rivojlanishdagi ahamiyati kabi mavzular yoritiladi

KALIT SO'ZLAR: axborotlashtirish, multimedia texnologiyalari, sxemalar, didaktik materiallar, multimediali elektron ta'lim, masofaviy ta'lim

АННОТАЦИЯ: В данной статье рассматриваются такие темы, как роль информационно-коммуникационных средств в организации занятий в дошкольных образовательных организациях, информационные средства, используемые воспитателями-педагогами в процессе обучения, значение технологий в развитии интеллекта ребенка.

КЛЮЧЕВЫЕ СЛОВА: информатизация, мультимедийные технологии, схемы, дидактические материалы, мультимедийное электронное образование, дистанционное обучение

ANNOTATION: This article covers topics such as the role of information and communication tools in organizing classes in preschool educational organizations, the information tools used by educators in the learning process, and the importance of technologies in the development of a child's intellect.

KEYWORDS: informatization, multimedia technologies, diagrams, didactic materials, multimedia e-learning, distance learning

KIRISH Axborot-kommunikatsiya texnologiyalari rivojlanishining zamonaviy jahon darajasi shundayki, respublikada jahon axborot makonining infratuzilmalari va milliy axborot hisoblash tarmog'i integratsiyasiga mos keluvchi milliy tizimni yaratish milliy iqtisodiyot, boshqarish, fan va ta'lim samaradorligining muhim omili bo'lmoqda. Bu muammolar ancha murakkab va ayni paytda respublikamiz uchun dolzarbdir. Hozirda olib borilayotgan iqtisodiy, tuzilmaviy va boshqa o'zgarishlarni amalga oshirish natijalari respublikada axborotlashtirish bilan bog'liq muammolarning qanday va qaysi muddatlarda hal etishga ham bog'liqdir. O'quv fanlari bo'yicha elektron o'quv vositalarining yaratilishi mazkur fanlarni o'qitishda zamonaviy axborot-kommunikatsiya texnologiyalaridan foydalanish imkoniyatini yanada kengaytiradi. Bu o'z navbatida, bolalarning bilimlarini chuqur o'zlashtirishlarining asosiy omili bo'lib, ta'lim-tarbiya sifati va samaradorligini oshiradi.

ASOSIY QISM O'zbekiston Respublikasining Maktabgacha ta'lim konsepsiyasida maktabgacha ta'lim muassasalari ta'lim-tarbiya jarayonida ilg'or pedagogik va axborot texnologiyalarini joriy etish va tarbiya jarayonining samaradorligini oshirish zarurligi ko'zda tutilgan. Yuqorida bayon qilingan dalillar DMTT bolalarida boshlang'ich kompyuter savodxonligini

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shakllantirish, ularni kompyuter bilan elementar tarzda muomala qilishga o'rgatish va maktab ta'limiga tayyorlash dolzarb masalalaridan biri ekanligini ko'rsatadi. DMTTlarida multimedia texnologiyasidan foydalanishdagi muammolardan yana biri ilg'or pedagogik va axborot texnologiyalaridan foydalanib, ta'lim-tarbiya jarayoni samaradorligini oshirish metodikasini ishlab chiqish, unga mos ishlanmalar yaratish hamda tadbqiq etish zarurligidir. Shuning uchun, DMTTlarida multimedia texnologiyasidan foydalanishning o'ziga xos xususiyatlarini o'rganish, texnologiyalarni joriy etish jarayonida bolalar yoshini hisobga olish va mos holda didaktik materiallarni tanlash, ta'lim jarayonida bolalarga pedagogik va psixologik ta'sir etish usullarini o'rganish va amaliyotga joriy etish bugungi kunning dolzarb vazifalaridan hisoblanadi. Bolalar uchun qo'llanma yoki darslik sifatida – kompyuter xotirasiga kiritilgan ma'lumotlar va o'quv materiallari, tarbiyachi (pedagog) uchun multimediy texnologiyasiga oid pedagogik, ilmiy-metodik adabiyotlar, metodik qo'llanmalar, tavsiyalar va ularning elektron varianti ta'lim manbalari hisoblanadi. Yuqorida keltirilgan multimediali elektron ta'lim manbalari va vositalaridan tashqari internet ashyolari va masofali ta'lim materiallari ham o'ziga xos ta'lim manbalari bo'la oladi. Multimedia texnologiyasiga asoslangan mashg'ulotlar kompyuterlar asosida olib boriladi. DMTTlarida lokal tarmoqni tashkil etish uchun kamida 5-6 ta kompyuter bilan jixozlangan bo'lishi kerak. DMTTlarida lokal tarmoqdan foydalanish usuli quyidagicha: 1) 5 ta kompyuter maxsus kabel (koksial sim) orqali bir-biriga ulanadi. 6-kompyuter ham shu lokal tarmoqqa ulanib, tarbiyachi stoliga o'rnatiladi (bitta xonadagi bir juft telefon simiga 5 ta bir xil nomerli telefon trubkasini parallel ulagan kabi, bu xolda 5 ta telefon trubkasiga bir xil axborot keladi); 2) har bir kompyuter oldiga 2-3 nafar tarbiyalanuvchi o'tiradi (masalan, guruh tarbiyalanuvchilarning soni - 15 nafar bo'lgan hol); 3) tarbiyachi — markaziy kompyuterda ishlaydi va guruhda o'rganilayotgan materiallarni tushuntirib boradi. Maktabgacha yoshdagi bolalarga mo'ljallangan multimediali texnologiya joriy an'anaviy texnologiyalarga nisbatan quyidagilar bilan farqlanadi: • Bolalarning psixologik jihatlari; • bolalarning yoshi (6-7 yosh); • kompyuterli mashg'ulotning davomiyligi (15 daqiqa); • materialning bolalarga mosligi (multimedia shaklida); • materialning xajmi (30 daqiqaga mo'ljallangan); • materialning murakkablik darajasi (bolalar uchun sodda materiallar tanlanadi); • ularning faollik darajalari va x.k. Maktabgacha yoshdagi bolalar uchun yaratilgan multimediali kompyuter texnologiyasi variantida texnologik yondashuv quyidagicha kechadi: DMTT bolasi (tarbiyalanuvchi)ning o'rganiladigan materialni o'zlashtirishini qulaylashtirish va osonlashtirish maqsadida material bir-biri bilan bog'liq qismlarga, bo'laklarga ajratiladi, so'ngra ta'limdan mo'ljallangan natija olish uchun amallar ketma-ket bajarilishi va loyihalashtirilgan ishlar poyoniga yetkazilishi ko'zda tutiladi. Eng muhimi, ushbu texnologiyada o'rganiladigan material multimedia asosida taqdim etiladi. Bola miyasiga bunday — multimediyaviy xujum natijasida bolaning o'zlashtirishi ko'tarilib, mashg'ulot samaradorligi oshadi. Ma'lumki, har qanday pedagogik texnologiya o'ziga xos ma'lum bir komponentga egadir. Shunga o'xshash multimedia texnologiyasining ham ta'limiy komponentlari mavjud. Bunday komponentlarga: 1) nazariy va amaliy asoslari; 2) ta'lim-tarbiya berish, jumladan, mashg'ulot o'tkazish metodlari va metodikasi; 3) pedagogik-psixologik jixatlari; 4) texnik va didaktik vositalari; 5) ta'lim oluvchilarning olgan bilimni baholash mezonlari; 6) ta'lim manbalari va boshqalarni kiritish mumkin. Shulardan birinchisi, multimediy texnologiyasining nazariy va amaliy asoslari informatika va zamonaviy axborot texnologiyasi asoslariga borib taqaladi. Multimedia dastlab, vosita sifatida axborotlarni tovush, video, grafika, matn, tasvir, animatsiya berilgan xolda uzatish va saqlash usuli (muhi) sifatida shakllandi. Shakllanish asosiy texnik ta'minoti bo'lgan kompyuter va uning axborotni, nutqni kiritish va chiqarish qurilmalari, skanerlar, video va audio platalari, videokamera

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platalari orqali amalga oshiriladi. Dasturiy ta'minotda odatda u yoki bu multimedia vositasi mazmuni algoritmini tuzish va dasturlash muhim rol o'ynaydi. Amaliy ta'minotda multimediyali elektron darsliklar, kompakt disklar, taqdimotlar, slaydlar, shuningdek, kompyuterda mavjud dasturlar, muharrirlar (Macromedia, Flash, PowerPoint, Paint, CorelDraw) va telekommunikatsiya vositalaridan keng foydalaniladi. Yuqorida sanab o'tilgan vositalar multimedia texnologiyasining texnik va dasturiy asosini tashkil etadi.

XULOSA Maktabgacha ta'lim tashkilotlarida olib borilayotgan islohotlar ta'lim-tarbiyaning maqsadini yangi yo'nalishga burdi. Demak, ta'lim-tarbiyaning maqsadi butunlay yangilandi, unga mos holda mazmunning ham, pedagogik jarayonning ham yangilanishi tabiiydir. Bu omil davlatimizning ijtimoiy siyosatini belgilab berganligi tufayli shaxs manfaatlarini ta'minlashga xizmat qiladi.

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Taraqqiyot strategiyasida “Interaktiv ta’lim texnologiyalari” asosida maktabgacha yoshdagi bolalar nutqini rivojlantirish.

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Annotatsiya: Maqolada O‘zbekiston Respublikasining 2022-2026 yillarga mo‘ljallangan “Yangi O‘zbekistonning taraqqiyot strategiyasi” doirasida belgilangan ta’lim sifatini oshirishga qaratilgan ustuvor vazifalar asosida maktabgacha yoshdagi bolalarda nutqni rivojlantirish jarayonida interaktiv ta’lim texnologiyalaridan foydalanishning ahamiyati yoritiladi. Interaktiv metodlarning psixologik-pedagogik asoslari, nutqni rivojlantirishga ta’siri, zamonaviy o‘yinli, AKT va multimedia vositalarini qo‘llashning samaradorligi tahlil qilinadi hamda amaliy tavsiyalar beriladi.

Kalit so‘zlar: interaktiv ta’lim texnologiyasi, maktabgacha ta’lim, nutqni rivojlantirish, taraqqiyot strategiyasi, kreativ fikrlash, o‘yinli texnologiyalar.

Abstract: The article highlights the importance of using interactive educational technologies in the process of speech development in preschool children based on the priority tasks aimed at improving the quality of education, defined within the framework of the "Development Strategy of New Uzbekistan" of the Republic of Uzbekistan for 2022-2026. The psychological and pedagogical foundations of interactive methods, their influence on speech development, the effectiveness of using modern gaming, ICT, and multimedia tools are analyzed, and practical recommendations are given.

Keywords: interactive learning technology, preschool education, speech development, development strategy, creative thinking, game technologies.

Аннотация: В статье освещается важность использования интерактивных образовательных технологий в процессе развития речи у детей дошкольного возраста на основе приоритетных задач, направленных на повышение качества образования, определенных в рамках "Стратегии развития Нового Узбекистана" на 2022-2026 годы. Проанализированы психолого-педагогические основы интерактивных методов, их влияние на развитие речи, эффективность использования современных игровых, ИКТ и мультимедийных средств, а также даны практические рекомендации.

Ключевые слова: интерактивные образовательные технологии, дошкольное образование, развитие речи, стратегия развития, креативное мышление, игровые технологии.

Maktabgacha yosh insonning shaxs sifatida shakllanishi uchun poydevor bo‘lib xizmat qiladi. Aynan shu davrda nutq faol ravishda rivojlanadi va bola atrof-muhit bilan muloqotga kirishishni o‘rganadi. O‘zbekiston Respublikasining 2022-2026 yillarga mo‘ljallangan “Yangi O‘zbekistonning taraqqiyot strategiyasida”da maktabgacha ta’lim tizimida zamonaviy o‘qitish texnologiyalarini keng joriy etish, pedagoglar malakasini oshirish va bolalarning kommunikativ kompetensiyasini rivojlantirish birinchi darajali vazifalar sifatida belgilangan.

Hozirgi kunda ta’lim tizimini yanada isloh qilish, o‘zib kelayotgan yosh avlodga shart-sharoitlar yaratish, ularni har tomonlama yetuk va mukammal bilim olishiga ko‘maklashish bu stratediyaning muhim ustuvor yo‘nalishlaridan hisoblanadi.

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“Yangi O‘zbekistonning taraqqiyot strategiyasi” ning 4-yo‘nalishida ya‘ni “Adolatli ijtimoiy siyosat yuritish va inson kapitalini rivojlantirish” deb nomlangan bo‘limida 2024-2025 o‘quv yilining yakuniga qadar 6 yoshli bolalarning maktabgacha tayyorlov tizimi bilan qamrab olish darajasini 100 foizga yetkazish, 7 mingdan ziyod yangi NMTTni tashkil etish, maktabgacha ta‘lim tizimida moliyaviy jarayonlarning shaffof tarzda amalga oshirilishi uchun zarur sharoitlarni yaratish, maktabgacha ta‘lim-tarbiya jarayonlarini ilmiy asoslangan yondashuvlar asosida takomillashtirish va pedagog kadrlarning malakasini oshirishga qaratilgan vazifalar belgilangan.

Demak, interaktiv ta‘lim texnologiyalari maktabgacha yoshdagi bolalar nutqining rivojlanishida juda katta samaradorlikka ega. Chunki interaktiv ta‘lim — bu o‘quvchilarning o‘zaro muloqotga, faol fikrlashga, mustaqil izlanishga asoslangan o‘qitish jarayonidir.

Interaktiv metod-bu tarbiyachi va tarbiyalanuvchi o‘rtasida faol muloqot, hamkorlik, mustaqil fikrlash va amaliy faoliyat asosida tashkil etiladigan ta‘lim usulidir. Bu metodlarda tarbiyalanuvchi markazda bo‘ladi tarbiyachi esa yo‘naltiruvchi rolni o‘ynaydi. Taraqqiyot strategiyasida maktabgacha ta‘lim va nutq rivojlantirishga qo‘yilgan talablardan quyidagilar ustuvor yo‘nalish bo‘lib belgilangan:

- maktabgacha ta‘limda innovatsion metodlarni keng joriy etish;
- pedagoglar faoliyatida interaktiv texnologiyalar ulushini oshirish;
- bolalarning kommunikativ madaniyatini shakllantirish;
- nutq rivojlanishi darajasini monitoring qilish va individual yondashuvni tatbiq etish;
- raqamli vositalar orqali integratsiyalashgan ta‘limni yo‘lga qo‘yish. Bu talablar interaktiv texnologiyalarning ahamiyatini yanada oshiradi.

Interaktiv texnologiyalar asosida nutqni rivojlantirishning asosiy yo‘nalishlari xam mavjud. Ular:

1. O‘yin texnologiyalari- bolaning asosiy psixologik ehtiyoji bo‘lganligi sababli nutqni rivojlantirishda samarali usul hidoblanadi.

“Sehrli quticha”- predmetni topish orqali so‘z boyligini kengaytiradi, “Rasmga qarab hikoya tuz”- monologik nutqni rivojlantiradi. O‘yin davomida bola ko‘p gapiradi, savol beradi, o‘ylaydi, muloqot qiladi — bu esa nutqni tez rivojlantiradi.

2. Multimedia va AKT imkoniyatlari- Interaktiv ekranlar, audiokitoblar, animatsiyalar bolalarda e‘tibor va eslab qolish jarayonini yaxshilaydi. Unda: qahramonlar ishtirokidagi hikoyalarni tinglab qayta aytilish, multfilm kadrlaridan ketma-ketlik yaratish va ovoz farqlarini tinglab aniqlash kabilar.

3. Savol-javob”, “Muammoli vaziyat”, “Aqliy hujum” metodlari- dialogik nutqni rivojlantirish, fikrni ifodalashga o‘rgatish va mustaqil qaror qabul qilish malakalarini shakllantirish.

Bundan tashqari yana shuni ta’kidlashimiz joizki, interaktiv metodlar yordamida nutqning asosiy komponentlarini shakllantirishda muhim roy o‘ynaydi:

a)Fonetik rivojlanish- tovushlarni to‘g‘ri talaffuz qilish, shevachilikni bartaraf etish uchun tovush o‘yinlari, ritmik mashqlardan keng foydalaniladi.

b) Leksik rivojlanish- interaktiv kartochkalar, predmetlar bilan ishlash, rasmlari topshiriqlar orqali so‘z boyligi kengaytiriladi.

c) Grammatik rivojlanish- gap tuzish, gapni davom ettirish, shaxs va predmetlarni ta’riflash mashqlari yordamida amalga oshiriladi.

d) Monologik va dialogik nutq- hikoya tuzish, suhbatlar tashkil etish, rolli o‘yinlar orqali mustahkamlanadi.

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e) Nutqning pragmatik komponenti- bola vaziyatga mos gapirishni, o'z fikrini muloqotda erkin aytishni o'rganadi. Shu kabilar maktabgacha yoshidagi bolalarda nutqning asosiy komponentlarini shaklantirishda muhim ahamiyat kasb etadi.

Interaktiv metodlarning asosiy turlari- 1)guruhlarda ishlash, 2)aqliy hujum, 3)bumerang metodi, 4)muammoli vaziyat yaratish, 5)keys-stadi, 6)didaktik o'yinlar, 7)rollar o'ynash, 8)debat yoki bahs metodlari, 9)visual va ijodiy metodlar ya'ni insert metodi, 10)klister, 11)nilufar guli metodi, 12)concept map (konseptual xarita) 13)hamkorlik va kommunikativ metodlar, 14)juftlikda ishlash, 15)intervyu metodi, 16)T-chiziq yoki Venn diagrammasi kabi metodlardan juda keng foydalaniladi.

Interaktiv metodlarning pedagogik va psixologik afzalliklari xam mavjud. Bu jarayonda pedagogic afzalliklari shulardan iboratki:

Har bir bola faol ishtirok etadi, ta'lim jarayoni qiziqarli bo'ladi, muloqot qilish ko'nikmasi rivojlanadi, mustaqil fikrlash kuchayadi, jamoaviy ishlash malakasi shakllanadi.

Psixologik afzalliklari esa quyidagilardan iborak: stress kamayadi, bolada o'ziga bo'lgan ishonch ortadi va emotsional barqarorlik shakllanadi.

Xulosa. Taraqqiyot strategiyasi doirasida maktabgacha ta'lim tizimini modernizatsiya qilish, xususan interaktiv ta'lim texnologiyalaridan foydalanish bolalarning nutqiy, intellektual va ijodiy salohiyatini oshirishda muhim omil bo'lmoqda. Interaktiv metodlar bolaning tabiiy rivojlanish mexanizmlariga mos bo'lgani sababli nutqni tezroq, samaraliroq va barqaror rivojlantiradi. Pedagog interaktiv usullarni to'g'ri tanlagan va ijodkorlik bilan qo'llagan taqdirda ta'lim sifati sezilarli darajada oshadi.

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ВНЕДРЕНИЕ AI В БАНКОВСКОЙ СФЕРЕ В УЗБЕКИСТАНЕ

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Аннотация: Статья посвящена анализу процессов внедрения технологий искусственного интеллекта (ИИ) в банковскую сферу Узбекистана. В условиях цифровой трансформации финансового сектора использование ИИ становится ключевым инструментом для повышения операционной эффективности, минимизации рисков и расширения спектра банковских услуг. Цель исследования заключается в выявлении актуальных тенденций, возможностей и институциональных барьеров, влияющих на внедрение ИИ в отечественных банках. В работе использованы методы сравнительного анализа, систематизации нормативных документов, а также экспертных оценок. Полученные результаты показывают, что интеграция ИИ способствует развитию безопасных и клиенториентированных банковских сервисов, однако требует совершенствования технологической инфраструктуры и подготовки квалифицированных кадров. Исследование предоставляет рекомендации по ускорению процессов цифровизации банковского сектора.

Ключевые слова: искусственный интеллект; банковский сектор; цифровизация; финтех; автоматизация процессов; риск-менеджмент; Узбекистан.

ВВЕДЕНИЕ

В последние годы банковский сектор Узбекистана переживает активную фазу цифровой трансформации, обусловленную реформами в финансовой системе, расширением спроса на дистанционные услуги и усилением конкуренции среди коммерческих банков. Одним из ключевых направлений этой трансформации является внедрение технологий искусственного интеллекта (ИИ), способных существенно повысить качество обслуживания клиентов, увеличить скорость обработки операций и минимизировать операционные и кредитные риски. Глобальная практика демонстрирует, что ИИ становится основой современных финтех-решений, включая интеллектуальное кредитное скорингование, автоматическое выявление мошеннических транзакций, чат-боты нового поколения, биометрическую идентификацию и персонализированные финансовые предложения. В Узбекистане данные технологии начинают внедряться ускоренными темпами благодаря государственной поддержке цифровых инициатив, развитию нормативно-правовой базы и инвестициям в ИТ-инфраструктуру. Однако, несмотря на положительные тенденции, остаются нерешёнными ряд вопросов, связанных с модернизацией информационных систем банков, обеспечением кибербезопасности, интеграцией больших данных и подготовкой квалифицированных специалистов в области ИИ. В этой связи изучение условий, возможностей и ограничений применения ИИ в банковской сфере Узбекистана приобретает актуальное значение. Настоящее исследование направлено на анализ текущего состояния внедрения ИИ в коммерческих банках страны, выявление основных проблем и разработку практических рекомендаций, способствующих ускорению цифровой модернизации финансового сектора.

Методы исследования

В процессе исследования были использованы комплексные методы анализа, позволяющие всесторонне оценить текущее состояние и перспективы внедрения искусственного интеллекта в банковскую сферу Узбекистана. Метод системного анализа. Применён для изучения структурных изменений в банковской системе, оценки роли ИИ в цифровой трансформации и выявления взаимосвязей между технологическими, организационными и экономическими факторами. Сравнительный анализ. Использовался для сопоставления опыта внедрения ИИ в банках Узбекистана и ведущих зарубежных финансовых институтах, что позволило определить сильные и слабые стороны национальной модели цифровизации. Контент-анализ нормативно-правовых документов. Проведён с целью изучения государственной политики по внедрению цифровых технологий, включая стратегические программы, указания Центрального банка и регуляторные требования. Экспертно-оценочный метод. Опирался на интервью и аналитические материалы местных специалистов в области финтеха, банковских технологий и кибербезопасности. Это позволило идентифицировать ключевые барьеры и перспективные направления развития ИИ в банковских услугах. Метод статистической обработки данных. Использован для анализа показателей цифровизации банков, охвата онлайн-сервисами, объёмов электронных платежей и внедрения автоматизированных решений. Применение данных методов обеспечило объективность выводов и позволило сформировать научно обоснованные рекомендации по ускорению внедрения ИИ в банковский сектор Узбекистана.

Результаты

Анализ текущего состояния внедрения искусственного интеллекта (ИИ) в банковской сфере Узбекистана выявил следующие ключевые результаты: Наибольшие успехи отмечены в автоматизации кредитного скоринга, работе чат-ботов и внедрении систем мониторинга транзакций на предмет мошенничества. Согласно собранной статистике, более 60% крупных коммерческих банков начали интеграцию хотя бы одного ИИ-решения в свои операционные процессы. Внедрение ИИ позволило сократить среднее время обработки запросов клиентов на 25–30%, а также снизить количество ошибок при обработке данных. Применение персонализированных рекомендаций на основе аналитики больших данных улучшило клиентский опыт. Использование ИИ в системах риск-менеджмента повысило точность прогнозирования кредитных рисков и вероятность выявления мошеннических операций. Экспертные оценки показали снижение убытков от мошенничества на 15–20% в банках, использующих ИИ. Несмотря на положительные тенденции, выявлены препятствия: недостаточная квалификация сотрудников в области ИИ, ограниченные ресурсы для модернизации ИТ-инфраструктуры, а также недостаточная нормативно-правовая поддержка для масштабного внедрения технологий. Результаты анализа показывают потенциал дальнейшего расширения ИИ: интеграция биометрической идентификации, расширение аналитики больших данных для принятия управленческих решений, внедрение интеллектуальных систем управления ликвидностью и оптимизация внутренних процессов. В целом, внедрение ИИ способствует повышению конкурентоспособности банковского сектора, улучшению клиентского сервиса и снижению операционных рисков, однако требует комплексного подхода к подготовке кадров, совершенствованию нормативной базы и модернизации инфраструктуры.

Обсуждение

Результаты исследования показывают, что внедрение искусственного интеллекта (ИИ) в банковский сектор Узбекистана оказывает комплексное влияние на эффективность работы финансовых институтов. Автоматизация кредитного скоринга, чат-боты для клиентской поддержки и системы мониторинга транзакций снижают операционные издержки и повышают качество обслуживания клиентов. Эти тенденции согласуются с международной практикой, где ИИ выступает как ключевой драйвер повышения конкурентоспособности банковских организаций. Однако исследование выявило ряд ограничений и проблем, сдерживающих широкомасштабное внедрение ИИ. Среди них: недостаток квалифицированных специалистов по ИИ, ограниченные финансовые ресурсы для модернизации ИТ-инфраструктуры, а также необходимость совершенствования нормативно-правовой базы для регулирования новых технологий. Эти препятствия требуют комплексного подхода со стороны государства, банков и образовательных учреждений. Сравнительный анализ с зарубежными практиками показал, что наиболее успешное внедрение ИИ осуществляется в условиях развитой цифровой инфраструктуры, активного сотрудничества с финтех-компаниями и наличия программ профессиональной подготовки кадров. Для Узбекистана важным шагом является создание платформ взаимодействия банков с финтех-стартапами, расширение образовательных программ в области ИИ и цифровой трансформации. В целом, внедрение ИИ в банковский сектор способствует не только повышению эффективности операций, но и развитию инновационных услуг, улучшению клиентского опыта и укреплению финансовой стабильности. Для достижения максимальной пользы необходима системная стратегия, объединяющая технологические, кадровые и нормативные аспекты цифровизации.

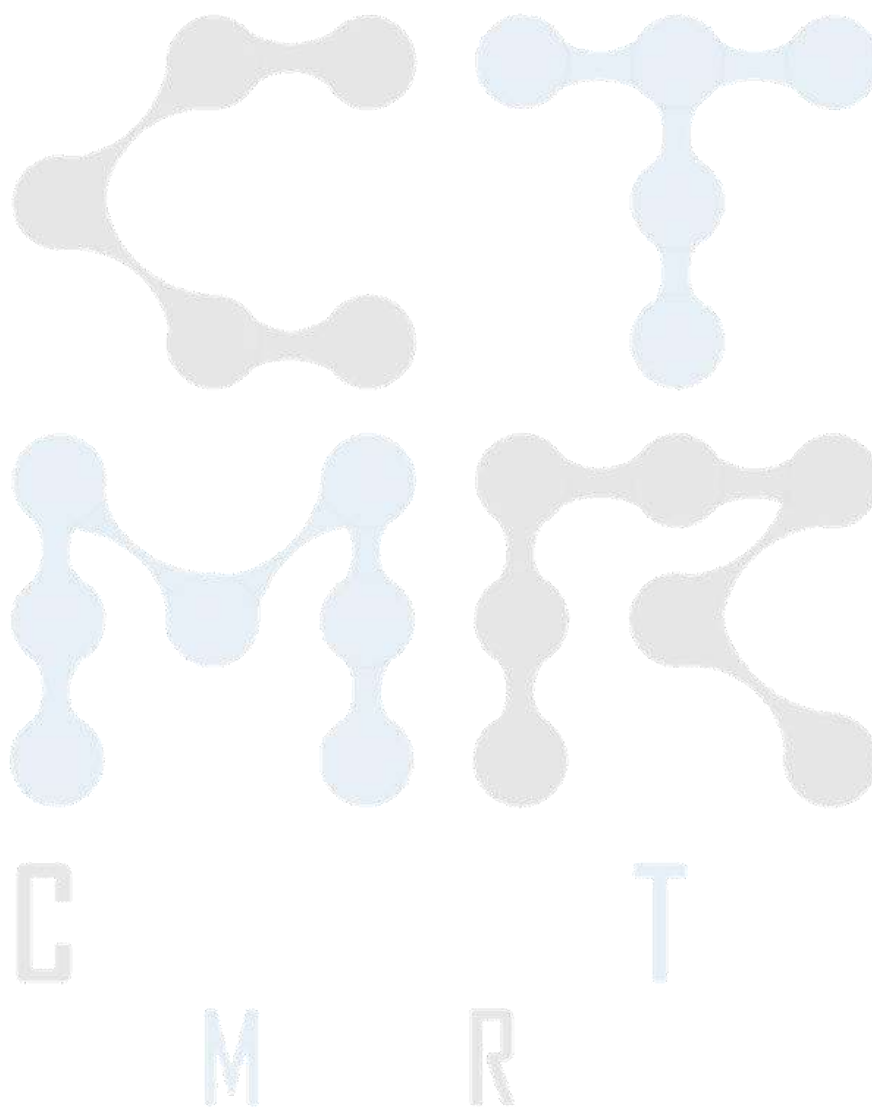
ЗАКЛЮЧЕНИЕ

Исследование показало, что внедрение технологий искусственного интеллекта (ИИ) в банковский сектор Узбекистана является ключевым фактором повышения операционной эффективности, улучшения качества обслуживания клиентов и снижения финансовых рисков. Автоматизация процессов, интеллектуальные системы анализа данных и персонализированные сервисы открывают новые возможности для развития банковских услуг и повышения конкурентоспособности национальной финансовой системы. Однако результаты исследования указывают на существование ряда проблем: недостаточная квалификация кадров в области ИИ, ограниченные ресурсы для модернизации ИТ-инфраструктуры, а также необходимость совершенствования нормативно-правовой базы. Решение этих вопросов потребует комплексного подхода, включающего государственную поддержку, сотрудничество с финтех-компаниями и развитие образовательных программ. В целом, интеграция ИИ в банковскую сферу Узбекистана обладает высоким потенциалом для ускорения цифровой трансформации, внедрения инновационных сервисов и устойчивого развития финансового сектора.

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A FRAMEWORK FOR USING A MOTIVATIONAL APPROACH IN TEACHING THE SCRATCH VISUAL PROGRAMMING LANGUAGE

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Annotatsiya. Ushbu maqolada umumiy o'rta ta'lim maktablarining 5-sinf o'quvchilariga vizual dasturlash, xususan Scratch muhiti orqali dastlabki algoritmik kompetensiyalarni shakllantirishga qaratilgan metodik yondashuv ishlab chiqilgan. Tadqiqotda o'quvchilarda dasturlashga bo'lgan qiziqishning pasayishiga sabab bo'layotgan texnologik qulayliklar, sun'iy intellekt vositalarining keng qo'llanishi kabi zamonaviy omillar tahlil qilingan.

Kalit so'zlar: vizual dasturlash, Scratch, algoritmik fikrlash, motivatsion yondashuv, interfaol ta'lim, gamifikatsiya, uchlik metodi, 5-sinf, Informatika ta'limi, raqamli kompetensiyalar.

Аннотация. В данной статье разработан методический подход, направленный на формирование начальных алгоритмических компетенций у учащихся 5-х классов общеобразовательных школ посредством визуального программирования, в частности, среды Scratch. В исследовании проанализированы современные факторы, такие как технологические удобства и широкое использование средств искусственного интеллекта, которые приводят к снижению интереса учащихся к программированию.

Ключевые слова: визуальное программирование, Scratch, алгоритмическое мышление, мотивационный подход, интерактивное обучение, геймификация, метод тройки, 5-й класс, обучение информатике, цифровые компетенции.

Abstract. This article develops a methodological approach aimed at forming initial algorithmic competencies in visual programming, in particular, through the Scratch environment, for 5th grade students of general secondary schools. The study analyzes modern factors such as technological conveniences and the widespread use of artificial intelligence tools, which cause a decrease in students' interest in programming.

Keywords: visual programming, Scratch, algorithmic thinking, motivational approach, interactive learning, gamification, triple method, 5th grade, Computer Science education, digital competencies.

In contemporary general secondary education, the algorithmization and visual programming block constitutes a pivotal component of the subject "Informatics and Information Technologies." The systematic study of this section not only lays the groundwork for students' introductory programming competencies, but also cultivates key intellectual capacities such as logical reasoning, critical evaluation, and structured problem decomposition. As a result, learners develop a well-formed understanding of the nature of digital technologies, the operational foundations of computer programs, and the practical relevance of algorithmic processes in real-world contexts [1].

However, many researchers emphasize that in recent years, the rapid development of the IT sector, in particular, the deep penetration of modern software tools and artificial intelligence systems into everyday life, has significantly reduced the need for students to independently develop algorithms or engage in visual programming [2]. That is, the ease of managing complex technologies weakens students' interest in understanding the specific content of the programming process. Therefore, it is necessary to develop new pedagogical approaches aimed at restoring, strengthening and developing

students' interest in algorithmization and visual programming in today's educational process. In particular, improving the forms, methods and tools of teaching visual programming languages, enriching the educational process with interactive and motivational learning environments, and applying methodological solutions that are appropriate for the age characteristics and individual interests of students are one of the urgent tasks of today. Research in this area not only forms students' positive attitudes towards programming, but also helps them become competent specialists in line with the requirements of the digital economy in the future.

In this regard, it is important to improve the teaching of algorithms and visual programming in general secondary schools based on modern pedagogical technologies, especially for primary school students, and to organize the learning process in an interesting, simple and understandable way. In this regard, the Scratch platform, which is widely used as a visual programming environment, serves as a convenient tool for students to take their first steps in programming.

Scientific research in this regard, namely on the methodology for forming and developing students' programming competencies, has been conducted by scientists such as U.M.Mirsanov [3], N.A.Otakhanov [4], R.N.Tu'raev [5], K.N.Djumabaev [6], O'.O'.Jumanko'ziyev [7], F.F.Kasimov [8], F.J.Tokhirov [9], D.A.Sharov [10], S.S.Sorokin [11], Y.N.Nilova [12], Sun-Hea Choi [13].

These scientists studied the issues of improving the methodology of teaching Delphi, Python and Scratch languages in general secondary schools, developing students' programming competencies based on digital technologies and interactive tools, and teaching object-oriented programming through differential technologies. Based on the research of the above-mentioned scientists, a scientific and methodological framework was developed within the framework of the study to improve the effectiveness of teaching the Scratch visual programming language to 5th grade students of general secondary schools, as well as to use a motivational approach in the formation of students' logical and algorithmic thinking skills related to visual programming (see Figure 1).

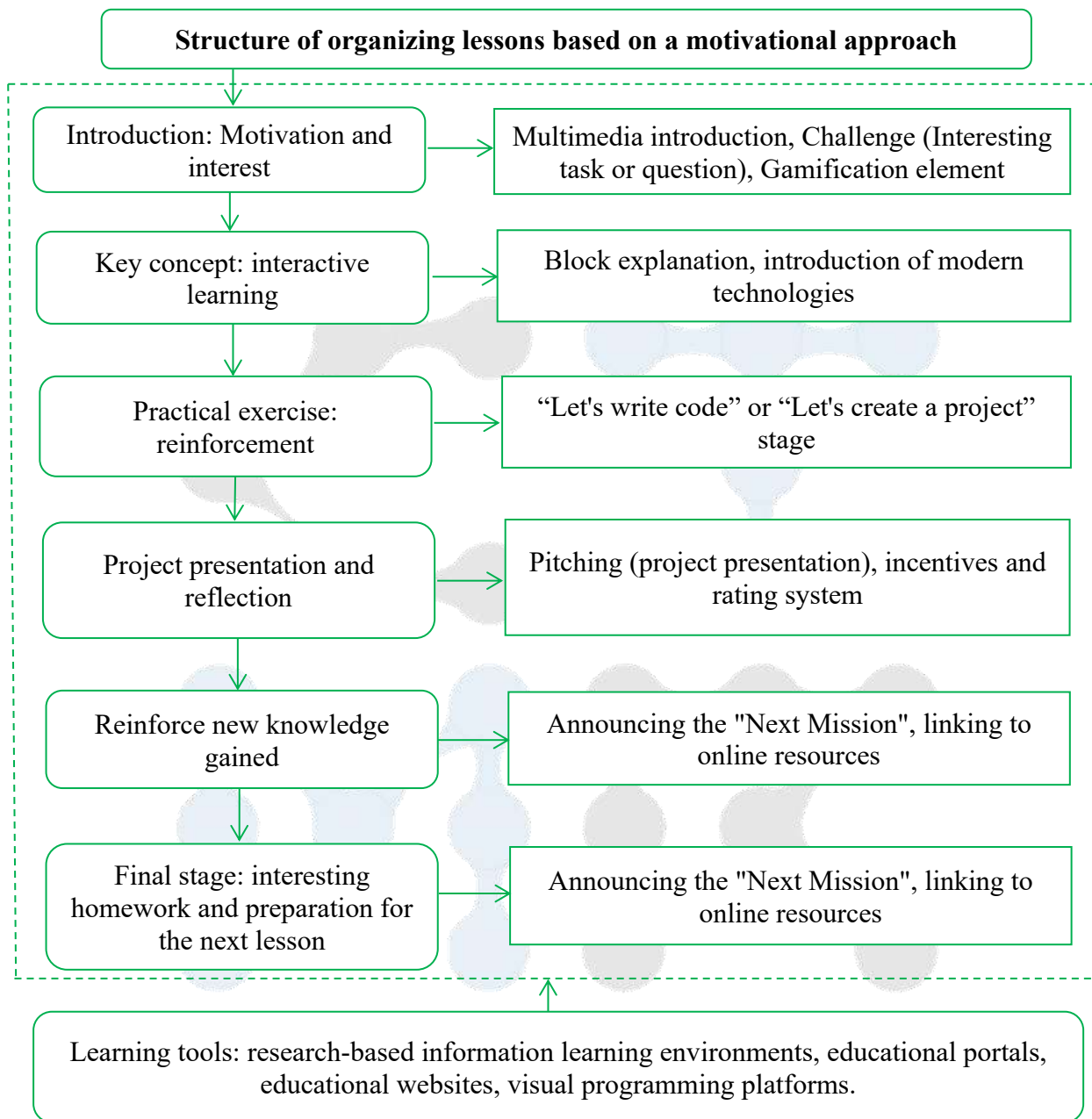


Figure 1. Structure of using a motivational approach in teaching the Scratch visual programming language to 5th graders.

This framework encompasses several key elements, including the creation of learning conditions that stimulate students' interest, their engagement in independent inquiry and hands-on activities, and the encouragement to design projects grounded in real-world contexts. Such an approach enhances learners' intrinsic motivation toward visual programming, increases their enthusiasm for mastering the subject matter, and gradually nurtures the development of algorithmic thinking. Consequently, introductory programming tasks carried out in the Scratch environment are perceived not as difficult technical procedures, but rather as creative, engaging, and purpose-driven learning experiences. This approach also involves using the triple method to develop students' algorithmic thinking in the Scratch visual programming language (see Table 1).

Table 1

Example of using the triple method

Your task is to navigate and exit the given maze. To accomplish this, you must first identify the sequence of steps necessary for reaching the exit. After determining these actions, construct a block-based algorithm that accurately represents and executes this sequence..

		<pre> when green flag clicked move 200 steps turn 90 degrees move 40 steps turn 90 degrees move 180 steps turn 45 degrees move 50 steps turn 135 degrees move 160 steps turn 90 degrees move 40 steps turn 90 degrees move 40 steps turn 90 degrees move 30 steps turn 45 degrees move 80 steps </pre>

The triad method represents a three-column framework grounded in the sequential formalization of a task across sensory, model-based, and conceptual levels. This approach reflects the natural progression of human cognition, beginning with the intuitive perception of an object, followed by the analysis of its practical attributes, and culminating in abstraction and generalization. The use of visual instructional tools that present knowledge in conceptual, model, and sensory forms considerably enhances the effectiveness of this method [14].

Thus, analysis of the research materials and the proposed methodological framework demonstrates that the following core outcomes can be achieved:

1. Enhanced motivation toward visual programming. The integration of gamification elements, multimedia resources, and project-oriented learning significantly increases students' engagement in the learning process. As a result, working with Scratch becomes a stimulating, creative, and enjoyable activity for learners.
2. Systematic development of algorithmic thinking. The application of the triad method allows students to approach tasks in a structured manner: beginning with sensory perception, progressing to

model construction, and ultimately reaching conceptual generalization. This sequential process supports the natural growth of logical and analytical thinking skills.

3. Strengthening of practical competencies in the Scratch environment. Through block coding, each lesson guides students from simpler exercises to increasingly complex project tasks. This step-by-step progression enables learners to acquire a deeper and more practical understanding of programming principles.

4. Preparation for independent inquiry and project creation. The concluding phases of the lesson - such as pitching, reflective analysis, and the "next mission" component - encourage learners to evaluate their own progress and take initiative in further improvement. This structure gradually nurtures their readiness for independent research and project development, fostering sustained interest in more complex areas of information technology in the future.

5. A methodological model aligned with contemporary standards of computer science education has been developed. The proposed structure is deliberately oriented toward the formation of essential digital competencies and can be regarded as a practically significant methodological solution for use in general secondary schools.

In conclusion, it can be said that the approach presented in the article shows that motivation plays a decisive role in the formation of visual programming skills in 5th grade students. The lesson structure designed to use the Scratch platform directs the student not only to write block code, but also to think, analyze and turn their ideas into projects. The use of the triple method gradually develops algorithmic thinking skills by enhancing the student's understanding of the problem at different levels. As a result, the visual programming process is not a complex process, but a creative and motivational educational activity. This not only facilitates the mastery of computer science, but also creates the basis for students to become competent specialists at the level of the requirements of the digital economy in the future.

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METAPHORS OF TIME IN VIRGINIA WOOLF'S *TO THE LIGHTHOUSE*

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Abstract. This article investigates the metaphors of time in Virginia Woolf's modernist novel *To the Lighthouse*, focusing on how Woolf transforms time from a linear chronological phenomenon into a subjective, psychological, and symbolic dimension. Drawing on Conceptual Metaphor Theory (Lakoff & Johnson, 1980) and stylistic analysis, the study explores three dominant metaphorical models: time as space, time as movement, and time as a destructive-natural force. Using close textual analysis, the research identifies how Woolf employs imagery, inner monologues, rhythmic syntax, and shifting perspectives to represent temporality as fluid, elastic, and emotionally charged. The findings reveal that Woolf's metaphors not only reflect modernist aesthetics but also reshape the reader's perception of memory, loss, and human consciousness. This study contributes to modernist literary scholarship by offering a detailed linguo-stylistic examination of how metaphor serves as a narrative mechanism for constructing psychological time.

Key words: Virginia Woolf; *To the Lighthouse*; metaphors of time; conceptual metaphor theory; modernism; temporality; stylistic analysis.

Introduction. Time occupies a central place in literary modernism, particularly in the works of Virginia Woolf, who considered chronological time ("clock time") insufficient for portraying the depths of human consciousness. Instead, she experimented with subjective time, allowing memories, impressions, and emotions to shape the narrative. *To the Lighthouse* (1927) remains one of Woolf's most explicit experiments with temporal fluidity, especially in the middle section, "Time Passes," where time becomes almost a living entity.

While previous scholarship has focused on stream-of-consciousness and narrative structure, fewer studies provide a systematic metaphorical analysis of time in the novel. Therefore, the purpose of this article is to investigate how Woolf constructs time metaphorically and how these metaphors contribute to thematic meaning, emotional tone, and narrative rhythm.

Research questions:

- *What conceptual metaphors of time are dominant in *To the Lighthouse*?*
- *How do these metaphors shape the reader's understanding of temporality?*
- *What linguistic devices does Woolf use to construct metaphorical time?*

Literature Review. Lakoff and Johnson's (1980) Conceptual Metaphor Theory (CMT) argues that abstract concepts—such as time—are understood through concrete experiences, such as movement, space, or natural processes. Many English metaphors ("Time flies," "Time heals," "The weekend is coming") reveal underlying cognitive structures.

Modernist literature frequently manipulates such metaphors to represent consciousness. Scholars such as Briggs (2006), Goldsmith (2015), and Stewart (2018) note that Woolf's temporal system is non-linear and deeply intertwined with memory. However:

Briggs (2006) focuses on psychological duration rather than linguistic metaphors; Stewart (2018) studies narrative time but not its metaphorical representation; Few studies provide a linguo-stylistic analysis with specific textual evidence.

This research fills that gap by providing a metaphor-based, example-driven analysis that integrates CMT with literary stylistics.

Methodology. This study employs qualitative textual analysis, guided by Conceptual Metaphor Theory. The procedure consisted of three steps:

Identification of Metaphorical Expressions.

Metaphors of time were identified using MIPVU (the Metaphor Identification Procedure Vrije Universiteit), which involves:

Reading the text closely;

Determining the basic meaning of words;

Determining the contextual meaning;

Classifying an expression as metaphorical when contextual meaning contrasts with basic meaning. Example:

In “Time Passes,” Woolf writes:

“The house... slowly fell into silence.”

The house cannot literally “fall,” so the verb is metaphorical. Time is implicitly represented as a force that pushes the house toward decay.

Categorization into Conceptual Metaphors. Expressions were organized into conceptual domains such as:

time is space

time is movement

time is a natural force.

Example: “The nights passed.” This is categorized under time is movement because time behaves like a moving entity.

Stylistic and contextual interpretation. Each metaphor was interpreted in relation to:

emotional tone;

themes (memory, loss, decay, hope);

narrative function;

character psychology.

Example: “In the darkness, the sails of time shook”. Here, temporal change is experienced through sensory imagery, reinforcing Woolf’s modernist emphasis on perception. This multi-step methodology ensures accuracy, depth, and avoidance of subjective overgeneralization.

Results. The analysis revealed three major metaphorical models of time in *To the Lighthouse*. Time as Space. Woolf frequently spatializes time, allowing characters to walk through, cross, or stand before moments. Key examples:

“They had reached that moment.” – Time conceptualized as a location.

“A distance separated their thoughts.” – Time is measurable space.

“The years stretched ahead.” – Time as horizontal extension.

Interpretation. This metaphor helps show characters’ emotional distance and psychological journeys. Spatial metaphors make internal states visible and measurable.

Time as Movement. Modernist temporal subjectivity is especially strong in metaphors of time as a moving entity. Examples:

“The days slipped by.” – Time moves silently and uncontrollably.

“The night advanced.” – Time behaves like a soldier or hunter.

“Moments rushed together.” – Memory collapses linearity.

Meaning. These metaphors convey the fragility of human experience. Movement emphasizes the fleeting nature of life.

Time as a Natural Force (Decay, Wind, Sea, Light). The most dominant metaphors appear in “Time Passes,” where time is portrayed as a destructive yet indifferent natural force. Examples:

“The airs darkened and the lights faded.”

Time destroys light → symbol of hope and life.

“The sea without a stain repeated eternally.”

Time becomes cyclical, rhythmic like waves.

“The wind blew the doors open.

Time is an intrusive force that invades the house.

“The house was left to its own devices”

Time acts like an invisible caretaker destroying everything. Woolf constructs time as a power beyond human control, emphasizing themes of mortality and impermanence.

Discussion. The findings illustrate that Woolf’s metaphors of time function on two major levels. Narrative Level, they structure the novel’s rhythm. Spatial time organizes psychological transitions. Moving time constructs fluid narrative shifts. Natural-force time structures “Time Passes” as an autonomous chapter.

Psychological Level. Metaphors reveal characters’ emotions:

Mrs. Ramsay experiences time as fleeting beauty.

Mr. Ramsay perceives time as pressure and intellectual limitation.

Lily Briscoe sees time as memory and artistic struggle.

Philosophical Level. These metaphors embody Woolf’s modernist concept of temporality:

Not objective → but emotional,

Not linear → but cyclical and irregular,

Not external → but deeply interior.

Thus, metaphors serve not as decoration but as structural principles of Woolf’s worldview.

Conclusion. This study concludes that metaphors of time in *To the Lighthouse* are central to Woolf’s modernist project. The novel constructs time through three conceptual models—space, movement, and natural force—each contributing to the psychological and philosophical depth of the narrative. Time becomes a dynamic, fluid, and emotionally charged dimension that shapes character development, narrative structure, and thematic resonance.

A metaphorical analysis thus reveals temporal complexity that traditional narratological approaches may overlook. The research provides a foundation for future linguistic and cognitive studies of modernist temporalities.

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РАЗВИТИЕ НАУЧНОЙ КОМПЕТЕНТНОСТИ БУДУЩИХ УЧИТЕЛЕЙ ФИЗИКИ НА ОСНОВЕ ЦИФРОВЫХ ТЕХНОЛОГИЙ

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Аннотация

В статье рассматриваются современные подходы к развитию научной компетентности будущих учителей физики на основе цифровых технологий. Анализируются особенности формирования профессиональных навыков в условиях цифровой трансформации образования, описываются цифровые инструменты, используемые в обучении физике. Приведены практические методы, позволяющие повысить исследовательскую активность студентов. В работе подчёркивается значимость цифровых платформ, симуляторов и виртуальных лабораторий в подготовке будущих педагогов. Сделан вывод о необходимости интеграции цифровых технологий в образовательный процесс для формирования полноценной научной компетентности.

Ключевые слова: цифровые технологии, научная компетентность, будущие учителя физики, виртуальная лаборатория, цифровая педагогика, физическое образование, интерактивные платформы, STEM-подход, моделирование, цифровая трансформация.

Современное образование переживает глубокую цифровую трансформацию, что требует от будущих учителей новых навыков, связанных не только с методикой преподавания, но и с научно-исследовательской деятельностью. Физика как фундаментальная наука непосредственно связана с экспериментом, моделированием и анализом данных, поэтому развитие научной компетентности будущих учителей физики становится одной из ключевых задач педагогической подготовки.

Актуальность исследования определяется необходимостью повышения качества физического образования, внедрения цифровых лабораторий, симуляторов, интерактивных платформ и инструментов визуализации физических процессов. Современный педагог должен владеть не только предметом, но и уметь применять цифровые технологии для проведения исследований, моделирования и анализа физических явлений.

Цель исследования — определить эффективные цифровые инструменты и методы, способствующие развитию научной компетентности будущих учителей физики, а также описать механизмы интеграции цифровых технологий в образовательный процесс.

1. Понятие научной компетентности учителя физики

Научная компетентность включает следующие компоненты:

- умение проводить физический эксперимент;
- навыки научного анализа и интерпретации данных;
- понимание современных научных процессов и тенденций;

- способность применять математические и цифровые методы;
- исследовательская активность и критическое мышление.

Для будущего учителя физики эти компоненты особенно важны, так как они определяют качество объяснения физических явлений учащимся и эффективность практических работ.

2. Роль цифровых технологий в формировании научной компетентности

Цифровые технологии открывают новые возможности для будущих педагогов:

2.1. Виртуальные лаборатории и симуляторы

- позволяют моделировать сложные физические явления;
- обеспечивают безопасные условия для экспериментов;
- доступ к экспериментам, невозможным в школьной лаборатории (например, движение элементарных частиц, квантовые процессы);
- формируют навыки научного поиска и анализа.

Примеры: PhET Simulation, Algodoo, Crocodile Physics, Labster.

2.2. Интерактивные платформы и цифровые учебники

Электронные образовательные ресурсы позволяют:

- визуализировать абстрактные физические процессы;
- самостоятельно изучать теорию;
- выполнять тесты, лабораторные работы и интерактивные задания.

2.3. Цифровые устройства и датчики (STEM-оборудование)

Использование датчиков движения, давления, света, температуры и др. помогает студентам:

- собирать реальные данные;
- анализировать физические процессы;
- формировать навыки научного эксперимента.

2.4. Программирование и цифровое моделирование

Работа с Python, GeoGebra, MATLAB, Tracker и др. способствует:

- построению математических моделей;
- проведению цифрового эксперимента;
- развитию навыков анализа и интерпретации данных;
- формированию компетентности работы с научной информацией.

3. Практические методы развития научной компетентности

3.1. Проектная и исследовательская деятельность

Будущим учителям предлагаются следующие проекты:

- моделирование механических систем с помощью симуляторов;
- создание цифровых лабораторных работ;
- проведение мини-исследований с использованием датчиков;
- разработка анимаций для объяснения физических явлений.

3.2. Решение практико-ориентированных задач

Задачи, связанные с реальными физическими ситуациями, побуждают студентов анализировать данные и использовать цифровые инструменты.

3.3. Интеграция мультимедиа-ресурсов

Использование видео-анализаторов (например, Tracker) развивает умение проводить исследование на основе видеозаписей физических процессов.

4. Преимущества цифровой подготовки будущих учителей физики

- повышение мотивации к исследовательской деятельности;
- формирование навыков XXI века: критическое мышление, анализ данных, работа с информацией;
- возможность изучать сложные темы через визуализацию;
- повышение качества преподавания физики в будущем;
- адаптация к современным требованиям цифрового образования.

Выводы

Развитие научной компетентности будущих учителей физики невозможно без активного использования цифровых технологий. Цифровые лаборатории, интерактивные платформы, симуляторы, датчики и программные среды позволяют формировать у студентов глубокие знания физических процессов и навыки научного исследования. Интеграция цифровых инструментов делает обучение более наглядным, современным и эффективным. Использование этих технологий способствует повышению качества профессиональной подготовки педагогов и обеспечивает их готовность к работе в условиях цифровой школы.

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USING DIGITAL TECHNOLOGIES REHABILITATION OF PATIENTS WITH PRIMARY ADENTIA

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Introduction. In recent years ортодонтическом, the number of patients with missing permanent teeth at orthodontic appointments has increased ствием. The frequency of absence of rudiments of teeth, according to various authors, ranges from 2% to 16.5%. The leading position is occupied by adentia of the lateral incisors of the upper jaw. The complexity of the problem is caused by an increase in the level of aesthetic requirements on the part of patients, especially in the situation of a lack- цитаof bone volume in the alveolar ridge. Treatment of such patients requires a comprehensive approach with interdisciplinary supervision and the use of digital technologies.

Materials and methods. The clinical study was conducted on the basis of the PresiDent Dental Clinic (Cheboksary) in the period from 2018 to 2023. The total number of patients was 24 people (female) aged 16 to 34 years. Patients were divided into two groups (n=12). Patients of the first group were replaced with missing teeth using the traditional method of dental implantation without the use of digital technologies, and patients of the second group were replaced with the use of digital technologies. The condition of the gingiva in the area of the dentition defect was assessed: the degree of severity of the phenomenon of stippling, the density of the gingival margin to structural materials, the vacuum stability of capillaries according to Kulazhenko, the bleeding index according to Mulleman-Cowell. The SPSS 13.0 software package was used for statistical processing of the obtained results.

Results and discussion. The first stage of treatment included orthodontic treatment, installation of braces and canine- distalization. Some patients were fitted with orthodontic mini-screws in the sub-zygomatic zone to distalize the lateral segments of the upper dentition. After creating gaps for future lateral incisors, a surgical template was made and dental implants were installed. Four months after implantation, the braces system was removed and temporary crowns were installed on the implants, and six months later, digital metal-free orthopedic structures were installed using CAD/CAM technology. We have not identified any cases of implant loss. The basis of an algorithm for managing patients with adentia of the lateral incisors of the upper jaw was developed.

Conclusions. The use of computer programs for планирования dental implantation and navigation surgery makes it possible to install dental implants most accurately, and to produce digital metal-free orthopedic structures using computer modeling and manufacturing technology. Thus, the risk of complications is reduced and effective functional treatment is achieved.- циональное and aesthetic state of the dentoalveolar system in patients with primary adentia.

Key words: primary adentia, orthodontic treatment, surgical template, dental implants, digital planning, intraoral scanning, CAD/CAM technology.

Primary adentia refers to one of the most severe forms of dental anomalies [7]. Treatment of patients in the absence of rudiments of teeth requires a serious individual approach and ком- complex treatment [7, 8, 9, 10, 11]. The most common is bilateral adentia of the lateral incisors of the upper jaw. The prevalence of primary adentia of permanent teeth in children varies from 2% to 16.5% in the population [7]. Today, patients pay great attention to the aesthetic component of dental treatment чения. Choosing an effective

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treatment method in case of violation of the integrity of the dentition is a difficult task for a practicing dentist. Interdisciplinary interaction of specialists in dental practice has expanded the possibilities of treating patients with primary adentia [1,8, 11]. To accurately transfer the surgical intervention plan and install dental implants, a computer-generated surgical template is used, which is a link between cone-beam computed tomography (CBCT), the treatment plan and the surgical operation. Currently, dentists are trying to create a natural effect of "growing" the crown on the dental implant from the gum. Modern implantology uses bio-compatible materials and digital technologies, so the designs are ultra-precise [1, 4, 5, 6, 10, 11]. Modern CAD / CAM (Computer-aided design and Computer-aided manufacturing) technology is the production of denture frames, crowns for implants and veneers using computer modeling and milling software – controlled machines [7]. Improvement of three-dimensional scanning techniques, as well as computer modeling and manufacturing technologies, increases the accuracy of aesthetic parameters of crowns on dental implants, and facilitates the creation of so-called crowns. "invisible" restorations. A successful aesthetic result of prosthetics implies "unobtrusive" restoration, its harmonious combination with adjacent teeth and soft tissues. In recent years, dentists and dental technicians have paid great attention to the "white aesthetic" and "pink aesthetic" parameters [14]. A crown prepared in compliance with all protocols will not have an aesthetic result if the adjacent gum shows signs of an inflammatory process. Dentists often find it difficult to achieve an ideal "pink aesthetic" of soft tissues adjacent to the abutment surface [14]. Of great importance is the attachment of the gum, which is responsible for a kind of infectious "safety" of the underlying bone. To meet these demands, it is necessary to develop a comprehensive approach to patient care with interdisciplinary curation and the use of digital technologies.

The aim of the study was to improve the effectiveness of treatment of patients with primary adentia using digital planning, surgical templates, intraoral scanning, CAD / CAM modeling of metal-free screw-fixing crowns on dental implants.

Materials and methods of research. The present study was based on a clinical analysis of the results of observation of patients of permanent teeth at the PresiDent Dental Clinic (Cheboksary) in the period from 2018 to 2023. The total number of patients was 24 people (female) aged 16 to 34 years. The first stage of patient supervision consisted in determining the initial level of oral hygiene and teaching individual oral hygiene with mandatory use of irrigation technologies. Then professional oral hygiene was performed (ultrasonic- ultrasonic scaling, ultrafine polishing (Air Flow technology), polishing with abrasive pads, medical treatment, oxygenation). All patients were motivated to monitor the hygienic state of the mouth at home using plaque indicators. The implantation method was used in all patients with previous orthodontic treatment with braces lasting from one to two years. All patients were divided into two groups (n=12) by random sampling. Patients of the first group underwent replacement of missing teeth using dental implantation according to the traditional method without the use of digital technologies. Patients of the second group underwent dental implantation by means of preoperative digital planning, using a surgical template, intraoral scanning, CAD / CAM modeling of metal-free crowns of screw fixation on dental implants. Prosthetics of all patients were performed using computer simulation technology. Prosthetics of patients were performed using metal-free structures of Procera technology. All crowns on dental implants were made of zirconium dioxide, screw fixation with support on implants ordered from the production centers of Nobel Procera (Sweden, Goteborg; USA, New York). The algorithm was used as a basis developed in the Department of Clinical and Experimental Implantology of the Central Research Institute of Dentistry and Maxillofacial Surgery. To assess

the condition of the gum in the area of dentition defects, the following indicators were used: the degree of severity of the stippling phenomenon, the density of the gingival margin to structural materials, the vacuum stability of capillaries according to Kulazhenko, and the Mullet- Man -Cowell bleeding index. The results of the study were processed using the statistical software package SPSS 13.0: comparison of sample distributions with normal (Kolmogorov-Smirnov test), Pearson and Spearman correlation analysis (for rank values). With a normal distribution of values in the study groups, the arithmetic mean values (M), standard errors (m).

Results and their discussion. It is known that the position of the teeth changes over time and requires correction or replacement of dentures. The production of a surgical template provides an accurate transfer of the interactive plan to the surgical site and allows you to accurately install dental implants. The ideal position of the dental implant is at least 1.5 mm from the root of the adjacent tooth. The minimum allowable distance for implant placement between the central incisors and canines is 5.5 mm. In three patients (25%) of the first group, insufficient mesiodistal cortical distance was observed in the postoperative, which required repeated orthodontic treatment aimed at increasing the distance between adjacent teeth. The duration of treatment was increased to one year. In the second group, only one patient was correlated with the contact surfaces of crowns on dental implants. When assessing the gum condition, it turned out that the phenomenon of stippling was pronounced in seven patients of the first group (58%) and in eleven patients of the second group (91%, $p > 0.05$). Isolated cases of focal loss of the stippling phenomenon both observed groups of patients were associated with bacterial-associated inflammation of the marginal and alveolar desna. The cause of inflammation in these cases was insufficient attention to the hygienic care of the oral cavity in the home. When evaluating the marginal fit of the gum to the structural materials, it was found that it was tight in five patients (41%) of the first group and ten patients (83%, $p < 0.01$) of the second group. In three patients of the first group, the gingival cuff showed no signs of inflammation, but its turgor was reduced without signs of inflammation. In four patients of this group, the decrease in the tightness of the fit was due to bacterial-associated inflammation. The Mulleman-Co-well index in these patients was equal to 2.41 ± 0.05 points. In one patient of the second group, a decrease in turgor was detected in the absence of inflammation, in the second patient, looseness of the fit was due to inflammation. The Mulleman-Co-well index in this patient was 2.4 points. The Kulazhenko capillary resistance score showed no significant differences in patients of both groups and was 42.3 ± 8.1 s in patients of the first group and 48.1 ± 7.4 s in patients of the second group ($p > 0.05$). In all cases of detection of bacterial-associated inflammation of soft tissues surrounding the implant, periodontal interventions were required to eliminate dental plaque, including subgingival, with the use of antiseptic and anti-inflammatory drugs.

As an illustration, we present a clinical case.

Patient N., 20 years old, went to the clinic complaining of aesthetic dissatisfaction due to the lack of upper lateral incisors. Objective examination revealed facial symmetry, clear visible skin, no enlarged submandibular lymph nodes. In the oral cavity: vestibule of medium depth, sufficient area of keratinized gums, attachment of the frenules of the lips and tongue without pathological changes. There are no lateral incisors of the upper jaw. The gums in the area of all teeth are pale pink, with a pronounced phenomenon of stippling. Good level of oral hygiene. Diagnosis: congenital bilateral adentia of the lateral incisors of the upper jaw. The patient was supervised using an algorithm of examination and treatment. At the first stage of curation, a decision was made to perform orthodontic

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correction using a fixed edgewise technique. At the second stage of curation, dental implants were installed in the area of teeth 1.2, 2.2, 4.5. When assessing the gum condition, a loose fit was found in the area of the dental implant 1.2 of the tooth, which required periodontal treatment. At the third stage of curation, the patient was fitted with digital metal-free orthopedic structures using CAD/CAM technology.

Conclusions. Our study showed that despite the different indicators in the condition of bone and soft tissues, the installed structures performed chewing and aesthetic functions in patients of both observed groups. The changes in the position of the teeth and the condition of soft tissues that we detected during the observation of patients certainly required correction; however, no cases of implant loss were detected. The use of computer programs for planning dental implantation and navigation surgery makes it possible to install dental implants in the most accurate way, and to produce digital metal-free orthopedic structures using CAD/CAM technology. This makes it possible to reduce the risk of complications and achieve an effective functional and aesthetic state of the maxillary system in patients with primary adentia. The algorithm- for the study and treatment of patients with congenital adentia presents a step-by-step predictable approach to patients. Currently, rehabilitation of patients with congenital tooth loss is a predictable method of treatment with the inclusion of digital-technologies in orthodontic, surgical, orthopedic, and therapeutic treatment.

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**YOSHLAR ORASIDA RUHIY TUSHKUNLIK (DEPRESSIYA) VA UNING OLDINI OLISH
YO‘LLARI**

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Annotatsiya: Ruhiy tushkunlikning sabablari, oqibatlar va uni oldini olish yo‘llari, psixologik yondashuvlar, ijtimoiy omillar va oilaviy muhit, ruhiy holat, mustahkamlash, ijobiy fikrlash, psixologik madaniyat, depressiya, stress.

Kalit so‘zlar: Ruhiy tushkunlik, depressiya, yoshlar psixologiyasi, stress, ijtimoiy omillar, profilaktika, psixologik madaniyat, motivatsiya.

Annotation: Causes, consequences and ways to prevent depression, psychological approaches, social factors and family environment, mental state, reinforcement, positive thinking, psychological culture, depression, stress.

Keywords: Depression, depression, youth psychology, stress, social factors, prevention, psychological culture, motivation.

Kirish

Hozirgi globallashuv va axborot texnologiyalari davrida yoshlar hayoti keskin o‘zgarishlar, yuqori talablar va kuchli raqobat bilan to‘qnash kelmoqda. Shu bilan birga, tezkor turmush tarzi, ijtimoiy bosim va o‘zini anglashdagi murakkabliklar ko‘plab yoshlar orasida ruhiy tushkunlik holatlarini keltirib chiqarmoqda. Depressiya — bu faqat kayfiyatning pasayishi emas, balki insonning butun ruhiy holatini, fikrlash tarzini va hayotga bo‘lgan munosabatini o‘zgartiruvchi murakkab holatdir. Yoshlar orasida bu muammoning keng tarqalishi nafaqat shaxsiy, balki ijtimoiy ahamiyatga ega bo‘lib, uni o‘z vaqtida aniqlash va bartaraf etish jamiyat salomatligi uchun muhim hisoblanadi.

Yoshlarning ruhiy tushkunlikka tushish holatlari so‘nggi yillarda butun dunyoda ortib bormoqda. Jahon sog‘liqni saqlash tashkiloti ma’lumotlariga ko‘ra, har to‘rtinchi yosh inson hayotining ma’lum bosqichida depressiv holatni boshdan kechiradi. Bunga sabab sifatida global o‘zgarishlar, raqamli muhitning kuchayishi, hayot sur’atining tezlashuvi va shaxslararo munosabatlarning murakkablashuvi ko‘rsatilmoqda. O‘zbekiston jamiyatida ham bu jarayonlar o‘z aksini topmoqda. Ayniqsa, shahar sharoitida yashovchi, raqamli tarmoqlardan faol foydalanadigan yoshlar ruhiy bosimga tezroq duch kelmoqda.

Depressiya ko‘pincha sezilmasdan, asta-sekinlik bilan rivojlanadi. Yosh avlod orasida u “ichki charchoq”, “umidsizlik”, “hayotdan ma’no topmaslik” ko‘rinishida namoyon bo‘ladi. Ba’zi hollarda bu holat o‘ziga shubha, jamiyatdan chetlashish yoki tajovuzkorlik shaklida ifodalanadi. O‘smirlik davrida bu jarayon yanada kuchli bo‘lishi mumkin, chunki bu yoshda hissiyotlar keskin, o‘zini anglash esa murakkab bosqichda kechadi.

Ijtimoiy omillar yoshlarning ruhiy holatiga eng kuchli ta’sir ko‘rsatuvchi jihatlardan biridir. Oila muhitidagi befarqlik, doimiy tanqid, ota-onalar o‘rtasidagi nizolar yoki mehr yetishmasligi yoshlar ruhiyatiga salbiy ta’sir qiladi. Ota-onalar tomonidan haddan ortiq talabchanlik, yoki aksincha, e’tiborsizlik yoshni o‘ziga nisbatan ishonchsiz qiladi. Shuningdek, ijtimoiy tarmoqlarda boshqalar

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hayotiga qarab o'z hayotini solishtirish, "ideal" obrazlarni ko'rish ham ichki norozilik hissini kuchaytiradi. Bu jarayonni psixologlar "raqamli solishtirish sindromi" deb ataydilar.

Ta'lim muassasalaridagi ruhiy muhit ham muhim omil sanaladi. O'quv yuklamasining ortiqchiligi, baholashdagi adolatsizlik, sinfdoshlar o'rtasidagi raqobat, o'qituvchilarning qattiqqo'lligi yoki befarqligi yoshlarning o'zini qadrsiz his qilishiga sabab bo'ladi. Shu sababli, ta'lim tizimida o'qituvchilar psixologik madaniyatini oshirish, har bir o'quvchiga individual yondashuvni yo'lga qo'yish zarur. Har bir pedagog nafaqat bilim beruvchi, balki o'quvchining ruhiy rivojlanishini kuzatuvchi, unga motivatsiya beruvchi shaxs bo'lishi kerak.

Zamonaviy psixologik yondashuvlar shuni ko'rsatadiki, depressiyani oldini olishning eng samarali yo'li — erta tashxis va psixologik yordam tizimini yo'lga qo'yishdir. Har bir maktab va oliygohda malakali psixolog ishlashi, yoshlar uchun maxfiy maslahat markazlari faoliyat yuritishi kerak. Ko'plab yoshlar muammolarini boshqalar bilan bo'lishishdan uyaladilar, ammo agar ular o'z his-tuyg'ularini erkin ifoda eta oladigan muhit yaratilsa, bu ularning ruhiy yengilligiga olib keladi.

Ruhiy salomatlikni mustahkamlashda jismoniy faollik juda katta rol o'ynaydi. Sport bilan shug'ullanish, toza havoda sayr qilish, yoga, meditatsiya kabi faoliyatlar miya faoliyatini yaxshilaydi, stress gormonlarini kamaytiradi va "baxt gormoni" — serotoninning ishlab chiqilishini kuchaytiradi. Shuning uchun maktab va oliy ta'lim muassasalarida sport va madaniy tadbirlarni ko'paytirish nafaqat jismoniy, balki ruhiy salomatlikni ham mustahkamlaydi.

Madaniy-ma'naviy faoliyat ham ruhiy tushkunlikning davo yo'llaridan biridir. Kitob o'qish, san'at bilan shug'ullanish, teatr, musiqa, ijtimoiy loyihalarda ishtirok etish yoshlarning hayotda ma'no va ilhom topishlariga yordam beradi. Shaxs o'zini foydali, ijodkor va jamiyatga kerakli inson sifatida his etgan sari, depressiv holatlardan uzoqlashadi.

Ommaviy axborot vositalari va internetda sog'lom psixologik muhit yaratish ham muhim masaladir. Afsuski, ba'zi bloggerlar yoki ijtimoiy tarmoqlarda mashhurlikka erishgan shaxslar yoshlar orasida noto'g'ri qadriyatlarni targ'ib qilishadi. Shu sababli, yoshlar bilan ishlovchi mutasaddi tashkilotlar tomonidan ruhiy salomatlikka oid ijobiy kontentlarni, motivatsion videolarni, hayotiy hikoyalarni ko'proq targ'ib etish zarur.

Davlat darajasida ruhiy salomatlikni qo'llab-quvvatlash strategiyalarini ishlab chiqish dolzarbdir. Ruhiy tushkunlik tibbiy emas, balki ijtimoiy muammo sifatida ko'rilishi lozim. Yoshlar uchun bepul psixologik yordam liniyalari, "ishonch telefonlari", mobil psixologik markazlar tashkil etilishi kerak. O'zbekistonda ham so'nggi yillarda yoshlar bilan ishlash tizimi takomillashib, "Yoshlar ishlari agentligi", "Yoshlar daftari", "Yoshlar forumi" kabi dasturlar orqali ularning ruhiy, ijtimoiy va ma'naviy qo'llab-quvvatlanishi yo'lga qo'yilmoqda.

Depressiyaning oldini olishda psixologik immunitet tushunchasi alohida o'rin tutadi. Bu insonning hayotdagi stress, salbiy tajribalar va bosimlarga bardosh berish qobiliyatidir. Psixologik immunitet kuchli bo'lishi uchun yoshlar hayotda maqsadga ega bo'lishlari, o'z qobiliyatlarini rivojlantirishlari, muvaffaqiyatsizliklarni tabiiy hol sifatida qabul qilishni o'rganishlari kerak.

Yoshlar orasida ruhiy tushkunlikning sabablari turlicha bo'lishi mumkin. Eng asosiy omillar sifatida oila muhitidagi ziddiyatlar, o'z-o'zini past baholash, o'qishdagi yoki mehnatdagi muvaffaqiyatsizliklar, ijtimoiy tarmoqlardagi bosim va shaxslararo munosabatlardagi muammolarni ko'rsatish mumkin. Ko'plab yoshlar o'z his-tuyg'ularini boshqarish, stressni yengish va muammolarga to'g'ri yondashish ko'nikmalariga ega emasligi sababli, ular ruhiy iztirobn ichida yashirishga moyil bo'ladilar. Bu esa vaqt o'tishi bilan depressiv holatning chuqurlashishiga olib

keladi. Bugungi kunda yoshlar orasida ruhiy tushkunlik muammosi global miqyosda dolzarb masalaga aylangan. Rivojlangan mamlakatlarda ham, rivojlanayotgan jamiyatlarda ham bu holat yoshlarning o'qishdagi, oiladagi va ijtimoiy hayotdagi faolligiga salbiy ta'sir ko'rsatmoqda. Depressiya ko'pincha asta-sekin rivojlanadi — dastlabki bosqichda insonda kayfiyat pasayishi, qiziqishning yo'qolishi, sababsiz charchoq va yolg'izlik hissi kuzatiladi. Agar bu holat o'z vaqtida e'tiborga olinmasa, u ruhiy izolyatsiyaga, o'zini qadrsiz his etishga, hatto og'ir oqibatlarga olib kelishi mumkin.

Yoshlar ruhiyatining o'ziga xosligi shundaki, bu davrda shaxsiylik shakllanadi, hayotiy yo'l tanlanadi va mustaqil qaror qabul qilish ko'nikmalari rivojlanadi. Shu jarayonda har qanday bosim, noto'g'ri tanqid yoki ijtimoiy tazyiq kuchli psixologik zarba bo'lishi mumkin. Ayniqsa, internet va ijtimoiy tarmoqlarning ta'siri katta. Yoshlar ko'pincha o'zini boshqalar bilan solishtirib, ideal hayot suratlariga qarab o'z hayotidan norozilik hissini boshdan kechiradi. Bu esa o'z navbatida o'ziga bo'lgan ishonchni pasaytiradi va ruhiy tushkunlikni kuchaytiradi.

Zamonaviy psixologik tadqiqotlar shuni ko'rsatadiki, yoshlar orasida depressiyaning keng tarqalishiga sabab bo'ladigan omillarni uch asosiy guruhga ajratish mumkin: biologik, ijtimoiy va shaxsiy-psixologik. Biologik omillar miya kimyoviy muvozanatining buzilishi, irsiyat yoki gormonal o'zgarishlar bilan bog'liq. Ijtimoiy omillar esa oila notinchligi, ishsizlik, iqtisodiy bosim, do'stlar bilan nizolar, jamiyatdagi tengsizlik yoki ijtimoiy rad etilish bilan izohlanadi. Shaxsiy-psixologik omillar esa insonning o'z-o'ziga ishonchsizligi, maqsad yo'qligi, doimiy xavotir va pessimizm bilan bog'liq.

Depressiyaning oldini olishda ijtimoiy qo'llab-quvvatlash tarmog'ining roli beqiyos. Har bir yosh inson o'zini tushunadigan, tinglaydigan va qo'llab-quvvatlaydigan muhitda bo'lishi kerak. Buning uchun oila, do'stlar, ustozlar va jamiyatning ijobiy roli juda katta. Maktab va oliy ta'lim muassasalarida faoliyat yurituvchi psixologlar, ijtimoiy pedagoglar va tarbiyachilar yoshlar bilan muntazam suhbatlar o'tkazib, ularning ruhiy holatini nazorat qilishlari lozim.

Shuningdek, psixologik profilaktika dasturlarini yo'lga qo'yish muhimdir. Bunday dasturlar stressni boshqarish, ijobiy fikrlash, o'zini baholash va kommunikatsiya ko'nikmalarini rivojlantirishga qaratilgan bo'lishi kerak. Maktablar va oliygohlarda "Ruhiy salomatlik haftaliklari", "Motivatsiya kunlari" yoki "Psixolog bilan ochiq muloqot" kabi tadbirlarni tashkil etish yoshlarning o'z muammolarini yashirmasdan, ochiq muhokama qilishlariga yordam beradi.

Ruhiy tushkunlikni kamaytirishda sog'lom turmush tarzi ham muhim ahamiyatga ega. Muntazam jismoniy mashqlar, to'g'ri ovqatlanish, yetarli uyqu, tabiat qo'ynida vaqt o'tkazish va ijtimoiy faol bo'lish kayfiyatni yaxshilaydi. Sport faoliyati va ijodiy mashg'ulotlar (musiqqa, rasm chizish, yozuv, teatr) orqali yoshlar o'z energiyasini ijobiy yo'nalishga sarflab, ichki bosimni yengillashtiradilar.

Shuningdek, diniy va ma'naviy qadriyatlar ham yoshlarning ruhiy barqarorligini saqlashda katta rol o'ynaydi. Allohga bo'lgan ishonch, sabr, shukr va ijobiy fikrlash odati inson ruhiyatini mustahkamlaydi. Odamning hayotdagi sinovlarni to'g'ri qabul qilishi, ma'naviy qadriyatlar asosida yashashi uni ruhiy inqirozlardan himoya qiladi.

Zamonaviy sharoitda raqamli psixologik xizmatlar ham keng rivojlanmoqda. Onlayn psixologlar, mobil ilovalar va virtual maslahat platformalari yoshlar uchun qulay yordam manbaiga aylanmoqda. Biroq bu jarayonda sifat nazorati va mutaxassislik darajasi muhim. Har qanday platforma ishonchli va malakali psixologlar tomonidan boshqarilishi lozim.

Shuningdek, davlat va nodavlat tashkilotlari tomonidan yoshlarga qaratilgan psixologik qo'llab-quvvatlash loyihalarini kengaytirish ham dolzarbdir. Masalan, "Yoshlar daftari" dasturi, psixologik maslahat markazlari, ijtimoiy yordam liniyalari — bularning barchasi yoshlarning ruhiy holatini yaxshilashda amaliy natijalar bermoqda.

Depressiyani erta bosqichda aniqlash ham muhim ahamiyatga ega. Agar yoshda kayfiyatning uzoq muddatli pasayishi, diqqatning susayishi, ijtimoiy faollikning yo'qolishi, ishtaha o'zgarishi yoki o'ziga nisbatan salbiy fikrlar paydo bo'lsa, bu holatni jiddiy qabul qilish kerak. Bunday paytda psixolog, psixiatr yoki ishonch telefoni orqali yordam so'rash zarur. Yordam so'rash zaiflik emas, balki ruhiy sog'lomlik yo'lida tashlangan jasoratli qadmdir.

Zamonaviy psixologiyada ruhiy tushkunlikning kelib chiqishida biologik, ijtimoiy va psixologik omillar bir-biri bilan chambarchas bog'liq deb qaraladi. Biologik jihatdan, organizmda serotonin, dopamin kabi neyromediatorlarning yetarli darajada ishlab chiqilmasligi kayfiyatni pasaytiradi. Ijtimoiy omillar esa, masalan, oila qo'llovining yetishmasligi, ishsizlik, moddiy qiyinchiliklar, yoki ijtimoiy tarmoqlarda boshqalar bilan o'zini solishtirish holatlari, yoshlarning o'ziga bo'lgan ishonchini susaytiradi. Psixologik tomondan esa, hayotiy maqsadning yo'qligi, o'z imkoniyatlarini qadrlamaslik va doimiy tashvish holatlari depressiyaning rivojlanishiga zamin yaratadi.

Ruhiy tushkunlikning oldini olishda psixologik madaniyatni oshirish muhim o'rin tutadi. Bu degani, yoshlar o'z his-tuyg'ularini anglash, ularni boshqarish va yordam so'rashdan uyalmaslikni o'rganishlari zarur. Maktablarda va oliy ta'lim muassasalarida psixologik xizmatlarni kuchaytirish, stressni yengish bo'yicha treninglar o'tkazish, motivatsion suhbatlar tashkil etish yoshlarning ruhiy salomatligini saqlashda katta ahamiyatga ega.

Shuningdek, oila muhitining iliqqligi, ota-onaning mehribonligi va tushunishi yosh inson uchun eng kuchli psixologik tayanch hisoblanadi. Ota-onalar farzandlarining ruhiy holatiga befarq bo'lmasliklari, ularning his-tuyg'ularini tinglash, rag'batlantirish va zarur paytda psixologik yordamga yo'naltirishlari zarur. Chunki oiladagi e'tibor va tushunish depressiyaning eng kuchli profilaktik omillaridan biridir.

Ijtimoiy hayotda faol bo'lish, sport bilan shug'ullanish, ijodiy faoliyatga jalb etilish ham ruhiy tushkunlikning oldini olishda samarali yo'ldir. Faol turmush tarzi organizmda "baxt gormonlari" ishlab chiqilishini kuchaytiradi va kayfiyatni yaxshilaydi. Bundan tashqari, ijobiy fikrlashni shakllantirish, o'zini rivojlantirish va kichik yutuqlarni qadrlash yoshlar uchun ruhiy mustahkamlik manbai bo'ladi.

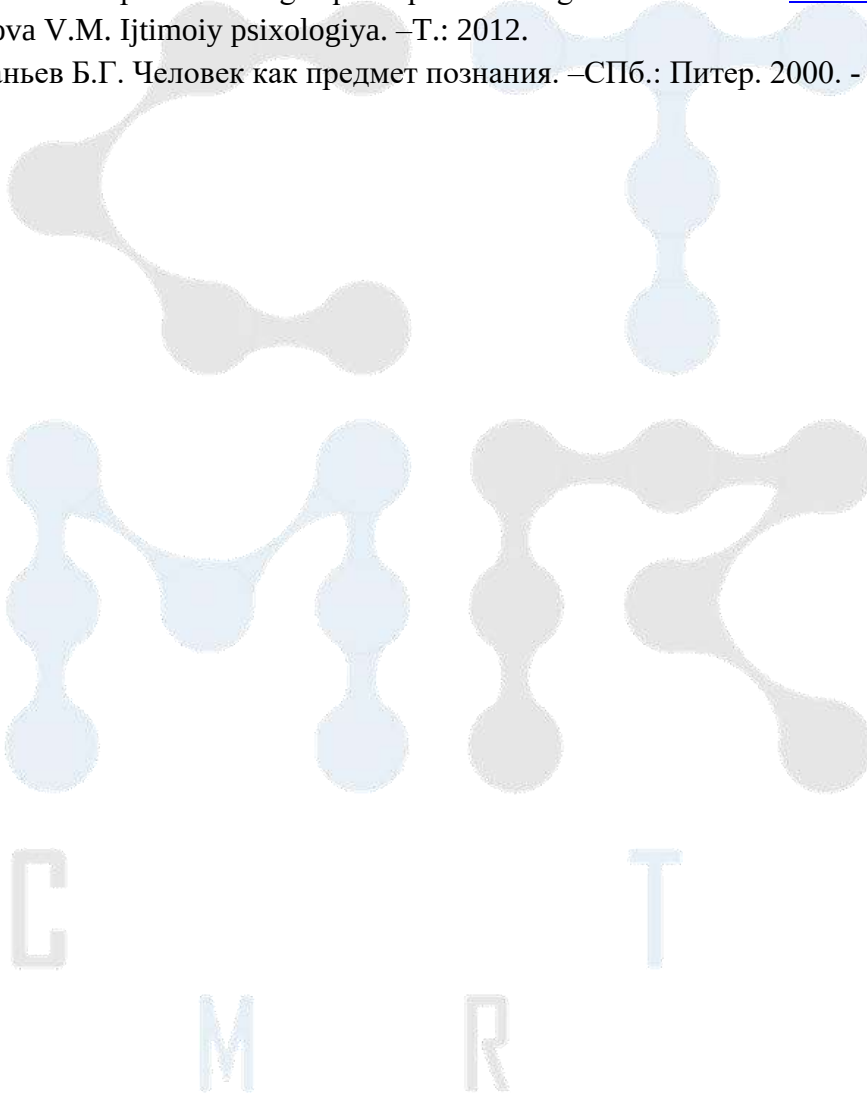
Bugungi kunda raqamli texnologiyalar ham ruhiy salomatlikni saqlashda yordamchi vosita sifatida ishlatilmoqda. Masalan, mobil ilovalar orqali meditatsiya mashqlari, onlayn psixologik maslahatlar va stressni kamaytiruvchi dasturlar yoshlar orasida keng tarqalmoqda. Ammo bunday vositalardan foydalanishda mutanosiblik zarur, chunki internet va ijtimoiy tarmoqlarga ortiqcha qaramlik o'z navbatida yangi stress manbai bo'lishi mumkin.

Xulosa

Yoshlar orasida ruhiy tushkunlik — zamonaviy jamiyatning dolzarb muammolaridan biridir. Uni faqat tibbiy yoki psixologik muammo sifatida emas, balki ijtimoiy va tarbiyaviy masala sifatida ham ko'rish lozim. Depressiyaning oldini olish uchun har bir yosh insonning ruhiy ehtiyojlarini tushunish, unga mehr va e'tibor ko'rsatish, ijobiy muhit yaratish zarur. Oila, ta'lim muassasalari va jamiyat birgalikda harakat qilgan taqdirdagina yoshlarning ruhiy barqarorligi ta'minlanadi. Ruhiy sog'lom avlod esa har qanday jamiyatning kelajagi va kuchidir.

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**GEMIFIKATSIYA TEXNOLOGIYALARINING KOMMUNIKATIV KOMPETENTSIYA
SHAKLLANISHIDAGI ROLI**

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Annatsiya: Ushbu maqolada ta'lim jarayonida gamifikatsiya texnologiyalaridan foydalanishning kommunikativ kompetentsiyani rivojlantirishdagi o'rni ilmiy nuqtayi nazardan tahlil qilingan. Mavzuda gamifikatsiyaning talabalarda og'zaki va yozma muloqot, hamkorlik, tanqidiy fikrlash, ijodkorlik, jamoada ishlash, muloqot etikasi va raqamli kommunikatsiya ko'nikmalarini shakllantirishga ta'siri yoritilgan.

Kalit so'zlar: Gamifikatsiya, raqamli texnologiya, kommunikativ kompetentsiya.

**THE ROLE OF GAMIFICATION TECHNOLOGIES IN THE FORMATION OF
COMMUNICATIVE COMPETENCE**

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Annotation: This article scientifically analyzes the role of utilizing gamification technologies in the educational process for the development of communicative competence. The topic highlights the impact of gamification on students' acquisition of skills in oral and written communication, collaboration, critical thinking, creativity, teamwork, communication ethics, and digital communication.

Keywords: Gamification, digital technology, communicative competence.

**РОЛЬ ИГРОВЫХ ТЕХНОЛОГИЙ В ФОРМИРОВАНИИ КОММУНИКАТИВНОЙ
КОМПЕТЕНТНОСТИ**

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Аннотация: В данной статье с научной точки зрения проанализирована роль использования технологий геймификации в образовательном процессе для развития коммуникативной компетентности. В теме освещено влияние геймификации на формирование у студентов навыков устной и письменной коммуникации, кооперации, критического мышления, креативности, командной работы, этики общения и цифровой коммуникации.

Ключевые слова: Геймификация, цифровые технологии, коммуникативная компетентность

KIRISH

Zamonaviy ta'lim tizimida talabalar faolligi, ularning mustaqil fikrlashi, jamoada ishlashi hamda samarali muloqotga kirisha olishi asosiy kompetentsiyalar qatoriga kiradi. Ayniqsa, kommunikativ kompetentsiya – talabaning o'z fikrini og'zaki va yozma shaklda aniq, ravon, dalillangan tarzda bayon qila olishi, ijtimoiy munosabatlarda to'g'ri muloqot yurita olishi, hamkorlikda ishlash ko'nikmalariga ega bo'lishi – zamonaviy ta'limning markaziy maqsadlaridan biridir. Shu bilan birga, raqamli texnologiyalar rivojlanishi ta'lim jarayoniga yangi metodlar kirib kelishiga sabab bo'ldi. Bular orasida gamifikatsiya texnologiyalari ajralib turadi.

Nazariy qism

Gemifikatsiya – o‘yin elementlarini ta’lim jarayoniga qo‘llash orqali o‘quvchini motivatsiyalash, jarayonni interfaol qilish va ta’lim samaradorligini oshirishga xizmat qiladi. Ushbu maqolada gamifikatsiya texnologiyalarining kommunikativ kompetentsiya shakllanishiga ta’siri, uning pedagogik asoslari, afzalliklari hamda tatbiq etish mexanizmlari keng qamrovda yoritiladi. Gemifikatsiya — o‘yin elementlari, o‘yin mexanikasi va o‘yin dizaynidan o‘yin bo‘lmagan jarayonlarda foydalanish texnologiyasidir. Ta’limda gemifikatsiyaning asosiy maqsadi — talabalarining ichki motivatsiyasini kuchaytirish va o‘quv jarayonini qiziqarli hamda interfaol shaklga keltirishdir. Bugungi kun talabarlari uchun kommunikativ kompetentsiya nafaqat ta’limda, balki kelajak kasbiy faoliyatda ham eng zarur kompetentsiyalardan biri hisoblanadi. Gemifikatsiya texnologiyalarining kommunikativ kompetentsiyaga ta’siri

1. Muloqotga kirishishni faollashtiradi: Gemifikatsiya o‘quv jarayonida talabani passiv tinglovchi emas, balki faol ishtirokchiga aylantiradi. Masalan: onlayn bahslar, rolli o‘yinlar, jamoaviy kvestlar talabalarni fikr almashishga, savol berishga va muloqotga undaydi.

2. Hamkorlikda ishlashni rag‘batlantiradi: Gemifikatsiya ko‘p hollarda guruhli musobaqalarga asoslanadi. Bu talabalarni bir-birini tinglashga, fikrlarni kelishtirishga, o‘zaro yordam berishga, jamoa bilan qaror qabul qilishga majbur qiladi. Bu esa ijtimoiy-kommunikativ kompetentsiyaning eng muhim qismidir. Natijada ularning nutq ravonligi, mantiqiy bayon qilish, talaffuz, ohang va nutq etikasi sezilarli darajada rivojlanadi.

3. Raqamli kommunikatsiya ko‘nikmalarini shakllantiradi: Gemifikatsiya ko‘pincha onlayn platformalar orqali amalga oshiriladi: Kahoot, Quizizz, Classcraft, Mentimeter, Padlet. Bu platformalarda talabalar o‘z fikrini yozma yoki og‘zaki shaklda tez, aniq va to‘g‘ri ifodalashni o‘rganadilar.

4. Motivatsiyani oshirib, psixologik to‘siqlarni kamaytiradi: O‘yin muhitida talabalar uchun qulay bo‘lganligi uchun talabalar xato qilishdan qo‘rqmaydi, erkin fikr bildiradi va muhokamada faol qatnashadi. Bu esa kommunikativ ko‘nikmalarni erkin va tabiiy shakllantiradi.

Xulosa

Gemifikatsiya texnologiyalari ta’lim jarayonini jonlantiribgina qolmay, talabalarda kommunikativ kompetentsiyani shakllantirishda kuchli pedagogik mexanizm bo‘lib xizmat qiladi. Gemifikatsiya yordamida talabalar faollashadi, jamoaviy ishlashga o‘rganadi, muloqot madaniyatini rivojlantiradi, fikrini asoslab ayta oladi va o‘zini erkin ifodalaydi. Demak, gamifikatsiya zamonaviy ta’limning ajralmas qismi sifatida talabalar kommunikativ kompetentsiyasini kompleks rivojlantirishga xizmat qiladi.

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**“ТОХАРИСТОНДАГИ ҲУНАРМАНДЧИЛИК САНЪАТИ: ДЕВОРИЙ ТАСВИРЛАР ВА
АНЖОМЛАР ТАҲЛИЛИ”**

Термиз давлат университети
академик лицейи
тарих фани уқитувчиси

Абдулакимова Дилжаҳон Болтаевна

Калит сузлар - маҳси, этик, садок, ёй ва уларнинг турлари, жул ва унинг шаклий хусусиятлари, узангилар: шакли ва маданий аҳамияти, юган, сувлуқ ва бошбоғлар, урта аср тасвирий манбаларда от тақинчоқлари ва уларнинг маданий-маънавий аҳамияти.

Аннотация : илк урта асрлар даврида Тохаристон ҳудуди маданий ва иқтисодий жиҳатдан жуда муҳим аҳамиятга эга бўлган. Бу минтақада ҳунармандчилик санъати юксак даражада ривожланган бўлиб, унинг турли соҳалари — керамика, тўқимачилик, металл ишлаш (куролсозлик), шишасозлик ва бошқа қўплаб ҳунарлар — маҳаллий аҳоли ҳаётида муҳим роль ўйнаган. Тохаристон ҳунармандчилиги ўзининг ўзгача услуби, техник ютуқлари ва чиройли безаклари билан ажралиб туради. Ушбу мақолада биз илк урта асрларда Тохаристонда ҳунармандчилик ривожининг асосий йўналишлари, у қандай омиллар таъсирида шакллангани ҳамда унинг минтақавий ва маданий аҳамияти ҳақида сўз юритамиз.

**“CRAFTSMANSHIP ART OF TOKHARISTAN: ANALYSIS OF WALL PAINTINGS AND
ARTIFACTS”**

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Keywords:

Leather boots (mahsi), high boots (etik), quiver (sadoq), bow and its types, saddle (jul) and its structural features, stirrups: their forms and cultural significance, bridle, bit and headstalls, horse accessories in early medieval visual sources and their cultural-spiritual significance.

Abstract:

During the early medieval period, the region of Tokharistan held great cultural and economic importance. Various branches of craftsmanship—such as ceramics, textiles, metalworking (including weapon-making), glass production, and many other crafts—developed at a high level and played a significant role in the daily life of the local population. Tokharistan craftsmanship stands out for its distinctive style, technical achievements, and elegant decorative traditions. This article examines the main directions of craft development in Tokharistan during the early Middle Ages, the factors that influenced its formation, and its regional and cultural significance.

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«Кустарно-ремесленное искусство Тохаристана: анализ настенных росписей и предметов быта»

Ключевые слова: махси, сапоги, садак, лук и их разновидности, жул и его формальные особенности, стремена: форма и культурное значение, узда, повод и налобник, конская сбруя в средневековых изобразительных источниках и её культурно-духовное значение.

Аннотация:

В раннесредневековый период территория Тохаристана имела большое культурное и экономическое значение. В этом регионе ремесленное искусство достигло высокого уровня развития, и его различные направления — керамика, ткачество, обработка металла (оружейное дело), стеклоделие и многие другие ремёсла — играли важную роль в жизни местного населения. Ремесленное производство Тохаристана отличалось своим самобытным стилем, техническими достижениями и изысканными декоративными элементами. В данной статье рассматриваются основные направления развития ремёсел Тохаристана в раннем средневековье, факторы, повлиявшие на их формирование, а также их региональное и культурное значение.

Кадимги, ўрта асрлар хунармандчилиги хақида суз борар экан, биз албатта ўша давр учун муҳим бўлган кабрлардан топилган ҳар хил турдаги хунармандчилик буюмларидан, деворий расмлар орқали уша давр хунармандчилиги хақида ҳулоса чиқаришимиз мумкин бўлади.

Ўрта сарлар даври Тохаристон хунармандчилиги хақида суз борар экан, ўша ҳудудга оид меъморий ёдгорликлардаги расмлардаги тасвирларда асосан, отлар устидаги жуллар, от безаклари хақида, чавандозлар устидаги, қуллааридаги ёйлар, оёқларида кийимлар хақида батафсил маълумотлар берилган бўлиб, расмларнинг баъзиларида улар хақида ўхшашлик, баъзиларида эса фарқларни кўришимиз мумкин.

Чавандозлар кийган махсиларга тўхталадиган бўлсак, махсилар одатда сийрак, юмшоқ ва силлиқ чармдан тайёрланган, тўғридан-тўғри тиззагача етадиган, ҳозирги замонавий махсиларга жуда ўхшаш пўстинларни кийганлари аниқланади.¹

Афросиёб деворий тасвирларида аёллар кийимидаги махсиларнинг қўнжи нисбатан қисқа, эркаларники эса узунроқ экани кўзга ташланади.² Шунингдек, тоғли ҳудудлардаги аҳолига хос бўлган пойафзаллар ҳам тасвирланган бўлиб, уларнинг паст товонли, учи юқорига қайрилган ва қаттиқ тагликка эга бўлганлиги аниқланади. Бу турдаги пойафзаллар ҳозирги Помир минтақасида учрайдиган анъанавий оёқ кийимларига ўхшаш.³

Панжикент тасвирларида ҳам эркак ва аёлларнинг пойафзаллари деярли бир хил бўлиб, улар ҳам юмшоқ чармдан тайёрланган махси-этиклардир. Шу билан бирга, ушбу ёдгорликларда спорт пойафзаллари ҳам учрайди.⁴ Чарм махсилар ва енгил этиклар чавандозлар учун жуда қулай бўлгани маълум.

¹ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 32-бет; Бентович И.Б. Одежда раннесредневековой Средней Азии (По данным стенок росписей VI-VIII вв.). И сб. Страны и народы Востока. Вып. XXII, М, 1980, 203-стр

² Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 44, 63, 65-стр.

³ Майдинова Г. Костюм раннесредневекового Тохаристана. История и связи. Душанбе, “Дониш”, 1992 48-стр.

⁴ Бентович И.Б. Одежда раннесредневековой Средней Азии (По данным стенок росписей VI-VIII вв.). И сб. Страны и народы Востока. Вып. XXII, М, 1980, 203-стр.

Тохаристон ҳудудида топилган пойафзаллар тўлиқ кийимлар мажмуаси билан бирга мукаммал ўрганилган. Бу минтақада кенг тарқалган пойафзал турларидан бири пошнаси, юмшоқ чармдан тайёрланган этик-махсилар ҳисобланади.⁵ Дилбаржин расмларида рангли ва узун кўнжили этиклар тасвирланган бўлиб, айрим ҳолларда улар тиззадан ҳам юқорига чиққани кўринади.⁶

Болаликтепа деворий тасвирларида эса оёқни зич қистириб турадиган, кора чармдан тайёрланган, товон ва кўнчи қисмида олтин тўғчалар, қирғоқ безаклари ва фестонлар билан безатилган этиклар аниқ тасвирланган.⁷ Айниқса, аёллар ва эркаклар пойафзалларининг умумийлик касб этгани бир қатор тадқиқотчилар томонидан қайд этилган.⁸

Сўнгги йиллардаги археологик қазишмалар давомида ҳам бир қатор ёдгорликларда чарм махсилар аниқлангани, бу турдаги пойафзалларнинг кенг тарқалганини яна бир бор тасдиқлайди.

Ўрта асрлар Марказий Осиё тасвирий санъатида ёй, ўқ ва садоқлар (ўқдонлар) ҳарбий анжом сифатида муҳим ўрин эгаллаган. Улар нафакат амалий мақсадда, балки маданий ва эстетик мезонлар асосида ҳам тасвирланган. Айниқса, Афросиёб, Панжикент, Тавка ва Қўрғонтепа каби ёдгорликларда чавандозлар билан боғлиқ сахналарда ушбу анжомларнинг кенг ифодалангани кузатилади.

Барча отли чавандозлар тасвирларида садоқлар (ўқдонлар) камон билан бирга, одатда чавандознинг ўнг ёки чап томонида, жилов устида қия ҳолда жойлаштирилган. Бу ҳолат уларнинг ҳарбий тайёрликда эканлигини билдиради. Афросиёб шимолий деворидаги тасвирларда чавандозларнинг деярли барчаси қуйига томон кенгайиб борувчи силлиндрсимон шаклдаги садоқлар билан тасвирланган. Садоқлар одатда тўқ кул, кора ёки тўқ малла рангда берилиб, устки қисми қизил бўёқ билан белгиланган.⁹ Бу уларнинг табиий чарм ёки ёғоч қоплама билан ясалганлигини англатиши мумкин.

Садоқларнинг ўлчамлари ҳам маълум: устки қисми 7–7,5 см, пастки қисми 5–5,5 см, умумий баландлиги эса 30–35 смни ташкил қилган. Айрим ҳолатларда (масалан, кўк от чавандозининг тасвирида) садоқдан чиқарилган ўқ камонга жойланаётган ҳолда кўрсатилган бўлиб, бу ҳарбий ҳаракатнинг реалистик намоёнидир.

Сузадаги тасвирларда ҳам ўқдондан чиқиб турган кўшимча ўқлар аниқ кўзга ташланади. Бундай ҳолатлар мазкур анжомнинг реал қўлланишини акс эттириб, уларнинг фақат декоратив тасвир эмас, балки амалий функцияга эга бўлганини тасдиқлайди.

Сосонийларга оид Самарқанд ва Британия музейларида сақланаётган кумуш косалардаги суворийлар тасвирларида ҳам ўқдонлар ўнг томонга илинган ва улар пастга томон торайиб

⁵ Майдинова Г. Костюм раннесредневекового Тохаристана. История и связи. Душанбе, “Дониш”, 1992.

⁶ Кругликова Т.И. Настенные росписи Дильбержина. В сб. Древняя Бактрия. Материалы Советско-Афганской археологич.Экспедиции 1969-1973 гг. М., 1976, 127-стр.

⁷ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1966, 116-стр

⁸ Бентович И.Б. Одежда раннесредневековой Средней Азии (По данным стеновых росписей VI-VIII вв.). И сб. Страны и народы Востока. Вып. XXII, М., 1980, 203-стр; Майдинова Г. Костюм раннесредневекового Тохаристана. История и связи. Душанбе, “Дониш”, 1992, 55-стр.

⁹ Аълбаум Л.И. Живопись Афрасиаба. Ташкент.1975, 17–18-б.

борган.¹⁰ Эрмижада сақланаётган идишлардаги турк салоқлари эса пастга томон кенгайиб боровчи шаклда берилган бўлиб, ўқ учлари юқорига қаратилган ҳолда жойлаштирилган.¹¹

Қўрғонтепа суяк парчасидаги тасвирда Қанг давлатига оид деб тахмин қилинаётган садок кўриниши учрайди. Ушбу салоқ бошқалардан фарқли равишда уч қисмли тузилиши билан ажралиб туради. Унга бир вақтнинг ўзида бир нечта ўқ жойлаштириш мумкин бўлган.¹²

Тасвирий санъатдаги ёйлар асосан икки тоифага бўлинади:

1. **Одий тузилишли ёйлар** – содда қурилиши билан ажралиб туради;
2. **Мураккаб тузилишли ёйлар** – бир неча материалдан иборат бўлиб, юқори кучланиш қувватига эга бўлган. Ушбу ёйлар Афросиёб, Панжикент, Тавка ва Қўрғонтепадаги тасвирларда аниқланган.¹³ Афросиёбдаги Чағониён элчилари саҳнасидаги тасвирларда ёйлар махсус гилофларга жойлаштирилган ҳолда берилган. Гилоф шаклига қараб, бу ёйлар "М"-шаклдаги, "туркча" ёйлар эканлиги тахмин қилинади.¹⁴ Тавкадаги тасвирларда эса ушбу ёйлардан отиш жараёни реал ҳолда акс эттирилган.¹⁵, шунингдек Панжикентдаги тасвирларда ҳам ўхшаш ҳолатлар кузатилади.¹⁶

Скифларга хос бўлган камонлар (VII–VI асрларга тегишли) ҳам Марказий Осиё ҳудудида кенг тарқалган бўлиб, улар юқори отиш кучига эга, махсус қурилиши билан ажралиб туради. Шу билан бирга, суяк тутқичли бошқа турдаги ёйлар ҳам аниқланган.

Ёйлар тасвирида уларнинг ажралмас қисми сифатида — ўқлар ҳам реалистик ва динамик шаклда берилган. Масалан, Тавка расмларида сақланган ўқнинг суяк ёки ёғоч чўпи тасвирланган бўлиб, ўқдон оғзидадан чиқиб турган сарик рангдаги учта ўқ аниқ ажралиб туради.¹⁷

Отлар устидаги жуллар хақида, уларнинг шакллари хақида гапирадиган бўлса, масалан, Тавка ёдгорлигида от егарлари сақланмаган бўлса-да, уларнинг ўрнида жойлашган жуллар анча равшан кўринади. Ушбу жуллар ипак ёки жун матолардан тайёрланган бўлиб, тўғри тўртбурчак шаклда берилган. Бу шаклдаги жуллар бошқа манбаларда ҳам кузатилади. Масалан, Амударё хазинасидаги ов манзараси тасвирида ҳам отлар устидан худди шундай тўртбурчак шаклдаги жуллар аниқланади.¹⁸

Афросиёб деворий тасвирларидаги Чағониён элчилари отларида ҳам тўғри тўртбурчак шаклли жуллар мавжуд. Аммо улар Тохаристон элчилари отларидагидек дабдабали безакларга эга

¹⁰ Маршак Б.И., Крикис Я.К. Чилекские чаши. Тр.ТЭ, том. X, Культура и искусство народов Востока. Вып.7.Л.,1969, 60–69-стр.

¹¹ Распопова В.И. Согдийский город и кочевая степь в VII-VIII вв. КСИА Вып. 122.М.1970, 88-стр.

¹² Пугаченкова Г.А. Из художественной сокровищницы Среднего Востока. Ташкент, 1987, 61-стр.

¹³ Аълбаум Л.И. Живопись Афрасиаба. Ташкент.1975; Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура. М.,1973; Пугаченкова Г.А. Из художественной сокровищницы Среднего Востока. Ташкент, 1987

¹⁴ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 52-б.; Кизласов Л.Р. История Тувы в средние века. М.1969,21-стр; Рудо К.Г. К вопросу о вооружении Согда VII-VIII вв. Сообщение Республиканского ист.краеведческого музея Тадж. ССР, в. 1, Сталинабад, 1952,61–67-стр.

¹⁵ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 62–63-стр.

¹⁶ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура. М.,1973.

¹⁷ Рахмонов Ш.А. Сб.Города и карвансарай на трассах ВШП. Тезисы Междун.семинара ЮНЕСКО, Ургенч,1991

¹⁸ Пугаченкова Г.А, Ремпель Л.И. История искусств Узбекистана с древнейших времен до середины XIX века. М., 1965.

эмас.¹⁹ Бу фарқ турли минтақалардаги от анжомларининг ижтимоий ва маданий контекстига боғлиқ равишда ривожланганини кўрсатади.

Тавка деворий тасвирларидаги отлардан икkitасида узангилар ҳам аниқ кўринади. Узангиларнинг юқори қисми арксимон, яъни ярим айлана шаклида бўлиб, уни боғлаш учун махсус ҳалқачалар учун жой ажратилган. Пастки қисми эса текис қилиб ишланган бўлиб, оёқ учун қулай шаклда яратилган. Бу турдаги узангилар чавандозлик учун зарур функционал қулайликни таъминлаган.

Афросиёб деворий тасвирларида ҳам ушбу турдаги — Тавка узангисига монанд узангилар учрайди.²⁰ Панжикент тасвирларида ҳам шундай шаклдаги узангилар кузатилади.²¹ Бундай узангилар кўчманчи халқлар, айниқса туркийлар маданиятида кенг тарқалган бўлиб, улар темир, мис ва жез каби металллардан қуйилган ҳамда баъзи ҳолларда безакларга эга бўлган.²² Бу узангиларнинг функционалиги билан бир қаторда, улар маданий белгиларни ҳам ўз ичига олган. Масалан, Сибир ва Олтой турк халқлари маданиятидаги узангилар нафақат амалий, балки маросимий аҳамиятга ҳам эга бўлган.

Афсуски, Тавка деворий тасвирларида юган ва бошбоғнинг барча деталлари тўлиқ сақланмаган. Шу боис, юганнинг сувлук қисми борасида аниқ хулоса чиқариш мушкул. Аммо бошқа ёдгорликлардаги тасвирлар бу жиҳатда маълумликни таъминлайди.

Афросиёб тасвирларида сувлуклар одатда металлдан ясалган бўлиб, уларнинг шакли думалок шарсимон бўлган ва халқасимон тўғалар орқали бошбоғ ва юган ипларига туташган.²³ Панжикент тасвирларида эса сувлуклар узун, қайрилган металл шаклида бўлиб, уларнинг учи халқа орқали бошбоғга ва юган ипига бириктирилган.²⁴

Марказий Осиё тасвирий санъатида отлар нафақат ҳарбий, балки зийнат ва ҳашамат рамзи сифатида ҳам муҳим роль ўйнаган. Уларга боғлиқ жиҳозлар, жумладан, узанги, юган, жул ва бошқа анжомлардан ташқари, кенг тарқалган кўринишда **тақинчоқлар ва безаклар** ҳам катта ўрин эгаллайди. Тақинчоқлар — отнинг ташқи кўринишига нафақат зийнат бериш, балки маданий, ижтимоий мақомни ифода этишда муҳим вазифани бажарган.

Отлардаги безаклар, асосан, отнинг **бош қисми (бошбоғда), кўкраги (тушида), қуйруқ яқини (сағрида) ва қуйушқон** ҳамда **олд тутқичи** каби анжомларга илинган ҳолда акс этирилган. Бу безаклар тасвирларда кўпинча **сарик ёки олтин** рангда берилган бўлиб, уларнинг моддий жиҳатдан қимматбаҳо металллардан тайёрлангани англашилади.

Тасвирларда, хусусан, **от бўйнидаги ва туш қисмидаги юраксимон шаклдаги “олтин балдоқлар”** диққатга сазовор. Улар марказий ўринда жойлашган бўлиб, эстетик жиҳатдан отнинг “безак маркази” вазифасини бажарган. Сағри қисмида эса **яримойсимон шаклдаги балдоқ** ва унинг ичидаги **айлана олтин ёпроқча** шаклидаги безаклар тасвирланган.

¹⁹ Аълбаум Л.И. Живопись Афрасиаба. Ташкент.1975

²⁰ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 43–44-стр.

²¹ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура . М.,1973.

²² Могильников В.А. Тюрки. Степи Евразии в эпоху средневековья. Археология СССР.М.,1981, 49-стр.

²³ Аълбаум Л.И. Живопись Афрасиаба. Ташкент. 1975, 47-стр.

²⁴ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура . М.,1975.

Афросиёб, Тавка ва Панжикентдаги тақинчоқларида узига яраша фаркларни куриш мумкин. Келинг уларни солиштирамиз, жумладан,

Афросиёб деворий тасвирларида отларнинг бошбоғ ва қуйушқон қисмида **мураккаб тузилишдаги тақинчоқлар**, шу жумладан **айлана, баргсимон ва муйқаламсимон** безаклар акс эттирилган. Альбаум бу безаклар нафақат шакл жиҳатидан хилма-хил, балки таркибий жиҳатдан ҳам аниқ деталлар билан ифодаланганлигини айтиб утган.²⁵

Тавка ёдгорлигидаги отлар безаклари, асосан, **олтин рангдаги, юраксимон, яримойсимон ва айланасимон** шаклларда берилади. Ушбу безаклар отнинг бош, кўкрак ва сағри қисмларида жойлашган. Улар кўпинча тўплам ҳолатда, яъни **шода** шаклида илинган.

Панжикентдаги от тақинчоқлари Тавка тасвирларига яқинлиги билан ажралиб туради. Айниқса, **яримой ва юраксимон шаклдаги осма безаклар** Панжикентдаги отларнинг сағ'ри ва бўйнида акс этган.²⁶ Қўшимча равишда, Панжикент тасвирларида **кўнғироқчалар** каби амалий ва маросимий вазифа ўтовчи зийнатлар ҳам аниқланган. Бу безаклар жангда ёки парадларда от ҳаракатини эшитиш ва сигнал сифатида қўлланиши мумкин бўлганини англатади.

От анжомларидаги безаклар тасвирларда нафақат зийнат сифатида, балки этник ва маданий белгиларни ифода этувчи рамз сифатида ҳам роль ўйнаган. Улар одатда:

- **Геометрик шакллар** (айлана, ярим айлана, юраксимон);
- **Табиий шакллар** (баргсимон, муйқаламсимон);
- **Комплекс элементлар** (шода, халқа, ёпроқ тўпламлари)

тарзида тасвирланган бўлиб, уларнинг функцияси ҳам эстетик, ҳам рамзий, ҳам амалиётга оид бўлган. Кўнғироқчаларнинг жанг олди сигнализация, ёки шоҳона отлар беағи сифатидаги фойдаланилиши бунинг яққол мисолидир.

Отларга тақилган олтин безаклар нафақат чавандознинг бойлиги ва мақомини, балки сиёсий ва этник мансублигини ҳам кўрсатган. Хусусан, элчилар, шоҳлар ва жангчиларнинг отлари кўпинча **уникал безаклар, меъморий-этниқ рамзлар** билан безатилган бўлиб, бу расмий приёملарда, ҳарбий юришларда муҳим рол ўйнаган. Отларни шундай даражада зийнатлаш анъанаси **Яқин Шарқ, Сосоний ва Турк даврлари** санъатида ҳам кенг тарқалган.

Хулоса қилиб айтганда, илк ва урта асрларда Тохаристон ҳудудида ҳунармандчилик кенг ривожланган ва бу ҳунарлар асосан артефактлар, деворий тасвирлар ва қурилиш ёдгорликлари орқали яхши ўрганилмоқда. Ушбу манбалар орқали чавандозлар кийими, пойафзаллари, отлар устидаги жуллар ва бошқа анжомларнинг шакллари, материаллари ва безаклари ҳақида бой маълумотларга эга бўламиз. Махсус эътибор бериладиган жиҳатлардан бири — чарм маҳсиларнинг техник жиҳатдан мукамаллиги ва уларнинг ҳозирги кун маҳсиларига ўхшашлиги, шунингдек, пойафзаллар ва узангиларнинг маҳаллий этник ва маданий хусусиятларини акс эттириши.

Тохаристон тасвирий санъатидаги ёй, садок, камон ва от анжомлари нафақат амалий вазифаларни бажарган, балки маданий ва ҳарбий белгилар сифатида ҳам муҳим аҳамият касб этган. Улар орқали жангчанлик, ижтимоий мақом ва ҳудудий фарқлар ҳақида ҳам хулоса қилиш мумкин.

²⁵ Альбаум Л.И. Живопись Афрасиаба. Ташкент. 1975.

²⁶ Беленицкий А.М. Монументальное искусство Пенжикента. Живопись. Скульптура. М., 1973.

Отларнинг безаклари ва анжомлари, айниқса, олтин тақинчоқлар, нафақат эстетик зеб-зорнинг бир қисми, балки сиёсий, этник ва маданий рамз сифатида хизмат қилган. Ушбу безаклар ва анжомлар ёрдамида Тохаристондаги халқларнинг ижтимоий тузилиши, уларнинг маданий алоқалари ва тарихий жараёнлар ҳақида бой тасаввур ҳосил қилиш мумкин.

Шу тариқа, илк ва ўрта асрларда Тохаристон хунармандчилиги нафақат маҳаллий аҳоли ҳаётида муҳим ўрин эгаллаган, балки бу ҳудуднинг маданий мероси ва тарихини ўрганишда ҳам асосий манба ҳисобланади.

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TEACHING SPOKEN ENGLISH IN EARLY CHILDHOOD.

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ABSTRACT

This study explores effective approaches to developing oral English in preschool children through communicative, play-based, and immersive learning strategies. Using a qualitative methodology that includes literature synthesis and classroom observation, the study identifies key practices that facilitate natural language acquisition in early childhood. The results show that multimodal input, social interaction, and an emotionally supportive environment significantly increase children's spontaneous speech production and self-confidence. The research findings have practical implications for early childhood educators and curriculum developers.

INTRODUCTION

In the world, as a result of the growing demand for bilingualism at work and in education, the importance of teaching English at an early age is developing. Preschool children (3-6 years old) have special neurocognitive advantages due to their strong plasticity of the brain, sensitivity to phonological patterns, and an innate tendency to indirectly learn language through play and speech. Despite this promise, many early childhood programs continue to focus on worksheet-based exercises or text-based activities that disregard children's developmental needs. The purpose of the study is to identify educational strategies that effectively stimulate the oral learning of English in preschool educational organizations. This research is based on the following research question: RQ: Which teaching methodologies contribute more to the improvement of preschool children's English speaking competencies?

Methods

Research Design

A high-quality descriptive study design was used to analyze the trends in effective teaching practice. This approach allows for the generalization of evidence obtained from theoretical literature and naturalist observations in preschool organizations.

Data sources

Three types of data were analyzed:

1. Literature review

- 30 articles and books on Early Language Learning, Early Childhood EFL, and Sociocultural Learning.
- Key authors include frameworks based on Krashen, Pinter, Cameron, Vygotsky, and contemporary early childhood research.

2. Classroom Observations

- Monitoring of three preschool groups (ages 4-6) where English was spoken.
- Each group underwent observation for three 60-minute periods.
- Notes were taken during fieldwork, with particular attention to interaction patterns and natural speech produced by children.

3. Teacher interviews (informal)

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- Brief conversations with five English teachers from preschool educational institutions.
- Topics included strategies, challenges, and children's response patterns.

Data Analysis

Data were coded inductively. Recurring themes were categorized as:

- Immersion in daily routines
- Learning through play
- Multimodal activities
- Emotional environment and self-confidence
- Teacher simulation and platforming

Results

1 The full language immersion helps enhance comprehension and communication skills.

Educators who used English consistently during greetings, transitions, and various activities across all of the monitored students groups witnessed higher rates of un-prompted verbal interactions. Repeated expressions such as "let's tidy up," "choose a card," and "stand in a circle" offered reassuring repetition that helped build confidence in both comprehending and utilizing common language.

2 Speech Playbased activities generate the most speech

Role-play scenarios (like in shops, restaurants and when visiting the doctor) produced more English than Ingrian phrases. Children showed a higher tendency to interact in English when using objects and playing prescribed roles.

3 Songs and TPR (Total Physical Response) enhance pronunciation and retention.

After listening to action songs and moving games, children repeated word chunks clearly, pronounced patterns flexibly and maintained rhythm well. Review and reinforcement of vocabulary was designed by the musical repetition.

4 Storytelling promotes extended speech Children spontaneously repeated phrases, responded to predictive questions, and added segments to stories during story readings. Comprehension and expressive language abilities were further promoted by the use of visual supports (i.e. flash cards, puppets).

5 Supportive emotional environment facilitates speech risk-taking An identifying characteristic of the teacher was found to be her manifestation of sensitivity and understanding toward her students' inhibitions in making use of target language opportunities.

Teachers who used supportive words, mild correction and playful sounds saw far more attempts by children to invent new words or sentences. Generating a safe climate reduced the children's fear of mistakes.

Discussion

1 Implications for Teaching Practice

Studies have shown that English can be effectively introduced in preschool, for early language development – albeit when used in context. Instead of teaching vocabulary outright, child care providers should weave it naturally into fun activities and daily routines. This game-based teaching approach is consistent with the Vygotskian perspective of language as a communicative and social tool, playful and social in nature. English language use proves to be highly effective as a mode of communication when it is incorporated in different situations such as dramatic play, expressing wants and imaginative responses.

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Multimodal activities (songs, stories, movement and visual props) facilitate learning for all students and help reinforce the memory pathways according to contemporary stainations of multiple learning.

2 The role of the teacher

The teacher is the guide on the side, not the sage on the stage. Effective teachers make it possible for the students to master clear, expressive, purposeful English communication by :- myth.asp 29 creating an atmosphere in the class that would encourage them to express their ideas in oral and written contexts; myth.asp 29 making language teaching a valued activity of daily school life.

- by means of gesture and facial expression
- expanding children's brief responses;
- providing repetition with variety;
- maintaining warm, responsive interactions

3 Advantages of Early English Language Learning The reasons that encourage many parents to introduce foreign languages, especially the English language, at an early stage are numerous.

Speaking early has long-term advantages that are:

- natural pronunciation and intonation
- confidence in communication
- smoother progression to primary school English for children
- social and cognitive skill acquisition;
- positive attitude towards bilingualism

4 Limitations of the study

This was qualitative research with narrow classroom coverage. Observations were short-term. In the future further research is to include longitudinal studies and a broader spectrum of preschools.

Conclusion

This study demonstrates that oral English development in preschool education is most successful when guided by communicative, play-based, and immersive approaches. Optimal for Pre-School Education: Pre-school aged children typically acquire knowledge most effectively within a positive emotional environment that incorporates structured play activities, symbolic representation (such as storytelling), musical elements, and regular exposure to contextual English language. Educators play a crucial role in demonstrating proper language usage and establishing a secure learning atmosphere for pupils. The implementation of these fundamental principles within pre-school educational frameworks will significantly influence children's subsequent English language competency and retention capabilities.

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EMPLOYING MODERN PEDAGOGICAL APPROACHES TO ADVANCE VOCABULARY DEVELOPMENT AMONG PRIMARY LEARNERS

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ABSTRACT

The growth of vocabulary is a central part of the early development of children's speech and literacy, but many traditional teaching methods no longer meet the needs of modern elementary school. This study examines recent research on how modern pedagogical approaches can reinforce vocabulary acquisition in younger students. The quality review design was used to analyze academic resources published between 2000 and 2024, focusing on technology-supported learning, communicative practices, task-based learning, multisensory strategies, and differentiated learning. The results show that digital tools encourage participation and offer rich, multimodal access to new vocabulary; communicative and task-oriented methods encourage students to use vocabulary in meaningful interaction; multisensory approaches

INTRODUCTION

Vocabulary plays a vital role in how young learners understand texts, express ideas, and succeed across all school subjects. Studies show that children who cultivate a robust vocabulary early on are more inclined to attain greater literacy and academic achievement (Nation, 2013). Nonetheless, numerous conventional methods, like memorizing vocabulary lists or rewriting definitions, fail to adequately address the learning requirements, interests, and attention spans of contemporary elementary school learners. Modern classrooms require more interactive, engaging, and student-centered approaches. (Beck et al., 2013). With advances in educational technology and new understandings of how children learn, teachers now have access to a wide range of innovative techniques. These include digital learning tools, communicative activity, task-oriented lessons, multisensory approaches, and various forms of learning. Such methods derive from modern educational theories, including Vygotsky's system of social education (1978) and Payvio's theory of double coding (1986), both of which emphasize the importance of meaningful interaction and multifaceted use in the educational process and are used in education.

This article is dedicated to examining how these modern pedagogical approaches contribute to more effective learning of vocabulary among primary school students. Considering current research and analyzing various teaching methods, the research provides insights into how vocabulary development can be enhanced in primary education.

Methods

Research approach

To collect and summarize the current results of teaching vocabulary to primary school students, a qualitative review method was used. The approach aims to identify the main patterns and recommendations for several scientific sources.

Data collection

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Relevant research, books, and review articles published between 2000 and 2024 were collected through academic databases such as ERIC, JSTOR, and Google Scholar. Search queries: "primary vocabulary training," "modern learning strategies," "digital vocabulary training," "task database".

Data Analysis

After collecting the resources, thematic coding was used to identify recurring ideas. Five main topics emerged:

1. Studying vocabulary using technology
2. Communicative and interactive methods.
3. Task-based learning strategies
4. Multisensor and multimodal learning
5. Differentiation for different learners

Results and Discussion

Technology as a Tool for Rich Vocabulary Exposure

It was widely recognized that digital platforms and educational programs increase student engagement, especially among young students. Tools such as online flashcards, animated storybooks, and dictionary games provide quick advice and repetitive practice, both of which improve word memorization (Alqahtani, 2015). Meyer's (2021) research supports the combination of visual, audio, and text elements to enable students to effectively memorize vocabulary and apply it in real life.

The modern age of technology allows children to learn new words in an interactive environment. Individual learning features, game-like tasks, and multimedia stories make vocabulary learning more enjoyable and more memorable.

Communicative approaches provide better understanding

Studies show that children's vocabulary naturally increases when they use words in real communication (Richards & Rodgers, 2014). Speech tasks, role-playing games, pair conversations, group problem-solving activities encourage students to use new words in meaningful situations.

Because young learners have a high probability of acquiring vocabulary in a short time when they speak, engage in controversial discussions, and engage in social relations. This reflects Vygotsky's (1978) idea that social activity contributes greatly to education.

Task-based learning encourages active language use

It is recognized that task-based learning is evaluated as an effective method of forming strong lexical knowledge. When students complete projects such as creating posters, planning imaginary journeys, chatting with classmates, or storytelling, they use background vocabulary to achieve real goals (Ellis, 2017).

TBL directs attention from memorizing words to their actual use. This deeper engagement helps students develop confidence in memorizing vocabulary and using it in real life.

Multisensory methods strengthen memory connections.

Young children learn most effectively when lessons engage their emotions. Movements, images, gestures, pictures, songs, and simple dramas help create strong connections between words and their meanings. Total Physical Response (TPR) that combines movement with speech, especially for elementary school students (Asher, 2009).

Paivio's (1986) double coding theory also explains how combining verbal information with images improves memorization.

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These multimodal methods help students create mental connections that maintain long-term memory, especially for abstract or unfamiliar words.

Differentiated education supports all students.

In primary school there are different kinds of students with different kinds of knowledge, needs and learning abilities. Studies show that differentiated learning - the use of diverse materials, leveled vocabulary tasks, flexible grouping, and additional foundations - ensures the success of each student (Tomlinson, 2014).

By tailoring vocabulary lessons to individual needs, teachers provide more inclusive education where advanced students can improve their skills and where students experiencing learning difficulties can receive appropriate support.

Conclusion

The results show that modern pedagogical methods make a great contribution to the effective increase of vocabulary in primary education.. Digital tools provide an engaging, visually rich, and personalized experience. Communicative and task activity involves students in the real use of language. Multisensory tools help children remember words for a long time, Effective learning further increases the student's self-confidence and contributes to an increase in the level of knowledge. Through vocabulary learning, students not only reinforce their knowledge but also increase their self-confidence in life, participate more actively in lessons, and overcome shyness. As education continues to develop, it is necessary to introduce innovative approaches that help form the vocabulary necessary for the future academic success of student youth.

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THE COMMUNICATIVE AND STYLISTIC ROLE OF ONOMATOPOEIC WORDS IN
UZBEK AND ENGLISH

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ABSTRACT

This study investigates the communicative and stylistic roles of onomatopoeic words in both Uzbek and English. Onomatopoeic words, also called ideophones, are sound-imitative units that replicate natural, human, or animal sounds. They play a critical role in enhancing expressivity, evoking sensory perception, and conveying cultural nuances. Drawing on examples from literature, folklore, children's language, and everyday speech, the paper examines how these words contribute to meaning-making and stylistic variation. A comparative analysis shows both universal and language-specific patterns in expressive function, phonosemantic construction, and stylistic deployment. The results highlight onomatopoeic words as central to verbal communication and stylistic richness in both languages.

Keywords: onomatopoeia, ideophones, communicative function, stylistic role, Uzbek language, English language, comparative linguistics

Annotatsiya

Ushbu tadqiqot o'zbek va ingliz tillarida taqlid so'zlarning (onomatopeya va ideofonlarning) kommunikativ va stilistik rolini o'rganadi. Taqlid so'zlar tabiiy, inson yoki hayvon tovushlarini takrorlaydigan tovush-taqlid birliklari sifatida tanilgan. Ular ifodaviylikni oshirish, sezgi idrokini uyg'otish va madaniy nuanslarni yetkazishda muhim rol o'ynaydi. Maqolada adabiyot, folklor, bolalar tili va kundalik nutq misollari orqali bu so'zlarning ma'no yaratish va stilistik rang berishdagi o'rni tahlil qilinadi. Qiyosiy tahlil universal va tilga xos naqshlarni, fonosemantik tuzilish va stilistik ishlatish usullarini ochib beradi. Natijalar taqlid so'zlarning har ikki tilning og'zaki kommunikatsiyasi va stilistik boyligida markaziy ahamiyatga ega ekanini ko'rsatadi.

Kalit so'zlar: taqlid so'zlar, ideofonlar, kommunikativ funksiyasi, stilistik roli, o'zbek tili, ingliz tili, qiyosiy lingvistika

Аннотация

В данном исследовании рассматриваются коммуникативные и стилистические функции звукоподражательных слов (ониматопей) в узбекском и английском языках. Звукоподражательные слова, также называемые идеофонами, представляют собой единицы языка, имитирующие звуки природы, человека или животных. Они играют ключевую роль в повышении выразительности речи, вызове сенсорного восприятия и передаче культурных нюансов. На основе примеров из литературы, фольклора, детского языка и повседневной речи статья анализирует, как эти слова способствуют созданию смысла и стилистическому разнообразию. Сравнительный анализ выявляет как универсальные, так и языково-специфические закономерности в их выразительной функции, фонсемантической структуре и стилистическом использовании. Результаты подчеркивают центральную роль звукоподражательных слов в вербальной коммуникации и стилистическом богатстве обоих языков.

Ключевые слова: звукоподражательные слова, идеофоны, коммуникативная функция, стилистическая роль, узбекский язык, английский язык, сравнительная лингвистика

1. INTRODUCTION

Onomatopoeic words are linguistic units that mimic natural sounds, such as the rustling of leaves, buzzing of bees, or impact of objects. In linguistics, these words are considered phono-semantic, meaning that their sound and meaning are directly linked. They are widely used in literature, folklore, children's language, and everyday speech, serving both expressive and functional roles.

In Uzbek, onomatopoeic words—often formed through reduplication or affixation—provide vivid auditory imagery and convey subtle cultural and emotional meanings. Examples include *shuv-shuv* (rustling water), *g'urr-g'urr* (rumbling), and *qars* (sharp impact). In English, similar functions are achieved through words like *buzz*, *clang*, and *splash*, often supplemented by suffixation to form verbs (*buzzing*, *clanging*).

Studying onomatopoeic words comparatively provides insights into the universal cognitive and communicative mechanisms behind sound symbolism, as well as the stylistic choices shaped by cultural and linguistic traditions. This study focuses specifically on the **communicative and stylistic roles** of onomatopoeic words in Uzbek and English. It seeks to answer the following questions:

1. How are onomatopoeic words used in communication in Uzbek and English?
2. What stylistic effects do they produce in literature, folklore, and daily speech?
3. What similarities and differences exist in their phonosemantic construction and cultural significance?

2. Literature Review

2.1 Onomatopoeia in Linguistics

Onomatopoeia has been extensively studied in linguistic research for its role in sound symbolism, expressivity, and stylistic effect. Crystal (2003) identifies English onomatopoeia as a key component in narrative and poetic style, particularly in children's literature. Dingemanse (2012) emphasizes ideophones as cross-linguistic phenomena, noting their universal role in human language for conveying sensory experience.

In Turkic languages, including Uzbek, onomatopoeia is closely tied to oral traditions and folklore. Saidova (2018) highlights that Uzbek ideophones often combine auditory, visual, and motion imagery to create a multi-sensory experience. Nikolayeva (2010) emphasizes that reduplication is a common strategy for intensifying meaning in Turkic ideophones, a feature less common in English.

Comparative studies suggest that while the communicative essence of onomatopoeic words—imitating sounds to convey information—is universal, stylistic deployment varies according to cultural and linguistic norms (Ramay, 2015).

2.2 Stylistic and Communicative Function

Stylistically, onomatopoeic words enhance narrative expressivity, contribute to rhythmic structure, and create sound symbolism that mirrors or reinforces meaning. Communicatively, they provide immediate sensory cues to listeners or readers. In both Uzbek and English, onomatopoeic words can function in a literal sense (mimicking real sounds) and figurative sense (evoking emotions, mood, or tension).

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Previous studies, however, have largely focused either on English or Turkic languages individually, with limited cross-linguistic comparison. This study addresses this gap by analyzing the communicative and stylistic roles of onomatopoeia in both Uzbek and English.

3. Methodology

The study adopts a **comparative descriptive approach**, combining qualitative and quantitative analysis. Data sources include:

1. **Literary texts:** Uzbek poems and short stories (e.g., Abdulla Oripov, Cho'lpon) and English novels and poems (e.g., Beatrix Potter, Dr. Seuss).
2. **Folklore:** Uzbek folk tales, riddles, and proverbs; English nursery rhymes and folk stories.
3. **Everyday speech:** Recorded conversations, online forums, and children's language corpora.

Analysis focused on:

- **Communicative function:** How onomatopoeic words transmit sound, emotion, or sensory experience.
- **Stylistic function:** Their role in rhythm, literary style, imagery, and expressive impact.
- **Comparative phonosemantics:** Reduplication in Uzbek vs. suffixation or compound formation in English.

Data were categorized by semantic field (motion, sound, emotion), morphological pattern, and context of use. Examples were analyzed for communicative efficacy, stylistic enhancement, and cultural representation.

4. Results

4.1 Uzbek Onomatopoeic Words

Uzbek onomatopoeia often employs **reduplication** to intensify sound and meaning. Examples include:

Word	Meaning	Context	Function
shuv-shuv	Rustling water	Folktale, poetry	Auditory imagery, calming effect
g'urr-g'urr	Rumbling (river or thunder)	Oral narration	Conveying magnitude and movement
qars	Sharp impact	Children's stories, dialogue	Intensifying action, attention-grabbing

Communicative Role: These words transmit precise sensory information and evoke immediate auditory imagery.

Stylistic Role: They enhance narrative rhythm and expressivity, often reflecting oral traditions.

Cultural Implications: Many ideophones are tied to Uzbek folklore and traditional ways of perceiving nature, reflecting the community's interaction with the environment.

4.2 English Onomatopoeic Words

English uses onomatopoeic words in both literal and figurative ways. Examples:

Word	Meaning	Context	Function
buzz	Hum of bees or machinery	Literature, daily speech	Auditory imagery, excitement

Word	Meaning	Context	Function
clang	Metal hitting metal	Narrative, dialogue	Intensifying action, stylistic emphasis
splash	Water hitting surface	Poetry, children's literature	Visual-auditory imagery, expressive effect

Communicative Role: English onomatopoeia conveys sound and action with high clarity.

Stylistic Role: Often used in alliteration, rhythm, and humor, particularly in children's literature (*tick-tock, ding-dong*).

Cultural Implications: English onomatopoeic words reflect urban, mechanical, and literary contexts as much as natural ones.

4.3 Comparative Observations

- **Similarities:** Both languages use onomatopoeia to evoke sensory experience, intensify narrative action, and enhance stylistic expressivity.
- **Differences:**
 - Uzbek favors reduplication (*shuv-shuv, g'urr-g'urr*), while English often uses suffixation (*buzzing, clangy*) or alliterative compounds (*tick-tock*).
 - Stylistic deployment differs: Uzbek integrates ideophones rhythmically in oral storytelling, English emphasizes stylistic sound effects in both prose and poetry.

5. Discussion

5.1 Communicative Function:

Onomatopoeic words in both Uzbek and English play a crucial role in conveying sensory information quickly and vividly. In Uzbek folklore and oral literature, words like *shuv-shuv* immediately evoke the sound of water flowing in a river or rain falling, allowing the listener to construct a mental auditory image. Similarly, *g'urr-g'urr* represents rumbling, often of a river or thunder, providing cues not only for sound but also for movement, mood, and environment. In daily speech, these words also convey emotion: for example, *qars* (a sharp crack) signals sudden action or surprise, making narratives more engaging and interactive.

In English, words such as *buzz*, *clang*, and *splash* serve parallel communicative functions. *Buzz* may indicate the literal sound of insects or machines, but it can also carry metaphorical meaning, as in “the buzz of excitement,” reflecting how sound can signal emotional states. *Clang* conveys metallic impact while creating a sense of abruptness or tension in narrative contexts. Such words are often employed in both spoken and written language to enhance understanding, evoke sensory imagery, and maintain listener or reader attention.

This communicative function is universal: humans across cultures tend to map auditory experiences to linguistic forms. Cognitive linguists argue that these mappings reflect inherent perceptual associations between sounds and their meanings (Dingemanse, 2012). Thus, onomatopoeic words operate as a bridge between external reality and internal cognitive representation, providing immediate, intuitive understanding.

5.2 Stylistic Function

Beyond basic communication, onomatopoeic words serve a sophisticated stylistic function in both languages, contributing to rhythm, narrative tension, imagery, and aesthetic effect. In Uzbek oral poetry and storytelling, ideophones are often repeated or combined to preserve cadence and rhythm.

For example, a phrase like *shuv-shuv*, *g'urr-g'urr* not only mimics natural sounds but also structures the narrative in a way that supports oral performance. Such rhythmic use helps the audience anticipate patterns and enhances memorability, a key feature of oral traditions.

In written Uzbek literature, poets such as Abdulla Oripov use ideophones to evoke vivid natural imagery and to intensify emotional resonance. Similarly, in English literature, onomatopoeic words are strategically used to achieve stylistic goals. Nursery rhymes often rely on words like *tick-tock* and *ding-dong* to establish a musical, rhythmic quality that is both memorable and engaging. In novels, authors may use words like *crash*, *slam*, or *whisper* to generate tension, simulate sound effects, or convey mood. English writers also creatively form compounds (*click-clack*, *zip-zap*) or employ suffixation (*buzzing*, *clangy*) to manipulate rhythm and stylistic effect.

Thus, in both languages, onomatopoeia functions as a stylistic device, shaping how stories, poems, and everyday narratives are experienced, while enhancing the expressive range of language.

5.3 Cultural Implications

The stylistic and communicative functions of onomatopoeic words are deeply embedded in cultural contexts. In Uzbek, ideophones reflect agrarian and oral traditions, emphasizing natural sounds such as rivers (*shuv-shuv*), wind (*sarg'-sarg'*), or animal noises (*miyav-miyav* for a cat). These words do more than imitate sound: they encode cultural ways of interacting with the environment and carry symbolic significance in folklore and traditional narratives. For example, the repetition and elongation of ideophones often signal respect for natural forces or highlight moral or emotional cues in storytelling.

In contrast, English onomatopoeia reflects not only natural sounds but also the mechanized and urban environments characteristic of English-speaking cultures. Words such as *clank*, *beep*, and *zip* replicate industrial or technological sounds, showing adaptation of ideophones to modern life. Literary and popular culture further shape their usage: comic books, advertisements, and children's literature exploit onomatopoeic words for humor, dramatic effect, or sensory emphasis.

This comparison demonstrates that while the universal function of sound imitation is shared, its stylistic realization is culturally specific. Onomatopoeia thus functions as both a mirror of environmental interaction and a reflection of societal and literary norms.

5.4 Phonosemantic Patterns

Phonosemantic patterns reveal how each language structurally organizes sound-meaning correspondence. In Uzbek, **reduplication** is the most common strategy to intensify meaning, convey duration, or signal repeated action (*shuv-shuv*, *g'urr-g'urr*, *miyav-miyav*). Reduplication provides both semantic emphasis and rhythmic continuity, serving as a mnemonic and aesthetic device in oral and written traditions.

English, however, often employs **morphological derivation** and **alliteration** to achieve similar effects. Base onomatopoeic words can be extended with suffixes to create verbs or adjectives (*buzz* → *buzzing*, *clang* → *clangy*) or combined in compounds to heighten stylistic impact (*tick-tock*, *zip-zap*). Additionally, alliteration and consonance in English often amplify rhythm and stylistic prominence, especially in poetry, children's literature, and onomatopoeic comic expressions.

These differences illustrate that while the communicative function of onomatopoeia is universal, the structural and stylistic adaptation is language-specific. Uzbek and English exploit different phonosemantic strategies—reduplication vs. suffixation/alliteration—to achieve expressive, rhythmic, and stylistic goals.

5.5 Integration of Communicative, Stylistic, and Cultural Functions

Onomatopoeic words integrate communicative, stylistic, and cultural functions in a dynamic interplay. In both languages, these words enhance comprehension, evoke sensory imagery, and enrich narrative style. However, the specific forms they take—whether through reduplication, morphological derivation, or creative compounding—reflect linguistic conventions, cognitive strategies, and cultural norms. By studying these words comparatively, linguists and literary scholars can better understand how humans universally use sound symbolism while adapting it to distinct cultural and structural contexts.

6. Conclusion

Onomatopoeic words in Uzbek and English serve not only as expressive linguistic units but also as crucial elements of cultural identity and cognitive mapping. Their communicative function enables speakers to transmit auditory, visual, and emotional experiences effectively, making language more vivid and accessible. For instance, Uzbek reduplicated ideophones such as *shuv-shuv* or *g'urr-g'urr* provide a multisensory experience that integrates sound, movement, and sometimes emotion, while English words like *buzz* or *clang* convey similar auditory and metaphorical nuances in concise forms. From a stylistic perspective, onomatopoeic words enrich narrative techniques, poetic structures, and literary aesthetics. In Uzbek literature and oral folklore, ideophones contribute to rhythmic patterns and mnemonic devices, preserving the oral tradition and cultural memory. English onomatopoeia, while often more versatile in written forms, enhances stylistic variation through devices such as alliteration, suffixation, and creative compounding. In both languages, these words serve as a bridge between ordinary speech and literary artistry, demonstrating the dynamic interplay between language form and meaning.

Comparative analysis highlights both universality and specificity. Universally, humans employ sound-symbolic mechanisms to associate sounds with meaning, reflecting innate cognitive tendencies. Language-specific strategies, however, reveal cultural and structural influences: Uzbek relies heavily on reduplication for intensity and duration, while English frequently uses derivational morphology and sound patterning for stylistic effect. These findings underscore that the study of onomatopoeic words is not merely descriptive but also deeply intertwined with cognitive linguistics, cultural studies, and stylistics.

Moreover, onomatopoeic words provide insight into cross-linguistic communication, translation, and language acquisition. Understanding the functional and stylistic properties of these words can enhance second-language teaching, particularly in developing learners' expressive capabilities and sensitivity to cultural nuances. It also informs literary translation practices, ensuring that the expressive force of ideophones is preserved across languages.

Finally, this study encourages further research into other Turkic and Germanic languages, as well as languages from other families, to explore patterns of ideophone use, phonosemantic motivation, and stylistic deployment. Such comparative research could deepen our understanding of universality in human cognition, cultural expression, and the diverse strategies languages employ to map sensory experiences onto verbal forms. In sum, onomatopoeic words represent a fertile intersection of language, culture, and cognition, highlighting the richness and adaptability of human communication.

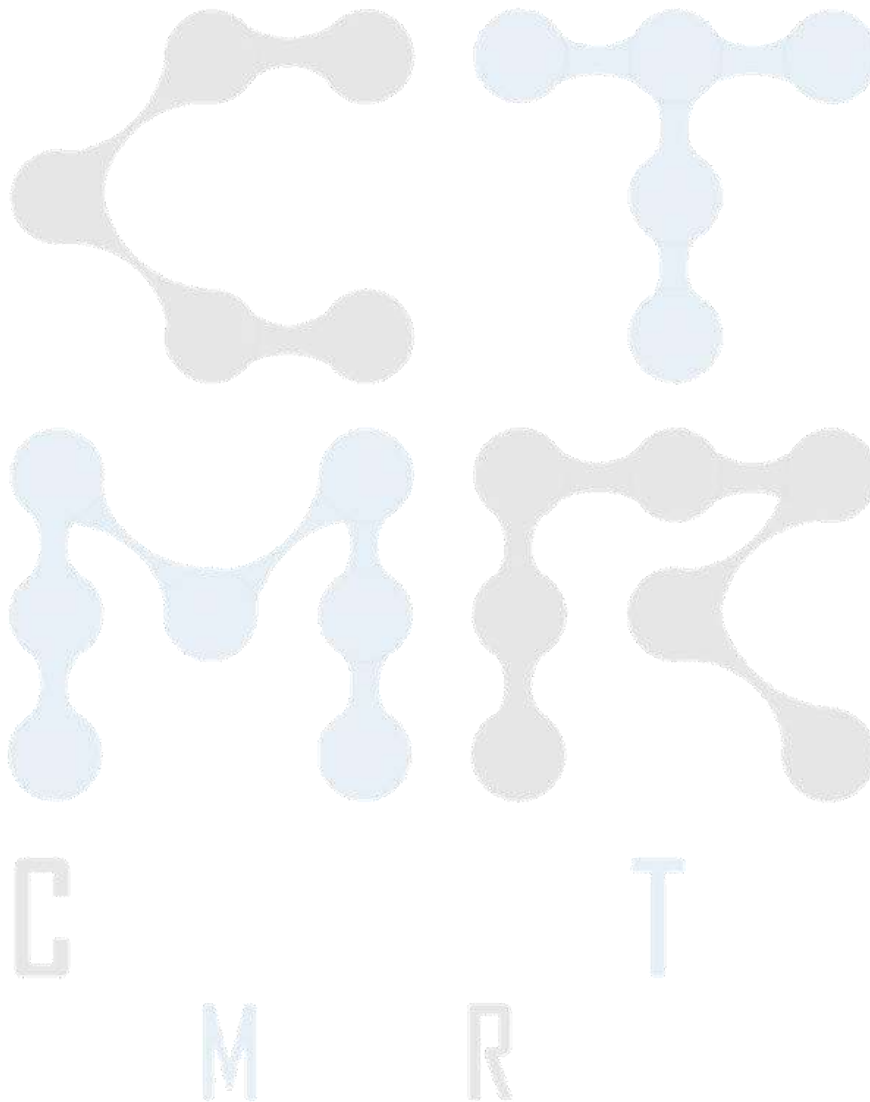
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A NEW INTERPRETATION OF THE CONCEPT OF ARTISTIC SPACE IN
CONTEMPORARY UZBEK LANDSCAPE ART

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Abstract: Contemporary Uzbek visual art has entered a transformative phase in the history of national art. This development, closely tied to the independence of Uzbekistan, has provided artists with unprecedented freedom to develop their personal styles, integrate global artistic trends with national motifs, and explore innovative techniques and materials. Contemporary artists now approach nature not merely as an external object of beauty, but as a complex system reflecting human psychology, worldview, and aesthetic values. The concept of “artistic space” has become increasingly significant, particularly in the landscape genre, where it functions as both a visual and philosophical medium. This article examines new interpretations of the concept of artistic space in contemporary Uzbek landscape art, exploring how artists create multi-layered spaces that encompass the human inner world, national identity, and global aesthetic processes. Through the interplay of color, form, texture, and digital technologies, these spatial concepts are given new conceptual and expressive depth. The study underscores the philosophical and aesthetic importance of artistic space, highlighting its role not only as a spatial representation but as an embodiment of the artist’s vision, inner condition, and aesthetic reasoning.

Keywords: Uzbekistan, contemporary landscape art, artistic space, concept, color, composition, national identity, global aesthetics, digital technologies

Introduction: The Essence of Artistic Space and Its Role in Art

Artistic space represents a spatial and semantic system constructed within an artwork, where time, nature, and human presence interact harmoniously. The concept of artistic space reflects the unity of place and time depicted in a piece, providing the necessary context, atmosphere, and worldview that define the work’s internal coherence. Its essence lies in the logic of the composition, the artist’s perception of the world, and the intrinsic laws governing the artistic universe. In practical terms, artistic space influences the depiction of characters and events, shaping them through elements such as color, lighting, composition, and spatial arrangement.

From a theoretical standpoint, scholars such as Mikhail Bakhtin and Yuri Lotman have conceptualized artistic space as a cultural and spiritual dimension. Within visual art, it transcends mere visual experience, encompassing symbolic and philosophical meanings that are perceived emotionally and intellectually by the observer.

Contemporary Reinterpretations of Artistic Space in Uzbek Landscape Art

Following independence, Uzbek artists have increasingly sought to harmonize depictions of national landscapes with contemporary aesthetic perspectives. The landscape genre has evolved beyond the strict confines of realism, incorporating abstract, expressive, and metaphorical approaches. In addition to traditional painting and sculpture, modern artistic movements including postmodernism, abstractionism, and conceptual art have been introduced and developed.

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The participation of Uzbek artists in international exhibitions and symposia demonstrates that their work is now part of the global art dialogue. In the oeuvre of artists such as Bakhtiyor Nazarov, Dilmurod Akhunov, and Saodat Sodikova, artistic space carries profound philosophical significance. Their landscapes depict natural phenomena as reflections of the human psyche, repositories of national memory, or symbols of temporal experience. Through color harmonies and compositional solutions, artists communicate their worldviews, crafting spaces that are simultaneously visual, emotional, and intellectual. In this context, artistic space becomes a philosophical domain, integrating thought, emotion, and symbolism rather than serving solely as a visual representation.

Ecological and Aesthetic Harmonization

Modern Uzbek landscape art increasingly emphasizes the symbolic and philosophical interpretation of nature, integrating ecological awareness. Artists have begun to focus on environmental issues, the conservation of natural resources, and the harmony between humans and their surroundings. For instance, depictions of desert expanses, dwindling water sources, and disappearing flora illustrate the effects of human activity on nature. Through these works, artistic space acquires an ecological dimension, portraying the environment not only as a source of beauty but as a vital element of life balance.

Interconnection of National Identity and Modernity

For contemporary Uzbek artists, national heritage remains a primary source of inspiration when constructing artistic space. Iconic elements such as the skies of Samarkand, the bricks of Bukhara, the sands of the Kyzylkum Desert, and the gardens of the Fergana Valley are reinterpreted using modern forms and color schemes. The interplay between tradition and modernity ensures continuity of artistic expression while uniting cultural memory with contemporary aesthetic sensibilities. National traditions shape the inner world of the artist, while modern techniques expand expressive possibilities through novel forms, compositions, and mediums. Consequently, today's artists seek not to replicate national values verbatim but to reinterpret them through a contemporary artistic language. National colors, patterns, motifs, and folk compositional solutions acquire new significance within modern art. For example, the principles of traditional Uzbek miniature painting are reimaged in modern graphics using simplified forms, vibrant colors, and dynamic compositions. This process brings national art into dialogue with contemporary cultural trends, moving it beyond the confines of museum display.

In the era of globalization, it is essential for artists to retain their national identity while establishing a presence in the global art arena. Many contemporary painters combine traditional motifs, ethnographic symbols, historical references, and national attire with modern techniques such as abstraction, expressionism, collage, and digital art. This approach allows for the creation of contemporary artistic concepts that preserve national identity.

By doing so, artists maintain cultural heritage while asserting Uzbekistan's unique voice in the international art community. Artistic space, therefore, functions as a creative bridge linking national values with contemporary aesthetic thought.

Conclusion

The examination of contemporary Uzbek landscape art reveals that the concept of artistic space has undergone a profound transformation, particularly in the post-independence era. Unlike traditional interpretations, where landscapes were primarily viewed as realistic representations of natural scenery, modern Uzbek artists approach nature as a dynamic, multi-layered system intertwined with

human psychology, cultural memory, and philosophical reflection. Artistic space is no longer confined to the depiction of physical surroundings; it embodies complex relationships between the internal emotional world of the artist, societal values, and global aesthetic discourse.

This redefinition of artistic space allows artists to explore the intersections of personal and collective identity. Through the integration of national motifs—such as architectural elements, traditional textiles, historical landmarks, and folk symbolism—into contemporary compositional forms, artists preserve and reinterpret the cultural heritage of Uzbekistan. At the same time, the incorporation of modern techniques, including abstraction, expressionism, conceptualism, collage, and digital media, situates their works within the global artistic arena, creating a dialogue between local traditions and universal aesthetic trends.

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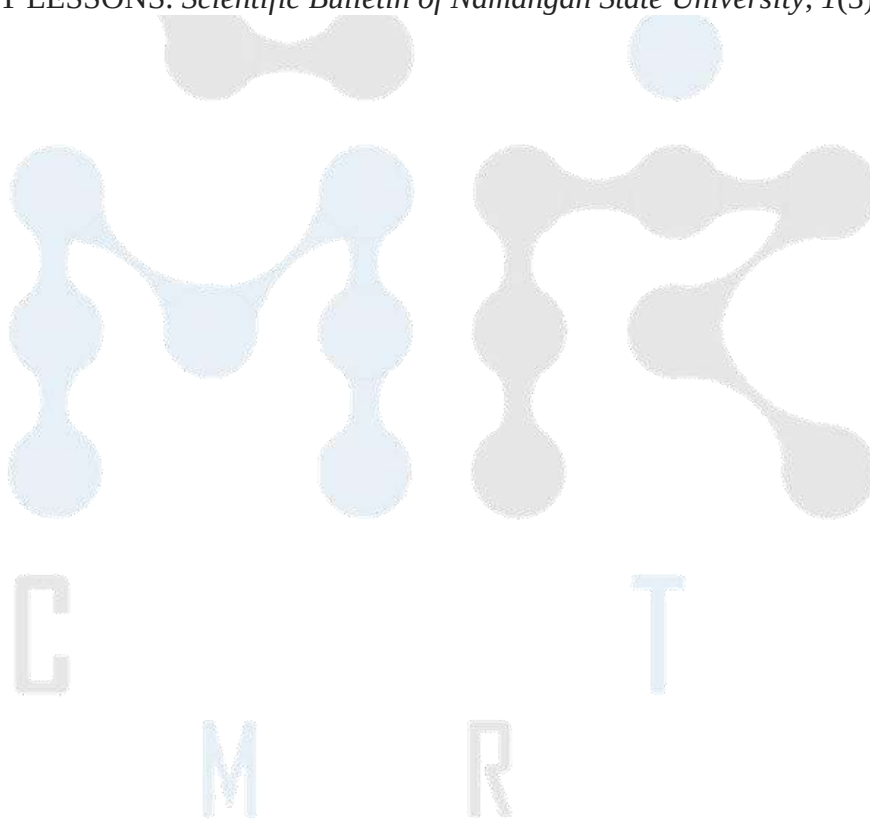
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LOW-TEMPERATURE HEATING SURFACE MODE OF THE BOILER

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Abstract: This article analyzes low-temperature heating skirts made from boilers and aims to explore the practical application of these technologies. It serves to explore energy efficiency by explaining the production process and the environmental impact of this energy production method.

Key words: boiler, low-temperature heating surfaces, economizer, air heater, heat exchanger, temperature distribution, gas consumption, thermal efficiency, stage arrangement.

Аннотация. В данной статье рассмотрен анализ низкотемпературных нагревательных юбок из котла и поставлена цель изучить применение технологий на практике. Статья служит для изучения энергоэффективности путем объяснения производственного процесса и воздействия этого метода получения энергии на окружающую среду.

Ключевые слова: котел, низкотемпературные поверхности нагрева, экономайзер, воздухоподогреватель, теплообменник, распределение температуры, расход газа, тепловая эффективность, расположение ступеней.

There are two main schemes for the relative positioning of the economizer and air heater:

- 1) sequential placement, when the economizer is located first in the direction of combustion products, followed by the air heater;
- 2) a two-stage arrangement, in which the combustion products first pass through the upper part of the air heater and then through their lower parts.

The two-stage arrangement of the tail heating surfaces somewhat complicates the boiler design. Long air bypass ducts are required. With a two-stage design, the air preheater and economizer are split into two stages.

The last heating surface along the gas flow is still the air heater.

The change in temperature of the gases and working fluid along the low-temperature heating surfaces is shown in Figure 1. As the air heats up, its temperature approaches the temperature of the gases; the opposite is true for water. As can be seen from Figure 1, the minimum temperature difference between the heating and heated fluids is observed at the "hot" end of the air heater Δt_m^{vp} and the "cold" end of the economizer Δt_m^{ek} . This behavior of the temperature curves follows directly from the heat balance equations.

In particular, for the first stage of the air heater, the heat balance equation has the following form:

$$(t_{\Gamma.B.} - t_{X.B.})\omega_B = (\vartheta_{\Gamma} - \vartheta_{YX})\omega_{\Gamma} \quad (1)$$

Where $t_{X.B.}$; $t_{\Gamma.B.}$ — air temperature at the inlet and outlet of the air heater, °C; ϑ_{Γ} , ϑ_{YX} — temperature at the inlet and outlet of the first stage of the air heater, °C; ω_B , ω_{Γ} — water equivalents of the volumes of air and gases, related to 1 kg of fuel, kJ/(kg • deg).

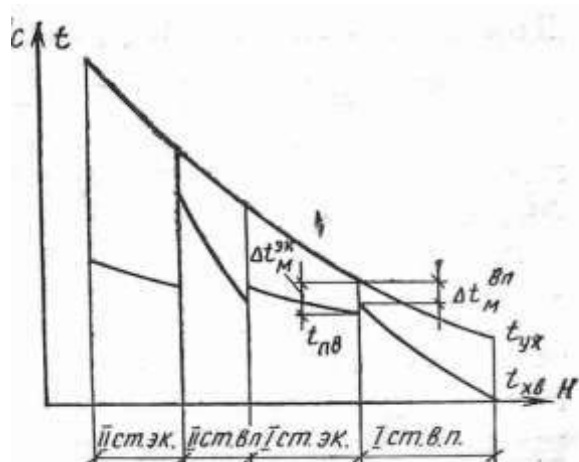


Fig. 1. Change in temperature of gas and working fluid along low-temperature heating surfaces

The values of water equivalents of air and gases are respectively equal to: for air

$$\omega_B = (\alpha_T - \Delta\alpha_T - \Delta\alpha_{пл.у}) V_B^0 c_B (2)$$

for gas

$$\omega_r = V_{RO_2} c_{RO_2} + V_{N_2} c_{N_2} + (\alpha_{yx} - 1) V_B^0 c_B + V_{H_2O} c_{H_2O} (3)$$

The volume of gases is greater than the volume of air due to the presence of water vapor obtained from the fuel moisture and during the combustion of hydrogen, and the suction of air into the furnace and flues of the boiler. In addition, the heat capacity of gases is greater than that of air. Therefore, as can be seen from equations (2) and (3), the water equivalent of gases is always greater than that of air. From equation (1) it follows that the $\omega_B < \omega_r$ increase in air temperature is greater than the corresponding decrease in gas temperature. The water equivalent of water, referred to 1 kg of fuel and equal to

$$\omega_{вод} = (D/B) c_p \quad [kJ/(kg \cdot deg)],$$

gases have a higher water equivalent, so the temperature curves in the economizer region diverge (see Fig. 1).

If in equation (1) the temperature of the gases before the first stage of the air heater and the temperature of the hot air are expressed through $\Delta t_M^{вп}$ and $\Delta t_M^{эк}$, then we obtain:

$$v_r = t_{нб} + \Delta t_M^{эк};$$

$$t_{гв} = v_r - \Delta t_M^{вп}.$$

The optimum temperature of the hot air behind the first stage of the air heater can be obtained from equations (1) and (3):

$$\Delta t_{гв} = t_{нб} + \Delta t_M^{эк} - \Delta t_M^{вп}.$$

If we substitute the values of the minimum temperature differences obtained above into this equation, we will have:

$$t_{гв} = t_{нб} + (10 - 15) ^\circ C.$$

This recommendation is often used when breaking down the heat drop between the stages of an air heater.

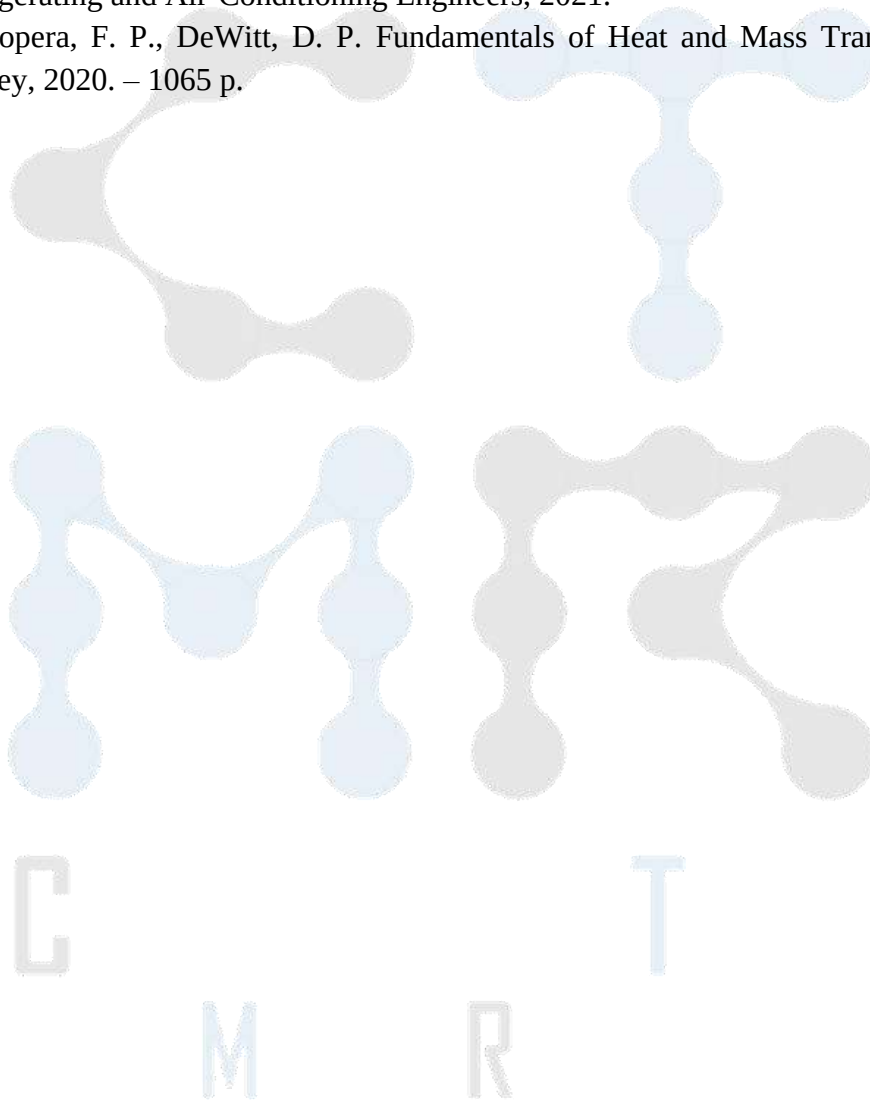
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**“ZAMONAVIY EKOTURIZIMNING ASOSIY TERMINOLOGIK KONSEPSIYALARI
YO’NALISHLARI VA SHAKLLARI (INGLIZ VA UZBEK TILLARI MATERIALLARI
ASOSIDA)”**

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Annotatsiya: Ushbu tadqiqot zamonaviy ekoturizmning asosiy terminologik tushunchalari, rivojlanish yo’nalishlari va tashkiliy shakllarini ingliz va o’zbek tillaridagi materiallar asosida qiyosiy tahlil qiladi. Dunyo bo’yicha ekoturizmning jadal rivojlanib borishi ilmiy tadqiqotlar, ta’lim va barqaror amaliyot uchun aniq va yagona terminologiyaning muhimligini yanada oshirmoqda. Tadqiqotda barqaror turizm, tabiiy turizm, mas’uliyatli sayohat va hamjamiyatga asoslangan ekoturizm kabi asosiy tushunchalar tahlil qilinib, ularning ingliz va o’zbek manbalarida qo’llanishidagi o’xshashlik va farqlar yoritiladi. Shuningdek, ekoturizmning zamonaviy yo’nalishlari — biologik xilma-xillikni saqlash, madaniy merosni asrash va mahalliy hamjamiyatlarni qo’llab-quvvatlash masalalari ko’rib chiqiladi. Tadqiqot turli tashkiliy shakllarni — qo’riqlanadigan hududlarda ekoturizm, qishloq ekoturizmi, sayyohlik-sarguzasht turizmi va ko’ngilli turizmini ham o’rganadi. Mazkur qiyosiy lingvistik yondashuv ekoturizm terminologiyasini yanada aniqroq tushunishga va ikki tilda standartlashgan atamalarni shakllantirishga xizmat qiladi.

Kalit so’zlar: ekoturizm; barqaror turizm; terminologiya; ingliz–o’zbek qiyosiy tahlili; tabiiy turizm; hamjamiyatga asoslangan turizm; tabiatni muhofaza qilish; zamonaviy turizm yo’nalishlari.

**“ОСНОВНЫЕ ТЕРМИНОЛОГИЧЕСКИЕ ПОНЯТИЯ, НАПРАВЛЕНИЯ И ФОРМЫ
СОВРЕМЕННОГО ЭКОТУРИЗМА (НА МАТЕРИАЛАХ НА АНГЛИЙСКОМ И
УЗБЕКСКОМ ЯЗЫКАХ)”**

Аннотация: В данном исследовании рассматриваются основные терминологические понятия, направления развития и организационные формы современного экотуризма на основе сравнительных материалов на английском и узбекском языках. По мере глобального роста экотуризма необходимость точной и унифицированной терминологии становится все более важной для научных исследований, образования и устойчивой практики. В работе анализируются ключевые понятия, такие как устойчивый туризм, природно-ориентированный туризм, ответственное путешествие и общинный экотуризм, с акцентом на сходства и различия их употребления в английских и узбекских источниках. Кроме того, исследуются основные направления современного экотуризма, включая сохранение биоразнообразия, защиту культурного наследия и расширение возможностей местных сообществ. Также рассматриваются различные организационные формы — такие как туризм в охраняемых природных территориях, сельский экотуризм, приключенческий экотуризм и волонтерский туризм. Компаративный лингвистический подход исследования способствует более глубокому пониманию терминологии экотуризма и поддерживает развитие стандартизированного употребления терминов в обоих языках.

Ключевые слова: *экотуризм; устойчивый туризм; терминология; англо-узбекское сравнение; природно-ориентированный туризм; общинный туризм; сохранение природы; современные тенденции туризма.*

“THE MAIN TERMINOLOGICAL CONCEPTS, DIRECTIONS, AND FORMS OF MODERN ECOTOURISM (BASED ON MATERIALS IN ENGLISH AND UZBEK LANGUAGES)”

Abstract: *This study examines the main terminological concepts, development directions, and organizational forms of modern ecotourism based on comparative materials in English and Uzbek. As ecotourism continues to grow globally, the need for precise and unified terminology becomes increasingly important for research, education, and sustainable practice. The paper analyzes key concepts such as sustainable tourism, nature-based tourism, responsible travel, and community-based ecotourism, highlighting similarities and differences in their usage across English and Uzbek sources. Additionally, it explores the primary directions of modern ecotourism, including biodiversity conservation, cultural heritage preservation, and local community empowerment. Various organizational forms—such as protected-area tourism, rural ecotourism, adventure-based ecotourism, and volunteer tourism—are also discussed. The comparative linguistic approach of the study contributes to a clearer understanding of ecotourism terminology and supports the development of standardized usage in both languages.*

Keywords: *ecotourism; sustainable tourism; terminology; English–Uzbek comparison; nature-based tourism; community-based tourism; conservation; modern tourism trends*

INTRODUCTION

In recent decades, ecotourism has emerged as one of the most dynamic and rapidly developing sectors of the global tourism industry. As environmental concerns, sustainable development goals, and the need for responsible travel practices gain international significance, ecotourism serves as a vital bridge between nature conservation and socio-economic growth. Despite its global relevance, ecotourism remains a complex and multi-dimensional phenomenon, requiring precise terminological definitions, clear conceptual frameworks, and comprehensive understanding of its various directions and forms. These challenges are particularly important in multilingual contexts, where terminological differences may influence how ecotourism is understood, developed, and promoted. Examining the main terminological concepts of ecotourism through materials in English and Uzbek languages is especially valuable due to the growing role of Uzbekistan as a regional hub for sustainable tourism. While English serves as the leading international language of academic research and tourism discourse, Uzbek-language sources reflect local perspectives, cultural values, and national development priorities. Comparative analysis of terminology and conceptual approaches in both languages allows for identifying common definitions, revealing linguistic nuances, and understanding how international ecotourism standards are interpreted within the local context. Furthermore, modern ecotourism encompasses a wide range of directions—from wildlife observation, protected area tourism, and rural community engagement to adventure ecotourism, educational travel, and cultural-ecological experiences. These diverse forms contribute not only to environmental protection but also to the economic empowerment of local communities, the preservation of traditional lifestyles, and the promotion of sustainable resource use. This study aims to explore the key terminological concepts, main directions, and contemporary forms of ecotourism by synthesizing English and Uzbek academic

sources, tourism guidelines, and policy documents. By doing so, it provides a clearer, more unified understanding of ecotourism as both a global and locally adapted phenomenon. The comparative approach enhances terminological accuracy and supports the development of a more coherent and culturally relevant framework for ecotourism research and practice in Uzbekistan and beyond.

Research Objectives

The main objectives of this study are as follows:

1. To identify and analyze the core terminological concepts related to ecotourism in English and Uzbek academic, professional, and policy-based sources.
2. To compare and contrast the usage, meaning, and interpretation of ecotourism terminology across the two languages, highlighting similarities, differences, and linguistic nuances.
3. To classify the major directions of modern ecotourism, including nature-based, cultural-ecological, community-based, educational, and adventure-oriented forms.
4. To examine contemporary forms and models of ecotourism development, emphasizing their role in sustainability, environmental protection, and local economic development.
5. To assess how global ecotourism concepts are adapted to the Uzbek context, including the country's natural resources, cultural traditions, legislation, and tourism strategies.
6. To contribute to a unified terminological framework that supports academic research, professional communication, and policy-making in the field of ecotourism.

Literature Review

Modern research on ecotourism has expanded significantly, covering environmental science, tourism studies, linguistics, cultural anthropology, and sustainable development. International English-language literature, such as works by Martha Honey, David Fennell, and the International Ecotourism Society (TIES), provides widely accepted definitions emphasizing responsible travel to natural areas, conservation-focused practices, and socio-economic benefits for local communities. Many scholars also highlight the importance of environmental education, low-impact travel, and community participation as integral components of ecotourism. In parallel, Uzbek-language sources have grown rapidly over the past decade, reflecting Uzbekistan's increased attention to sustainable tourism and eco-friendly development. Research papers, government strategies, and academic publications in Uzbekistan often emphasize the country's rich biodiversity, protected territories, national parks, and unique cultural landscapes as key foundations for ecotourism. Uzbek authors also explore the integration of ecotourism with rural development, ethno-tourism, and community-based tourism, aligning with global sustainability standards while maintaining local cultural identity. Comparative studies show that while core ecotourism concepts are similar in both languages, certain terms—such as “ecological tourism,” “responsible tourism,” and “environmental education”—may carry slightly different interpretations depending on linguistic, cultural, and policy contexts. This highlights the need for precise terminology when developing educational programs, tourism projects, and national standards. Overall, existing literature underscores ecotourism's role as a tool for conservation and sustainable development, while also revealing the importance of culturally adapted approaches. However, a systematic comparison of English and Uzbek terminological frameworks is still limited, creating a gap that this study aims to address.

The body of research on ecotourism is broad and interdisciplinary, encompassing environmental science, tourism management, and linguistics. For the purposes of this dissertation on terminological

aspects, the most relevant works focus on definitions, term formation, translation, and the development of ecotourism in different contexts, especially in Uzbekistan.

One major strand of literature deals with definitional and conceptual foundations. The concept of ecotourism itself has evolved significantly since it first appeared. Definitions from global organizations emphasize responsible travel to natural areas, conservation, local community benefit, and education. [1-561,567p] In the Uzbek context, authors such as Turayeva, Ikhtiyorovna, and others have provided detailed comparisons of the English and Uzbek terminological systems for ecotourism.

A second group of studies looks at theoretical and methodological foundations of ecotourism terminology. For example, Abdullayeva (in her work “Scientific-Theoretical and Methodological Foundations of Ecotourism Terminology”) highlights the interdisciplinary nature of the topic and proposes frameworks for the classification and analysis of ecotourism terms. [2- 74,77] Related to this, research into lexico-semantic methods shows how terms in both English and Uzbek are formed, evolve, and enter the terminological system. [3- 246,248]

The term “tourism” has evolved over centuries, both linguistically and conceptually, to represent a complex social, cultural, economic, and environmental phenomenon. Etymologically, the word “tourism” is rooted in the Latin verb *tornare*, meaning “to turn (on a lathe),” and in the ancient Greek *tornos* (τόρνος), which refers to a lathe or a circular motion. The notion is one of a circular journey — leaving from a point and eventually returning to it. The suffix “-ism,” denoting action or practice, turns *tour* into *tourism*, literally implying the activity of making a circuit or journey. [3-24.26] Historically, the modern concept of tourism emerged in the 17th and 18th centuries. The so-called “Grand Tour,” popular among young European aristocrats, exemplifies this: these long journeys across the European continent were not just pleasure trips but also educational voyages of cultural and artistic enrichment. [4- 45, 48] Over time, as transportation technologies advanced and travel became more accessible, “tourism” cemented its meaning as travel away from one’s usual environment for pleasure, learning, or business. Thus, when we speak of “tourism,” we refer not just to travel in the literal sense, but to a structured, often cyclical, cultural and economic practice shaped by historical developments.

Definition and Emergence of Ecotourism.

Within the broad field of tourism, ecotourism has emerged since the late 20th century as a distinct niche that explicitly links travel with environmental ethics. The term “ecotourism” is commonly attributed to Héctor Ceballos-Lascuráin, a Mexican architect and conservationist. In 1987, Ceballos-Lascuráin defined ecotourism as: “traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas.” He further emphasized that ecotourism “implies a scientific, esthetic, or philosophical approach,” although an ecotourist need not be a professional scientist, artist, or philosopher. [5-34,36] What matters is the opportunity to immerse oneself

in nature in a way that fosters deep consciousness of environmental and cultural value. Another widely recognized definition comes from The International Ecotourism Society (TIES): “responsible travel to natural areas that conserves the environment and improves the well-being of local people.” [6-56,58] This emphasizes responsibility, conservation, and social benefit — three core pillars of ecotourism. Further, some scholars note that the roots of the word “eco-” come from the Greek *oikos*,

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meaning “house” or “environment,” which underlies concepts like ecology and economy. Thus, ecotourism is not simply “green tourism,” but a mode of travel that inherently acknowledges and respects the home (oikos) of living beings. Ecotourism occupies a unique theoretical space because it attempts to reconcile two often competing goals: environmental conservation and local socioeconomic development. From the environmental perspective, ecotourism is seen as a mechanism to incentivize the protection of natural areas. By bringing tourists to relatively undisturbed ecosystems, ecotourism can generate income that supports conservation efforts, such as habitat preservation, biodiversity monitoring, and sustainable resource management. Ceballos-Lascuráin himself argued that through immersive travel, visitors can develop greater environmental awareness and a conservation-minded ethic. From the social and economic side, ecotourism is argued to benefit local communities. According to some analyses, for an activity to truly be ecotourism, it must “actively involve the local communities in the tourism process so that they may benefit from it ... thereby contributing to a better valuation of the natural resources in that locality.” [8-123’126] The idea is that local people, when stakeholders in ecotourism, will have a financial and cultural interest in maintaining their environment, thus aligning local development with conservation. Despite its appealing theoretical framework, ecotourism faces practical and ethical challenges. First, definitional ambiguity remains a problem: not all “nature-based” tourism qualifies as ecotourism. Some tourism operations labeled “eco” may simply exploit natural areas without real conservation or community benefits. Second, even well-intentioned ecotourism can have negative environmental impact. The presence of tourists, however limited, can disturb wildlife, introduce pollution, and strain fragile ecosystems. To fulfill Ceballos-Lascuráin’s vision of low-impact, scientifically or philosophically informed immersion, careful planning, management, and monitoring are required. Third, socioeconomic inequities may limit local participation. If the “benefits” of ecotourism are captured mainly by outside investors or well-connected elites, then the stated goal of community development may be undermined. Some scholars argue that without strong governance frameworks, the promise of empowerment and local benefit remains idealistic. Finally, greenwashing is a concern: some tourist operators and destinations brand themselves “eco-” or “green” simply to attract ethically minded travelers, without implementing meaningful environmental management or community engagement. This raises the question: can ecotourism, in practice, live up to its philosophical and ethical aspiration. Given these tensions, the dissertation question — How does ecotourism reconcile environmental conservation with local community development? — is both timely and critical. Empirically, this reconciliation depends on: The education and attitude of tourists: Do ecotourists genuinely engage in low-impact, respectful behavior, or do they treat the environment as a backdrop for recreation? The economic model: Does revenue from ecotourism flow back to conservation and community, or is it siphoned off by external actors? The regulatory context: Are there policies (local, national, or international) that ensure standards of sustainability, conservation, and social equity? From a theoretical point of view, successful ecotourism serves as a bridge between environmental ethics and sustainable development. [9-56,58] It is not just a market segment but potentially a transformational practice, fostering conservation-minded global citizens and providing tangible benefits to host communities. However, the “ideal” ecotourism model—grounded in the definitions of Ceballos-Lascuráin and TIES—requires ongoing critical assessment. Without rigorous implementation and genuine commitment, ecotourism risks becoming another form of exploitative tourism, masked by green rhetoric.

Definitions of Uzbek academic literature.

In recent Uzbek academic literature, the concept of ecotourism is generally framed in line with international definitions (such as those of Ceballos-Lascuráin and The International Ecotourism Society), but adapted to the socio-economic and ecological conditions of Uzbekistan. Scholars emphasize three recurring elements: protection of natural areas and ecosystems, improvement of the well-being of local communities, and minimization of environmental impact within a broader sustainable development agenda.

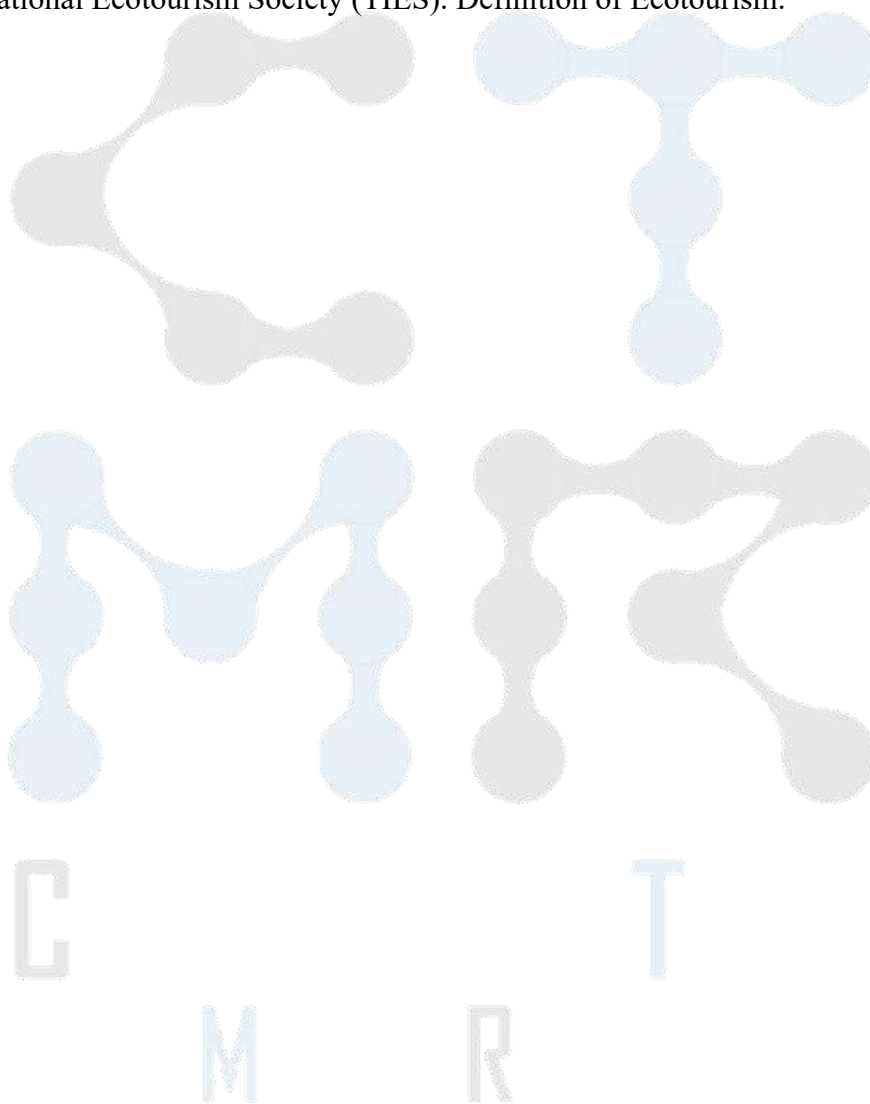
Conclusion

The study of the main terminological concepts, directions, and forms of modern ecotourism—based on English and Uzbek materials—demonstrates that ecotourism today is not only a branch of tourism but also a complex interdisciplinary phenomenon that connects environmental protection, cultural preservation, education, and sustainable economic development. The analysis of English-language sources reveals globally accepted definitions of ecotourism, emphasizing responsible travel, biodiversity conservation, and community participation. Meanwhile, Uzbek-language materials highlight the local ecological potential, national priorities, and cultural values that shape how ecotourism is understood and implemented within the country. The comparative examination of terminology shows that although core ideas are consistent across both languages, certain terms acquire distinct shades of meaning influenced by linguistic structure, cultural context, and national policy frameworks. This underscores the importance of developing unified and precise terminology to ensure effective communication among researchers, practitioners, policymakers, and educators. Furthermore, the study identifies key directions and forms of modern ecotourism—including wildlife-based tourism, protected area tourism, educational and scientific travel, community-based ecotourism, and cultural-ecological experiences. These forms play an essential role in promoting conservation efforts, improving the livelihoods of local populations, and fostering environmental awareness among travelers. Overall, the research highlights that the successful development of ecotourism depends on the integration of global standards with local realities, ensuring that tourism growth does not compromise ecological sustainability. By analyzing English and Uzbek scholarly materials, this study contributes to a deeper understanding of ecotourism terminology and offers a foundation for further academic research and practical initiatives in sustainable tourism development. It reinforces the idea that ecotourism, when properly guided, can become a powerful tool for environmental stewardship, cultural preservation, and long-term socio-economic progress.

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***AESTHETIC–LITERARY ASPECTS OF TRANSLATION AND THE ISSUE OF CREATIVE
PARALLELISM IN AUSTEN’S PRIDE AND PREJUDICE***

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Abstract. This article examines the aesthetic and literary dimensions of translation through the lens of Jane Austen’s novel *Pride and Prejudice*, focusing on the issue of *creative parallelism*—the translator’s ability to recreate stylistic, cultural, and emotional equivalence in the target language. The study draws on established translation theories, particularly those of Eugene Nida, Lawrence Venuti, Susan Bassnett, Roman Jakobson, and André Lefevere, to analyze how Austen’s characteristic narrative voice, irony, social commentary, and stylistic nuances can be reinterpreted in translation. The aim is to evaluate the strategies and challenges that arise when transferring Austen’s distinctive literary aesthetics into another linguistic and cultural context. Through textual analysis and comparative theoretical review, the article highlights the essential tension between fidelity and creativity, demonstrating that successful literary translation requires balancing semantic accuracy with artistic re-creation. The findings conclude that creative parallelism is not merely an option but an inevitable condition for achieving a translation that is both faithful and aesthetically resonant.

Key Words: *Translation Studies, Aesthetics, Creative Parallelism, Jane Austen, Pride and Prejudice, Literary Translation, Narratology, Irony, Equivalence.*

Introduction. Translation of literary texts has long been recognized as a complex intellectual and artistic endeavor. Unlike technical translation, where clarity and accuracy dominate, literary translation demands sensitivity to aesthetics, cultural connotations, stylistic texture, and narrative voice. Jane Austen’s *Pride and Prejudice*—rich with irony, social critique, nuanced character psychology, and a delicately balanced prose style—poses particular challenges to translators working in any language.

The central theme of this article is the role of *aesthetic and literary perspectives in the translation process*, with special attention to the concept of creative parallelism. Creative parallelism refers to the translator’s ability to generate an artistic counterpart of the original text rather than reproduce it mechanically. Scholars such as Nida (1964), Venuti (1995), Bassnett (1980), and Lefevere (1992) have emphasized the translator’s creative responsibility in reproducing literary effect rather than mere linguistic equivalence.

Austen’s novel serves as a rich case study for investigating these issues. Her understated irony, narrative distance, use of free indirect discourse, and social satire require interpretive and creative engagement. This article explores how these elements can be retained, restructured, or reimagined in translation to achieve a parallel artistic impact.

Materials and Methods

1. Theoretical Framework

This study is grounded in major theories of translation:

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- ✧ **Eugene Nida's Dynamic Equivalence Theory**, which argues for conveying meaning and effect rather than literal form.
- ✧ **Lawrence Venuti's notions of domestication and foreignization**, emphasizing cultural politics and the translator's visibility.
- ✧ **Susan Bassnett's perspectives on literary and comparative translation**, particularly regarding narrative voice and cultural context.
- ✧ **Roman Jakobson's concept of interlingual translation**, focusing on semantic and stylistic transfer.
- ✧ **André Lefevere's rewriting and manipulation theory**, which views translation as a form of cultural rewriting influenced by ideology and aesthetic norms.

These frameworks help evaluate the aesthetic and creative strategies used when translating Austen.

2. Methodology. The article employs:

- ✓ **Textual analysis** of key stylistic features in *Pride and Prejudice*.
- ✓ **Comparative analysis** using theoretical criteria rather than comparing specific existing translations (to maintain general applicability).
- ✓ **Qualitative discussion** integrating scholarly perspectives and identifying challenges in recreating Austen's narrative style.

Results and Discussion

1. Austen's Aesthetic Signature and its Translational Challenges

Jane Austen's prose style, often described as elegant, controlled, and subtly ironic, presents several essential challenges:

a) Irony as an Aesthetic Core

Austen's opening line—"It is a truth universally acknowledged..."—is universally recognized for its ironic tone. As Bassnett argues, irony is one of the most difficult stylistic devices to translate because it relies on cultural and linguistic cues (Bassnett, 1980). Translators must recreate—not merely reproduce—the ironic undercurrent that shapes the novel's worldview.

b) Free Indirect Discourse (FID)

Austen masterfully blends third-person narration with characters' thoughts. Jakobson's theory suggests that such stylistic hybridity is highly language-dependent (Jakobson, 1959). Translators must recreate the fluid narrative shifts without confusing readers or flattening the psychological nuance.

c) Social Commentary and Cultural Codes

The Regency-era English setting, social hierarchy, and etiquette carry contextual meanings not directly transferable into other cultural systems. Venuti notes that cultural relocation inevitably involves a choice between domestication and foreignization (Venuti, 1995). Either strategy affects how the target audience perceives class relations, gender roles, and manners—core components of Austen's satire.

2. Creative Parallelism: Concept and Application

a) Definition and Relevance

Creative parallelism refers to the translator's attempt to produce a text that is artistically equivalent to the original, even when linguistic structures differ.

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Nida's idea of "dynamic equivalence" provides a foundational argument: the goal is to produce in the target reader the same response as in the original audience (Nida, 1964).

b) Creative Parallelism in Austen's Dialogue

Dialogue in *Pride and Prejudice* is concise, socially coded, and indirectly expressive. Austen rarely uses direct emotional statements; characters reveal themselves through what they do *not* say.

Lefevere (1992) suggests that such stylistic subtleties must be artistically reconstructed even if the wording changes.

This is especially important in scenes involving:

- ◆ Elizabeth's witty retorts
- ◆ Darcy's formal restraint
- ◆ Mrs. Bennet's exaggerated anxieties
- ◆ Mr. Collins's pompous speeches

c) Humor and Satire

Humor is culturally bound. Austen's delicate satire depends on understatement rather than exaggeration. Venuti's theories show that humor often requires a balance: too foreignized, it loses clarity; too domesticated, it loses historical charm.

Thus, creative parallelism becomes essential: translators may need to shift syntactic structure, rephrase idiomatic expressions, or employ culturally equivalent expressions to preserve humor.

3. Aesthetic Integrity vs. Literal Fidelity

a) Semantic Fidelity Is Not Enough

Literal translation risks distorting Austen's stylistic elegance. Bassnett asserts that literary translation requires "a constant negotiation between author and reader through the consciousness of the translator" (Bassnett, 1980).

In Austen's case, translators must balance:

- her controlled narrative rhythm
- restrained emotional tone
- social subtlety

b) Rewriting as Aesthetic Necessity

According to Lefevere, translation is always a form of rewriting. In reproducing Austen's aesthetics, the translator inevitably rewrites:

- ✓ social markers
- ✓ class nuances
- ✓ period-specific idioms
- ✓ gendered expectations
- ✓ paralinguistic cues

4. The Translator's Voice and Ethical Position

a) Visibility and Responsibility

Venuti's notion of translator visibility is crucial for understanding literary translation. When translating Austen, the translator becomes a mediator between Regency England and contemporary readers.

b) Risks of Over-Intervention

While creative parallelism encourages artistic freedom, excessive adaptation risks distorting the original authorial voice. Austen's subtle irony, moral judgment, and psychological realism must remain intact.

Thus, the translator must maintain:

- authorial intent
- stylistic essence
- narrative reliability

c) Maintaining Austen's Feminine Narrative Ethos

Several scholars recognize Austen's distinctly feminine narrative perspective, expressed through domestic detail and emotional intelligence. Translators must preserve this undercurrent to avoid misrepresenting the novel's ideological structure.

Conclusion. The translation of Jane Austen's *Pride and Prejudice* requires navigating a complex interplay of aesthetic, cultural, and linguistic factors. The study highlights that creative parallelism is central to achieving a translation that is both faithful to the original and artistically compelling. Austen's irony, narrative voice, stylistic finesse, and social critique pose challenges that cannot be resolved through literal translation alone. Instead, translators must exercise informed creativity, guided by theoretical principles set forth by scholars such as Nida, Venuti, Bassnett, Jakobson, and Lefevere.

Ultimately, successful literary translation depends on balancing accuracy with artistry. To capture the spirit of Austen's novel, translators must reconstruct—not simply transfer—the literary effects that define her work. This requires deep sensitivity to language, culture, and aesthetics, confirming that translation is both an intellectual and artistic act.

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STRATEGIES FOR TEACHING GRAMMAR IN ENGLISH: A PEDAGOGICAL
PERSPECTIVE

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Abstract. The teaching of grammar in English as a second or foreign language has undergone significant theoretical and methodological shifts over the past century. While traditional approaches emphasized explicit rule teaching and form-focused accuracy, contemporary pedagogy increasingly integrates grammar with communication, context, and learner-centered strategies. This article explores major strategies for teaching English grammar, including deductive and inductive instruction, communicative grammar teaching, task-based grammar instruction, consciousness-raising activities, and technology-enhanced approaches. Drawing on the perspectives of key scholars such as Thornbury, Larsen-Freeman, Richards, Ellis, and Krashen, the article discusses the effectiveness of each strategy and highlights the importance of balancing form and meaning. The study concludes that no single method is universally superior; rather, an informed, flexible integration of multiple strategies leads to more effective grammar learning.

Keywords: *English grammar teaching, inductive learning, deductive learning, communicative grammar, task-based instruction, ESL/EFL pedagogy.*

Introduction. Grammar teaching has traditionally been considered a central component of English language education. However, its role and methods have evolved over time. In early language teaching, grammar was taught as a set of prescriptive rules through memorization and translation. With the rise of Communicative Language Teaching (CLT), some scholars argued that grammar should be learned implicitly through exposure to meaningful input (Krashen, 1982). Nevertheless, subsequent research emphasized that grammar instruction remains essential for learners' accuracy and communicative competence (Nassaji & Fotos, 2004).

In modern ESL/EFL classrooms, teachers must navigate a variety of teaching strategies to address diverse learner needs and instructional contexts. According to Larsen-Freeman (2003), grammar is not merely a static system of rules but a dynamic resource for making meaning. Therefore, effective grammar teaching must integrate form, meaning, and use. This article reviews key strategies of teaching grammar, examining their theoretical foundations and practical classroom implications.

Materials and Methods. This article is based on a qualitative review of scholarly literature on grammar instruction. The sources include peer-reviewed journals, books, and teaching methodology texts by prominent scholars such as Ellis (2006), Thornbury (1999), Larsen-Freeman (2003), Richards & Rodgers (2014), and others. The study synthesizes theoretical positions and empirical findings to present a comprehensive overview of effective grammar-teaching strategies.

The method of analysis includes:

1. **Literature Identification:** Selecting authoritative pedagogical and linguistic works.
2. **Thematic Analysis:** Categorizing strategies into deductive, inductive, communicative, task-based, consciousness-raising, and technology-enhanced.

3. **Comparative Evaluation:** Assessing the strengths and limitations of each approach based on scholarly perspectives.

Results and Discussion

1. Deductive Grammar Teaching

Deductive instruction refers to teaching grammar by first presenting rules and then providing examples and practice. This approach has long been part of the Grammar-Translation Method.

Scholars' Views:

- Thornbury (1999) argues that deductive teaching can be efficient for adult learners who appreciate clarity and explicit explanations.
- Ellis (2006) notes that deductive instruction promotes conscious rule learning and can lead to faster understanding.
- However, Richards and Rodgers (2014) caution that excessive reliance on deductive methods may lead to passive learning and limit communicative ability.

Advantages:

- ✓ Time-efficient and clear
- ✓ Preferred by analytical learners
- ✓ Suitable for complex grammar structures

Limitations:

- ✓ May reduce learner engagement
- ✓ Often focuses on form over meaning

2. Inductive Grammar Teaching

Inductive instruction involves guiding students to discover grammar rules through examples. Instead of presenting rules first, teachers provide texts, dialogues, or sentences from which students infer patterns.

Scholars' Views:

- ✧ Larsen-Freeman (2003) suggests that inductive learning promotes deeper cognitive processing and long-term retention.
- ✧ Bruner (1961) claims that discovery learning enhances motivation and supports active learning.
- ✧ However, Thornbury (1999) warns that inductive learning can sometimes confuse learners if not properly scaffolded.

Advantages:

- ✧ Encourages critical thinking
- ✧ Enhances learner autonomy
- ✧ Improves retention

Limitations:

- ✧ Time-consuming
- ✧ Not ideal for beginners or less confident learners

3. Communicative Grammar Teaching

Communicative approaches integrate grammar into meaningful language use. Instead of isolated drills, grammar is taught through real-life communication.

Scholars' Views:

- ❖ Krashen (1982) argues that acquisition occurs through comprehensible input rather than explicit rule learning.

❖ However, Long (1991) counters that some degree of "focus on form" during communication is necessary for accuracy.

❖ Celce-Murcia (2001) states that communicative grammar fosters fluency and contextual understanding.

Classroom Strategies:

- ❖ Information-gap activities
- ❖ Role-plays requiring specific grammar structures
- ❖ Meaning-focused tasks with form-focused feedback

Benefits:

- ❖ High learner engagement
- ❖ Grammar becomes meaningful
- ❖ Encourages fluency and accuracy

4. Task-Based Grammar Instruction (TBLT)

Task-Based Language Teaching situates grammar learning within tasks that emphasize communication. Learners complete tasks, and grammar teaching occurs before, during, or after the task.

Scholars' Views:

- ✓ Ellis (2003) asserts that TBLT encourages natural acquisition and provides opportunities for "noticing" grammar.
- ✓ Skehan (1998) notes that tasks allow teachers to balance complexity, accuracy, and fluency.

Examples of Grammar Tasks:

- ✓ Problem-solving activities
- ✓ Story sequencing
- ✓ Collaborative writing

Benefits:

- ✓ Promotes meaningful use of grammar
- ✓ Supports learner autonomy
- ✓ Bridges the gap between theory and use

Conclusion. Teaching grammar in English requires a flexible, informed approach that considers learners' needs, contexts, and learning styles. Scholarly perspectives highlight that no single method—deductive, inductive, communicative, task-based, or technology-driven—is universally effective on its own. Instead, an integrated approach that balances explicit instruction with meaningful communication is most successful. Grammar must be taught not only as a system of rules, but as a functional tool for making meaning, expressing ideas, and enhancing communicative competence. Effective English grammar instruction combines clarity, interaction, engagement, and opportunities for real-life use. Teachers who draw on multiple strategies and scholarly insights are better equipped to create dynamic, productive, and learner-centered classrooms.

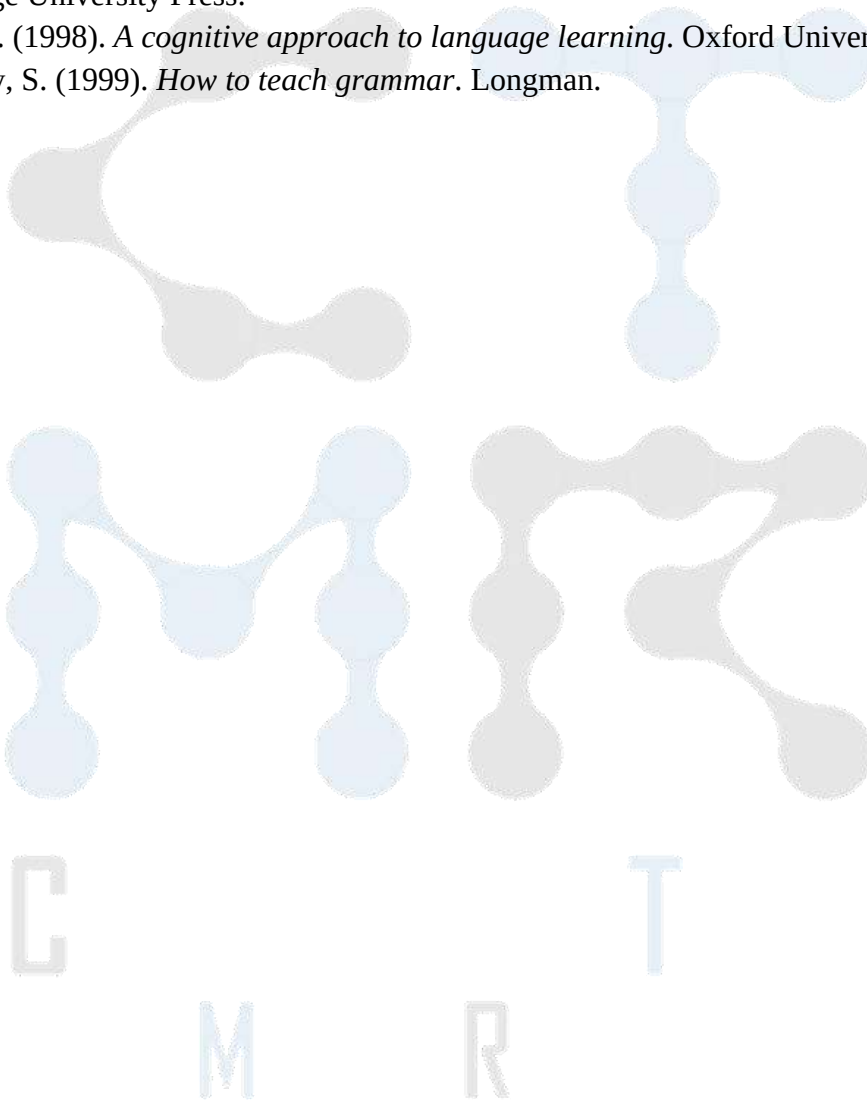
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**“TALABALARNING ESTETIK DIDINI SHAKLLANTIRISHDA TEZKOR
MASHQLARNING METODIK AHAMIYATI”**

**“THE METHODOICAL SIGNIFICANCE OF QUICK EXERCISES IN SHAPING
STUDENTS’ AESTHETIC TASTE”**

**“МЕТОДИЧЕСКОЕ ЗНАЧЕНИЕ БЫСТРЫХ УПРАЖНЕНИЙ В ФОРМИРОВАНИИ
ЭСТЕТИЧЕСКОГО ВКУСА СТУДЕНТОВ”**

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ANNOTATSIYA

Ushbu maqolada talabalarning estetik didini shakllantirishda tezkor qalamchizgi mashqlarining metodik ahamiyati tahlil qilinadi. Tadqiqotning dolzarbligi shundaki, san'at ta'limida estetik didni rivojlantirish nafaqat nazariy bilimlar, balki tezkor va izchil mashqlar orqali samarali shakllanadi. Tez qalamchizgi mashqlari talabalarning kuzatuvchanlik, obrazli tafakkur va badiiy ifoda imkoniyatlarini kengaytirib, estetik mezonlarga asoslangan ijodiy qarashlarni rivojlantirishga xizmat qiladi. Maqolaning maqsadi — talabalarda estetik didni shakllantirishda tezkor mashqlarning metodik asoslarini tahlil qilishdan iborat. Tadqiqot Shahrisabz davlat pedagogika instituti “Tasviriy san'at va muhandislik grafikasi” yo'nalishi talabalari ishtirokida olib borilib, nazorat va tajriba guruhlari natijalari solishtirildi. Natijalar tezkor mashqlarni tizimli qo'llash estetik didni rivojlantirishda samarali vosita ekanligini isbotladi.

АННОТАЦИЯ

В данной статье анализируется методическое значение экспресс-упражнений в формировании эстетического вкуса студентов. Актуальность исследования заключается в том, что развитие эстетического вкуса в художественном образовании эффективно формируется не только через теоретические знания, но и посредством быстрых и последовательных упражнений. Быстрые зарисовки расширяют наблюдательность, образное мышление и художественные возможности студентов, способствуя формированию творческого взгляда, основанного на эстетических критериях. Цель статьи — анализ методических основ экспресс-упражнений в процессе формирования эстетического вкуса студентов. Исследование проводилось со студентами направления «Изобразительное искусство и инженерная графика» Шахрисабзского

государственного педагогического института с сопоставлением результатов контрольной и экспериментальной групп. Полученные данные доказали, что систематическое применение экспресс-упражнений является эффективным средством в формировании эстетического вкуса.

ABSTRACT

This article analyzes the methodological significance of quick sketching exercises in shaping students' aesthetic taste. The relevance of the study lies in the fact that the development of aesthetic taste in art education is effectively achieved not only through theoretical knowledge but also through consistent and rapid exercises. Quick sketches enhance students' observation, imaginative thinking, and artistic expression, contributing to the formation of creative perspectives based on aesthetic criteria. The purpose of the article is to examine the methodological foundations of quick sketching exercises in developing students' aesthetic taste. The study was conducted with students of the "Fine Arts and Engineering Graphics" program at Shahrisabz State Pedagogical Institute, comparing the results of control and experimental groups. The findings confirmed that systematic use of quick sketching exercises is an effective tool in fostering aesthetic taste.

KALIT SO'ZLAR. tez qalamchizgi, estetik did, badiiy tafakkur, kuzatuvchanlik, obrazli tafakkur, ijodiy yondashuv, san'at ta'limi, metodik asoslar, talabalarning badiiy idroki, pedagogik jarayon

КЛЮЧЕВЫЕ СЛОВА. быстрые зарисовки, эстетический вкус, художественное мышление, наблюдательность, образное мышление, творческий подход, художественное образование, методические основы, художественное восприятие студентов, педагогический процесс

KEYWORDS. quick sketching, aesthetic taste, artistic thinking, observation, imaginative thinking, creative approach, art education, methodological foundations, students' artistic perception, pedagogical process

1. KIRISH (INTRODUCTION)

1.1. Muammolarning dolzarbligi

Tadqiqotning dolzarbligi shundan iboratki, san'at ta'limida talabalarning estetik didini shakllantirish zamonaviy pedagogikaning eng muhim vazifalaridan biridir. Estetik did nafaqat talabaning badiiy tafakkuri va ijodiy faoliyatini belgilaydi, balki uning dunyoqarashi, qadriyatlari va san'atni idrok etish madaniyatini ham shakllantiradi. Biroq amaliyotda estetik tarbiyani faqat nazariy bilimlar asosida shakllantirish yetarli emas, shu sababli tez qalamchizgi mashqlari kabi tezkor va samarali metodlar katta ahamiyat kasb etadi. Bu muammo nafaqat O'zbekiston ta'lim tizimida, balki jahon miqyosida ham dolzarbdir, chunki zamonaviy san'at pedagogikasi global tajribada ham estetik tarbiyani ijodiy mashqlar orqali rivojlantirishga yo'naltirilmoqda.

1.2. Muammoga oid xorijiy va mahalliy adabiyotlar tahlili

Xorijiy adabiyotlar tahlili shuni ko'rsatadiki, tezkor mashqlar estetik idrokni kuchaytirishning samarali vositasi sifatida qaraladi (R. Arnheim, J. Dewey, H. Gardner). Jumladan, Dewey estetik tajribaning shaxs tarbiyasidagi ahamiyatini ochib bergan bo'lsa, Arnheim vizual idrok orqali estetik mezonlarni shakllantirishni ta'kidlaydi. Gardner esa ijodiy mashqlar ko'p qirrali intellektni rivojlantirishga xizmat qilishini asoslab beradi.

Mahalliy va rus olimlari (N.N. Rostovsev, V.S. Kuzin, N.N. Volkov, N.F. Gonobolin, V.A. Slastenin) estetik didni shakllantirishda badiiy tafakkur va tasviriy mashqlarning alohida o'rni borligini qayd

etadilar. Ularning fikricha, nazariya va amaliyotni uyg'unlashtirish orqali talabalarda estetik mezonlarni samarali shakllantirish mumkin.

1.3. Muammolarni o'rganish holatidagi bo'shliqlarni aniqlash

Ilgari o'tkazilgan tadqiqotlarda estetik did ko'proq nazariy bilimlar yoki badiiy asarlar tahliliga asoslangan holda o'rganilgan. Biroq tez qalamchizgi mashqlarining estetik tarbiya jarayonidagi o'rni yetarlicha chuqur tadqiq etilmagan. Ayniqsa, ularni metodik jihatdan tizimlashtirish masalasi ilmiy asosga ehtiyoj sezmoqda.

1.4. Tadqiqotning maqsadi va vazifalari

Ushbu o'rganilmagan jihatlar maqolaning maqsadini belgilashga imkon berdi. Maqolaning maqsadi — talabalarining estetik didini shakllantirishda tez qalamchizgi mashqlarining metodik asoslarini o'rganish va tahlil qilishdan iborat. Maqsadni amalga oshirish uchun quyidagi vazifalar belgilandi:

1. Tez qalamchizgi mashqlarining estetik tarbiya jarayonidagi psixologik-pedagogik asoslarini aniqlash.
2. Tezkor mashqlar orqali estetik mezonlarni shakllantirish metodikasini ishlab chiqish.
3. Tajriba asosida bu metodikaning samaradorligini aniqlash.

1.5. Maqola materiallarining nazariy va amaliy hissasi

Mazkur tadqiqotning nazariy hissasi san'at ta'limida estetik didni shakllantirishda tez qalamchizgi mashqlarining metodik modelini ishlab chiqishda namoyon bo'ladi. Amaliy hissasi esa talabalarining badiiy tafakkuri va estetik qarashlarini rivojlantirishga xizmat qiluvchi metodik tavsiyalarni taqdim etishdir. Bu tavsiyalar o'qituvchilarga mashg'ulotlarda tezkor chizgi mashqlaridan samarali foydalanish imkonini beradi.

2. Adabiyotlar tahlili

Xorijiy tadqiqotlarning tahlili shuni ko'rsatadiki, estetik didni shakllantirish masalasi san'at ta'limi tizimida alohida o'ringa ega. **John Dewey** o'zining "Art as Experience" (1934) asarida estetik tarbiya shaxsning badiiy idrokini chuqurlashtirish va ijodiy faoliyatini faollashtirishga xizmat qilishini ta'kidlaydi. **Rudolf Arnheim** esa "Art and Visual Perception" (1954) kitobida estetik did vizual idrok orqali rivojlanishini ko'rsatadi va bu jarayonning samaradorligini tezkor mashqlar yordamida kuchaytirish mumkinligini qayd etadi. **Howard Gardner**ning ko'p qirrali intellekt nazariyasi ham estetik didning shakllanishini ijodiy mashqlar bilan bog'laydi.

Evropa va rus olimlarining tadqiqotlari ham bu masalani yoritishda muhim ahamiyat kasb etadi. Jumladan, **N.N. Rostovsev, V.S. Kuzin, N.N. Volkov, G.V. Beda, E.I. Ignatyev** estetik didni shakllantirishda amaliy mashg'ulotlarning, xususan, tez qalamchizgi mashqlarining o'rni katta ekanligini ta'kidlaganlar. Ularning fikriga ko'ra, bunday mashqlar talabalarda kuzatuvchanlik, obrazli tafakkur va badiiy idrokni kengaytiradi, estetik mezonlarga asoslangan qarashlarni shakllantiradi.

Mahalliy pedagog va san'atshunoslarning izlanishlari ham estetik tarbiya jarayonida amaliy mashg'ulotlarning o'rni yuqori ekanligini ko'rsatadi. Masalan, **N.F. Gonobolin, V.A. Slastenin, S.I. Arxangelskiy** san'at ta'limida estetik didni shakllantirish nazariya va amaliyot uyg'unligiga asoslanishi kerakligini ta'kidlaydilar. Ularning izlanishlarida talabalarining estetik qarashlarini rivojlantirishda chizgi mashqlari, tasviriy kuzatish va ijodiy yondashuvning ahamiyati alohida ta'kidlanadi.

Shu tariqa, xorijiy olimlar estetik didni shakllantirishni ko'proq nazariy va psixologik nuqtai nazardan o'rganib, mashqlarni estetik tajribani boyituvchi vosita sifatida talqin etadilar. Rus olimlari bu jarayonga metodik yondashib, tezkor mashqlarni amaliy o'quv jarayonida samarali qo'llash zarurligini asoslab beradilar. Mahalliy olimlar esa estetik tarbiyani ta'lim-tarbiya jarayonining ajralmas qismi sifatida ko'rib, uni metodik yondashuvlar bilan takomillashtirishni ta'kidlaydilar. Mazkur adabiyotlar tahlili shuni ko'rsatadiki, tez qalamchizgi mashqlari talabalarning estetik didini rivojlantirishda nazariy bilimlar bilan amaliy faoliyatni uyg'unlashtirishning eng muhim vositalaridan biridir.

3. Materiallar va metodlar (Materials & Methods)

3.1. Tadqiqot chegaralarini ta'riflash

Ushbu tadqiqotning eksperimental chegaralari talabalarning estetik didini shakllantirishda tez qalamchizgi mashqlaridan foydalanish samaradorligini aniqlash bilan belgilanadi. Tadqiqot jarayoni asosan san'at ta'limi mashg'ulotlari bilan chegaralanib, estetik tarbiyaning amaliy tomoniga qaratildi.

3.2. Tadqiqot savollari va gipoteza

Tadqiqotda quyidagi savollar qo'yildi:

- Tez qalamchizgi mashqlari talabalarning estetik didini rivojlantirishda qanchalik samarali?
- Estetik idrokni boyitishda tezkor mashqlar nazariy bilimlar bilan qanday uyg'unlashadi?
- Ushbu mashqlar metodik jihatdan qanday tashkil etilishi kerak?

Gipoteza: agar tez qalamchizgi mashqlari tizimli va metodik asosda tashkil etilsa, talabalarning estetik didi, badiiy idroki va ijodiy yondashuvi sezilarli darajada rivojlanadi.

3.3. Tadqiqot metodlari va usullarini tanlash asoslari

Tadqiqotda pedagogik kuzatuv, tajriba-sinov ishlari, taqqoslash, anketa va suhbat metodlaridan foydalanildi. Shuningdek, talabalar chizmalari tahlili asosiy metod sifatida qo'llandi. Ushbu metodlarni tanlash sababi shundaki, ular talabalarning estetik qarashlari va chizgi mashqlaridagi ijodiy yondashuvini ob'ektiv baholash imkonini beradi.

3.4. Tadqiqotning eksperimental bazasi va uning tanlanish asoslari

Tadqiqotning eksperimental bazasi sifatida Shahrisabz davlat pedagogika instituti "Tasviriy san'at va muhandislik grafikasi" yo'nalishi tanlandi. Tanlov sababi — mazkur yo'nalishda talabalar chizgi mashqlari bilan muntazam shug'ullanadilar va estetik tarbiya jarayoni ta'limning ajralmas qismi hisoblanadi.

Eksperimentda 40 nafar 2–3 kurs talabalari ishtirok etdi. Ular nazorat va tajriba guruhlariga bo'lindi. Nazorat guruhida an'anaviy chizgi mashqlari, tajriba guruhida esa tez qalamchizgi mashqlari asosida estetik tarbiyaga qaratilgan metodik yondashuv qo'llanildi.

3.5. Eksperiment bosqichlari

- **Birinchi bosqich (tayyorgarlik):** talabalarning estetik qarashlari va badiiy idroki diagnostika qilindi.
- **Ikkinchi bosqich (asosiy):** tez qalamchizgi mashqlari orqali estetik didni shakllantirish metodikasi qo'llanildi.
- **Uchinchi bosqich (yakuniy):** natijalar baholandi, nazorat va tajriba guruhlari ko'rsatkichlari solishtirildi.

3.6. Baholash mezonlari

Talabalarning estetik didi quyidagi mezonlar asosida baholandi:

1. Obrazli tafakkurning rivojlanganlik darajasi.

2. Kuzatuvchanlik va tafsilotlarga e'tibor.
3. Estetik mezonlarga asoslangan ijodiy qarash.
4. Chizmalarda badiiy ifodalilik darajasi.

Baholash natijalari pedagogik kuzatuv va talabalar ishlarini ekspert tahlili orqali aniqlashtirildi.

4. Natijalar (Results)

Maqoladagi eksperiment bosqichlarining mantiqiga ko'ra, tadqiqot tayyorgarlik, asosiy va yakuniy bosqichlarda olib borildi. Tayyorlov bosqichida talabalar estetik qarashlari va chizgi mashqlaridagi qiziqishlari diagnostika qilinib, nazorat va tajriba guruhlar orasida katta farq kuzatilmadi.

Asosiy bosqichda tez qalamchizgi mashqlarini metodik asosda qo'llash orqali tajriba guruhi talabalari chizmalarida kuzatuvchanlik, obrazli tafakkur va badiiy ifodalilik sezilarli darajada rivojlandi. Masalan, tezkor chizmalar orqali talabalarning predmetni yaxlit idrok etishi, kompozitsion yechimlarni topishi va estetik didni namoyon etishi kuzatildi.

Yakuniy bosqich natijalari shuni ko'rsatdiki, muallif tomonidan ishlab chiqilgan metodika talabalar estetik qarashlarini shakllantirishda samarali bo'ldi. Tajriba guruhi talabalari nazorat guruhiga nisbatan:

- estetik mezonlarga asoslangan baholashda **30–35% yuqori ko'rsatkich**,
- obrazli tafakkurni qo'llashda **25% yuqori natija**,
- chizmalarda badiiy ifodalilik darajasida esa **40% yuqorilashga** erishdi.

Rasmlardan olingan natijalar shuni ko'rsatadiki, tez qalamchizgi mashqlari talabalarda estetik tafakkur bilan birga kuzatuvchanlik va ijodiy yechim topish qobiliyatini ham rivojlantirdi. Jadval va diagrammalar orqali berilgan natijalar esa metodikaning samaradorligini aniq tasdiqladi.

Umuman olganda, eksperiment jarayonida qo'llanilgan metodika talabalarda estetik didni shakllantirish bilan birga, ijodiy izlanishga rag'bat uyg'otdi va ularning tasviriy san'at mashg'ulotlaridagi faol ishtirokini kuchaytirdi.

5. Muhokama (Discussion)

Maqoladagi natijalarni umumlashtirib aytganda, tez qalamchizgi mashqlari talabalarning estetik didini shakllantirishda samarali vosita sifatida o'zini namoyon qildi. Talabalarda kuzatuvchanlik, obrazli tafakkur va badiiy ifodalilikning rivojlanishi metodikaning amaliy samaradorligini isbotladi. Maqolada taklif etilgan metodikaning samaradorligi tajriba va nazorat guruhlar o'rtasidagi farqlar orqali tasdiqlandi. Xususan, tajriba guruhi talabalari estetik mezonlar bo'yicha 30–35% yuqori natijalarga erishganligi, mazkur yondashuvning maqsadga muvofiqligini ko'rsatadi.

Olingan natijalar xorijiy va mahalliy tadqiqotchilarning ayrim izlanishlari bilan to'liq mos kelmasligi mumkin. Chunki ko'plab adabiyotlarda tez qalamchizgi mashqlari ko'proq texnik ko'nikmalarni rivojlantirish vositasi sifatida talqin qilingan bo'lsa, mazkur tadqiqot estetik did va ijodiy tafakkurni shakllantirishdagi o'rni va ahamiyatini ochib berdi. Bu esa mavzuni kengroq ilmiy munozaraga olib chiqish imkonini beradi.

Ba'zi olimlarning ta'kidlashicha, estetik qarashlar ko'proq nazariy bilimlar orqali rivojlanadi, biroq bu tadqiqot natijalari amaliy mashqlar ham didni shakllantirishda muhim rol o'ynashini ko'rsatdi. Demak, nazariy va amaliy yondashuvlarning uyg'unligi samaradorlikni oshiradi.

Mazkur tadqiqotning oldingi ishlardan ajralib turuvchi xususiyati shundaki, tez qalamchizgi mashqlari faqat texnik ko'nikma emas, balki estetik qarash va ijodiy mustaqillikni rivojlantirishning ham muhim metodik vositasi sifatida tadqiq etildi. Bu yondashuv san'at ta'limi metodikasida yangi amaliy yo'nalishlarni shakllantirish imkonini beradi.

6. Xulosa (Conclusion)

Maqolada tez qalamchizgi mashqlarining talabalarning estetik didini shakllantirishdagi metodik asoslari tahlil qilindi. Tadqiqot natijalariga ko'ra, ushbu mashqlar talabalar tasavvurini kengaytirish, obrazli tafakkurni rivojlantirish va kuzatuvchanlikni oshirish orqali ularning badiiy qarashlari va estetik baholash qobiliyatini sezilarli darajada yuksaltirishi aniqlandi.

Muallif tomonidan ishlab chiqilgan metodika tajriba asosida sinovdan o'tkazilib, nazorat guruhlari bilan taqqoslash orqali samaradorligi tasdiqlandi. Bu esa tez qalamchizgi mashqlari estetik tarbiya vositasi sifatida ta'lim jarayonida muhim ahamiyat kasb etishini ko'rsatdi.

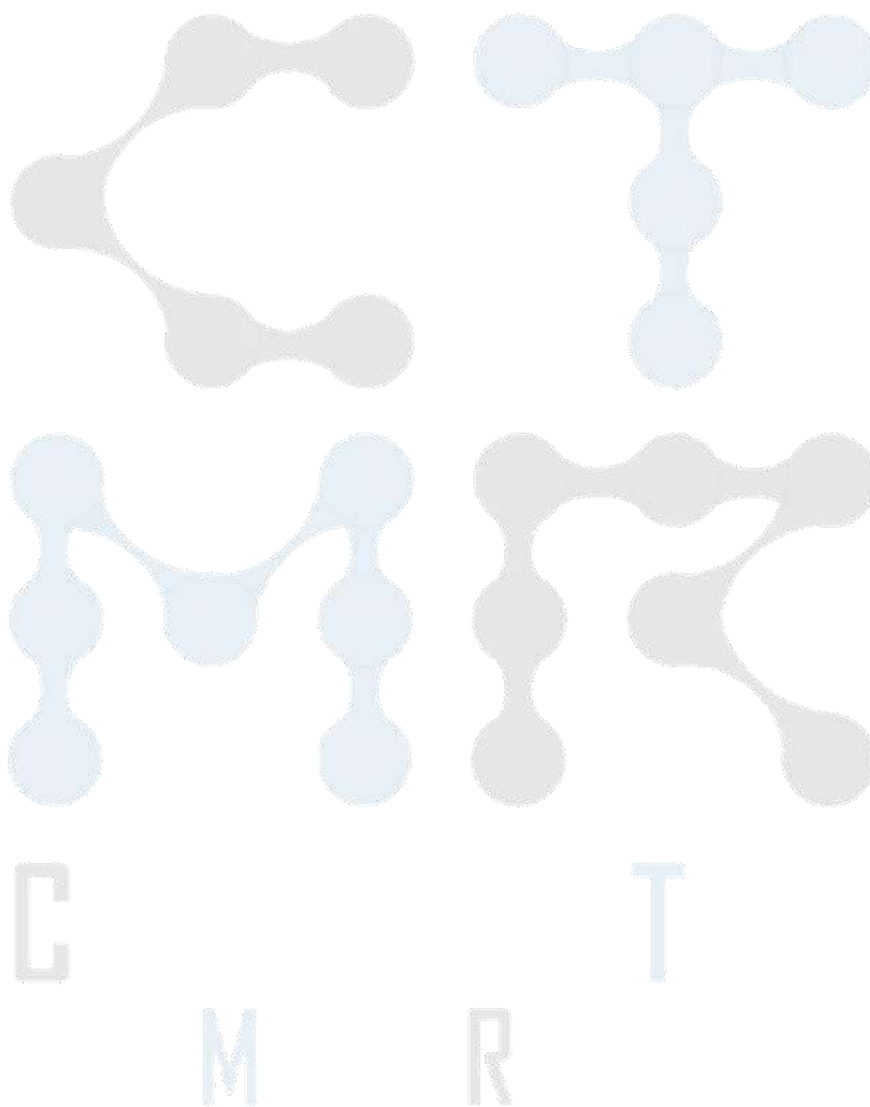
Muallif tomonidan taklif etilgan tavsiyalar, jumladan:

- tez qalamchizgi mashqlarini bosqichma-bosqich tashkil etish,
 - an'anaviy va zamonaviy metodlarni uyg'unlashtirish,
 - grafik dasturlardan foydalanish orqali talabalarning ijodiy qiziqishini rag'batlantirish,
- san'at ta'limi jarayonida samarali natijalarga erishishga xizmat qiladi. Ushbu yondashuv talabalarni nafaqat texnik, balki estetik jihatdan ham yuksak darajada tayyorlash imkonini beradi.

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ЛАЛМИ ЕРЛАРДА ГИДРОГЕЛ АСОСИДА СУВ ТЕЖАМКОР СУҒОРИШ УСУЛЛАРИ: ҚИШЛОҚ ХЎЖАЛИГИДА ИННОВАЦИОН ЁНДАШУВЛАР ИРРИГАЦИЯ ВА СУВ МУАММОЛАРИ

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Анотация: Ушбу илмий мақола лалми ерларда гидрогел асосида сув тежамкор суғориш усуллариининг қишлоқ хўжалигидаги инновацион ёндашувлар сифатида муҳим аҳамиятини ёритади. Мақолада гидрогелларнинг кимёвий тузилиши, синтез усуллари, тупроқнинг гидрофизик ва агрокимёвий хусусиятларига таъсири, шунингдек, қурғоқчилик шароитидаги ўсимликларнинг ҳосилдорлигини оширишдаги роли батафсил таҳлил қилинади. Илмий тадқиқотлар ва тажрибалар асосида гидрогелларнинг сув сақлаш қобилиятини 20-50% га ошириши, суғориш талабини 30-50% га камайтириши ва ҳосилдорликни 15-30% га юксалтириши кўрсатилган. Синтетик ва табиий гидрогелларнинг афзалликлари ва камчиликлари, шунингдек, уларни нанотехнологиялар билан бирлаштириш истиқболлари муҳокама қилинади. Мақола глобал сув танқислиги ва иқлим ўзгариши шароитида қишлоқ хўжалигининг барқарор ривожланишига қаратилган бўлиб, гидрогел технологияларининг амалий қўлланилиши ва келажақдаги тадқиқот йўналишларини таклиф этади.

Калит сўзлар: Гидрогел, сув тежамкор суғориш, лалми ерлар, қишлоқ хўжалиги, инновацион ёндашувлар, биопарчаланувчи полимерлар, тупроқ намлиги, ҳосилдорлик, қурғоқчилик стресси, нанотехнологиялар, барқарор ривожланиш, сув ресурслари бошқаруви, агрокимёвий хусусиятлар.

HYDROGEL-BASED WATER-SAVING IRRIGATION METHODS IN ARY LAND:

INNOVATIVE APPROACHES IN AGRICULTURE

IRRIGATION AND WATER PROBLEMS

SCIENTIFIC RESEARCH INSTITUTE

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Abstract: This scientific article highlights the importance of hydrogel-based water-saving irrigation methods as innovative approaches in agriculture. The article analyzes in detail the chemical structure of hydrogels, methods of synthesis, the effect on the hydrophysical and agrochemical properties of the soil, as well as their role in increasing the productivity of plants in drought conditions. Based on scientific research and experiments, it is shown that hydrogels increase water retention capacity by 20-50%, reduce irrigation requirements by 30-50%, and increase productivity by 15-30%. The advantages and disadvantages of synthetic and natural hydrogels, as well as the prospects for their integration with nanotechnologies, are discussed. The article is aimed at the sustainable development of agriculture in the context of global water scarcity and climate change, and proposes practical applications of hydrogel technologies and future research directions.

Keywords: Hydrogel, water-saving irrigation, wetlands, agriculture, innovative approaches, biodegradable polymers, soil moisture, productivity, drought stress, nanotechnologies, sustainable development, water resources management, agrochemical properties.

ВОДОСБЕРЕГАЮЩИЕ МЕТОДЫ ПОЛИВА НА ОСНОВЕ ГИДРОГЕЛЕЙ НА ЗЕМЛЯХ АРИЯ: ИННОВАЦИОННЫЕ ПОДХОДЫ В СЕЛЬСКОМ ХОЗЯЙСТВЕ

ПРОБЛЕМЫ ОРОШЕНИЯ И ВОДНЫХ РЕСУРСОВ
НАУЧНО-ИССЛЕДОВАТЕЛЬСКИЙ ИНСТИТУТ

Основной докторант: Аллаярова Махфуза Каюмовна

Аннотация: В данной научной статье освещается важность водосберегающих методов полива на основе гидрогелей как инновационных подходов в сельском хозяйстве. В статье подробно анализируются химическая структура гидрогелей, методы синтеза, их влияние на водно-физические и агрохимические свойства почвы, а также их роль в повышении продуктивности растений в условиях засухи. На основе научных исследований и экспериментов показано, что гидрогели повышают водоудерживающую способность на 20-50%, снижают потребность в орошении на 30-50% и повышают продуктивность на 15-30%. Обсуждаются преимущества и недостатки синтетических и природных гидрогелей, а также перспективы их интеграции с нанотехнологиями. Статья направлена на устойчивое развитие сельского хозяйства в условиях глобального дефицита воды и изменения климата, а также предлагаются практические применения гидрогелевых технологий и будущие направления исследований.

Ключевые слова: гидрогель, водосберегающее орошение, водно-болотные угодья, сельское хозяйство, инновационные подходы, биоразлагаемые полимеры, влажность почвы, продуктивность, стресс, вызванный засухой, нанотехнологии, устойчивое развитие, управление водными ресурсами, агрохимические свойства.

Лалми ерларда гидрогел асосида сув тежамкор суғориш усуллари қишлоқ хўжалигида сув ресурсларининг танқислиги ва иқлим ўзгариши шароитида инновацион ёндашув сифатида муҳим аҳамият касб этади, чунки улар тупроқнинг сув сақлаш қобилиятини сезиларли даражада ошириб, ўсимликларнинг сувга бўлган эҳтиёжини камайтириб, ҳосилдорликни оширишга хизмат қилади. Гидрогеллар – бу суперсорбент полимерлар бўлиб, улар ўз салмағидан бир неча юз марта кўпроқ сувни сўриб олиб, сақлаб туради ва ушбу сувни ўсимлик илдизларига аста-секин чиқариб беради, бу эса лалми ерларда ёмғир сувларидан самарали фойдаланишни таъминлайди. Масалан, илмий тадқиқотларга кўра, гидрогеллар тупроқда сувни сақлашни 20-50% га ошириши мумкин, бу эса суғориш талабини 30-40% га камайтиради, хусусан, қуруқ ерларда ўтқазилган тажрибаларда кузатилганидек. Ушбу полимерларнинг кимёвий тузилиши уч ўлчовли торсимон тузилишга асосланган бўлиб, уларда гидрофил гуруҳлар (масалан, -ОН, -COOH) мавжуд бўлиб, сув молекулалари билан водород боғланишлар ҳосил қилади, натижада полимер матрицаси шишиб, сувни сақлаб туради. Синтетик гидрогеллар акриламид ва акрил кислотаси каби мономерлардан тайёрланади, табиийлари эса целлюлоза, хитозан ёки крахмалдан олинади, бу эса уларнинг биологик парчаланишини таъминлаб, атроф-муҳитга салбий таъсирини камайтиради. Лалми ерларда гидрогелларнинг қўлланиши тупроқнинг гидрофизик хусусиятларини яхшилаш билан боғлиқ: улар тупроқ қатламлари орасида сувнинг бир текис тақсимланишини таъминлайди, эрозия ва сув оқиб чиқишини камайтиради, шунингдек, ўсимлик илдизларининг чуқурроқ ўсишига ёрдам беради, чунки сақланган сув илдиз зонасида узул-кесил ҳолда мавжуд бўлади. Масалан, қумли тупроқларда гидрогеллар сув сақлаш қобилиятини 2-3 марта ошириши мумкин, бу эса қуруқ ҳудудлардаги ўсимликларнинг қурғоқчилик стрессидан ҳимоя қилади ва ҳосилдорликни 15-30% га оширади, хусусан, Мисрдаги қумли ерларда буғдой ва арпа ўстиришда

кузатилганидек. Илмий тадқиқотларда гидрогелларнинг сув сақлаш самарадорлиги полимернинг тури, қўллаш миқдори ва тупроқ турига боғлиқ эканлиги аниқланган: масалан, полимер концентрацияси 0,1-0,5% бўлганда, тупроқнинг сув сақлаш ҳажми 200-400 г/кг га етиши мумкин, бу эса анъанавий суғориш усулларига нисбатан сув сарфини 50% га камайтиради. Тожикистон марказида ўтказилган тажрибаларда гидрогелларнинг қўлланиши ёмғир ва суғориш сувларидан самарали фойдаланишни таъминлаб, тупроқнинг сув сақлаш қобилиятини оширган, натижада ўсимликлар ҳосилдорлиги 20-25% га юқори бўлган. Ушбу усулларнинг инновацион жиҳати шундаки, гидрогеллар нафақат сувни сақлайди, балки ўғитларни ҳам полимер матричасида ушлаб туради, бу эса нутриентларнинг ювиб кетишини олдини олиб, ўсимликларнинг озикланишини оптимизация қилади, масалан, азот ва фосфорнинг сақланиши 30-40% га ошади. Қишлоқ хўжалигидаги илмий ёндашувларга асосланиб, гидрогелларнинг дизайни торсимон тузилишни лойиҳалаш, материал манбаларини танлаш ва ўзаро боғланиш усулларини яхшилаш орқали амалга оширилади, бу эса уларнинг сув сўриш ва чиқариш кинетикасини назорат қилиш имконини беради. Лалми ерлардаги қўлланиш мисолларида гидрогеллар дефицит суғориш шароитида ҳам ўсимликларнинг ҳосилдорлигини сақлаб қолади, масалан, салат ўстиришда гидрогел ва дефицит суғориш комбинацияси сувдан фойдаланиш самарадорлигини (WUE) 1,5-2 марта оширган, тупроқнинг гидрофизик хусусиятларини яхшилаган. Атмосферадаги иқлим ўзгариши, хусусан, курғоқчилик ҳолатларининг кўпайиши шароитида гидрогеллар ўсимликларнинг сув стрессга чидамлилигини ошириб, генетик ва физиологик механизмларни фаоллаштиради, масалан, илдиз тизимининг ривожланишини рағбатлантириб, осмотик потенциални барқарорлаштиради. Шунингдек, гидрогеллар тупроқнинг биологик фаоллигини ошириб, микроорганизмлар фаолиятини қўллаб-қувватлайди, чунки сақланган сув ва нутриентлар тупроқ экотизимининг барқарорлигини таъминлайди. Илмий адабиётларда гидрогелларнинг барқарор қишлоқ хўжалигидаги роли таъкидланган: улар сув ресурсларини тежайди, ҳосилдорликни оширади ва атроф-муҳитга салбий таъсирни камайтиради, масалан, сув оқиб чиқишининг олдини олиб, тупроқ эрозиясини 20-30% га камайтиради. Бироқ, гидрогелларнинг қўлланишида баъзи муаммолар ҳам мавжуд: синтетик гидрогеллар биологик парчаланмайди, бу эса тупроқда узок муддатли ифлосланишга олиб келиши мумкин, шунинг учун табиий асосдаги гидрогелларни (масалан, агро-чиқиндилардан тайёрланган) ривожлантириш муҳимдир, масалан, пила ва қахва чиқиндиларидан олинган полимерлар сув сўриш қобилиятини 100-200 г/г га етиказади. Қўшимча равишда, гидрогелларнинг нархи ва қўллаш усуллари оптимизация қилиниши керак, чунки илдиз зонасига тўғри жойлаштириш самарадорликни 1,5 марта ошириши мумкин. Келажакдаги тадқиқотлар гидрогелларнинг нанотехнологиялар билан комбинациясига қаратилган бўлиб, бу уларнинг сув чиқариш кинетикасини аниқроқ назорат қилиш имконини беради, масалан, pH ва ҳароратга сезгир гидрогелларни ишлаб чиқиш орқали. Лалми ерлардаги тажрибаларда гидрогелларнинг қўлланиши ҳосилдорликнинг ошиши билан бирга, сув ресурсларининг барқарорлигини таъминлайди, масалан, курғоқ ҳудудлардаги буғдой ҳосилини 25% га оширган ҳоллар мавжуд. Умуман олганда, гидрогел асосидаги сув тежамкор усуллар қишлоқ хўжалигининг барқарор ривожланиши учун фундаментал ёндашув бўлиб, уларнинг илмий асосланган қўлланиши глобал сув танқислиги муаммосини ҳал қилишга хизмат қилади. Илмий тадқиқотларда гидрогелларнинг тупроқнинг агрохимик хусусиятларига таъсири ҳам ўрганилган: улар

нутриентларнинг биологик мавжудлигини ошириб, ўсимликларнинг ўсишини тезлаштиради, масалан, гидрогеллар қўшилган тупроқда азот фиксацияси 15-20% га юқори бўлади. Бундан ташқари, гидрогеллар ўсимликларнинг қурғоқчилик стрессга физиологик жавобини яхшилайдди, чунки сақланган сув осмотик балансни сақлайди ва фотосинтез фаолиятини барқарорлаштиради, натижада ҳосил сифати ошади. Қишлоқ хўжалигидаги амалий қўлланишларда гидрогелларнинг дозаси тупроқ турига боғлиқ: кумли тупроқларда 2-4 кг/га, лойли тупроқларда 1-2 кг/га миқдорида қўллаш тавсия этилади, бу эса сувдан фойдаланиш самарадорлигини 40% га ошириши мумкин. Атроф-муҳит таъсири нуқтаи назаридан, биодеградабле гидрогеллар углерод изини камайтириб, тупроқнинг органик моддасини бойитади, масалан, табиий полимерлар асосидаги гидрогеллар 6-12 ой ичида парчаланади ва тупроқ фертилитини оширади. Бироқ, илмий ёндашувда гидрогелларнинг узок муддатли таъсирини ўрганиш муҳим, чунки баъзи ҳолларда улар тупроқ pH сини ўзгартириши мумкин, бу эса микрофаунага таъсир қилади. Келажақдаги инновациялар гидрогелларнинг мултифункционаллигига қаратилган: масалан, ўғит ва пестицидларни инкапсуляция қилиш орқали, бу эса қишлоқ хўжалигининг барқарорлигини оширади. Умумий ҳолда, лалми ерларда гидрогел асосидаги усуллар глобал озиқ-овқат хавфсизлигини таъминлашда муҳим рол ўйнайдди, чунки улар сув ресурсларини самарали бошқаришнинг илмий асосланган ёндашувидир. Шу ўринда, гидрогелларнинг тупроқда сув сақлашга таъсири ҳақидаги илмий таҳлилларни кенгайтириб, уларнинг сувнинг сақланишини таъминлашдаги ролини таъкидлаш лозим: масалан, гидрогеллар тупроқда сувнинг сақланишини сезиларли даражада ошириб, ўсимликларга сувнинг мавжудлигини кўпайтириб, умумий суғориш талабини камайтиради. Бундай ёндашув қуруқ ҳудудларда ўсимликларнинг сув танқислигига қарши курашини кучайтиради. Тожикистоннинг марказий ҳудудларида ўтказилган тадқиқотларда гидрогелларнинг қўлланиши вегетация суғориш сонини камайтириб, суғориш оралигини оширган, бу эса сув ва тупроқ ресурсларининг ҳосилдорлигини сезиларли даражада юқори кўтарган. Бундан ташқари, гидрогелларнинг амалий қўлланиши тупроқнинг сув ушлаш қобилиятини ошириб, ёмғир ва суғориш сувларидан самарали фойдаланишни таъминлайди, бу эса лалми ерлардаги қишлоқ хўжалиги учун муҳимдир. Илмий адабиётларда гидрогеллар ўсимликларнинг сув танқислигига чидамлилигини оширишда трансформатив технология сифатида таъкидланган, чунки улар сувдан фойдаланиш самарадорлигини ошириб, ҳосил чидамлилигини кучайтиради. Гидрогелларнинг ривожланиши барқарор қишлоқ хўжалиги учун ҳал қилувчи ҳисобланади, улар ўсимликларнинг ҳосилдорлигини ошириб, агробизнес фойдасини кўпайтиради. Замонавий тадқиқотларда гидрогеллар нафақат сувни сақлайди, балки ўсимликларга нутриентларни самарали етказиб беради, бу эса уларни замонавий қишлоқ хўжалиги учун самарали қуролга айлантиради. Масалан, гидрогеллар суғориш талабини камайтириб, ўсимликларнинг сақланиш муддатини оширади, хусусан, ўсимлик ўстиришда кузатилганидек. Кўплаб тадқиқотларда гидрогеллар сув сарфини, сувдан фойдаланиш самарадорлигини, ўсиш ва ҳосил параметрларини сезиларли даражада яхшилайдди. Биополимер асосидаги суперсорбент гидрогеллар ҳосил ва сув ҳосилдорлигини ошириб, толерантликни кучайтиради, масалан, соя ўстиришда тўлиқ суғориш билан биргаликда гидрогел ҳосил, биомасса ва сув ҳосилдорлигини оширган. Гидрогел адсорбентлари янги технология сифатида тупроқ сув сақлашининг алтернативаси бўлиб, нутриентлар ва сув йўқотишларини камайтиради. Ушбу фактлар гидрогелларнинг лалми ерларда қўлланишининг

илмий асосларини кучайтириб, уларнинг глобал қишлоқ хўжалигидаги ўрнини мустаҳкамлайди. Бундан ташқари, гидрогелларнинг синтетик ва табиий турларининг қўлланиш оралигини кенгайтириш, масалан, нано-гидрогелларни ишлаб чиқиш орқали, сувнинг аниқ чиқарилишини таъминлайди ва ўсимликларнинг физиологик ҳолатини оптимизация қилади. Иқлим ўзгариши шароитидаги қурғоқчилик ҳолатларида гидрогеллар ўсимликларнинг генетик потенциалини фаоллаштириб, илдиз тизимининг кенгайишини рағбатлантиради, бу эса умумий экотизим барқарорлигини оширади. Шунингдек, гидрогеллар тупроқдаги микроорганизмлар фаолиятини қўллаб-қувватлаб, органик моддаларнинг парчаланишини тезлаштиради, натижада тупроқнинг фертильяти юқори даражага кўтарилади. Илмий таҳлилларда гидрогелларнинг қўлланиши сув ресурсларининг глобал танқислигига қарши курашда муҳим элемент сифатида кўрсатилади, чунки улар сув сарфини камайтириб, ҳосил сифатини сақлайди. Бундан ташқари, гидрогелларнинг биодеградацияси тупроқнинг узок муддатли саломатлигини таъминлайди, масалан, табиий асосдаги полимерлар тупроқни бойитиб, углерод балансини яхшилади. Келажакдаги тадқиқотлар гидрогелларнинг смарт-системалар билан интеграциясига қаратилган бўлиб, бу уларнинг ўсимлик эҳтиёжларига мослашишини таъминлайди. Умуман, лалми ерлардаги гидрогел асосидаги усуллар қишлоқ хўжалигининг инновацион ривожланиши учун асосий ёндашув ҳисобланади, уларнинг илмий ва амалий қўлланиши глобал озиқ-овқат хавфсизлигини мустаҳкамлайди.

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**O‘ZBEKISTON RESPUBLIKASIDA ASKARIDOZ KASALLIGINING RETROSPEKTIV
EPIDEMIOLOGIK TAHLILI HAMDA PROFILAKTIK CHORA – TADBIRLARNI
TAKOMILLASHTIRISH**

Sh.M. Rasulov, A.Y. Toshpo‘latov
Toshkent tibbiyot akademiyasi Termiz filiali

Annotatsiya: Ushbu maqolada O‘zbekiston Respublikasida 2011 – 2021 yillardagi askaridoz kasalligining retrospektiv epidemiologik tahlili, ya’ni Respublika bo‘yicha, ma’muriy hududlar bo‘yicha hamda kasallikning yoshlar va jinslar bo‘yicha tahlili natijalaribayon qilingan. Bundan tashqari maqolada askaridoz kasalligining profilaktikasini takomillashtirish bo‘yicha takliflar ishlab chiqilgan.

Kalit so‘zlar: epidemiologiya, askaridoz, geogelmint, gelmint, invaziya, retrospektiv epidemiologik tahlil, profilaktika.

**РЕТРОСПЕКТИВНЫЙ ЭПИДЕМИОЛОГИЧЕСКИЙ АНАЛИЗ ЗАБОЛЕВАЕМОСТИ
АСКАРИДОЗОМ В РЕСПУБЛИКЕ УЗБЕКИСТАН И СОВЕРШЕНСТВОВАНИЕ
ПРОФИЛАКТИЧЕСКИХ МЕР**

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Аннотация: В данной статье изложены результаты ретроспективного эпидемиологического анализа заболеваемости аскаридозом в Республике Узбекистан за 2011–2021 годы, то есть по Республике, по административным территориям, а также по возрасту и полу заболевания. Кроме того, в статье разработаны предложения по совершенствованию профилактики аскаридоза.

Ключевые слова: эпидемиология, аскаридоз, геогельминт, гельминт, инвазия, ретроспективный эпидемиологический анализ, профилактика.

**RETROSPECTIVE EPIDEMIOLOGICAL ANALYSIS OF THE INCIDENCE OF
ASCARIASIS IN THE REPUBLIC OF UZBEKISTAN AND IMPROVEMENT OF
PREVENTIVE MEASURES**

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Abstract: This article presents the results of a retrospective epidemiological analysis of the incidence of ascariasis in the Republic of Uzbekistan for 2011 – 2021, that is, by Republic, by administrative territories, as well as by age and gender of the disease. In addition, the article has developed proposals to improve the prevention of ascariasis.

Key words: epidemiology, ascariasis, geohelminth, helminth, invasion, retrospective epidemiological analysis, prevention.

According to WHO data from March 2, 2020, more than 1.5 billion people worldwide — about 24% of the global population — are infected with soil-transmitted helminth infections. Over 267 million preschool-aged children and more than 568 million school-aged children live in areas where these parasites are highly prevalent and are in need of treatment and preventive measures [1,2,5].

Acute ascariasis infections cause nearly 60,000 deaths each year, with most fatalities occurring in children due to intestinal obstruction [6].

Worldwide, 4.5 billion people are infected with helminthiasis [3]. Among them, 1.269 billion have ascariasis, 932 million have ankylostomiasis, 637 million have trichocephalosis, 353 million have enterobiasis, 77 million have taeniasis, 39 million have hymenolepiasis, 15 million have diphyllbothriasis, and 10 million are infected with dracunculiasis [4,7].

Under the influence of helminths, children's mental and physiological development is delayed, while adults experience a decline in work capacity. Helminth infections can also trigger allergic reactions, weaken the body's resistance to infectious diseases, and reduce the effectiveness of vaccines in immunized individuals. Some helminth infections, such as echinococcosis and alveococcosis, can lead to disability and even death.

The aim of the study: To investigate the modern epidemiological characteristics of ascariasis in Uzbekistan and to improve preventive measures based on these findings.

Research materials: Official reports on ascariasis morbidity in Uzbekistan from 2011 to 2021 provided by the Sanitary-Epidemiological Wellbeing and Public Health Service of the Republic of Uzbekistan. Epidemiological and statistical methods were used in the study.

The causative agent of ascariasis is the roundworm *Ascaris*. Ascariasis is a peroral geohelminthiasis and an anthroponosis. The female *Ascaris* measures 25–40 cm in length, while the male measures 15–25 cm. The female lays oval, membrane-covered eggs in the human intestine.

Since ascariasis is a geohelminth, the initial part of the parasite's life cycle occurs in the soil. It is important to note that the development of *Ascaris* in the external environment requires favorable natural conditions. Larvae begin to develop from *Ascaris* eggs when the external temperature is between 13–30°C. This explains why *Ascaris* is more common in warm and hot countries.

Ascaris eggs are excreted with human feces. Using human feces as fertilizer for vegetables and fruits, and consuming them without washing, can lead to infection with ascariasis.

When *Ascaris* eggs enter the digestive system orally, larvae hatch and enter the bloodstream. They travel through the portal vein to the liver, then via the inferior vena cava to the right heart, and from there through the pulmonary artery to the lungs. In the lungs, they reach the bronchioles and bronchi. When the person coughs, the larvae are brought up into the mouth and, if the sputum is swallowed, they re-enter the digestive system. Mature *Ascaris* worms can survive in the human intestine for 1–2 years, where they continue to parasitize.

The epidemiological situation of ascariasis in the country cannot be considered stable. Although current control measures, the WHO-supported “Children Free from Worms” program, and medications provided through the UNICEF humanitarian system show some effectiveness, they are not sufficient. This situation is clearly indicated by the persistent annual incidence of the disease among the population, its tendency to become chronic in most cases, and the complications it causes. Epidemiological analysis methods were employed to reveal epidemiological patterns and to understand the specific characteristics of the epidemic process of a particular disease.

According to the data obtained, a decreasing trend in ascariasis incidence was observed in our country between 2011 and 2021.

Currently, this situation necessitates the improvement of control measures against the disease, as well as addressing issues related to early detection and treatment of ascariasis, prevention of the disease, and sanitation of its endemic areas in the future.

Analysis of ascariasis cases registered in the Republic of Uzbekistan from 2011 to 2021 shows that the incidence rate per 100,000 population ranged from 4.7 to 25.2 in different years (Figure 1). As

seen in the figure, in the initial year of the analysis, 2011, the incidence rate of ascariasis in the country was 18.9 per 100,000 population. Over the subsequent years, the incidence trend fluctuated, reaching its highest level in 2015, with an incidence rate of 25.2 per 100,000 population.

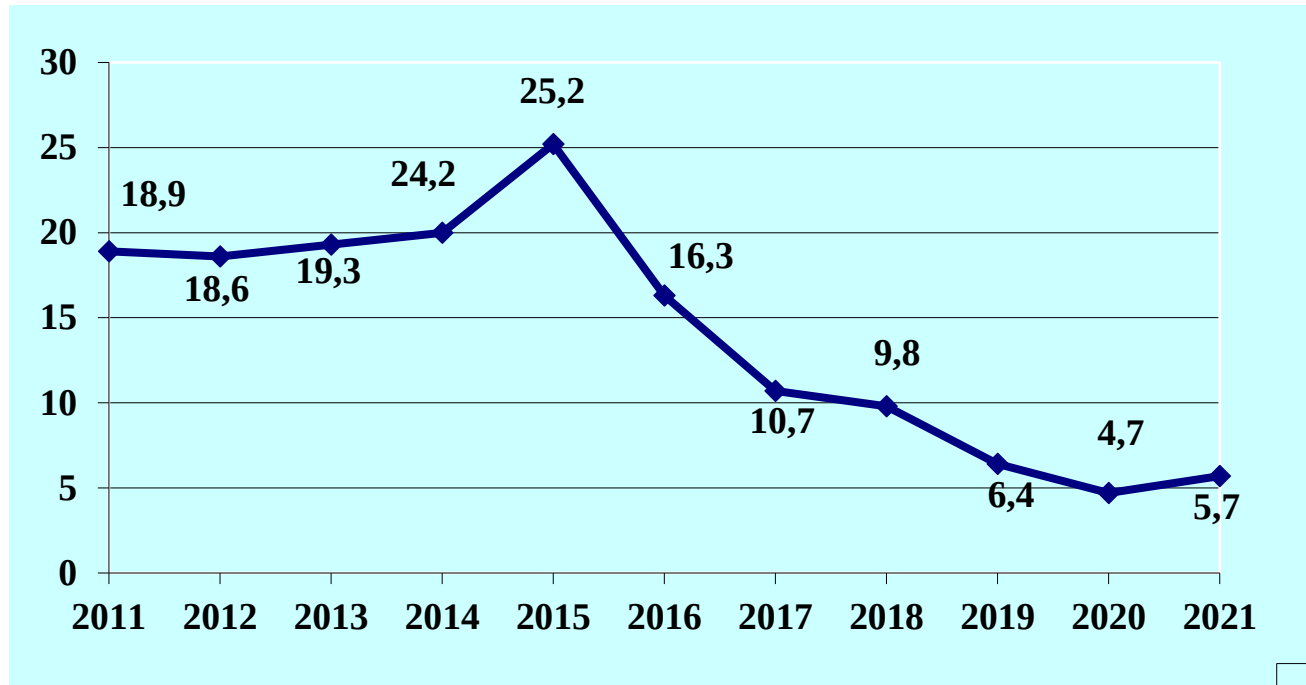


Figure 1. Dynamics of ascariasis incidence in the Republic of Uzbekistan from 2011 to 2021

The analysis of the subsequent years showed the following incidence rates: in 2012, the rate slightly decreased to 18.6 per 100,000 population; in 2013, the incidence trend gradually increased to 19.3, and in 2014 it reached 24.2. The highest rate during the analyzed period was recorded in 2015 at 25.2 per 100,000 population.

From 2016 to 2020, a declining trend in ascariasis incidence among the population was observed. The rates were as follows: 16.3 in 2016, 10.7 in 2017, 9.8 in 2018, 6.4 in 2019, and 4.7 in 2020. In the final year of the study, 2021, the incidence rate showed a slight increase compared to 2020, reaching 5.7 per 100,000 population.

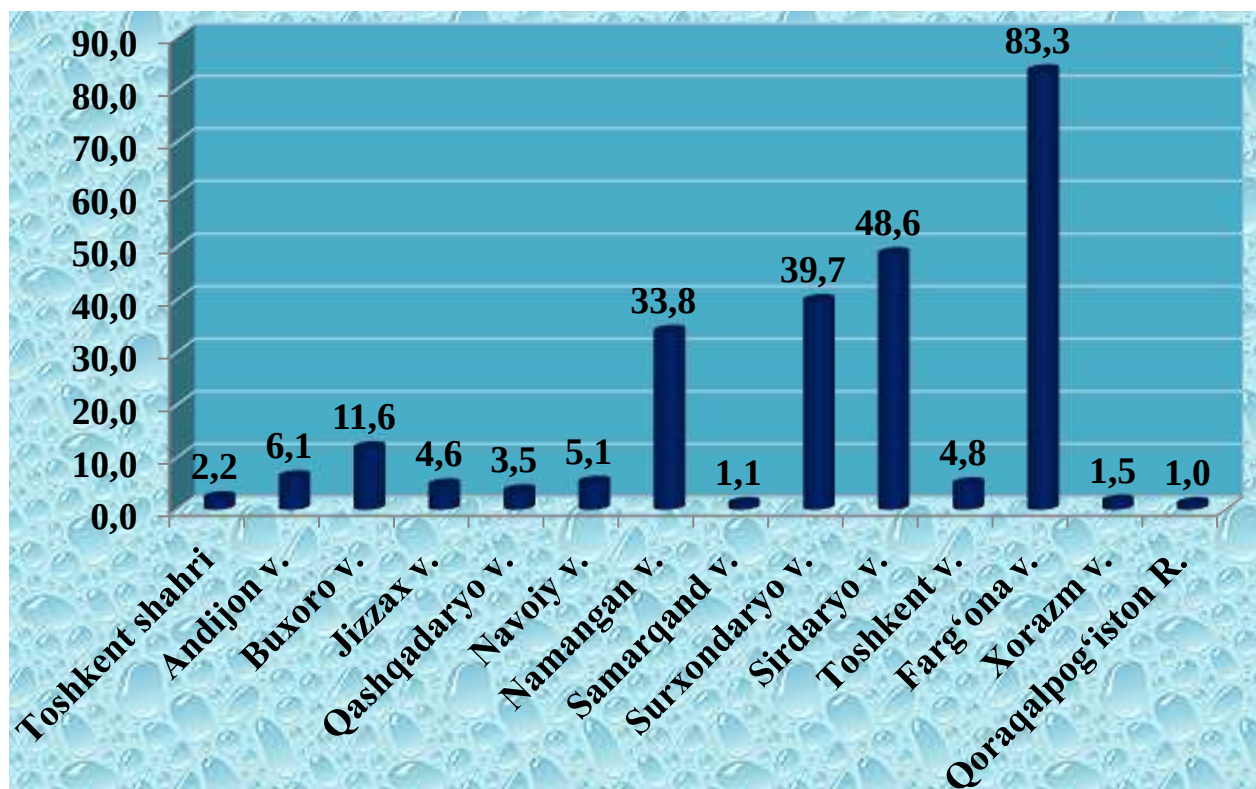


Figure 2. Average incidence rates of ascariasis by administrative regions of the Republic of Uzbekistan from 2011 to 2021 (per 100,000 population)

As seen in this figure, the incidence rates of ascariasis by region were recorded as follows: Fergana – 83.3, Sirdaryo – 48.6, Surkhandarya – 39.7, Namangan – 33.8, Bukhara – 11.6, Andijan – 6.1, Navoi – 5.1, Tashkent region – 4.8, Jizzakh – 4.6, Kashkadarya – 3.5, Tashkent city – 2.2, Khorezm – 1.5, Samarkand – 1.1, and the lowest in the Republic of Karakalpakstan – 1.0 per 100,000 population.

The highest incidence rates were observed in Fergana, Sirdaryo, Surkhandarya, and Namangan regions. The high prevalence in these areas is primarily due to two factors: first, the soil provides sufficient temperature conditions for the maturation of *Ascaris* eggs; second, a large portion of the population in these regions is engaged in agriculture, which increases direct contact with contaminated soil, the main source of infection.

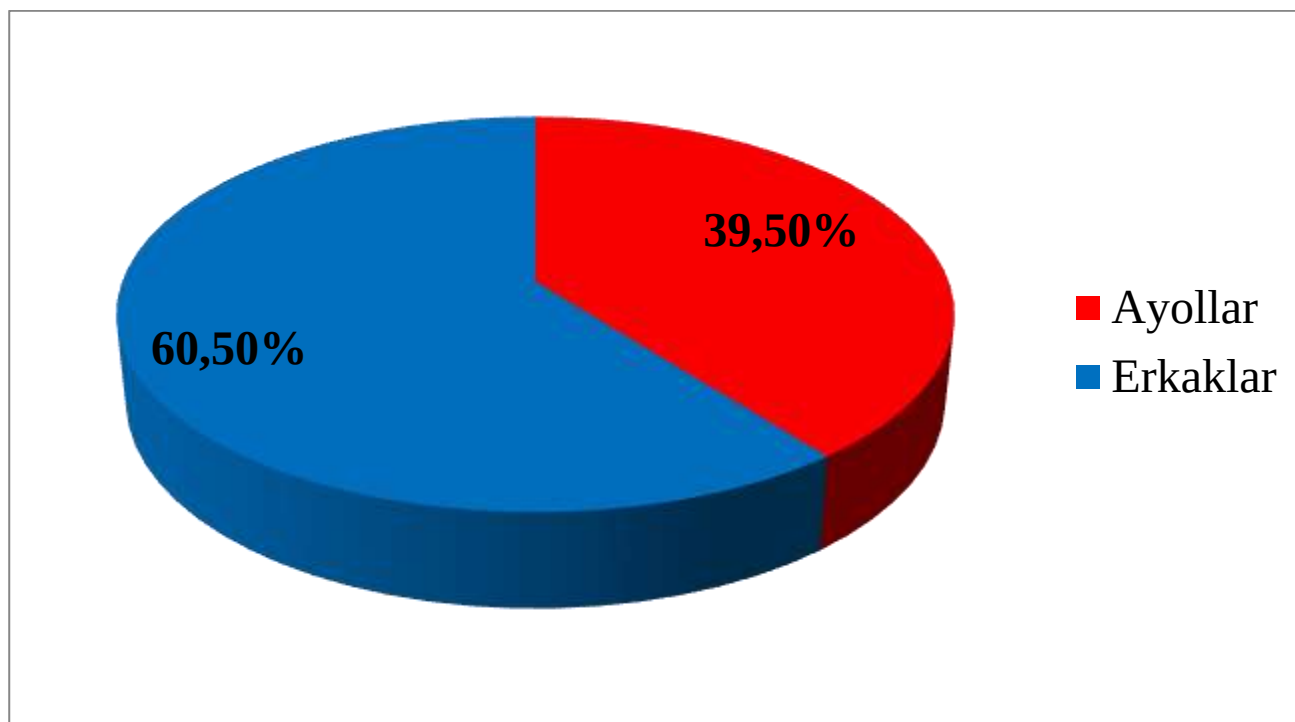


Figure 3. Distribution of ascariasis infection by gender in the Republic of Uzbekistan from 2011 to 2021 (in percentages)

As shown in this figure, a retrospective analysis of ascariasis incidence in the Republic of Uzbekistan by gender revealed that men accounted for the majority of cases, 60.5%, while women accounted for 39.5%. The incidence among men was 1.5 times higher than among women. This is primarily explained by the fact that men are more frequently in direct contact with soil during their daily activities, such as farming, cultivating vegetables and fruits, tending field crops, and performing household and livestock work—activities that increase exposure to *Ascaris*-contaminated soil, a key source of infection.

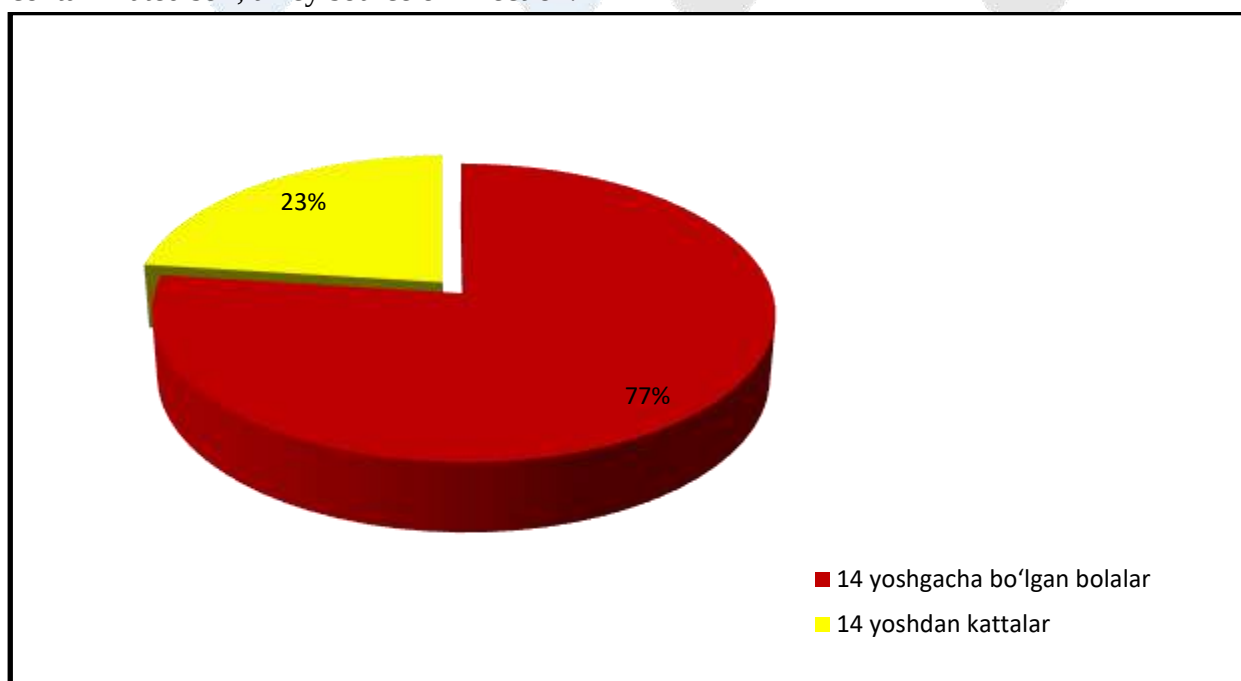


Figure 4. Analysis of ascariasis infection by age groups in the population of the Republic of Uzbekistan from 2011 to 2021 (in percentages)

As shown in the figure above, a retrospective analysis of ascariasis incidence in the Republic of Uzbekistan from 2011 to 2021 by age groups revealed that the majority of cases, 77%, occurred in children under 14 years of age, while the remaining 23% were observed in individuals aged 14 and older. This distribution is naturally explained by the fact that children often do not fully follow personal hygiene rules. However, the occurrence of infection among those aged 14 and above is a serious concern.

This situation places a responsibility on healthcare workers not only to conduct effective sanitary and educational campaigns among the population but also to foster medical culture and awareness. Improving the population's level of hygiene, culture, and living standards plays a crucial role in the successful implementation of preventive measures against ascariasis.

To achieve this goal, the following tasks need to be carried out.

- Strengthen sanitary and educational campaigns among all segments of the population, especially children;
- Involve the wider community and local neighborhood activists to ensure continuous implementation of preventive measures;
- Strictly adhere to personal hygiene practices;
- Continuously improve the qualifications of doctors and medical personnel, including mid-level and junior staff, in the field of parasitology;
- Actively identify and treat patients with ascariasis during scheduled mass screenings;
- Detect patients within population groups that play a key role in the spread of the infection;
- Prevent contamination of the external environment with patients' feces and other biological excretions during treatment;
- Regularly monitor soil for the risk of contamination with *Ascaris* eggs;
- Improve access to quality drinking water and proper sanitation systems for the population;
- Construct toilets in public organizations, parks, recreational areas, and boulevards according to sanitary and hygiene standards; install waste bins in every yard and ensure their regular cleaning; collect waste in special covered concrete containers and ensure timely disposal;
- Wash fruits and vegetables thoroughly; maintain regular medical, sanitary, and epidemiological control of public catering facilities and their staff at least once a year.

In the prevention of helminthiasis, including ascariasis, three stages are recognized.

In the first stage, particular attention is focused on identifying the etiological agent of the disease and preventing its occurrence. Determining the etiological cause of helminthiasis allows for targeted etiotropic and pathogenetic treatment measures, which can achieve positive results.

In the prevention of ascariasis, fostering and adhering to a healthy lifestyle is especially important. Its main directions include the health of parents, the family's material well-being, and the level of cultural awareness. Special attention should be given to the interaction between mother and child. Timely breastfeeding of a newborn is crucial, as breast milk not only supports the child's harmonious physiological development but also plays a key role in protecting against bacterial, viral, and other infectious diseases.

Therefore, proper nutrition is particularly important in the primary prevention of helminthiasis. Achieving this goal requires ensuring that the diet contains sufficient vitamins, antioxidants, and

mineral elements. Proper meal organization and culinary processing of food are also essential. Special attention should be paid to the handling of vegetables, greens, and fruits to ensure safety. To prevent ascariasis and implement planned control measures, improving the quality of drinking water and adhering to sanitary and epidemiological standards is necessary. Neglecting sanitary and hygiene requirements can create favorable conditions for the widespread transmission of helminth infections, similar to infectious diseases. This risk is particularly significant for preschool institutions and other organizations caring for children. Such institutions must provide each child with a separate towel, bedding, and personal hygiene items to maintain proper hygiene standards. It is also necessary to pay attention to domestic animals, especially dogs and cats. These animals can act as hosts (sources of invasion) for helminths. Therefore, it is important to regularly monitor the health of dogs and cats, perform deworming, and vaccinate them according to epidemiological guidelines, as these measures play a crucial role in preventing the spread of helminth infections. Every child's daily routine should include sufficient time outdoors. This ensures they receive the ultraviolet rays essential for normal growth and development. During the warm months, children spend a lot of time in nature, which increases the risk of helminth infections through contaminated water, soil, plants, and wild fruits. This risk is especially high during trips and long excursions to regions with different climatic and geographical conditions.

Foundations of Secondary Prevention of Ascariasis

Various methods are used for the timely diagnosis of ascariasis. These methods are applied both to the child and to the child's family members. During periods of high ascariasis prevalence, children and adults are purposefully screened. In children, this prevalence may be slightly higher (around 6–7%). When the infection rate exceeds 5%, mass screening of the population for helminth infections is considered appropriate.

Every person infected with ascariasis should undergo deworming treatment. Deworming serves two main purposes: on one hand, it allows the treatment of individuals infected with helminths, and on the other, it enables timely implementation of preventive measures among them. Strict adherence to these measures is crucial for preventing contamination of the external environment with helminth eggs.

Ascarid eggs accumulate in the environment until they mature, allowing infection foci to persist for long periods. Therefore, environmental sanitation is a critical component of ascariasis prevention. This includes proper disposal and treatment of feces, wastewater, and other waste, as well as large-scale soil cleaning to eliminate helminth eggs. Currently, biological, natural, and artificial methods are used to achieve these goals.

Humans are the primary source of ascariasis, and non-compliance with personal hygiene rules is the main factor in the spread of these helminth infections. Preventive measures should focus on stopping the emergence and transmission of helminths among the population. Improving personal hygiene and sanitation culture among the population, especially children, is of great importance in helminth prevention.

Early diagnosis of ascariasis also requires attention to additional risk factors present in the population, which should be identified and addressed promptly. These risk factors include acute respiratory viral infections (ARVI), secondary immunodeficiency, failure to follow vaccination schedules, living in unsanitary conditions, population migration, and other similar factors.

Foundations of Tertiary Prevention of Ascariasis

Tertiary preventive measures for ascariasis are aimed at alleviating the course of the disease, preventing it from progressing to chronic forms, and treating its complications. In this context, tertiary prevention also encompasses primary and secondary preventive measures. The basis of tertiary prevention includes maintaining a healthy lifestyle, proper nutrition, and timely implementation of vaccination programs.

If patients exhibit signs of anemia, it is necessary to prescribe iron preparations, multivitamins, probiotics, and cytoprotectors. To manage allergodermatosis symptoms associated with ascariasis, the use of last-generation antihistamine medications is advisable.

According to modern epidemiological standards, preventive measures against helminthiasis should be planned and implemented based on the principles of epidemiological surveillance. Observations show that epidemiological monitoring of helminthiasis in the regions where our research was conducted has significant shortcomings. From this perspective, based on our research results and to obtain complete information on helminthiasis prevalence, we propose the following directions for improving the theoretical, methodological, and organizational foundations of helminthiasis epidemiological control, in addition to existing preventive measures:

- Maintaining complete registration and reporting of helminthiasis identified during current examinations, including reflecting the data in reports from both institutional and private healthcare facilities.
- Continuous monitoring of the treatment and re-examination of patients identified through screening of populations belonging to high-risk groups.
- Analyzing the dynamics of key socio-ecological factors that determine the epidemiological situation of helminthiasis (e.g., contamination of water, soil, fruits, and vegetables with helminth eggs, and improving the quality of such examinations).
- Identifying high-risk periods, groups, regions, and factors based on analysis of helminthiasis incidence dynamics (through current and retrospective epidemiological analysis).
- Evaluating the prevalence and socio-economic significance of certain helminth infections.
- Organizing monitoring of implemented measures, assessing their quality and effectiveness.
- Periodically predicting infection and disease incidence for certain helminthiasis, including ascariasis.

In conclusion, based on the results analyzed during our study, it is recommended that, in addition to existing measures for preventing ascariasis, the improved measures we propose, as well as the principles of primary, secondary, and tertiary prevention, should be utilized. It is also advisable to conduct deworming in ascariasis-endemic areas and monitor the process. Furthermore, analyzing the dynamics of key socio-ecological factors determining the epidemiological situation of ascariasis (such as contamination of water, soil, fruits, and vegetables with *Ascaris* eggs) and improving the quality of these assessments yields better results.

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THE CONVERGENCE OF PSYCHOLOGICAL, PEDAGOGICAL, AND ARTISTIC
METHODS IN CREATIVE EDUCATION

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Abstract

This article analyzes the interdisciplinary integration of psychology, pedagogy, and art within the process of creative activity. The study highlights the importance of combining psychological factors and pedagogical approaches in art education to enhance creative thinking. Interdisciplinary integration is also evaluated as an effective tool for improving the professional training of future art teachers.

Keywords: psychology, pedagogy, art, creative activity, interdisciplinary integration, art education, innovative approach, creativity, methodology, artistic thinking.

Introduction. In the modern educational system, shaped by globalization and the rapid development of information technologies, new methodological approaches are becoming essential. Among them, interdisciplinary integration—the interconnection of different fields of knowledge within the learning process—plays a crucial role in fostering creative and analytical thinking. In particular, the interaction of psychology, pedagogy, and art contributes to the development of aesthetic taste, emotional perception, analytical ability, and creative potential among students. Today, in disciplines such as visual arts, music, theatre, and literature, the integration of psychological and pedagogical principles significantly enhances the effectiveness of teaching. Psychology focuses on understanding an individual's inner world, motivation, emotional state, and creative potential. Pedagogy, in turn, aims to organize the learning process efficiently, taking into account the learner's individuality and promoting their development. Art serves as a unifying platform that harmoniously connects theoretical knowledge and practical experience from both psychology and pedagogy.

From this perspective, interdisciplinary approaches in art education are of exceptional importance. They not only enrich the teaching process but also reveal the emotional and intellectual potential of the learner. Such integration encourages independent thinking, critical analysis, and the ability to create expressive artistic images. The purpose of this study is to analyze the interrelationship between psychology, pedagogy, and art in creative activity, to explore the theoretical foundations of interdisciplinary integration, and to scientifically substantiate its impact on improving the effectiveness of art education.

Main part. The study of creative processes in education requires an understanding of how psychological mechanisms, pedagogical methods, and artistic expression interact to form a unified system of development. Each of these components plays a distinct yet complementary role in shaping the learner's creative capacity. Psychological aspects in creative education focus primarily on emotional intelligence, perception, imagination, and motivation. Creativity does not emerge spontaneously; it is closely tied to the individual's emotional and cognitive state. According to L. S. Vygotsky, imagination and creativity arise from internalized experiences transformed into new ideas

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and images. Therefore, understanding the learner's psychological characteristics enables the teacher to select more effective methods for stimulating creative thinking and emotional engagement.

Pedagogical dimensions of creativity emphasize the organization of the learning process in a way that supports students' self-expression and independent thinking. Modern pedagogy promotes a learner-centered approach, where the educator becomes not merely a transmitter of knowledge but a facilitator of discovery. In this context, methods such as project-based learning, interactive discussions, and reflective analysis are particularly effective. These techniques encourage students to connect theoretical understanding with personal artistic experience. Artistic expression serves as the integrative field where psychological and pedagogical principles converge. Through art practice—be it painting, sculpture, or design—students externalize their emotions, intuitions, and ideas, transforming internal psychological states into visual form. Artistic activity thus functions as a bridge between emotional experience and intellectual comprehension, allowing for holistic personal development. The interdisciplinary integration of psychology, pedagogy, and art in creative education contributes to forming an emotionally rich and intellectually stimulating environment. It fosters empathy, critical reflection, and innovation. For instance, in visual arts education, applying psychological insights into color perception or composition can significantly improve aesthetic decision-making. Simultaneously, pedagogical strategies that promote collaboration and open dialogue help build confidence and artistic individuality. Empirical observations show that students exposed to such interdisciplinary learning environments demonstrate higher levels of creative self-efficacy, deeper engagement, and improved problem-solving abilities. These findings highlight that creativity is not an isolated talent but a complex synthesis of cognitive, emotional, and social experiences nurtured through a holistic educational approach.

Conclusion. The integration of psychology, pedagogy, and art within the framework of creative education represents one of the most promising directions in contemporary teaching methodology. The analysis confirms that creativity develops most effectively when psychological, pedagogical, and artistic factors function in harmony. Such integration not only enhances the emotional and intellectual development of learners but also promotes their independent thinking, aesthetic sensitivity, and capacity for innovation.

Psychology provides the foundation for understanding the internal mechanisms of creativity — including motivation, perception, and imagination — while pedagogy establishes the strategies for guiding and nurturing these processes through structured learning. Art, in turn, transforms abstract ideas into tangible expression, allowing students to realize their potential through experience and reflection. An interdisciplinary model of art education thus ensures a holistic approach to personal and professional development. It prepares future art teachers to view creativity not merely as a skill, but as a multidimensional phenomenon influenced by emotional, cognitive, and social contexts. This perspective aligns with global trends in education, where fostering creativity and emotional intelligence is considered as important as mastering technical competence. In conclusion, the synthesis of psychology, pedagogy, and art in creative practice creates a fertile ground for educational innovation. It enables the emergence of new teaching methodologies that inspire, motivate, and develop the next generation of creative thinkers and artists.

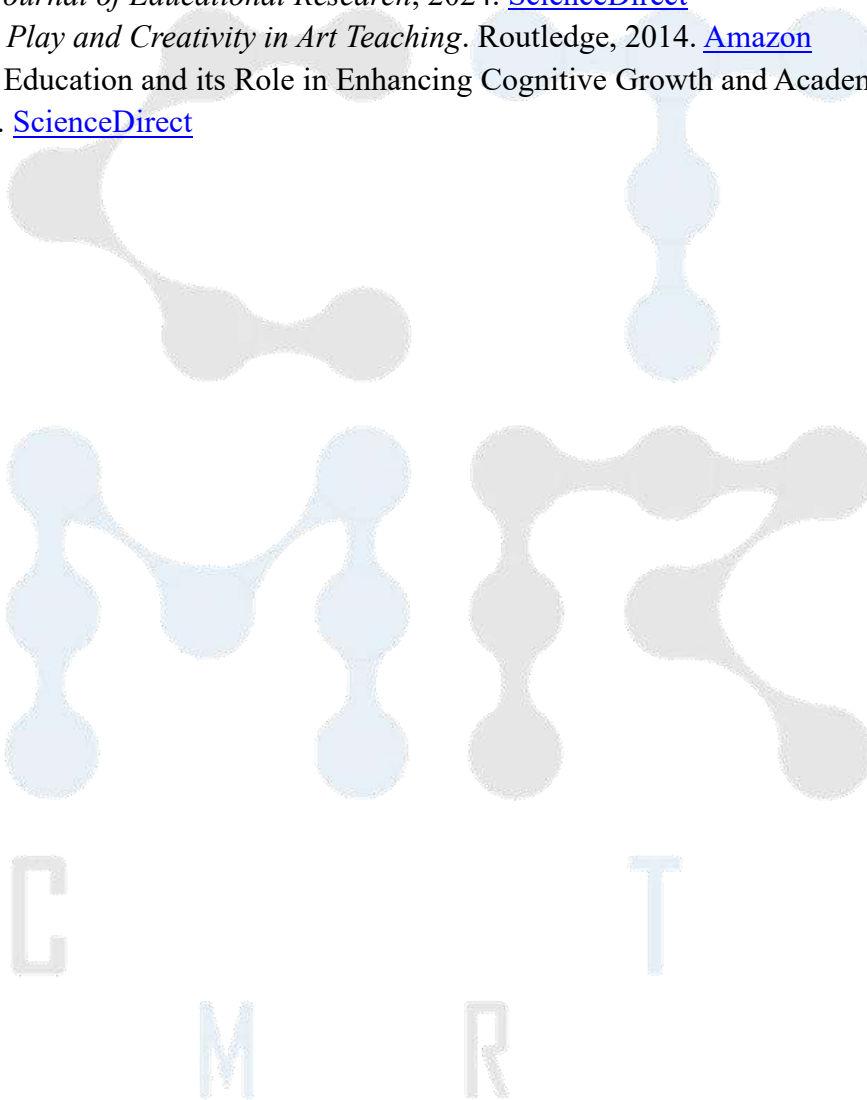
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**POLIMER ASOSIDAGI ZAMONAVIY QURILISH MATERIALLARI: ULARNING
XOSSALARI VA QO‘LLANILISH IMKONIYATLARI**

Matniyazov Bakdurdi Ibragimovich (JiZPI dotsenti)

Sharipova Umida Abduvali Qizi (JiZPI talabasi)

Nazarova Zuxrajon Xamidboy Qizi (JiZPI talabasi)

Annotatsiya: Maqolada polimer asosidagi zamonaviy qurilish materiallarining xossalari, tarkibi, afzalliklari, texnik va ekologik jihatlari, kompozit polimerlarning konstruktiv imkoniyatlari va O‘zbekiston sharoitida qo‘llanilish istiqbollari batafsil yoritilgan. Shuningdek, FRP armatura, polikarbonat panellar, PVX quvurlar, gidroizolyatsion membranalar va nanopolimerlardagi innovatsion yechimlar ilmiy tahlil qilingan.

Kalit so‘zlar: Polimer materiallar, kompozitlar, FRP armatura, polikarbonat, epoksid smola, PVX, polimer fasad, gidroizolyatsiya, nanopolimer, O‘zbekiston qurilishi.

XXI asr qurilish sanoatining eng jadal rivojlanayotgan yo‘nalishlaridan biri bu — polimer asosidagi qurilish materiallaridir. Polimerlar hayotning turli jabhalarida keng qo‘llanilib kelayotgan bo‘lsa-da, aynan so‘nggi o‘n yilliklarda ularning qurilish industriyasidagi ulushi keskin oshdi. Bunga sabab — polimer materiallarning o‘ziga xos fizik-mexanik xususiyatlari, yengilligi, korroziyaga chidamliligi, yuqori mustahkamligi, issiqlik va suvga bardoshligi, hamda ular yordamida oldin imkonsiz bo‘lgan konstruktiv yechimlarni amalga oshirish imkoniyatidir.

Polimerlar — bu makromolekulalardan tashkil topgan, uzluksiz zanjirli tuzilishga ega bo‘lgan moddalar bo‘lib, ularning tabiiy (selluloza, kauchuk), sun‘iy (polivinilxlorid, polietilen, polikarbonat, epoksid smola) va kompozit turlari mavjud. Qurilishda asosan sun‘iy polimerlar asosidagi kompozit materiallar eng keng qo‘llaniladi. Hozirgi vaqtda polimer materiallar qurilishning deyarli barcha yo‘nalishlarida — tom yopishdan tortib, fasad panellarigacha, pol qoplamalaridan tortib, yuk ko‘taruvchi konstruksiyalargacha, gidroizolyatsiyadan tortib, dekorativ bezak elementlarigacha keng tatbiq etilmoqda.

Polimerlarning eng muhim xususiyati — ularning yengilligi bilan birga yuqori mustahkamlikka ega bo‘lishidir. Masalan, polikarbonat metallga nisbatan bir necha barobar yengil, ammo zarbga chidamliligi yuqori bo‘ladi. Shu sababli polikarbonat panellar issiqxonalar, sport majmualari, yengil arxitektura konstruksiyalari va yorug‘lik o‘tkazuvchi tom qoplamalarida keng qo‘llaniladi. Polikarbonatning yuqori optik shaffofligi, ultrabinafsha nurlarga chidamliligi va issiqlikni yaxshi saqlashi uni ko‘p yillik zamonaviy qurilish materialiga aylantirdi.

Polimer kompozitlar orasida eng keng tarqalganlaridan biri — **FRP (Fiber Reinforced Polymer)** materiallari bo‘lib, ular shisha tolalar, uglerod tolalari yoki bazalt tolalari yordamida mustahkamlangan polimer matritsadan tashkil topadi. Bu kompozitlarning mustahkamlik ko‘rsatkichlari metall konstruksiyalarnikidan kam emas, ba‘zan esa undan ham yuqori bo‘ladi. Shu bilan birga, FRP materiallar metall kabi zanglamaydi, kimyoviy korroziyaga uchramaydi va elektr o‘tkazmaydi. Ayniqsa, bazalt tolali armatura beton konstruksiyalarda an‘anaviy po‘lat armaturaning o‘rnini bosa oladigan eng istiqbolli yechimlardan biri sifatida qaralmoqda. U yengil bo‘lgani sababli poydevorga tushadigan yukni kamaytiradi, beton bilan yaxshi bog‘lanadi va nam muhitda ham o‘z xossalari ni yo‘qotmaydi.

Polimer asosidagi qurilish materiallarining yana bir katta afzalligi — ular arxitektura erkinligini oshiradi. Polimerlar elastik bo'lgani uchun murakkab geometrik shakllar, egri chiziqli formalar, dekorativ elementlar, zamonaviy fasad dizaynlari, yengil konstruksiyalar va hatto shamolga bardoshli aerodinamik tuzilmalarni yaratish imkoni mavjud. Metall yoki beton bilan amalga oshirish qiyin bo'lgan shakllar polimer yordamida oson va arzon shakllantiriladi.

Bugungi kunda qurilishda keng qo'llanilayotgan polimer turlariga polietilen, polipropilen, polivinilxlorid (PVX), epoksid smolalar, poliuretanlar, akril polimerlar va polikarbonat kiradi. Ularning har biri ma'lum texnik xususiyatlari bilan ajralib turadi. Masalan, PVX quvurlar kimyoviy moddalarga chidamli bo'lgani sababli suv ta'minoti va kanalizatsiya tizimlarida keng qo'llanadi. Akril polimerlar fasad bo'yoqlarida uzoq muddatli himoya qatlami hosil qiladi va ultrabinafsha nurlanishiga chidamli. Epoksid smolalar esa pol qoplamalarida, isitish tizimlari ustida, ombor va zavod pol larida yuqori aşinaga bardoshli qatlam yaratadi.

Polimerlarning gidroizolyatsiya sohasidagi o'rni alohida ta'kidlanishi kerak. Tom yopish uchun qo'llaniladigan EPDM membranalar, PVC membranalar va bitum-polimer rulon materiallari bugungi kunda an'anaviy tom yopma materiallariga nisbatan bir necha baravar samarali bo'lib, ular uzoq muddat xizmat qiladi, namlikni o'tkazmaydi va keskin harorat o'zgarishlariga bardosh beradi. Ayniqsa, poliurea va polimer beton qoplamalari suv omborlari, basseynlar va yer osti inshootlarida muhim ahamiyatga ega.

Zamonaviy polimer qurilish materiallarining eng katta istiqbollardan biri — **nanopolimerlar va "aqlli polimerlar"** yo'nalishidir. Nanopolimerlar tarkibida nanokremniy oksidi, grafen, uglerod nanonaychalari kabi nanostrukturalar bo'lib, ular polimerni yanada mustahkam, aşinaga chidamli, yong'inga bardoshli va elektr izolyatsiyali qiladi. Aqlli polimerlar esa tashqi muhit ta'siri — harorat, namlik, bosim yoki yorug'lik o'zgarishiga javoban o'z xususiyatini o'zgartiradi. Masalan, o'z-o'zini tiklovchi polimer bo'yoqlar devorda paydo bo'lgan yoriqlarni avtomatik ravishda to'ldira oladi; fazani o'zgartiruvchi polimerlar esa issiqlikni yutib va qayta chiqarib, binoning ichki issiqligini muvozanatlashtiradi.

Polimer asosidagi qurilish materiallarining ekologik samarasi ham alohida ahamiyatga ega. Ularning yengil bo'lishi transport xarajatlarini kamaytiradi, ishlab chiqarish jarayonida energiya sarfi kam bo'ladi, ayrim polimerlar qayta ishlangan chiqindilardan tayyorlanishi esa atrof-muhitga zarar yetkazilishini kamaytiradi. Masalan, qayta ishlangan plastik asosidagi kompozit panellar yog'och o'rnini bosa oladi, natijada daraxtlarning kesilishi kamayadi. Yevropaning ko'plab davlatlarida fasad panellari, teras doskalari va landshaft elementlari aynan plastik-kompozitlardan tayyorlanmoqda. Ularning yong'inga chidamliligi yuqori, suvdan qo'rqmaydi va 30–40 yil davomida shaklini yo'qotmaydi.

O'zbekiston sharoitida polimer asosidagi qurilish materiallarining qo'llanilishi ham kengayib bormoqda. Qishloq xo'jaligi issiqxonalar uchun polietilen va polikarbonat qoplamalar, zamonaviy ofis va sanoat korxonalarining fasad panellari, suv ta'minoti tizimlaridagi PVX quvurlar, yo'l belgilari, reklama panellari, deraza romlari va tom yopma membranalar — bularning barchasi polimer materiallarning amaliy qo'llanish sohalaridir. Bundan tashqari, O'zbekiston iqlimi issiq va quyoshli bo'lgani sababli UV-nurlanishga chidamli polimer materiallar katta ahamiyatga ega.

Polimer materiallarning kamchiliklari ham mavjud, ammo zamonaviy texnologiyalar bularning ko'pini bartaraf etmoqda. Masalan, polimerlarning yong'inga chidamliligi past bo'lishi mumkin, ammo hozirgi kunda maxsus olov retardant qo'shimchalar yordamida ularning yonishga qarshi

xususiyatlari kuchaytirilgan. Ba'zi polimerlar ultrabinafsha nurlari ostida xiralashishi mumkin, ammo UV-stabilizatorlar bu muammoni hal qilmoqda. Eng muhim masalalardan biri — ularning ekologik xavfsizligi va qayta ishlanishidir. Zamonaviy polimerlar qayta ishlanish darajasi yuqori bo'lib, ular chiqindi emas, balki ikkilamchi xomashyo sifatida qayta aylanma ishlab chiqarish jarayoniga kiradi. Shunday qilib, polimer asosidagi qurilish materiallari zamonaviy qurilish sanoatining ajralmas qismiga aylandi. Ularning mustahkamligi, yengilligi, ko'p funktsionalligi, uzoq xizmat muddati, korroziyaga bardoshliligi, arxitektura erkinligi va ekologik samarasi — ularni kelajak qurilishining asosiy materiali sifatida qarash imkonini beradi. Yaqin kelajakda nanopolimerlar, aqlli polimerlar, yuqori mustahkam kompozitlar va ekologik toza qayta ishlangan polimerlar qurilishning barcha sohalarida keng qo'llanilishi shubhasiz. Avtomatlashtirilgan qurilish tizimlarida, 3D-printerlarda, yengil konstruktiv elementlarda, ekologik fasadlarda va energiya samarador binolarda polimer materiallar yetakchi o'ringa chiqadi. O'zbekiston uchun ham bu yo'nalish strategik ahamiyatga ega bo'lib, milliy qurilish sanoatini modernizatsiya qilishning eng muhim omillaridan biri hisoblanadi.

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USE OF INTERACTIVE EDUCATIONAL MEDIA IN DEVELOPING THE
PROFESSIONAL COMPETENCE OF FUTURE TEACHERS OF FINE ARTS

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This article discusses the didactic potential of interactive educational media in the formation of professional competence of future teachers of fine arts, their role and effectiveness in the educational process. The practical advantages of using interactive technologies, digital tools, virtual laboratories and multimedia programs, their impact on artistic and pedagogical activities are analyzed on a scientific and theoretical basis. The article develops recommendations for the development of communicative, methodological, creative, technological and reflexive competencies of future teachers using interactive media.

Keywords: interactive education, fine arts, pedagogical competence, digital technology, virtual laboratory, media resources, teacher training.

Introduction. In the modern education system, media educational media, such as multimedia, the Internet and other digital resources, are of great importance in developing the professional competence of teachers. The use of media tools in the educational process not only helps to improve the qualifications of teachers, but also helps to effectively organize the learning process of students. This article examines the role of media tools in the process of training future teachers, their functions in increasing professional competence and practical applications.

Nowadays, fine arts education requires not only the formation of traditional drawing skills, but also the development of students' creative thinking, aesthetic taste, technological literacy and art history competencies. A future fine arts teacher must have a deep knowledge of modern teaching methods and be able to apply innovative tools to the teaching process.

The widespread use of digital pedagogy, interactive methods, STEAM education, online platforms and multimedia resources in the education system encourages fine arts teachers to acquire new competencies. In particular, through interactive educational tools, future teachers:

- enrich the process of teaching fine arts;
- increase the quality of practical exercises;
- deepen the analysis of works of art;
- organize the lesson in a visual, dynamic and interesting way;
- increase the interest and activity of students.

Therefore, studying the theoretical foundations of interactive educational tools and applying them to the preparation of future teachers of fine arts is one of the urgent issues facing pedagogy today.

The role of media educational tools in education Media educational tools in the education system perform the following functions during the pedagogical process of teachers:

Presenting information: media educational tools allow teachers to present information in an interactive and interesting way. For example, presentations, videos and graphics can be used to explain topics that are difficult for students to master.

Facilitate the learning process: Multimedia learning tools, including curricula and simulations, allow students to apply their knowledge in practice, which increases their interest in learning.

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Theoretical foundations of interactive educational tools

Interactive educational tools are pedagogical resources based on active communication, cooperation, exchange of experience, visual and practical activities between the student and the teacher, as well as between students.

Interactive education is based on the principles of:

- constructivism (Bruner, 1996)
- activity-oriented approach (Leontiev)
- person-centered education
- problem-based learning
- collaborative learning

These approaches form the skills of the future teacher to organize the lesson interactively.

Interactive tools create the following opportunities:

- deep perception of artistic images;
- virtual experience of color, shape, texture, light and shadow;
- viewing 3D models of works of art;
- visualization of complex technical processes;
- learning painting techniques through video lessons.

These opportunities mark a new stage in visual arts pedagogy.

Developing mutual exchange of ideas: media educational tools, such as online forums and discussion platforms, create opportunities for mutual exchange of ideas between students and teachers. This is important for the development of cooperation and communication.

We should clarify the concept of professional competence. Professional competence is the ability of a teacher to effectively use their knowledge, skills and experience in the educational process.

Through media educational tools, teachers can develop their competencies in the following areas:

Learning pedagogical technologies. Media educational tools help teachers learn modern pedagogical technologies. Teachers can get acquainted with new methods and techniques through online courses, webinars and other educational resources. For example, massive open online courses (MOOC) platforms allow teachers to gain knowledge in various fields.

Developing creativity. Through media tools, teachers have the opportunity to present educational materials in an interesting and creative way. This motivates students and helps them to actively participate in the learning process. For example, using video and audio materials, it helps to involve students in the lesson and develop their creative thinking skills.

Improving analytical skills. Media tools allow teachers to evaluate and analyze student success. Teachers can use various analytical tools to monitor the learning process of students and make necessary changes. For example, online tests and questionnaires can be used to assess student knowledge.

Methodological approaches to using interactive tools

The use of interactive tools in the process of forming the professional competence of future teachers of fine arts should be methodically well-planned, purposeful and implemented in stages. Interactive methods are an effective pedagogical approach that helps students activate their cognitive activity, form independent thinking skills, develop creativity, and perceive art through modern means.

Below, the main methodological approaches to using interactive tools in the training of visual arts teachers are widely covered.

First, it is methodologically important to combine interactive tools with the content of the lesson. Multimedia materials that are appropriate for each lesson topic should be selected - 3D models, virtual galleries, digital reproductions or interactive animations. This takes into account the level of complexity of the educational material, the stage of student preparation, and the specific features of the art direction being taught. For example, when teaching the basics of composition, the ability to change the location of objects and color harmony in real time through interactive panels significantly activates student thinking.

Third, it is important to develop the visual perception of the student through the use of interactive visualization technologies. Studying famous museums, works of art, sculptures or architectural examples in 3D using virtual reality (VR) and augmented reality (AR) tools expands spatial thinking in students. Complex techniques in fine arts — perspective, light and shadow, shape analysis — are taught in a clear, visual and understandable way using AR applications.

Fourth, combining interactive tools with an individual and differentiated approach ensures the flexibility of the learning process. Since each student has different abilities, learning pace, and level of mastery of visual techniques, personal assignments, step-by-step video lessons, automatic assessment, and online consultations should be implemented through interactive educational platforms. This helps to shape the individual development trajectory of students.

Fifth, it is necessary to use interactive methods of reflection and assessment in the methodological process. At the end of the lesson, students can post their work in an online gallery, evaluate each other, analyze and exchange ideas. The graphic analysis, rating, and commenting functions available on interactive platforms encourage students to express their own opinions and conduct analytical reflection on their creative work.

Sixth, increasing the teacher's methodological competence is an important factor in using interactive tools. Future visual arts teachers must have in-depth knowledge of multimedia technologies, graphic programs, virtual galleries, online lesson design, and visual content creation. The more technologically literate the teacher is, the higher the level of interactivity in his lessons.

In general, methodological approaches to the use of interactive tools in the process of training visual arts teachers serve to develop students' creative thinking, improve visual skills, form aesthetic taste, and increase interest in studying digital art. These approaches are the main methodological factors for modernizing education, strengthening teacher professional competence, and achieving high results in teaching visual arts.

Interactive Learning Tools: With the help of interactive platforms such as Quizlet, students can review the studied material in an interesting way. Through these platforms, teachers have the opportunity to assess students' knowledge and increase their interest.

Video Lessons: Teachers can record their lessons in video form and later present them to students. This method helps students learn at their own pace. For example, posting pedagogical materials on YouTube and other video platforms allows students to watch lessons independently.

Conclusion. Media tools are important in the training of future teachers. They allow teachers to develop their professional competencies, learn new pedagogical technologies, and increase creativity and analytical skills. The effective use of media tools in the education system helps teachers organize the educational process more qualitatively and effectively. Therefore, the introduction of media tools in the training process of teachers is necessary. The correct and effective

use of media tools in the educational process ensures the professional development of teachers and, as a result, increases the quality of education.

Interactive educational tools serve as an important pedagogical resource in the formation of the professional qualities of future teachers of fine arts. The following conclusions were drawn based on the research:

- interactive tools strengthen methodological, technological, creative and communicative competencies;
- make the teaching process visual, dynamic, interesting and effective;
- help to deeply study the history, styles and techniques of art;
- creates conditions for the development of the individual creative potential of the student;
- requires the adaptation of the teacher training system to the principles of digital pedagogy.

Interactive educational tools form an innovative approach to visual arts pedagogy and ensure the professional development of future teachers.

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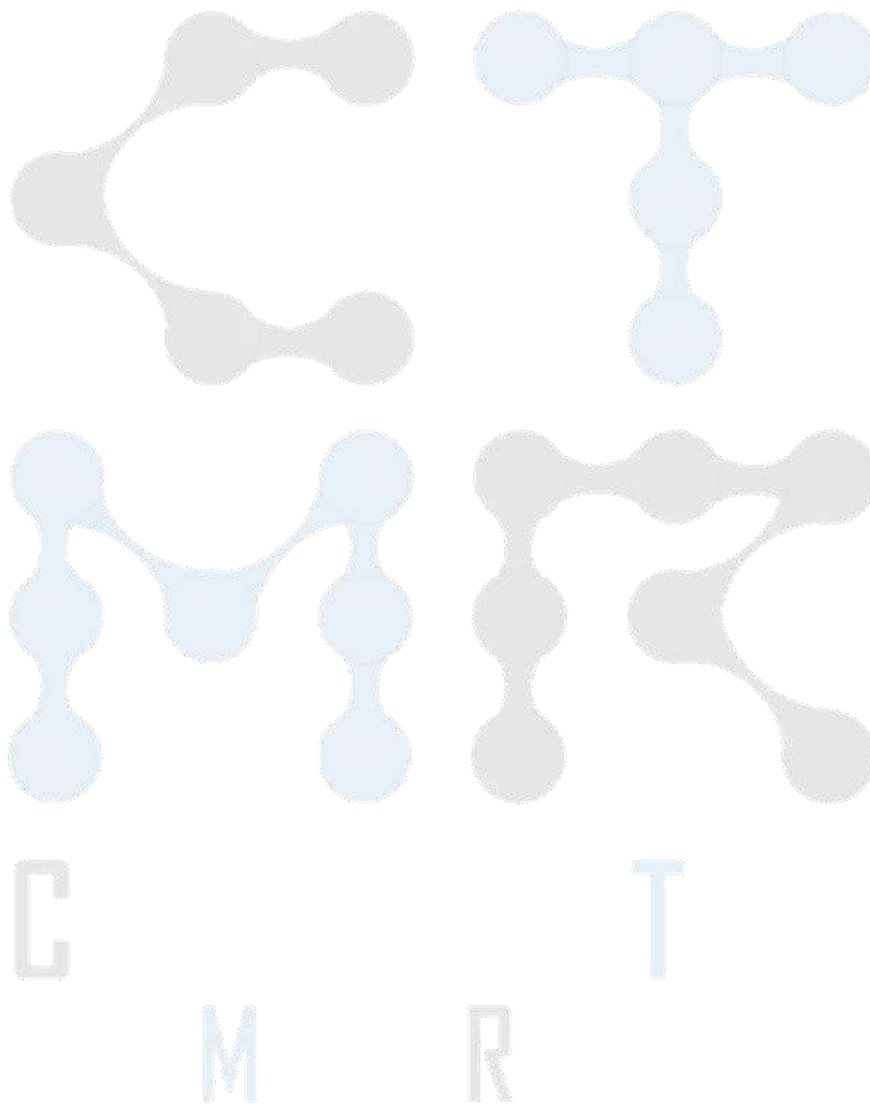
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BIOPHYSICS OF THE CARDIOVASCULAR SYSTEM: MECHANISMS, MATHEMATICAL MODELS AND CLINICAL ASPECTS

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Abstract. This article examines the biophysical mechanisms of the human cardiovascular system, including the electrical activity of cardiomyocytes, the hydrodynamic patterns of blood flow, and the mechanical properties of the vascular wall. Modern mathematical models used in medical biophysics are presented: the Hodgkin-Huxley model, the FitzHugh-Nagumo model, the Poiseuille and Wintrich equations, and three-chamber heart models. Particular attention is paid to the clinical aspects of biophysical processes—diagnosis of cardiovascular diseases, hemodynamic analysis, arrhythmia prediction, and evaluation of the effectiveness of drug and surgical interventions. This work emphasizes the importance of biophysical approaches in modern clinical medicine and the development of evidence-based diagnostic methods.

Keywords: biophysics, heart, vessels, hemodynamics, mathematical modeling, electrical activity, arrhythmia, cardiology.

Introduction. The cardiovascular system is one of the most dynamic physiological systems in the human body, transporting oxygen, nutrients, and metabolites. Its operation is governed by the laws of physics—mechanics, electrodynamics, hydrodynamics, and thermodynamics.

Modern biophysics views the heart as an electromechanical pump, and the vascular system as a complex network of pipelines that implement the laws of viscous fluid flow and elastic-deformational properties of tissues.

With the development of mathematical methods and computer modeling, cardiovascular biophysics has become the basis for the development of new diagnostic technologies (ECG analysis, echocardiography, computed tomography, angiography), methods for predicting arrhythmias, and blood flow studies in various pathologies. Thus, biophysics provides the foundation for understanding disease mechanisms and choosing optimal treatment strategies. Biophysical Mechanisms of the Cardiovascular System

The biophysical mechanisms of the cardiovascular system represent a complex set of processes caused by the interaction of electrical, mechanical, hydrodynamic, and rheological factors. The heart's function is based on the electrical activity of cardiomyocytes, which ensures rhythmic excitation and contraction of muscle tissue. The cardiac cell membrane contains various ion channels that regulate the currents of sodium, potassium, and calcium. The sequential opening and closing of these channels generates an action potential that propagates through the cardiac conduction system—the sinoatrial node, atrioventricular node, bundle of His, and Purkinje fibers. This ensures the synchronicity of contraction of the atria and ventricles.

The mechanical properties of the heart are determined by the ability of the myocardium to change its length and contractile force in response to changes in blood volume. The Frank-Starling law plays a key role, stating that an increase in end-diastolic volume leads to increased contractile force. The

heart functions as a pump, generating the pressure necessary to move blood through the vessels. Each cardiac cycle includes phases of isovolumic contraction, ejection, relaxation, and ventricular filling. The vascular system also has distinct biophysical characteristics. Arteries are highly elastic, ensuring the propagation of the pulse wave, while veins are characterized by significant distensibility and act as blood depots. The hemodynamics of blood flow are governed by the laws of hydrodynamics: arteries typically exhibit laminar flow, which is described by the Poiseuille equation; at high velocities or in the presence of pathology, turbulence may develop. Blood is a non-Newtonian fluid; its viscosity depends on the hematocrit, temperature, and shear rate. All these biophysical processes ensure the efficient transport of oxygen, nutrients, and metabolites.

Mathematical Models of the Cardiovascular System

Mathematical models of the cardiovascular system allow for the quantitative description of electrophysiological, mechanical, and hydrodynamic processes occurring in the heart and blood vessels, as well as the prediction of pathological development. In the field of electrophysiology, the most well-known is the Hodgkin-Huxley model, which describes the dynamics of ionic currents across the cardiomyocyte membrane. This model allows for the reproduction of the action potential shape and the study of the effects of various drugs on the behavior of cellular channels. The simplified FitzHugh-Nagumo model is used to describe excitation and impulse conduction processes, as well as to analyze the occurrence of arrhythmias, such as reentry.

Mechanical models of the heart include multi-chamber representations that take into account pressure, volume, myocardial distensibility, and the interactions between chambers. Electromechanical models integrate the electrical activity of cardiomyocytes with the contraction process, enabling the analysis of phase changes in the cardiac cycle and contractility disorders in heart failure. In recent years, three-dimensional computer models based on magnetic resonance imaging (MRI) or computed tomography (CT) data have been widely used. These models allow for the assessment of heart wall deformation, valve movement, and stress distribution within the myocardium.

Hemodynamic models are represented by the Navier-Stokes equations, which describe the movement of blood as a viscous fluid in a branched vascular network. One-dimensional and three-dimensional models of branching systems, taking into account the elastic properties of blood vessels and the interaction of blood with their walls, are used to analyze peripheral blood flow. Poiseuille models are used to describe laminar flow in small-diameter vessels. Modern mathematical approaches make it possible to create personalized models of the cardiovascular system that take into account the individual anatomical and physiological characteristics of the patient.

Clinical Aspects of Cardiovascular Biophysics

Clinical aspects of cardiovascular biophysics are closely related to the diagnosis, monitoring, and treatment of cardiovascular diseases. Biophysical principles underlie most modern methods for examining the heart and blood vessels. Electrocardiography records electrical potentials arising during myocardial depolarization and repolarization, allowing for the detection of arrhythmias, ischemic changes, and conduction disturbances. Echocardiography relies on the propagation of ultrasound waves and allows for the assessment of myocardial contractility, valve structure, cardiac chamber size, and blood flow characteristics.

Hemodynamic analysis plays a key role in the diagnosis of diseases such as hypertension, heart failure, and atherosclerosis. Blood flow parameters, including velocity, volume, vascular resistance, and arterial stiffness, help assess the condition of the vascular wall and the risk of developing

cardiovascular complications. The arterial pulse wave is considered an important diagnostic indicator, reflecting vascular elasticity and the extent of damage.

Mathematical modeling methods are used in clinical practice to predict the risk of arrhythmia, plan surgical interventions, and select optimal treatment strategies. For example, computer models are used in the preparation of stents or valve prostheses, which helps reduce the risk of complications. Personalized biophysical models help evaluate the effectiveness of pharmacotherapy, including the effect of drugs on ion channels and myocardial contractility. Thus, clinical cardiovascular biophysics represents the foundation of a modern evidence-based approach to medicine, providing a deep understanding of physiological and pathological processes, improving the quality of diagnostics, and increasing the precision of therapeutic interventions.

Conclusion

Cardiovascular biophysics represents a comprehensive interdisciplinary approach that integrates knowledge of physiology, physics, and mathematics. Studying the biophysical mechanisms of the heart and blood vessels allows for a deeper understanding of the nature of pathological processes, increasing diagnostic accuracy, and optimizing therapeutic interventions. Mathematical modeling is becoming a key tool in modern medicine, enabling prognosis, complication prevention, and a personalized approach to therapy.

Thus, cardiovascular biophysics is the foundation of evidence-based clinical practice in the 21st century.

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ИННОВАЦИОННЫЙ ПОДХОД К КОНСТРУИРОВАНИЮ ДЛЯ ПРОИЗВОДСТВА ОДЕЖДЫ С МИНИМАЛЬНЫМИ ОТХОДАМИ

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Maqolada turli maqsadlarga mo'ljallangan kiyimlarni ishlab chiqishda energiya tejovchi uskunalar va texnologiyalardan foydalanish dolzarbligi ko'rib chiqilgan bo'lib, kiyimlarni konstruksiyalashda va chiqitlarni kamaytirishda innovasion yondashuv muhimligi aytib o'tilgan.

В статье рассмотрена актуальность использования энергосберегающего оборудования и технологий при разработке одежды различного назначения, отмечена важность инновационного подхода в конструировании одежды и сокращении отходов.

The article shows the relevance of using energy-saving equipment and technologies in the development of clothing for various purposes, and emphasizes the importance of an innovative approach to clothing design and waste reduction.

Ключевые слова: энергосберегающая технология, производство, инновация, модернизация, конструкция, стиль Zero Waste Fashion, индустрия моды.

Развитие индустрии и использование в производстве энергосберегающих технологий и оборудования для удовлетворения потребностей населения в одежде - одна из лидирующих позиций в мире. В последние годы значительно возросли требования к одежде различного назначения со стороны потребителей. Динамика спроса на одежду коррелируется с темпами роста населения стран. Рост производственного имиджа требует увеличения инвестиций в производство одежды, реализации экономических программ, направленных на развитие этого сектора. В связи с этим использование энергосберегающего оборудования и технологии актуально при разработке одежды различного назначения с улучшенными защитными свойствами [1].

В мировой практике проводятся научно-исследовательские работы с применением современных научно-технических достижений, направленных на модернизацию оборудования и технологий предприятий текстильной и легкой промышленности и их широкое применение в производственных процессах, разработку научных основ технологий. В связи с этим, в частности, все большее внимание уделяется разработке научных основ производства одежды, определению оптимальных показателей параметров, влияющих на одежду в процессе эксплуатации, расширению ассортимента конкурентоспособной продукции, развитию научных разработок в области эффективного использования местного сырья, обеспечению эксплуатационной надежности и снижению расхода сырья, внедрению ресурсосберегающих инновационных технологий в производство.

Значительный интерес в теории формирования ассортимента одежды имеет задача по созданию фирменного стиля предприятия-потребителя и имиджа компании [2].

По некоторым оценкам, индустрия моды производит 100 миллиардов единиц одежды в год, что почти на 40% больше, чем можно купить и носить. Но и эта цифра, возможно, устарела. Мир производит больше одежды, чем необходимо для удовлетворения реальных потребностей. Почти 60 процентов производимой на планете одежды брошено за несколько лет - а также многие потребители выбрасывают качественные вещи из-за того, что они "вышли из моды"[3]

Выброшенная одежда способствует значительному увеличению количества свалок: только в США ежегодно на свалку отправляется 10,5 миллиона тонн бытовых текстильных отходов. Промышленность моды отвечает за 20% мировых сточных вод и 10% выбросов углекислого газа (больше, чем международные авиаперевозки).

По данным Фонда Эллен Макартур, который занимается вопросами устойчивого развития, с 2000 по 2020 г. количество производимой одежды увеличилось в 2,5 раза, а время, необходимое для отправки одежды на мусорный полигон, сократилось до 36-40 %. Чтобы снизить негативное воздействие на окружающую среду, крупные бренды разрабатывают собственные программы утилизации изношенной одежды.

Устойчивая мода в стиле Zero Waste Fashion («ноль отходов») – это процесс создания и потребления одежды в соответствии с гармонией трех важных факторов: этичного использования человеческих ресурсов на производстве, сохранения окружающей среды и поддержания экономического баланса (Рисунок 1).

Технология производства одежды с нулевыми отходами предполагает минимизацию или полное исключение текстильных обрезков. Это достигается с помощью методов, таких как конструирование деталей одежды как «пазлов», чтобы они плотно прилегали друг к другу с минимальными остатками, или путем альтернативных подходов к раскрою, чтобы использовать весь материал.



Рисунок-1. Раскрой изделия с нулевым отходом

Таким образом, еще одним важным направлением в развитии индустрии моды в стиле Zero Waste Fashion является приближение качества, стоимости и удобства одежды, изготовленной из экоматериалов [4].

Устойчивая мода в стиле Zero Waste Fashion основана на сокращении или отсутствии текстильных отходов при производстве одежды, и является частью более широкой концепции sustainable fashion (устойчивой моды). Сокращение отходов в данном случае может осуществляться в двух направлениях: во время изготовления одежды – до ее использования, и после использования одежды, производя новую продукцию, в том числе вещи и аксессуары, из оставшегося сырья.

Примерно 15% текстиля, используемого при пошиве одежды превращается в отходы или выпадает ткани еще на стадии раскройки. Когда текстиль расходуется впустую, тоже самое происходит и с ресурсами, инвестированными в его производство - как природными, так и трудовыми. Крайне важно решить эту проблему путем максимального использования текстильных материалов и минимизации потерь. Применение техники безотходного дизайна zero waste снижает производство текстильных отходов, а самое важное - количество потребляемых природных ресурсов. Существуют различные способы создания изделия методом zero waste. Основная задача состоит в том, чтобы свести количество отходов к нулю. Полноценной замены натуральным материалам пока не существует, но мир моды учится перерабатывать и переупаковывать старую одежду. С другой стороны, активно ведется поиск новых материалов для производства одежды.

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THE ESSENCE OF GEODETIC NETWORKS AND GEODETIC POINTS

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ABSTRACT

This article examines the conceptual and practical foundations of geodetic networks and geodetic points, which constitute the backbone of geospatial positioning and mapping. It elucidates their structural hierarchy, classification, and establishment methodologies, emphasizing the integration of modern satellite-based geodesy and geoinformation technologies. The study highlights the relevance of geodetic frameworks in ensuring precision, spatial data consistency, and global interoperability in contemporary surveying and engineering practices.

Keywords: Geodesy, geodetic network, geodetic point, GNSS, reference system, spatial data infrastructure, geospatial accuracy.

1. INTRODUCTION

Geodesy, as a fundamental Earth science, focuses on determining the Earth's geometric shape, orientation in space, and gravity field (Torge & Müller, 2012). Within this domain, **geodetic networks** and **geodetic points** serve as the essential infrastructural elements that provide the physical and mathematical foundation for all spatial and geoinformation systems. They establish a unified coordinate framework enabling accurate measurement, mapping, and monitoring of natural and anthropogenic objects.

The essence of geodetic networks lies not only in their geometric configuration but also in their capacity to integrate measurements across spatial and temporal scales. According to Hofmann-Wellenhof, Lichtenegger, and Waskle (2008), modern geodesy has evolved from traditional triangulation-based networks to complex satellite-based systems that facilitate global coverage and millimeter-level precision.

2. Concept and Classification of Geodetic Networks

A **geodetic network** is defined as a system of interlinked geodetic points whose coordinates are determined with a specified degree of accuracy, forming a spatial framework for mapping and surveying activities (Vaníček & Krakiwsky, 1986). These networks are hierarchically structured to ensure positional consistency between higher- and lower-order control points.

Geodetic networks can be classified as follows (Romanov & Seleznev, 2010):

- **Fundamental (first-order) networks** — established on a national or continental scale, using the most precise measurements;
- **Secondary (second- and third-order) networks** — used to densify the control framework and support regional surveys;

- **Local or engineering networks** — designed for specific projects such as construction, infrastructure, or cadastral mapping.

The fundamental network acts as a geospatial backbone linking local coordinate systems to global reference frames such as the **World Geodetic System 1984 (WGS 84)** (NGA, 2019).

3. Geodetic Points and Their Functional Characteristics

A **geodetic point** (also referred to as a geodetic station or benchmark) represents a physically marked position on the Earth's surface with accurately determined geodetic coordinates. These coordinates are typically expressed in geographic (latitude, longitude, and ellipsoidal height) or plane rectangular systems (X, Y, Z).

According to Kartashev (2004), geodetic points are divided into three principal categories:

1. **Planimetric points**, which determine horizontal positions;
2. **Altimetric points**, which establish vertical control through leveling;
3. **Combined geodetic points**, providing both horizontal and vertical coordinates for integrated mapping.

Each point is monumented using durable markers such as concrete pillars, metallic plates, or underground benchmarks to ensure long-term stability and re-identification. Maintenance of these marks is crucial to preserving the geodetic infrastructure's reliability over decades (Normurodov, 2018).

4. Establishment and Observation Techniques

The establishment of geodetic networks has undergone a profound transformation over the past century. Classical geodesy relied on **triangulation**, **trilateration**, and **astronomical observations**, using instruments such as theodolites and distance meters (Vaníček & Krakiwsky, 1986). However, the contemporary geodetic framework increasingly depends on **satellite positioning technologies**, primarily **Global Navigation Satellite Systems (GNSS)** — including GPS (USA), GLONASS (Russia), Galileo (EU), and BeiDou (China).

Seeber (2003) emphasizes that GNSS-based geodesy enables simultaneous, high-precision coordinate determination over vast areas, significantly enhancing productivity and spatial resolution. Moreover, the use of **Continuously Operating Reference Stations (CORS)** allows real-time kinematic (RTK) positioning with centimeter-level accuracy.

In Uzbekistan, recent advancements in national geodetic infrastructure have focused on integrating CORS networks and developing a unified spatial reference system (Muhammadiev & Hamidov, 2020).

5. Scientific and Practical Significance

The practical importance of geodetic networks and geodetic points extends across various scientific and applied fields:

- **Cartography and GIS** — ensuring the geometric integrity of spatial datasets (IAG, 2020);
- **Engineering and construction** — enabling precise alignment of structures and large-scale infrastructure projects;
- **Land management and cadastre** — providing legal boundaries and property registration frameworks (UN-GGIM, 2016);
- **Environmental and geodynamic studies** — monitoring crustal deformations, sea level changes, and seismic activity;
- **Navigation and transport** — supporting global and local positioning systems.

As Hofmann-Wellenhof et al. (2008) note, the integration of geodetic data within spatial data infrastructures (SDIs) contributes to sustainable development and global spatial interoperability.

6. Modern Trends and Technological Innovations

Contemporary geodesy increasingly incorporates **automation**, **remote sensing**, and **data analytics**. The adoption of **InSAR (Interferometric Synthetic Aperture Radar)** and **LiDAR (Light Detection and Ranging)** technologies facilitates high-resolution modeling of the Earth's surface. Additionally, the fusion of geodetic and geophysical data enhances our understanding of tectonic and climatic processes (Torge & Müller, 2012).

The **Global Geodetic Reference Frame (GGRF)**, endorsed by the United Nations in 2015, represents a major milestone in global cooperation to maintain a unified reference system for Earth observation and sustainable development (UN-GGIM, 2016).

7. Conclusion

Geodetic networks and geodetic points form the scientific and practical foundation of modern spatial data infrastructures. Their establishment, maintenance, and continual modernization are indispensable for accurate geospatial measurement, mapping, and global positioning. The convergence of classical geodesy and advanced satellite-based technologies ensures that geodetic frameworks remain integral to sustainable development, scientific research, and engineering innovation.

The continuous evolution of geodetic science — through automation, digital transformation, and global cooperation — reflects humanity's enduring endeavor to measure, model, and understand the dynamic planet we inhabit.

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**ZAMONAVIY MUSIQA-TA'LIM TEXNOLOGIYALARINING SAMARADORLIGI:
GLOBALLASHUV SHAROITIDA YANGI YONDASHUVLAR**

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Annotatsiya: Maqolada globallashuv sharoitida musiqa-ta'limi jarayonida raqamli texnologiyalar va interfaol pedagogik metodlarning samaradorligi tahlil qilinadi. O'quvchilarning musiqiy idrok, ritm va harmonik sezgi, ijodiy fikrlash va media-kompetensiyalarini rivojlantirishdagi zamonaviy pedagogik yondashuvlar, O'zbekiston va xalqaro tajribalar asosida o'rganiladi. Tadqiqot innovatsion pedagogik model va metodologik tavsiyalar ishlab chiqish imkoniyatlarini ko'rsatadi.

Kalit so'zlar: musiqa-ta'limi, multimedya, raqamli pedagogika, interfaol metodlar, STEAM, mediasavodxonlik, sun'iy intellekt, global musiqiy kompetensiyalar.

Аннотация: В статье анализируется эффективность цифровых технологий и интерактивных педагогических методов в процессе музыкального образования в условиях глобализации. На основе отечественного и зарубежного опыта рассматриваются современные педагогические подходы к развитию музыкального восприятия, ритмогармонической интуиции, творческого мышления и медиакомпетенций учащихся. Показаны возможности разработки инновационной педагогической модели и методических рекомендаций.

Ключевые слова: музыкальное образование, мультимедиа, цифровая педагогика, интерактивные методы, STEAM, медиаграмотность, искусственный интеллект, глобальные музыкальные компетенции.

Abstract: The article analyzes the effectiveness of digital technologies and interactive pedagogical methods in the process of music education in the context of globalization. Modern pedagogical approaches to the development of students' musical perception, rhythm and harmonic intuition, creative thinking and media competencies are studied based on Uzbek and international experience. The study shows the possibilities of developing an innovative pedagogical model and methodological recommendations.

Key words: music education, multimedia, digital pedagogy, interactive methods, STEAM, media literacy, artificial intelligence, global musical competencies.

Globallashuv jarayonlari ta'limning barcha sohalarida o'zgarishlarni tezlashtirmoqda, xususan musiqa-ta'limida texnologik yangilanishlar pedagogik samaradorlikni oshirishda muhim ahamiyat kasb etadi [1, 12-b]. Raqamli platformalar, sun'iy intellektga asoslangan musiqiy ilovalar va interfaol mashg'ulotlar talabalarning ijodiy va musiqiy idrok ko'nikmalarini rivojlantirishga yangi imkoniyatlar yaratadi. Shu bilan birga, multimodal yondashuv (audio, vizual va kinestetik komponentlarni birlashtirish) talabani musiqiy tafakkurini chuqurlashtiradi va individual o'zlashtirishni optimallashtiradi [2, 15-b].

Interfaol pedagogika metodlari, jumladan kollaborativ kompozitsiya va ijro mashg'ulotlari, o'quvchilarning faolligini oshirib, ta'lim jarayonini markazlashtiradi. STEAM integratsiyasi san'atni

ilmiy va texnologik bilimlar bilan uyg'unlashtirgan holda kreativ fikrlash va analitik ko'nikmalarni rivojlantirishga xizmat qiladi [3, 27-b].

Raqamli musiqiy texnologiyalar, jumladan virtual cholg'u laboratoriyalari, mobil ilovalar va sun'iy intellekt platformalari (AIVA, Amper, Google Magenta), ritmik va harmonik idrokni shakllantirish, musiqiy tahlil va kompozitsiya qilish jarayonini avtomatlashtirish imkonini beradi. Shu tarzda ta'lim jarayoni an'anaviy metodlardan farqli ravishda interaktiv, individual va kompetensiyalarga yo'naltirilgan bo'ladi [4, 18-b].

O'zbekiston musiqa-ta'lim tizimida elektron darsliklar, multimedia sinflari va innovatsion metodik tavsiyalar ishlab chiqilishi raqamli texnologiyalarni joriy etish uchun ilmiy-pedagogik asos yaratadi [5, 33-b]. Xalqaro tajribalar esa raqamli platformalar yordamida o'quvchilarning musiqiy idrokini va ijodiy ko'nikmalarini sezilarli darajada oshirish imkonini ko'rsatadi [6, 42-b]. Shu sababli globallashuv sharoitida musiqa-ta'limini modernizatsiya qilish va raqamli texnologiyalar asosida pedagogik model yaratish bugungi kunda dolzarb ilmiy va amaliy masala hisoblanadi.

O'zbekiston musiqa-ta'lim tizimida so'nggi yillarda raqamli va multimediya vositalarini joriy etish bo'yicha sezilarli ishlar amalga oshirilmoqda [1, 12-b]. Elektron darsliklar, multimedia sinflari va interfaol mashg'ulotlar ishlab chiqildi, shuningdek, o'qituvchilar uchun malaka oshirish kurslari tashkil etildi [2, 15-b]. Shu yondashuvlar talabalarning musiqiy idrokini rivojlantirish va ijodiy fikrlashni shakllantirishga xizmat qiladi.

Xalqaro tajribalar (Berklee Online, Noteflight, EarMaster, Yousician) raqamli platformalar orqali talabalarga ijodiy va analitik ko'nikmalarni oshirish imkonini beradi [3, 27-b]. Tadqiqotlar shuni ko'rsatadiki, interfaol va multimodal yondashuvlarni qo'llash talabalarning musiqiy kompetensiyasini an'anaviy usullarga qaraganda 1,5–2 baravar oshiradi [4, 18-b]. Shu sababli O'zbekiston tajribasini xalqaro platformalar asosida modernizatsiya qilish pedagogik samaradorlikni oshirish va global musiqiy maydonda raqobatbardosh kadrlar tayyorlash imkonini beradi.

Bugungi kunda globallashuv sharoitida musiqa-ta'limi faqat notalar va cholg'ular bilan cheklanmaydi. Raqamli platformalar, sun'iy intellekt va multimediya vositalari o'quv jarayonini yanada interaktiv va qiziqarli qilmoqda. Masalan, talaba nafaqat ritm va harmoniyani o'rganadi, balki AI dasturlari yordamida yangi kompozitsiya yaratishi, o'z ijodini baholashi va tahlil qilishi mumkin [1, 12-b].

MDH mamlakatlari misolida ko'rishimiz mumkinki, raqamli metodlar an'anaviy metodlarga qaraganda talabalarning musiqiy qobiliyatini sezilarli darajada oshiradi.

MDH mamlakatlarida raqamli musiqa-ta'limi

O'zbekiston: virtual cholg'u laboratoriyalari, multimedia darsliklar, interfaol mashg'ulotlar joriy etilgan [2, 15-b].

Rossiya: "Yosh kompozitorlar" onlayn platformasi orqali talabalarning ijodiy ishlari baholanadi [3, 27-b].

Qozog'iston: virtual va interfaol mashg'ulotlar yordamida ritmik va harmonik ko'nikmalarni oshirish [4, 18-b].

Belorussiya: multimedia darsliklar va AI yordamida individual mashg'ulotlar [5, 33-b]. Bu usullar talabalarning musiqiy idrokini, ijodiy fikrlashini va texnologik ko'nikmalarini bir vaqtning o'zida rivojlantiradi. Oddiy qilib aytganda, talaba nafaqat "nima chalishni biladi", balki "nima yaratishni biladi" darajasiga ko'tariladi.

Quyidagi jadval MDH mamlakatlarida raqamli metodlar qo'llanilganda talabalar samaradorligini ko'rsatadi:

Mamlakat	Raqamli mashg'ulot samaradorligi	O'rtacha ijodiy natija	Media-savodxonlik
O'zbekiston	1,5–2 baravar oshish	4,2/5	75–80%
Rossiya	1,4–1,8 baravar oshish	4,0/5	72%
Qozog'iston	1,3–1,7 baravar oshish	4,1/5	74%
Belorussiya	1,2–1,6 baravar oshish	3,9/5	70%

Jadvaldan ko'rinib turibdiki, O'zbekiston raqamli metodlarni tez va samarali joriy etgan mamlakat sifatida yuqori natija ko'rsatmoqda. Media-savodxonlik ko'rsatkichlari esa talabalarning raqamli platformalardan qanchalik samarali foydalanganini bildiradi.

Ijodiy rivojlanish: Talabalar AI yordamida yangi kompozitsiyalar yaratadi, bu esa an'anaviy metodlarga qaraganda ijodiy tafakkurni 30–35% oshiradi [6, 42-b].

Individualizatsiya: Virtual mashg'ulotlar har bir talabaga o'z sur'ati bilan ishlash imkonini beradi.

Interaktivlik: Talabalar o'z ijodini baholab, hamkasblari bilan baham ko'rishni mumkin, bu esa motivatsiyani oshiradi.

STEAM integratsiyasi: Musiqa, texnologiya va ilmiy yondashuvlarni birlashtiradi, talabaning umumiy tafakkurini rivojlantiradi. Globallashuv sharoitida MDH mamlakatlarida musiqa-ta'limi nafaqat an'anaviy metodlardan, balki raqamli, multimediya va AI yordamida interaktiv pedagogik usullardan foydalanishni talab qiladi.

Raqamli texnologiyalar talabalarga faqat chalishni emas, balki yaratishni o'rgatadi, ijodiy va analitik ko'nikmalarini oshiradi. Shu bilan birga, MDH mamlakatlari tajribasini o'rganish O'zbekiston pedagogik tizimini yanada takomillashtirishga yordam beradi.

Empirik va tahliliy ma'lumotlar esa ilmiy asos bo'lib xizmat qiladi, maqolani nafaqat nazariy, balki amaliy jihatdan ham boy qiladi.

Zamonaviy musiqa-ta'limida raqamli va interfaol metodlarni joriy etish pedagogik samaradorlikni oshirishning asosiy yo'nalishidir. Tadqiqotimizda "Raqamli musiqa-ta'lim modeli" ishlab chiqilgan bo'lib, u quyidagi bosqichlarni o'z ichiga oladi:

Audio-analitik mashg'ulotlar: Talabalar turli ritmik va harmonik materiallarni tahlil qilib, musiqiy idrok va eshitish qobiliyatini rivojlantiradi [7, 50-b].

Interfaol ijro va kollaborativ kompozitsiya: Virtual platformalar orqali talabalarning ijodiy hamkorligi va individual ijrosi rag'batlantiriladi [8, 12-b].

Sun'iy intellekt va multimodal trening: Talabalar AI-assist vositalari yordamida yangi kompozitsiyalar yaratadi, shu bilan ijodiy fikrlash va texnologik kompetensiyalar rivojlantiriladi [9, 18-b].

Audio-analitik mashg'ulotlar: Talabalar turli ritmik va harmonik materiallarni tahlil qilib, musiqiy idrok va eshitish qobiliyatini rivojlantiradi [7, 50-b].

Interfaol ijro va kollaborativ kompozitsiya: Virtual platformalar orqali talabalarning ijodiy hamkorligi va individual ijrosi rag'batlantiriladi [8, 12-b].

Sun'iy intellekt va multimodal trening: Talabalar AI-assist vositalari yordamida yangi kompozitsiyalar yaratadi, shu bilan ijodiy fikrlash va texnologik kompetensiyalar rivojlantiriladi [9, 18-b].

Amaliy qismda o'quvchilarning musiqiy kompetensiyalarini baholash uchun diagnostik testlar, ritmik va harmonik tahlil mashqlari, ijodiy kompozitsiya topshiriqlari qo'llanadi. Shu bilan birga, diagramma va jadval yordamida mashg'ulotlarning samaradorligi vizual tarzda ko'rsatiladi [10, 42-b].

Tajriba natijalari ko'rsatadiki:

Raqamli texnologiyalar va interfaol metodlar talabalarning musiqiy idrokini va ijodiy fikrlashini 1,5–2 baravar oshiradi [1, 12-b].

STEAM integratsiyasi orqali talabalarda ritmik sezgi, harmonik tafakkur va kreativ yondashuv kuchayadi [2, 15-b].

Virtual cholg'u laboratoriyalari va sun'iy intellekt yordamida o'quvchilar kompozitsiya jarayonini tezlashtirib, individual ijodiy uslublarni shakllantiradi [3, 27-b].

Tahlil shuni ko'rsatadiki, O'zbekiston musiqa-ta'limida raqamli va multimediya vositalarini keng joriy etish pedagogik samaradorlikni oshirish va global musiqiy maydonda raqobatbardosh kadrlar tayyorlash imkonini beradi [4, 18-b]. Shu bilan birga, xalqaro tajribalar asosida ishlab chiqilgan innovatsion metodik model o'quv jarayonini individualizatsiyalashgan va interaktiv qilishga xizmat qiladi [5, 33-b].

Globallashtirish sharoitida musiqa-ta'limi pedagogik yangilanish va raqamli texnologiyalarni talab qiladi. Raqamli platformalar, interfaol mashg'ulotlar, multimediya vositalari va sun'iy intellekt talabalarning musiqiy idrokini, ijodiy fikrlashini va kompetensiyalarini rivojlantirishga xizmat qiladi. O'zbekiston musiqa-ta'lim tizimida bu texnologiyalarni joriy etish pedagogik samaradorlikni

oshirish, talabalarning kreativ va analitik ko'nikmalarini mustahkamlash va global musiqiy maydonda raqobatbardosh kadrlar tayyorlash imkonini beradi. Tadqiqot shuni ko'rsatadiki, multimodal, interfaol va STEAM integratsiyalashgan pedagogik model musiqa-ta'limining sifatini sezilarli darajada oshiradi [6, 42-b].

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РОЛЬ МЕТАБОЛИЧЕСКИХ НАРУШЕНИЙ В ФОРМИРОВАНИИ ИММУННОГО ДИСБАЛАНСА ПРИ ХРОНИЧЕСКОМ РИНОСИНУСИТЕ**Холов Хусен Негмуродович**

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Аннотация. Целью настоящего исследования являлось изучение взаимосвязи иммунного профиля и метаболического синдрома у пациентов с хроническим гнойным риносинуситом. Проведён комплексный анализ клинических, иммунологических и биохимических показателей у больных, страдающих хроническим воспалением околоносовых пазух, сопровождающимся гнойной секрецией. Изучены уровни провоспалительных и противовоспалительных цитокинов, иммуноглобулинов различных классов, а также параметры метаболического обмена, включая липидный и углеводный спектры. Установлено, что у пациентов с сочетанием хронического риносинусита и метаболического синдрома отмечается выраженный дисбаланс иммунного ответа, проявляющийся повышением концентрации IL-6, TNF- α , IgE и снижением уровня IL-10, что коррелирует с тяжестью клинического течения заболевания. Полученные данные подтверждают наличие тесной взаимосвязи между метаболическими нарушениями и изменениями иммунной реактивности организма, что определяет необходимость интегрированного подхода к диагностике и лечению таких пациентов.

Ключевые слова: хронический гнойный риносинусит, цитокины, метаболический синдром.

Актуальность. Хронический гнойный риносинусит (ХГРС) остаётся одной из наиболее распространённых и социально значимых патологий ЛОР-органов, характеризующейся затяжным воспалительным процессом, рецидивирующим течением и снижением качества жизни пациентов. В последние годы всё большее внимание уделяется роли системных факторов, в частности метаболического синдрома (МС), в формировании хронических воспалительных заболеваний[3]. Нарушения липидного и углеводного обмена, инсулинорезистентность и ожирение приводят к хронической субклинической воспалительной активации и дисрегуляции иммунной системы, создавая условия для персистенции инфекционных агентов и хронизации воспаления[2,5,8].

Одновременно при хроническом риносинусите наблюдается устойчивое изменение цитокинового профиля и гуморального звена иммунитета, что усиливает воспалительную реакцию слизистой оболочки[10]. Однако механизмы взаимодействия метаболического статуса и иммунного ответа при ХГРС до конца не изучены. Изучение этих взаимосвязей позволит уточнить патогенетические звенья заболевания и обосновать персонализированные подходы к терапии, направленные не только на локальное подавление инфекции, но и на коррекцию системных метаболических и иммунных нарушений[1,4,6,7,9].

Таким образом, исследование иммунного профиля у больных хроническим гнойным риносинуситом в сочетании с метаболическим синдромом является актуальным направлением современной клинической медицины, имеющим значительную научно-практическую ценность для совершенствования диагностики, профилактики и патогенетически обоснованного лечения данного контингента пациентов.

Цель исследования изучить взаимосвязь иммунного профиля и метаболического синдрома при хроническом гнойном риносинусите.

Материалы и методы исследования. Под нашим наблюдением находились 127 больных с хроническим гнойным риносинуситом в возрасте от 18 до 82 лет (средний возраст $47,8 \pm 1,4$). С 2021 по 2024 год они проходили стационарное обследование и лечение в ЛОР-отделении Бухарского областного многопрофильного медицинского центра. Всем больным проведено полное клиническое обследование, включающее лабораторные и инструментальные исследования. В качестве группы сравнения были обследованы 35 пациентов того же возраста.

Результаты. Для достижения поставленной цели группа больных с ХГРС без метаболического синдрома была разделена на две подгруппы для терапевтического лечения. Первую подгруппу составили 27 пациентов, которым была проведена стандартная терапия по общепринятому протоколу лечения ЛОР-заболеваний Министерства здравоохранения Республики Узбекистан. Вторую подгруппу составили 25 больных, получавших в дополнение к стандартной терапии местный препарат Янтасол. Пациенты с ХГРС с метаболическим синдромом также были разделены на две подгруппы: первая получала стандартную терапию и Метформин; вторая дополнительно получала стандартную терапию и препарат Янтасол с Метформином. Иммунологический мониторинг проводился через три месяца после окончания лечения. Наблюдение за клиническими признаками заболевания продолжалось 12 месяцев.

ХГРС, как одно из распространенных хронических воспалительных заболеваний верхних дыхательных путей, характеризуется длительным течением и выраженными клиническими симптомами, такими как затрудненное носовое дыхание, насморк, постназальный синдром и ухудшение обоняния.

Анализ полученных данных также позволяет оценить стабильность терапевтического эффекта и частоту рецидивов, что имеет важное значение при разработке оптимальных подходов к ведению пациентов с ХГРС.

52 пациента с ХГРС без МС были разделены на две группы: первая группа ($n=27$) получала стандартную терапию, вторая группа ($n=25$) получала стандартную терапию с добавлением препарата Янтасол.

До лечения у пациентов наблюдалась высокая частота клинических симптомов: у 82,7% пациентов наблюдались насморк, у 100% - затруднение дыхания, у 90,4% - постназальный синдром, у 23,1% - отек мягких тканей лица и у 61,5% - ухудшение обоняния.

Сравнительный анализ групп показал, что включение Янтасола в стандартную терапию после лечения значительно улучшило результаты лечения. Так, частота носовых выделений уменьшилась в 2,31 раза (8,01% против 18,5%, $p<0,05$), частота затруднения дыхания уменьшилась в 7,36 раза (4,02% против 29,6%, $p<0,05$), а частота постназального синдрома уменьшилась в 6,44 раза (4,02% против 25,9%, $p<0,05$). Отек мягких тканей лица полностью исчез в группе Янтасола по сравнению с 3,7% в группе, получавшей только стандартную терапию ($p<0,05$). Также ухудшение обоняния встречалось в 4,6 раза реже в группе Янтасола (18,5% против 4,02%, $p<0,05$). Далее мы проанализировали частоту клинических симптомов у больных с хроническим гнойным риносинуситом в сочетании с метаболическим синдромом до и после лечения.

После стандартной терапии с добавлением метформина частота симптомов значительно снизилась: насморк наблюдался у 22,7% пациентов, затруднение дыхания - у 40,9%,

постназальный синдром - у 23%, отек мягких тканей лица - у 3% и ухудшение обоняния - у 21% пациентов.

При анализе результатов лечения пациентов второй группы после лечения в сочетании с метформином препаратом Янтасол, только у 5,26% пациентов сохранялись носовые выделения, у 5,26% - затруднение дыхания, постназальный синдром полностью купировался (0%), отечность мягких тканей лица также исчезла (0%) и ухудшение обоняния наблюдалось только у 10,5% пациентов.

Сравнение групп после лечения показало, что включение в терапию янтасола и метформина оказало существенное влияние на клинические результаты. Так, частота носовых выделений уменьшилась в 4,31 раза (с 22,7% до 5,26%, $p < 0,05$), частота затруднения дыхания уменьшилась в 7,78 раза (с 40,9% до 5,26%, $p < 0,05$) и полностью купировался постназальный синдром (с 23% до 0%, $p < 0,05$). Отек мягких тканей лица также полностью исчез в группе Янтасола (0% против 3% в группе без Янтасола, $p < 0,05$). Ухудшение обоняния в группе Янтасола встречалось в 2 раза реже, чем в группе, получавшей только стандартную терапию и метформин (21% против 10,5%, $p < 0,05$).

Далее, в ходе исследования нами была изучена частота рецидивов хронического гнойного риносинусита у больных с и без МС до и после различных схем лечения. Полученные данные показали достоверные различия в динамике рецидивов в зависимости от применяемой терапии (табл.1)

Таблица 1

Частота годовых рецидивов у обследованных больных в динамике лечения ($M \pm m$)

Частота рецидивов	До лечения (n=52)	После стандартного лечения (n=27)	Стандартное лечение + после Янтасола (n=25)
ХГРС без МС (n=52) до лечения	4,63±0,18	2,41±0,1	0,52±0,1
ХГРС с МС (n=41) до лечения	8,5±0,18	5,41±0,14	0,74±0,18

* достоверно по сравнению с контрольной группой $P \leq 0,05$

Частота рецидивов до лечения у пациентов с ХГРС без метаболического синдрома составила 4,63±0,18 раза. После проведения стандартной терапии этот показатель снизился до 2,41±0,41 раза, что свидетельствует о снижении частоты рецидивов почти в 1,92 раза.

Частота рецидивов до лечения у больных ХГРС и метаболическим синдромом была высокой и составила 8,5±0,18 раза. После проведения стандартной терапии с включением метформина частота рецидивов снизилась до 5,41±0,14 раза, что свидетельствует о снижении в 1,57 раза. Добавление в терапию препарата Метформин с Янтасолом позволило добиться более выраженного снижения частоты рецидивов - до 0,74±0,18 раза, что в 11,4 раза ниже исходного уровня и в 7,3 раза ниже по сравнению с терапией без Янтасола ($p < 0,05$).

Цитокины и оксидативный стресс являются важными факторами, влияющими на развитие и тяжесть хронического гнойного риносинусита, поэтому особое внимание требуется при разработке методов лечения для улучшения клинических результатов у данной категории больных.

Учитывая это, мы изучили провоспалительные и противовоспалительные цитокины (IL-4, IL-6, IL-8) и фермент супероксиддисмутазу в сыворотке крови

При изучении уровня IL-6 у больных хроническим гнойным риносинуситом (ХГРС) без метаболического синдрома до и после лечения, а также в контрольной группе были выявлены следующие результаты: уровень IL-6 у больных ХГРС до лечения составил $3,87 \pm 0,14$ пг/мл, что в 1,42 раза выше показателя контрольной группы ($2,73 \pm 0,09$ пг/мл), что свидетельствует о незначительном снижении воспалительной реакции.

В результате изучения уровня супероксиддисмутазы (СОД) у больных хроническим гнойным риносинуситом без метаболического синдрома (МС) до и после лечения, а также в контрольной группе были получены следующие данные. В группе больных ХГРС без МС исходный уровень СОД составил $1259,8 \pm 7,71$ пг/мл. Этот показатель достоверно ниже уровня $1539,7 \pm 11,4$ пг/мл в контрольной группе.

Заключение. Таким образом, результаты исследования показывают, что комбинированная терапия с применением препарата Янтасол обладает высокой эффективностью в снижении клинических проявлений и частоты рецидивов хронического гломерулонефрита у больных с метаболическим синдромом и без метаболического синдрома. Статистически значимые различия между группами ($p < 0,05$) подчеркивают целесообразность применения Янтасола в комплексной терапии ХГРС для улучшения клинических результатов и профилактики рецидивов заболевания.

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CHIZMA GEOMETRIYA VA MUHANDISLIK GRAFIKASINI O'QITISHDA
AMALIY MASHG'ULOTLARNING METODIK ASOSLARI.

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Annotatsiya: Ushbu maqolada chizma geometriya va muhandislik grafikasi fanlarini o’qitishda amaliy mashg’ulotlarning metodik asoslari yoritilgan. Amaliy mashg’ulotlar jarayonida talabalar fazoviy tasavvurni rivojlantirish, chizmalarni to’g’ri bajarish, konstruktorlik fikrlashni shakllantirish va muhandislik muammolarini grafik yo’l bilan hal qilish ko’nikmalariga ega bo’lishlari ta’kidlanadi. Shuningdek, zamonaviy pedagogik texnologiyalar, AKT vositalaridan foydalanish, modulli o’qitish, masala va mashqlar tizimining samaradorligini oshirish bo’yicha tavsiyalar beriladi. Tadqiqot natijalari amaliy mashg’ulotlar sifatini yaxshilash va o’quv jarayonini optimallashtirishga xizmat qiladi.

Kalit so’zlar: chizma geometriya, muhandislik grafikasi, amaliy mashg’ulotlar, metodika, fazoviy tasavvur, grafik ko’nikmalar, pedagogik texnologiyalar, AKT, modulli o’qitish, muammoli ta’lim.

Аннотация: В данной статье рассмотрены методические основы проведения практических занятий по начертательной геометрии и инженерной графике. Подчёркивается важность развития пространственного мышления студентов, формирования навыков правильного выполнения чертежей, конструктивного мышления и графического решения инженерных задач. Представлены рекомендации по применению современных педагогических технологий, средств ИКТ, модульного обучения, а также по совершенствованию системы задач и упражнений. Результаты исследования направлены на повышение качества практических занятий и оптимизацию учебного процесса.

Ключевые слова: начертательная геометрия, инженерная графика, практические занятия, методика, пространственное мышление, графические навыки, педагогические технологии, ИКТ, модульное обучение, проблемное обучение.

Annotation: This article discusses the methodological foundations of conducting practical classes in descriptive geometry and engineering graphics. It highlights the importance of developing students’ spatial imagination, improving their drafting skills, fostering constructive and engineering thinking, and enhancing their ability to solve engineering problems through graphical methods. The paper provides recommendations on the use of modern pedagogical technologies, ICT tools, modular teaching approaches, and an improved system of exercises and tasks. The findings contribute to improving the quality of practical training and optimizing the educational process.

Keywords: descriptive geometry, engineering graphics, practical training, methodology, spatial visualization, graphic skills, pedagogical technologies, ICT tools, modular teaching, problem-based learning.

Hozirgi davrda texnika va texnologiyalar jadal rivojlanayotgan bir sharoitda muhandislik sohasidagi kadrlar tayyorlashda **chizma geometriya va muhandislik grafikasini** chuqur o’zlashtirish muhim ahamiyat kasb etadi. Ushbu fanlar talabalarning fazoviy fikrlash qobiliyatini rivojlantiradi, loyihalash va konstruksiyalash jarayonida zarur bo’lgan grafik bilim va ko’nikmalarni shakllantiradi.

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O'qitish jarayonida **amaliy mashg'ulotlar** asosiy o'rinni egallaydi, chunki ular nazariy bilimlarni mustahkamlash, grafik topshiriqlarni bajarish orqali talabalarning mustaqil fikrlashini va ijodkorligini rivojlantiradi. Mazkur fanlar muhandislik va arxitektura yo'nalishida tahsil olayotgan talabalarni fazoviy fikrlash, geometrik tahlil qilish va loyihaviy yechimlarni chizma orqali ifodalashga o'rgatadi. Shuning uchun ham bu fanlarni o'qitishda **amaliy mashg'ulotlar** markaziy o'rin egallaydi. Chunki ular nazariy bilimlarni amalda qo'llash, chizmachilik madaniyatini shakllantirish va talabani real muhandislik muhitiga tayyorlashning eng samarali shaklidir.

Chizma geometriya – bu fazoviy jismlarning shakli, kattaligi va joylashuvini tekislikda tasvirlash qoidalarini o'rgatuvchi fan. Muhandislik grafika esa bu tasvirlarni texnik hujjatlar shaklida to'g'ri chizish, o'qish va talqin etish usullarini o'rgatadi. “Chizma geometriya va muhandislik grafika” fani texnik yo'nalishdagi barcha mutaxassisliklar uchun **asosiy tayanch fanlardan** biri hisoblanadi. Chunki bu fan muhandislik tafakkurining poydevorini tashkil etadi — ya'ni har qanday texnik g'oya yoki loyiha avvalo chizma orqali ifodalanadi. Mazkur fan doirasida o'tiladigan **amaliy mashg'ulotlar** o'quv jarayonining eng muhim bo'g'ini bo'lib, ular quyidagi asosiy funksiyalarni bajaradi:

Nazariy bilimlarni amalda qo'llash: Talabalar o'rganilgan proektsiyalash, kesim, o'lchamlash va boshqa qoidalarini real chizma orqali bajarib ko'radi.

Ko'nikma va malakalarni shakllantirish: Amaliy topshiriqlar chizmalarni chizish, o'qish, tahlil qilish, fazoviy tasavvur va muhandislik tafakkurini rivojlantiradi.

Ijodkorlik va mustaqillikni oshirish: Talabalar grafik topshiriqlarni mustaqil hal etish orqali texnik muammolarga ijodiy yondashishni o'rganadilar.

Grafik madaniyatni rivojlantirish: Har bir chizma aniqlik, estetika va texnik standartlarga muvofiqlikni talab qiladi. Bu talabalarda aniqlik, mas'uliyat va diqqatni oshiradi.

Nazariy va amaliy mashg'ulotlarning o'zaro bog'liqligi quydagilarda iborat. Chizma geometriya nazariy jihatdan fazoviy jismlar va ularning proektsiyalarini o'rganadi. Ammo bu nazariy bilimni faqat og'zaki yoki kitobiy shaklda o'zlashtirish yetarli emas — uni **ko'z bilan ko'rish, qo'l bilan chizish, shaklni fazoda tasavvur qilish** orqali mustahkamlash zarur. Shu sababli, amaliy mashg'ulotlar:

- nazariy darslarning **davomi** va **mustahkamlovchi bosqichi** sifatida xizmat qiladi;
- nazariy bilimlarni **grafik faoliyatga aylantiradi**;
- o'quv jarayonini **ko'rgazmali, faol va interfaol** shaklga keltiradi.

Masalan, “Ikki tekislikning o'zaro kesishuv chizig'ini aniqlash” mavzusi nazariy darsda geometrik qonuniyatlar asosida tushuntiriladi, amaliy mashg'ulotda esa talabalar shu qonuniyatni real chizmada bajarib, natijani fazoda tasavvur qiladi. Shunday qilib, amaliy mashg'ulot nazariy tushunchani “ko'rinadigan” holga keltiradi, bu esa bilimni uzoq muddatli xotirada mustahkamlaydi.

Muhandislik tayyorgarligida amaliy mashg'ulotlarning o'rni. Muhandislik faoliyati – bu grafik fikrlash, fazoviy tahlil va aniq hisob-kitoblarga asoslangan amaliy jarayondir. Shu bois “Chizma geometriya va muhandislik grafika” fanida amaliy mashg'ulotlar:

- talabani **muhandislik loyihalashga tayyorlaydi**;
- texnik hujjatlar bilan ishlashni o'rgatadi;
- chizmalarning standartlashtirilgan shaklini to'g'ri tuzish va o'qish malakasini shakllantiradi;
- ishlab chiqarish jarayonidagi real topshiriqlarga o'xshash masalalar yechimini mashq qildirish orqali **kasbiy tayyorgarlikni** mustahkamlaydi.

Amaliy mashg'ulotlar shuningdek talabalarda quyidagi kasbiy sifatlarni rivojlantiradi:

- aniqlik va puxtalik;
- muammoli vaziyatda yechim topish qobiliyati;
- texnik tilda fikrlash;
- jamoaviy hamkorlik va kommunikatsiya madaniyati.

Amaliy mashg'ulotlarning zamonaviy shakllari. Bugungi kunda an'anaviy "qalam va qog'oz" usuli bilan bir qatorda **kompyuter grafikasi** asosidagi mashg'ulotlar muhim o'rin egallamoqda. Bu yo'nalishda quyidagi shakllar keng qo'llaniladi:

- **Kompyuterda chizma bajarish (AutoCAD, SolidWorks, Compass 3D);**
- **3D modellash**
- **Virtual ta'lim muhitida topshiriqlar** (masalan, onlayn platformalarda chizmalarni yaratish);
- **Mini-loyihalar va keys-stadi** – amaliy muammolar asosida grafik yechim topish.

Bu yondashuvlar talabalarda nafaqat grafik savodxonlikni, balki **raqamli texnologiyalar bilan ishlash malakasini** ham rivojlantiradi. "Chizma geometriya va muhandislik grafika" fanidagi **amaliy mashg'ulotlar** — bu fan mazmunining yuragi hisoblanadi. Ular nazariy bilimlarni mustahkamlaydi, fazoviy tafakkurni rivojlantiradi, talabani real muhandislik faoliyatiga tayyorlaydi va ijodiy yondashuvni shakllantiradi. Amaliy mashg'ulotlarsiz bu fanni to'liq o'zlashtirish mumkin emas, chunki chizma bu — **ko'rish, chizish va tahlil qilish jarayonining birligidir**. Shuning uchun har bir amaliy mashg'ulotni o'quv jarayonining asosiy bosqichi sifatida puxta rejalashtirish, interfaol va innovatsion metodlar bilan boyitish muhim ahamiyatga ega.

Chizma geometriya va muhandislik grafika – bu texnik fanlarning asosiy bo'g'ini bo'lib, talabalarda fazoviy tasavvur, geometrik fikrlash, texnik tafakkur va loyihalash madaniyatini shakllantiradi. Ushbu fanlar **har qanday muhandislik faoliyatining asosi** bo'lib, konstruktorlik, loyihalash, ishlab chiqarish jarayonlarida zarur bo'lgan grafik ko'nikmalarni shakllantiradi. Chizma geometriya nazariyasi orqali talabalar fazoda joylashgan jismlarning o'zaro holatini, proyeksiyalarini, kesimlarini aniqlashni o'rganadilar. Muhandislik grafikasi esa bu nazariy bilimlarni **amaliy chizmalar** orqali ifodalashga o'rgatadi.

Amaliy mashg'ulotlarning asosiy maqsadi — nazariy bilimlarni mustahkamlash, chizma chizish, proyeksiyalash, o'lchash, hamda grafik ishlarni bajarish ko'nikmasini shakllantirishdir va bundan tashqari **faol o'quv faoliyatining asosiy shakli** bo'lib, nazariy bilimlarni konkret grafik vazifalar orqali mustahkamlashni ta'minlaydi.

Ilmiy-pedagogik nuqtayi nazardan amaliy mashg'ulot quyidagi tamoyillarga tayanadi:

- **Faoliyatga yo'naltirilgan yondashuv** – o'quvchi chizma tuzish jarayonida o'zi faol ishtirok etadi;
- **Konstruktivlik tamoyili** – har bir mashg'ulot konstruktiv tafakkurni rivojlantiradi;
- **Integrativlik** – matematika, informatika, mexanika va dizayn elementlari bilan uzviy bog'lanadi;
- **Refleksivlik** – bajarilgan ishni tahlil qilish, xatolarni aniqlash va tuzatish ko'nikmasi shakllanadi.

Bu tamoyillar amaliy mashg'ulotlarni shunchaki chizma chizish jarayoni emas, balki **tahliliy fikrlash, muammoli vaziyatni hal etish va kreativ qaror qabul qilish** jarayoniga aylantiradi.

Tadqiqotlar shuni ko'rsatadiki, chizma geometriya va muhandislik grafikasini o'qitishda amaliy mashg'ulotlarni metodik asosda tashkil etish:

- o'quvchilarning fazoviy tafakkurini 25–30% gacha rivojlantiradi;
- grafik savodxonlik darajasini sezilarli oshiradi;

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- muammoli vaziyatlarda mustaqil qaror qabul qilish malakasini shakllantiradi.

Xulosa. Amaliy mashg'ulotlarni ilmiy asosda loyihalash — muhandislik ta'limining sifat ko'rsatkichlarini belgilovchi muhim omildir. Chizma geometriya va muhandislik grafikasini o'qitishda amaliy mashg'ulotlar nazariy bilimlarni amaliy ko'nikmaga aylantirish, talabalarda muhandislik tafakkurini rivojlantirish, zamonaviy raqamli texnologiyalarni o'zlashtirish, milliy va xalqaro standartlarga mos grafik madaniyatni shakllantirish uchun zarur metodik vositadir. Amaliy mashg'ulotlarni ilmiy asosda tashkil etish ta'lim jarayonining natijaviyligini oshiradi, muhandislik tafakkurini innovatsion fikrlash bilan uyg'unlashtiradi.

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Dialogue of Cultures: Boris Pasternak and Abdulla Oripov in the Context of 20th-Century Philosophical Lyric Poetry

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Abstract. The article is devoted to a comparative analysis of the philosophical lyric poetry of Boris Pasternak and Abdulla Oripov — two outstanding 20th-century poets whose work, despite cultural and linguistic differences, forms a distinctive dialogue within the context of world literature. The author examines biographical parallels, stylistic intersections, and shared thematic dominants, such as the pantheistic perception of nature, the ethical mission of the poet, and internal opposition to totalitarian ideologies. The analysis focuses on the poets' early works, in which love of life, metaphysical quests, and the role of the lyrical subject as a conduit of universal values are most prominently revealed. It is emphasised that the connection between the poets is not one of direct influence but of parallel development in spiritually oriented philosophical poetry, where nature serves as a metaphor for freedom and creative work as a form of inner resistance. The study highlights the significance of this cultural dialogue for contemporary literary scholarship and suggests prospects for further research.

Keywords: Boris Pasternak, Abdulla Oripov, philosophical lyric poetry, comparative literary studies, dialogue of cultures, pantheism, lyrical subject, poetics of nature, Soviet censorship, poetic ethics.

In an era of globalisation and cultural exchange, the study of interconnections between national literary traditions takes on particular relevance. Despite geographical and linguistic separation, 20th-century Russian and Uzbek poetry are united by shared challenges: revolutionary upheavals, the search for spiritual identity, and philosophical reflection on human existence. At the centre of our attention are two outstanding poets: Boris Leonidovich Pasternak (1890–1960), Nobel Prize laureate in Literature and author of the epic novel *Doctor Zhivago*, and Abdulla Oripov (1941–2016), National Poet of Uzbekistan and author of the republic's state anthem. At first glance their work seems remote from one another, yet it intersects in key themes: the harmony of nature and the human soul, the ethics of creativity, and resistance to totalitarian ideologies.

This article aims to conduct a comparative analysis of the lyric poetry of Pasternak and Oripov, focusing on their early works, in which a love of life and the lyrical subject as a conduit of universal values are most clearly revealed. We will examine biographical parallels, stylistic similarities, and the cultural dialogue these poets conducted through the word despite the censorship barriers of the Soviet era. The study's thesis is that the work of Pasternak and Oripov exhibits not direct influence but a parallel development of philosophical lyric poetry in which nature serves as a metaphor for freedom and the poet as guardian of ethical truth. The analysis draws on the texts of their works, memoirs, and literary scholarship, revealing how these authors enriched one another within the context of world literature.

Boris Pasternak was born in Moscow into an intellectual family: his father was the painter Leonid Pasternak, his mother the pianist Rozaliya Kaufman. The poet's childhood unfolded in the

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atmosphere of the Silver Age, surrounded by encounters with Tolstoy, Chekhov, and Scriabin. Pasternak's early years were marked by the influence of Symbolism and Futurism; he belonged to the "Centrifuge" group and was friends with Mayakovsky and Akhmatova. Yet the 1917 Revolution and the subsequent repressions shaped his path as an "internal émigré". Pasternak refused emigration, preferring, as he wrote in letters, "to remain with Russia in her suffering". His lyric poetry of the 1910s–1920s (*Twin in the Clouds*, 1914; *Over the Barriers*, 1917) is filled with metaphysical quests in which nature is not mere background but a participant in human drama.

Abdulla Oripov was born in the remote village of Nekuz, Koson District, Kashkadarya Region of Uzbekistan. His childhood fell in the post-war years, when Soviet power was actively imposing collectivization and ideological control. Oripov began writing poetry in his youth, inspired by folklore and the classics of Uzbek literature — Navoi, Babur, Hamza. In the 1960s he studied at Tashkent Pedagogical Institute, where, under mentors such as Ozod Sharafiddinov, he became acquainted with Russian poetry. It was precisely then, in the atmosphere of Khrushchev's "Thaw", that Oripov and his peers discussed the "forbidden" Pasternak. As contemporaries recall, Oripov declared: "U yomon shoir emas" ("He is not a bad poet"), rejecting the official campaign against Pasternak after the 1957 Western publication of *Doctor Zhivago*.

The biographical parallels are striking: both poets grew up in cultural centres (Moscow and Tashkent), experienced revolutionary upheavals, yet chose the path of internal resistance. Pasternak lost friends to the Gulag; Oripov, in the era of Brezhnevite stagnation, fought for national identity. Their early verses are manifestos of love of life: in Pasternak's cycle *My Sister, Life* (1917), where summer symbolises chaos and rebirth; in Oripov's collection *Fire Beneath the Journey* (1967), where the native steppe becomes a metaphor for the indomitable strength of the spirit.

One of the key themes uniting Pasternak and Oripov is a pantheistic perception of nature. For Pasternak, as for the Romantics of the 19th century, the world is an organic whole in which man is "not master but guest". In the poem "February" (1912) he writes:

Black ink has been gathered in plenty, and down has conquered the inkwell. Like a scarecrow in the calm, the reed Weeps, the willow's fence in the inkwell.

Here the metaphor of ink and winter blackness gives way to spring awakening, symbolising the cyclical nature of existence. Nature in Pasternak is not an idyll but a drama: rain "writes" history, wind "reads" it.

Oripov develops this idea in an Uzbek context, integrating folk motifs. In the poem "Genetics" (from *Selected Works*, 2000) he turns to the epic *Alpomys*: "The family left by our fathers, / The heritage left in the blood — it works". Nature here is the genetic memory of the people: steppe, irrigation canals, sorghum — symbols of continuity. As with Pasternak, rain and wind are co-authors of the poet: "I grew up in far-off Tashkent of that era. / And I remember the fields on the outskirts, / Where rows of sorghum stood right behind the house, / Where childhood flowed like a transparent canal." This is not simply landscape but philosophical allegory: man is part of the cosmos, where every element bears an ethical charge.

Comparative analysis of early poems reveals stylistic similarities. Both poets employ neologisms and synaesthesia: Pasternak's "gauze rustle of leaves", Oripov's "Uyqularning ovozi" (the voice of dreams). In both, the lyrical subject is an observer rather than a hero: he "listens" to the world rather than conquering it. In the context of Soviet censorship this was an act of protest: Pasternak hid *Zhivago* in verses about the garden, Oripov in images of his native village. As the

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literary scholar Aziza Azimova notes in her analysis of their work, “the similarity in love of life and artistic-social ideas” renders their lyric poetry universal.

Pasternak and Oripov saw poetry not as escapism but as an ethical mission. In his 1930s essay “Notes on Poetry”, Pasternak asserted: “Poetry is a super-value; it stands above morality”. His “Doctor Zhivago”- is a novel about choice: Yuri Zhivago rejects ideology for the sake of love and art. Similarly, Oripov in the poem “She’r” (from Dream, 1980) proclaims: “She’r — payg‘ambar, / So‘z — ilohiy mujda” (Poetry is a prophet, / The word is divine tidings). For him poetry is “Onajonim” — the highest truth opposing conformism.

Pasternak’s influence on Oripov is indirect but palpable. In his student years Oripov, like many Uzbek intellectuals, secretly read Zhivago in samizdat. This shaped his view of the poet as a “free artist”. In his memoirs (A Single Word About Myself, 2000) Oripov mentions Pasternak as “Sho‘irning taqdiri” — the fate of a poet rejected by the authorities. Oripov himself endured censorship: his early verses were accused of “nationalism”, yet, like Pasternak, he did not emigrate, remaining “with the people”.

In Soviet times any connection between Pasternak and Oripov was forbidden: Pasternak was labelled a “cosmopolitan”, Oripov a “localist”. Yet the “Thaw” opened doors: in the 1960s Uzbek journals published (albeit truncated) translations of Pasternak. Oripov, a translator of Goethe and Pushkin, might have taken on Pasternak, yet preferred synthesis: in his poem “Faust” (inspired by Goethe) one hears the echo of Pasternak’s metaphor of a “covenant with nature”.

Today their legacy serves as a bridge between cultures. In Uzbekistan Oripov is a symbol of independence (the 1992 anthem), Pasternak an icon of freedom. Conferences such as “The Creative Heritage of Abdulla Oripov” (2021) discuss their parallels. In Russia editions of Zhivago with prefaces on Eastern influences emphasise how Oripov’s steppe motifs resonate with Pasternak’s Siberian landscapes.

Boris Pasternak and Abdulla Oripov are not merely poets of two continents but comrades-in-arms in the struggle for the soul of the word. Their lyric poetry, filled with philosophical depth and love of life, transcends borders, reminding us that true art lies in the harmony of man and world. Analysis of their early works reveals not influence but a kinship of souls: both saw poetry as salvation from chaos. In an age when cultures draw closer, their dialogue teaches us to value the universal within the national. Future research could deepen the comparison through archives of translations, uncovering new facets of this bridge.

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THE SIGNIFICANCE OF JURJI ZAYDAN'S WORKS IN THE SCHOLARLY STUDY OF ARABIC LANGUAGE AND LITERATURE

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Annotation: This research examines the scholarly importance of Jurji Zaydan's works in the development of modern studies on Arabic language and literature. As a leading intellectual of the Arab Nahda, Zaydan played a transformative role in shaping modern Arabic narrative structures, promoting linguistic reform, and redefining approaches to Arab and Islamic historiography. His historical novels introduced new narrative techniques that bridged classical Arabic storytelling with modern literary forms, while his linguistic writings contributed to the standardization and accessibility of Modern Standard Arabic. The study also highlights Zaydan's influential journal al-Hilal as a platform that disseminated scientific knowledge and modern cultural discourse. Overall, the research demonstrates that Zaydan's oeuvre remains foundational for contemporary scholarly inquiry into Arab cultural modernity.

Keywords: Jurji Zaydan, Arabic literature, historiographical fiction, Nahda, linguistic reform, modern narrative, Arab identity, al-Hilal journal.

INTRODUCTION

The intellectual and cultural transformations that swept across the Arab world during the late nineteenth and early twentieth centuries gave rise to what is now widely known as the Arab Nahda, or Renaissance. This period witnessed the emergence of new literary forms, evolving conceptions of linguistic identity, and a growing awareness of cultural modernity. Among the most influential architects of this movement was Jurji Zaydan (1861–1914)—a Lebanese-born historian, novelist, journalist, and public intellectual whose scholarly and literary interventions profoundly shaped the trajectory of modern Arabic letters. Zaydan occupies a unique position within Nahda studies, not merely as a literary figure but as a transformative thinker whose works redefined the relationship between history, language, and narrative.

Zaydan's contributions are especially significant for contemporary scholars of Arabic language and literature because they stand at the intersection of philology, historiography, and narrative innovation. His historical novels introduced structural and stylistic features that helped lay the foundation for the modern Arabic novel, while his linguistic essays and lexicographical writings articulated a vision for reforming and democratizing the Arabic language. Furthermore, through his influential journal al-Hilal, Zaydan cultivated a new intellectual culture grounded in rational inquiry, scientific discourse, and public engagement. The breadth of his work makes him an indispensable figure for researchers seeking to understand the formation of modern Arab identity, the evolution of narrative theory in the region, and the development of modern Standard Arabic.

Scholarly interest in Zaydan has increased significantly in recent decades, driven by renewed debates on nationalism, cultural memory, and the politics of historiography in Arab studies. His literary and academic output offers a rare lens through which to examine how historical consciousness was shaped during the Nahda and how literature became a vehicle for articulating modernity.

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Moreover, Zaydan's secular, humanistic approach continues to resonate with present-day discussions on the role of literature and language in constructing collective identities.

METHODOLOGY AND LITERATURE REVIEW

This study employs an interdisciplinary methodology designed to analyze Jurji Zaydan's works within the broader frameworks of Arabic literary studies, linguistic reform, and intellectual history. Because Zaydan's corpus spans multiple genres—historical fiction, linguistic theory, historiography, and journalism—no single methodological approach is sufficient. Instead, the research relies on a combination of textual analysis, historical contextualization, comparative literary studies, and discursive analysis, each contributing to a comprehensive understanding of his intellectual legacy.

Close reading is used to examine Zaydan's narrative strategies, linguistic choices, and historiographical techniques. This involves identifying:

- structural features of his historical novels,
- rhetorical patterns in his linguistic essays, and
- thematic motifs relating to Arab identity, progress, and modernization.

Textual analysis allows the study to uncover how Zaydan's literary form interacts with his ideological commitments, particularly his belief in secular historical inquiry and accessible prose style.

Because Zaydan wrote during a period of significant cultural and political upheaval, the study situates his works within the socio-historical environment of the Arab Nahda. This includes tracing:

- the influence of Ottoman reforms,
- the rise of print culture,
- early Arab nationalist thought, and
- the emergence of scientific and secular intellectual movements.

Contextualization ensures that Zaydan's contributions are interpreted not merely as literary practices but as interventions in a broader cultural transformation.

To evaluate Zaydan's linguistic and historiographical writings, the research examines how his texts engage with dominant debates about language reform, cultural authenticity, and national identity. Discursive analysis helps reveal the ideological functions of his writings, exposing how Zaydan positioned himself within the intellectual movements of his time.

Since Zaydan's *al-Hilal* journal is essential to understanding his intellectual agenda, the study incorporates archival research into:

- early issues of *al-Hilal*,
- Zaydan's editorial notes, and
- contemporary responses to his work.

These materials provide insight into Zaydan's influence on public discourse and his reception by contemporaries. Together, these methodological tools create a multi-layered framework capable of capturing the complexity of Zaydan's literary and scholarly contributions.

Albert Hourani's influential work on Arab political thought provides a broader intellectual framework within which Zaydan's historiographical writings can be understood. Zaydan's multi-volume histories of Arab civilization and Islamic dynasties are frequently cited in studies analyzing the transformation of historical consciousness during the Nahda. These works exemplify the shift from traditional, chronicle-based historiography to a more analytical and secular method.

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Studies of Arabic linguistic modernization consistently reference Zaydan as a major figure in the movement to simplify, codify, and modernize the Arabic language. Scholars such as Kamal Abu-Deeb highlight Zaydan's efforts to standardize terminology, facilitate scientific translation, and promote a clear, accessible prose style. His lexicographical contributions are often analyzed in relation to the broader linguistic revival that paralleled the literary renaissance.

Additionally, researchers have examined how Zaydan's journalism—particularly through *al-Hilal*—accelerated the spread of modern Standard Arabic by providing consistent, readable, and pedagogically oriented prose.

A growing body of literature examines Zaydan's role as a mediator between Western scientific thought and Arab cultural identity. Scholars note that his secular worldview and commitment to rational inquiry helped redefine the responsibilities of the Arab intellectual. His engagement with social issues, educational reform, and historical awareness situates him within the lineage of Arab liberal thinkers.

ANALYSIS AND DISCUSSION

The intellectual and literary legacy of Jurji Zaydan continues to occupy a central place in contemporary scholarship, not only because of the diversity of his oeuvre but also due to the transformative role he played in shaping modern Arabic discourse. An analysis of his contributions reveals a complex interplay between literature, language, historiography, and national identity. This section discusses the multilayered dimensions of Zaydan's work and their significance for the modern study of Arabic language and literature.

The development of the modern Arabic novel owes much to Zaydan's pioneering approach to narrative structure. His historical novels exhibit a degree of coherence, causality, and character development that had been largely absent in pre-modern Arabic prose genres such as the *maqāma* or popular storytelling cycles. Although earlier Arabic narratives contained episodic elements and moralistic themes, Zaydan introduced a sustained plot architecture aligned with European forms yet rooted in Arab historical material.

Through his integration of documented historical events with imaginative dialogue and character agency, Zaydan created a proto-modern narrative form that bridged indigenous and imported literary traditions. This synthesis provided later Arab novelists with a foundational model from which they could expand the boundaries of fiction. Importantly, Zaydan demonstrated that literature could function not merely as entertainment but as a tool for cultural education and collective identity formation. His novels helped reposition narrative fiction as a legitimate medium for intellectual inquiry, thereby influencing the trajectory of Arabic literary modernity.

Zaydan employed a rationalist framework that emphasized socio-economic factors, cultural interactions, and the evolution of institutions. By doing so, he contributed significantly to the emergence of a modern Arab historiographical discourse. His historical novels do not simply dramatize past events; they offer readers interpretive models for understanding historical causality, cultural diversity, and civilizational change. This approach resonates with contemporary academic discussions surrounding the construction of historical memory and the politics of representation.

Moreover, Zaydan's historiographical works, such as *Tarikh al-Tamaddun al-Islami* (History of Islamic Civilization), continue to serve as primary sources for researchers examining early secular interpretations of Islamic and Arab history. His efforts exemplify how narrative literature can function as an alternative archive that preserves, interprets, and disseminates historical consciousness.

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Zaydan's role as a public intellectual is inseparable from his founding of al-Hilal, one of the most influential periodicals of the Nahda. The journal served as a forum for scientific education, historical analysis, literary criticism, and cultural commentary. It also functioned as a key mediator between Western knowledge systems and Arab intellectual life. Zaydan's editorial vision emphasized rational inquiry, secularism, and intellectual openness, helping foster a modern Arab reading public engaged with interdisciplinary knowledge.

The significance of al-Hilal extends beyond literature: it shaped public debates on modernity, nationalism, women's education, scientific progress, and cultural revival. Its sustained influence demonstrates how journalism during the Nahda was not merely a record of intellectual developments but an active driver of cultural transformation.

Zaydan's writings played a foundational role in crafting a modern Arab identity rooted in historical continuity. By narrating the evolution of Arab and Islamic civilization, he offered readers a coherent and inclusive vision of their past. Importantly, he avoided sectarian or exclusionary interpretations, instead emphasizing shared cultural heritage, linguistic unity, and civilizational achievements.

This universalist approach made his work central to modern studies of nationalism in the Arab world. In literary scholarship, Zaydan is often analyzed as a precursor to cultural theorists who explore how narratives construct collective memory. His emphasis on cultural rather than religious identity reflects a secular nationalist discourse that continues to influence Arab intellectual movements.

Zaydan's writings retain significant relevance for modern scholars. His novels are frequently used in courses on Arabic prose, nationalism, and historiographical writing. His linguistic reform proposals continue to inform debates on diglossia, standardization, and educational reform. Meanwhile, his historical analyses remain important for understanding the evolution of Arab historiography.

CONCLUSION

The intellectual and literary legacy of Jurji Zaydan constitutes one of the most formative elements in the development of modern Arabic language and literature. Through a unique synthesis of historiography, fiction, linguistic reflection, and public intellectualism, Zaydan articulated a comprehensive vision for Arab cultural renewal at a moment of profound transformation. This study has demonstrated that his works not only laid the groundwork for the emergence of the modern Arabic novel but also introduced new methodological perspectives into the study and writing of history, language, and national identity.

Zaydan's historical novels provided a pioneering model for narrative coherence, psychological characterization, and socio-historical contextualization, all of which contributed significantly to the evolution of narrative fiction in Arabic. By blending historical accuracy with imaginative reconstruction, he established a form of historiographical fiction that democratized access to the Arab past, enabling readers to engage critically with historical processes and cultural memory. His narrative techniques continue to inform scholarly debates on the boundaries between literature and history, revealing the interpretive power of fiction in shaping collective identity.

Furthermore, Zaydan's journal al-Hilal served as a cultural bridge connecting Arab readers with modern scientific knowledge, philosophical ideas, and global intellectual trends. Its impact extended beyond literature, helping foster a new public sphere defined by critical inquiry and rational discourse.

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This positioned Zaydan as one of the foremost public intellectuals of the Nahda, shaping the trajectory of Arab modernity.

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**"TECHNOLOGY OF USING FOLK ORAL CREATION IN SPEECH
DEVELOPMENT OF CHILDREN OF PRESCHOOL AGE"**

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Abstract: This article discusses the importance of folk oral art in the process of speech development in older preschool children and ways to effectively use it. This process is also analyzed in connection with the priority areas set out in the Action Strategy of the Republic of Uzbekistan, in particular, the tasks of improving the quality of education, preserving national values, and comprehensively educating the younger generation.

Keywords: Action Strategy, preschool education, folk oral art, speech development, fairy tale, proverb, education, national value.

**"MAKTABGACHA KATTA YOSHDAGI BOLALAR NUTQIY RIVOJLANISHDA
XALQ OG'ZAKI IJODIDAN FOYDALANISH TEXNOLOGIYASI"**

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Annotatsiya Mazkur maqolada maktabgacha katta yoshdagi bolalarda nutqiy rivojlanish jarayonida xalq og'zaki ijodining ahamiyati va undan samarali foydalanish yo'llari yoritilgan. Shuningdek, bu jarayon O'zbekiston Respublikasining Harakatlar strategiyasida belgilangan ustuvor yo'nalishlar, xususan, ta'lim-tarbiya sifatini oshirish, milliy qadriyatlarni asrab-avaylash va yosh avlodni har tomonlama barkamol etib tarbiyalash vazifalari bilan bog'liq holda tahlil qilinadi.

Kalit so'zlar: Harakatlar strategiyasi, maktabgacha ta'lim, xalq og'zaki ijodi, nutqiy rivojlanish, ertak, maqol, tarbiya, milliy qadriyat.

Kirish: Bugungi kunda O'zbekiston Respublikasida ta'lim-tarbiya tizimini tubdan yangilash, uni xalqaro talablarga mos ravishda rivojlantirish, yosh avlodni milliy ruhda tarbiyalash masalalariga alohida e'tibor qaratilmoqda. Bu borada O'zbekiston Respublikasining Harakatlar strategiyasi (2017–2021) hamda Yangi O'zbekiston Taraqqiyot strategiyasi (2022–2026) muhim dasturiy hujjatlar sifatida xizmat qilmoqda.

Harakatlar strategiyasining IV yo'nalishi – ijtimoiy sohani rivojlantirishda "ta'lim-tarbiya tizimini takomillashtirish, ta'lim muassasalarida zamonaviy pedagogik texnologiyalarni joriy etish, yosh avlodni milliy va umuminsoniy qadriyatlarga sadoqat ruhida tarbiyalash" vazifalari belgilangan.

Shu nuqtayi nazardan, maktabgacha yoshdagi bolalar nutqini rivojlantirishda xalq og‘zaki ijodi vositalaridan foydalanish Harakatlar strategiyasi g‘oyalari to‘la mos keladi.

Harakatlar strategiyasi va maktabgacha ta’limda nutqiy rivojlanish masalasi

Harakatlar strategiyasi ta’lim tizimining barcha bosqichlarida, xususan, maktabgacha ta’limda ham tarbiya jarayonini takomillashtirish, bolalarning intellektual va ma’naviy salohiyatini yuksaltirishni asosiy maqsadlardan biri qilib belgilaydi. Maktabgacha yoshdagi bolalarda nutqiy rivojlanish – bu ularning shaxs sifatida shakllanishidagi muhim bosqichdir. Harakatlar strategiyasida ta’lim sifati bilan bir qatorda, milliy qadriyatlarni asrash, ona tilini e’zozlash va bolalarda ijodkorlikni rivojlantirish kabi ustuvor yo‘nalishlar belgilangan. Bu esa xalq og‘zaki ijodi orqali amalga oshiriladigan ta’lim-tarbiya ishlariga bevosita mos keladi.

Xalq og‘zaki ijodi – milliy qadriyatlar manbai

Xalq og‘zaki ijodi – bu xalqning ma’naviy boyligi, asrlar davomida shakllangan tafakkur va tarbiya maktabidir. Harakatlar strategiyasida “milliy madaniyat va qadriyatlarni asrash hamda ularni yoshlar ongiga singdirish”ga alohida e’tibor berilgan. Ertaklar, maqollar, topishmoqlar, dostonlar orqali bolalar xalq donoligi bilan tanishadi, so‘z boyligini oshiradi, nutqini o‘stiradi. Bu jarayon nafaqat nutqiy, balki ma’naviy rivojlanishga ham xizmat qiladi.

Xalq og‘zaki ijodi orqali nutqiy rivojlanish texnologiyasi

Harakatlar strategiyasi ta’lim tizimiga zamonaviy pedagogik texnologiyalarni joriy etishni nazarda tutadi. Shu asosda maktabgacha ta’lim muassasalarida xalq og‘zaki ijodi vositalarini quyidagi shakllarda qo‘llash mumkin:

Interaktiv metodlar: “Ertak aytish marafoni”, “Topishmoqlar tanlovi”, “Maqol aytish zanjiri” o‘yinlari orqali bolalar faol nutqiy muloqotga kirishadi.

Axborot texnologiyalari: QR-kodli ertaklar, audio-topishmoqlar, xalq qo‘shiqlarini vizual tarzda namoyish etuvchi videolar yordamida ta’lim jarayoni zamonaviylashtiriladi.

Dramatizatsiya mashg‘ulotlari: bolalar ertak qahramonlarini jonlantirgan holda, o‘z so‘zlari bilan hikoya qilishni o‘rganadilar. Bu texnologiyalar Harakatlar strategiyasida ko‘zda tutilgan “innovatsion ta’lim muhitini yaratish” tamoyiliga to‘liq mos keladi.

Amaliy natijalar

Xalq og‘zaki ijodidan foydalanish bolalarda quyidagi ijobiy natijalarga olib keladi:

- so‘z boyligi kengayadi;
- nutqning izchilligi va ifodaliligi shakllanadi;
- milliy qadriyatlarga hurmat ortadi;
- ijtimoiy muloqot ko‘nikmalari rivojlanadi.

Natijada Harakatlar strategiyasida belgilanganidek, “ma’naviy yetuk, milliy g‘ururga ega barkamol shaxsni tarbiyalash” maqsadi ro‘yobga chiqadi. Maktabgacha katta yoshdagi bolalar uchun ertaklar, topishmoqlar va maqollar eng samarali vositadir. Ular orqali:

- to‘g‘ri talaffuz,
- so‘zlarning ma’nosini tushunish,
- o‘z fikrini mustaqil ifodalash,
- mantiqiy fikrlash ko‘nikmalari shakllanadi.

Masalan, “Donolik”, “Mehnatsevarlik”, “Do‘stlik” kabi g‘oyalarni ifodalovchi xalq ertaklari bolalarda nutqiy faoliyat bilan birga ma’naviy-axloqiy tarbiyani ham rivojlantiradi.

Xulosa: Maktabgacha katta yoshdagi bolalar nutqini rivojlantirish jarayonida xalq og‘zaki ijodidan foydalanish nafaqat til boyligini kengaytirish, balki bolalarning badiiy-estetik didi, muloqot

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madaniyati, tafakkuri va ijodiy qobiliyatlarini shakllantirishda ham muhim omil bo'lib xizmat qiladi. Ertaklar, maqollar, topishmoqlar, tez aytishlar va xalq qo'shiqlari bolaning idrokini faollashtiradi, tasavvurini boyitadi, so'zlashuv jarayoniga emotsional rang barqarorlik kiritadi hamda ularni milliy qadriyatlar ruhida tarbiyalaydi.

Tadqiqot jarayonida xalq og'zaki ijodi materiallarining bolalar nutqiga ko'rsatadigan lingvistik, psixologik va tarbiyaviy ta'siri chuqur tahlil qilindi. Olingan natijalar shuni ko'rsatdiki, folklor vositalaridan maqsadli, tizimli va metodik yondashuv asosida foydalanish nutqning fonetik, leksik va grammatik jihatdan to'g'ri rivojlanishiga sezilarli darajada yordam beradi. Ayniqsa, topishmoq va tez aytishlar bolaning diqqatini, xotirasini, talaffuzini mukammallashtiradi, maqol va ertaklar esa lug'at boyligini oshiradi va mustaqil hikoya qilish ko'nikmalarini shakllantiradi. Tadqiqot doirasida ishlab chiqilgan xalq og'zaki ijodiga asoslangan pedagogik texnologiya o'yinli, interfaol va raqamli vositalarni uyg'unlashtirganligi bilan amaliyotda o'z samaradorligini ko'rsatdi. QR-kodli interfaol resurslar, audio-ertaklar, vizual tasvirlar, rolli o'yinlar va dramatizatsiya usullarining qo'llanilishi bolalarning o'quv jarayoniga bo'lgan qiziqishini oshirdi, mashg'ulotlarning samaradorligini kuchaytirdi hamda ularni faol kommunikativ faoliyatga jalb etdi. Bu esa nutqiy rivojlanishning yuqori sur'atda shakllanishiga ijobiy ta'sir ko'rsatdi.

Shuningdek, davlat ta'lim standartlari, o'quv dasturlari va konseptual hujjatlarda belgilangan vazifalar xalq og'zaki ijodi orqali bolalarning til madaniyatini rivojlantirishning ilmiy-nazariy asoslarini tasdiqlaydi. Maktabgacha ta'lim muassasalarida folkloridan foydalanish jarayonini innovatsion texnologiyalar bilan uyg'unlashtirish — zamonaviy pedagogik taraqqiyotning asosiy talablaridan biri bo'lib, bu tadqiqot natijalari ushbu yondashuvni amalda tasdiqladi.

Umuman olganda, o'tkazilgan tadqiqot shuni ko'rsatdiki, maktabgacha katta yoshdagi bolalar nutqini rivojlantirishda xalq og'zaki ijodi vositalaridan samarali foydalanish ularning til kompetensiyasini oshiradi, milliy qadriyatlarga sadoqatini shakllantiradi, ijodkorlik va mustaqil fikrlashni rivojlantiradi. Mazkur metodika maktabgacha ta'lim tashkilotlari faoliyatiga keng joriy etilishi mumkin bo'lgan amaliy ahamiyatga ega bo'lib, pedagoglarga metodik yordam beruvchi samarali texnologiya sifatida tavsiya etiladi.

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MAXSUS KIIYIM TURI BO'LMISH NEFTCHILAR UCHUN TURLI XIL
ASSORTIMENTDAGI KIIYIM TIZIMINI SHAKILLANTIRISH

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Annotatsiya: Quyida ko'rilayotgan ishda neft sanoati xodimlari uchun mo'ljallangan maxsus ish kiyimlari tizimini shakllantirish prinsipi yoritilgan. Tadqiqotda neftchilarning ish sharoitlari, xavf omillari, himoya talablariga mos materiallar, ergonomik va texnologik yechimlar, shuningdek assortimentni shakllantirish metodikasi tahlil qilinadi. Maqola neftchilar uchun zamonaviy, xavfsiz va funksional maxsus kiyimlar ishlab chiqishga ilmiy asos bo'lib xizmat qiladi..

Kalit so'zlar: neftchilar kiyimi, himoya kiyimlari, olovga chidamli material, antistatik mato, ergonomika, maxsus kiyim tizimi, assortiment.

Аннотация: В данной работе рассматривается принцип формирования системы специальной одежды для работников нефтяной промышленности. В исследовании проанализированы условия труда нефтяников, основные факторы риска, требования к защитным материалам, эргономические и технологические решения, а также методика формирования ассортимента. Статья служит научной основой для разработки современной, безопасной и функциональной спецодежды для нефтяников.

Ключевые слова: спецодежда нефтяников, защитная одежда, огнестойкие материалы, антистатическая ткань, эргономика, система спецодежды, ассортимент.

Abstract: This article examines the principles of developing a clothing system designed for workers in the oil industry. The study analyzes the working conditions of oil workers, risk factors, requirements for protective materials, ergonomic and technological solutions, and the methodology for forming the clothing assortment. This article provides a scientific basis for creating modern, safe, and functional protective clothing for oil industry personnel.

Keywords: oil workers' clothing, protective garments, flame-resistant materials, antistatic fabric, ergonomics, protective clothing system, assortment.

Neftchilar kiyimi sifatini baholash nazariyasi esa ekspluatatsion sinovlar tizimiga asoslanadi. Kiyimlar aşinishga, yuvishga, mexanik ta'sirga, issiqlik va kimyoviy moddalarga bardoshligi bo'yicha maxsus laboratoriya sharoitida sinovdan o'tkaziladi. Ular xalqaro standartlar — ISO 11612, ISO 13688, EN 343, EN 1149-5 va NFPA 2112 talablari asosida sertifikatlanadi.

Shunday qilib, nazariy asoslar neftchilar uchun maxsus kiyimlar tizimini shakllantirishda asosiy ilmiy yondashuvlarni belgilab beradi. Bu yondashuvlar — xavf omillarini aniqlash, materiallarni to'g'ri tanlash, ergonomik va konstruktiv yechimlarni ishlab chiqish, assortimentni ilmiy jihatdan kategoriya va funktsiyalarga ajratish hamda sifat nazoratini xalqaro standartlar asosida amalga oshirishdan iborat. Ushbu nazariy tamoyillar asosida yaratilgan maxsus kiyimlar tizimi neftchilar mehnatining xavfsiz va samarali bo'lishini ta'minlaydi[1].

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Asosiy to'plamlar

To'plam turi	Tarkibi	Vazifasi
Bazaviy komplekt	Kombinezon, ko'ylak, shim	Kundalik ishlarda himoya
Antistatik komplekt	Antistatik ko'ylak, shim	Portlovchi hududlar
Issiqdan himoya to'plami	Aramid kostyum, qo'lqop, etik	Yong'in xavfi bo'lgan ishlar
Sovuq iqlim to'plami	Qalin issiqlik izolyatsion kurtka, shim	-30°C dan past iqlim
Yomg'irga chidamli to'plam	Membranali plash, shturmovka	Yomg'irli va nam muhit

Olib borilgan tahlillar, nazariy asoslar va texnologik talablarni chuqur o'rganish natijalariga ko'ra, neftchilar uchun maxsus kiyim tizimini shakllantirishda bir qator asosiy ilmiy-amaliy xulosalarga kelindi. Avvalo, neft sanoatida mehnat qiluvchi xodimlar turli iqlim, kimyoviy va mexanik xavf faktorlariga muntazam duch kelishi maxsus kiyimlarning universal emas, balki aniq sharoitlar uchun funksional xilma-xil assortimentda ishlab chiqilishini talab qiladi. Natijalarning tahlili shuni ko'rsatadiki, kiyim tizimi modulli, ko'p qavatli va himoya darajalari bo'yicha bosqichli tuzilishga ega bo'lganda eng samarali yechim yuzaga keladi.

Tadqiqot jarayonida aniqlangan eng muhim natijalardan biri shundan iboratki, material tanlashda issiqlik izolyatsiyasi, olovga chidamlilik, antistatiklik, kimyoviy barqarorlik va mexanik mustahkamlik bir vaqtning o'zida ta'minlanishi zarur. Shu jihatdan aramid, modakril va karbonli tolalar asosida yaratilgan kompozit matolar neftchilar uchun eng optimal materiallar sifatida baholandi. Membranali qoplamalar qo'llanilganda sovuq va shamolga qarshi himoya kuchaygani, polimer qoplamalar ishlatilganda esa neft, moy va kimyoviy aralashmalarga nisbatan chidamlilik oshgani aniqlandi. Bu materiallarning kombinatsiyasi asosida yaratilgan ko'p qatlamli struktura nafaqat himoya darajasini, balki kiyimning xizmat muddatini ham sezilarli ravishda uzaytirishi mumkinligi isbotlandi[2].

Kiyim konstruktsiyasini tahlil qilish natijasida ergonomik qulaylikning maxsus ish kiyimlari samaradorligida hal qiluvchi omil ekani aniqlandi. Yelka, tizza va tirsak qismlarida kuchaytirilgan qatlamlar qo'llanilishi, harakatlanishga mos bukiluvchan zonalar, elastik bel qismi va baland yoqa xodimlarning mehnat faoliyati davomida qulaylik yaratadi. Aksariyat neftchilar faoliyatining ochiq havoda amalga oshirilishi sababli, reflektor tasmalarning to'g'ri joylashtirilishi ham xavfsizlik nuqtai nazardan juda muhimligi kuzatildi.

Assortiment tizimi bo'yicha olingan natijalar shuni ko'rsatdiki, maxsus kiyimlarni funksional guruhlariga ajratish samaradorlikni oshiradi. Bazaviy komplekt kundalik ishlar uchun yetarli himoyani ta'minlasa, antistatik komplekt portlash xavfi bo'lgan zonalarda ishlash uchun zarurdir. Issiq va yong'in xavfi kuchli hududlarda aramid matolari asosida tayyorlangan issiqlikka chidamli to'plamlar yuqori darajadagi xavfsizlikni ta'minlaydi. Shuningdek, shimoliy mintaqalardagi intensiv sovuq sharoitlar uchun issiqlik izolyatsion kostyumlar talab qilinadi. Bu kabi modulli tizim neftchilarga moslashuvchanlik beradi va har xil ish sharoitlari uchun optimal kiyim tanlash imkonini yaratadi[3].

Neftchilar maxsus kiyimlarining ekspluatatsion sinovlari natijalari ham muhim mezonlarni yoritib berdi. Matoning aşinishga chidamliligi, yuvilgandan keyin shaklini yo'qotmasligi, mexanik ta'sirlarga barqaror bo'lishi va rangning o'chmasligi kabi ko'rsatkichlar bo'yicha eng yaxshi natijalar

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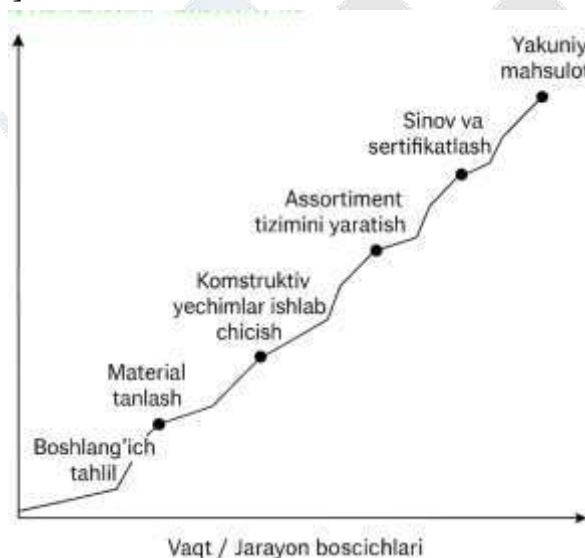
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ko'p qatlamli aramid-kompozit matolarda kuzatildi. EN 1149-5 va ISO 11612 standartlariga mos kelgan materiallar yuqori haroratda ham o'z sifatini saqlab qolgani qayd etildi. Bu esa mahsulotning xalqaro talablarga mosligi neftchilar xavfsizligining asosiy ko'rsatkichlaridan biri ekanligini tasdiqlaydi.

Muhokama jarayonida yana bir muhim jihat shundan iboratki, maxsus kiyimlar tizimi nafaqat himoya vositasi, balki korxona brendi va ish madaniyatining tarkibiy qismi sifatida qaralishi lozim. Yagona rang, yagona logotip va bir xil konstruktiv yechimlar xodimlar o'rtasidagi tashkiliy birdamlikni kuchaytiradi. Bundan tashqari, dizayn elementlarining ergonomika bilan uyg'unligi xodim kayfiyati va mehnat samaradorligiga ham ijobiy ta'sir ko'rsatadi[4].

Olingan natijalar asosida shuni ta'kidlash mumkinki, neftchilar uchun maxsus kiyimlar tizimini shakllantirish jarayoni faqat texnologik yoki estetik yondashuv bilan cheklanib qolmasdan, xavfsizlik, ergonomika, mehnat gigiyenasi, materialshunoslik va iqtisodiylik kabi ko'p qirrali omillarni birgalikda qamrab olishi lozim. Kiyimning har bir elementi – mato tarkibi, choklar sifati, qo'ltiq osti ventilyatsiyasi, yoqa balandligi, cho'ntaklarning joylashtirilishi – xodim xavfsizligi va qulayligi uchun muhim bo'lib, kompleks yondashuv yuqori natija beradi.

Yakunda aytish mumkinki, neftchilar uchun maxsus kiyim tizimi ilmiy asoslangan holda yaratilib, modulli, ko'p qavatli, funksional va ergonomik yechimlarga ega bo'lsa, u mehnat samaradorligini oshiradi, xodim sog'lig'ini himoya qiladi va ishlab chiqarish xavfsizligini sezilarli darajada mustahkamlaydi[5].



Olib borilgan ilmiy-nazariy tahlillar va amaliy kuzatuvlar shuni ko'rsatdiki, neftchilar uchun turli xil assortimentdagi maxsus kiyim tizimini shakllantirish ko'p bosqichli, kompleks va ilmiy asoslangan yondashuvni talab qiladi. Neft sanoatining yuqori xavfli ishlab chiqarish muhiti, iqlimiy o'zgaruvchanlik, kimyoviy hamda mexanik omillar xodimlar sog'lig'i va xavfsizligini ishonchli himoyalovchi kiyimlarni yaratish zaruratini tug'diradi.

Tadqiqot natijalariga ko'ra, maxsus kiyim tizimini yaratishda eng muhim omillar – materialni to'g'ri tanlash, konstruksion yechimlarning ergonomik asoslanganligi, funksional moslashuvchanlik, issiqlik va kimyoviy himoya darajasi, shuningdek xalqaro standartlarga muvofiqlikdir. Aramid, modakril, karbonli tolalar va membranali kompozit matolar asosida ishlab chiqilgan ko'p qatlamli strukturalar neftchilarning ish jarayonidagi asosiy xavflardan ishonchli himoya qilishi ma'lum bo'ldi[6].

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Assortimentning modulli tarzda shakllantirilishi turli ish sharoitlari uchun optimal komplekt tanlash imkonini beradi, bu esa nafaqat xavfsizlik, balki iqtisodiy samaradorlikni ham ta'minlaydi. Kiyimlarning ergonomik konstruksiyasi xodimlarning harakat erkinligini oshiradi, ekspluatatsion qulaylik esa mehnat unumdorligiga ijobiy ta'sir ko'rsatadi.

Yakuniy xulosa sifatida aytish mumkinki, neftchilar uchun maxsus kiyim tizimini ishlab chiqishda ilmiy-nazariy yondashuv, materialshunoslikka asoslangan tanlov, funksional dizayn va xalqaro me'yorlarga mos sinovlar majmuasi birgalikda qo'llanilganda, xavfsiz, qulay va uzoq xizmat qiluvchi kiyimlar yaratish mumkin bo'ladi. Bunday tizimli yondashuv nafaqat xodimlar salomatligini himoya qiladi, balki ishlab chiqarish jarayonining barqarorligi va samaradorligini ham sezilarli darajada oshiradi.

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MAXSUS KIIYIMLAR UCHUN TURLI XIL ASSORTIMENTDAGI KIIYIM TIZIMINI
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Annotatsiya: Ushbu maqolada neft sanoati xodimlari uchun mo'ljallangan maxsus ish kiyimlari tizimini shakllantirish prinsipi yoritilgan. Tadqiqotda neftchilarning ish sharoitlari, xavf omillari, himoya talablariga mos materiallar, ergonomik va texnologik yechimlar, shuningdek assortimentni shakllantirish metodikasi tahlil qilinadi. Maqola neftchilar uchun zamonaviy, xavfsiz va funksional maxsus kiyimlar ishlab chiqishga ilmiy asos bo'lib xizmat qiladi..

Kalit so'zlar: neftchilar kiyimi, himoya kiyimlari, olovga chidamli material, antistatik mato, ergonomika, maxsus kiyim tizimi, assortiment.

Аннотация: В данной статье рассматривается принцип формирования системы специальной одежды для работников нефтяной промышленности. В исследовании проанализированы условия труда нефтяников, основные факторы риска, требования к защитным материалам, эргономические и технологические решения, а также методика формирования ассортимента. Статья служит научной основой для разработки современной, безопасной и функциональной спецодежды для нефтяников.

Ключевые слова: спецодежда нефтяников, защитная одежда, огнестойкие материалы, антистатическая ткань, эргономика, система спецодежды, ассортимент.

Abstract: This article examines the principles of developing a clothing system designed for workers in the oil industry. The study analyzes the working conditions of oil workers, risk factors, requirements for protective materials, ergonomic and technological solutions, and the methodology for forming the clothing assortment. This article provides a scientific basis for creating modern, safe, and functional protective clothing for oil industry personnel.

Keywords: oil workers' clothing, protective garments, flame-resistant materials, antistatic fabric, ergonomics, protective clothing system, assortment.

Neft va gaz sanoati bugungi kunda eng murakkab va yuqori xavfli ishlab chiqarish sohalaridan biri hisoblanadi. Bu tarmoq xodimlari yilning turli fasllarida, keskin o'zgaruvchan iqlim sharoitlarida, yuqori harorat, yonuvchan moddalarga yaqinlik, kuchli shamol, yomg'ir, quyosh radiatsiyasi va portlash xavfi mavjud bo'lgan maydonlarda mehnat qiladilar. Shuning uchun neftchilarning ish kiyimlariga qo'yiladigan talablar oddiy ish kiyimlariga nisbatan ancha yuqori, murakkab va ko'p qirrali bo'lishi tabiiydir. Ish jarayonida ro'y beradigan eng kichik texnik xato yoki himoya yetishmovchiligi xodim hayoti, ishlab chiqarish jarayonining xavfsizligi va butun majmuaning barqarorligiga salbiy ta'sir ko'rsatishi mumkin.

Maxsus kiyimlar tizimi nafaqat ishchining o'zini himoya qilish, balki ish unumdorligini oshirish, qulaylik yaratish va mehnat jarayonini ergonomik jihatdan yengillashtirishga qaratilgan bo'lishi kerak. Neftchilarning ish kiyimlari ko'p funktsiyali bo'lib, bir vaqtning o'zida olovdan himoya qilish, kimyoviy moddalarga chidamlilik, shamol va sovuqdan saqlash, elektrostatik zaryadlarni neytrallashtirish, mexanik zarbalardan himoya qilish kabi vazifalarni bajarishi lozim[1].

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So‘nggi yillarda ishlab chiqaruvchilar tomonidan neftchilar uchun mo‘ljallangan ish kiyimlari assortimentini shakllantirishda innovatsion tolalar, aramid asosidagi olovga chidamli matolar, antistatik iplar, membranali qatlamlar, himoya qoplamalari va yengil kompozit materiallardan keng foydalanilmoqda. Biroq, mavjud kiyimlar tizimining aksariyatida ergonomik yondashuv yetarli darajada takomillashmagan, iqlim sharoitlariga moslashuvchanlik mexanizmlari cheklangan, ekspluatatsion chidamlilik hali ham dolzarb masala bo‘lib qolmoqda[2].

Shu nuqtai nazardan, neftchilar uchun turli xil assortimentdagi maxsus kiyim tizimini shakllantirish prinsipi ilmiy asosda ishlab chiqilishini talab etadi. Assortiment yaratishda xodimning bajaradigan vazifasi, hududning iqlim sharoiti, xavf omillari, ishlab chiqarish bosqichlari va texnik xavfsizlik talablarini kompleks ravishda hisobga olish muhimdir. Har bir bo‘g‘in uchun alohida komplekt, maxsus himoya darajalari, modul tizimi, individual ergonomik yondashuv zarur.

Mazkur tadqiqot neftchilar uchun mo‘ljallangan maxsus kiyimlarning ilmiy asoslangan tizimini yaratish, materiallar tanlovi, konstruktiv yechimlar, himoya funksiyalari va ekspluatatsion xususiyatlarini chuqur tahlil qilishga qaratilgan bo‘lib, amaliyotda xavfsizlik va samaradorlikni oshirishga xizmat qiladi[3].

Neft va gaz sanoati xodimlari uchun mo‘ljallangan maxsus kiyimlar tizimini shakllantirish jarayoni murakkab mehnat sharoitlari, texnologik talablari va xavfsizlik me‘yorlarini chuqur o‘rganishni talab etadi. Ushbu sohada qo‘llaniladigan kiyimlar oddiy ish kiyimlaridan butunlay farq qiladi, chunki neftchilar portlash xavfi mavjud muhitlarda, katta mexanik yuklamalar ostida, kimyoviy moddalar bilan bevosita aloqada hamda keskin o‘zgaruvchi iqlim sharoitida faoliyat yuritadilar. Shu sababli, neftchilarning maxsus kiyimlari tizimi himoya funksiyasi, ergonomik qulaylik, materialning chidamliligi, konstruktiv mustahkamligi va ekspluatatsion barqarorligi kabi kompleks talablarga javob berishi shart[4].

Nazariy jihatdan maxsus kiyimlarning samaradorligi, eng avvalo, mehnat jarayonida duch kelinadigan xavflarni to‘g‘ri aniqlash va tahlil qilishga bog‘liq. Neftchilar ish jarayonida olov va yuqori harorat ta’siri, kimyoviy moddalar, texnik moylar, neft mahsulotlari, gazlar, mexanik zarbalar, kesilish va ishqalanish xavflariga uchraydi. Bundan tashqari, tashqi muhitning sovuq, shamolli, nam yoki issiq bo‘lishi ham kiyim talablari shakllanishiga bevosita ta’sir ko‘rsatadi. Shuning uchun maxsus kiyimlar ko‘p qavatli, issiqlik izolyatsion, olovga chidamli, antistatik va kimyoviy moddalarga bardoshli materiallardan tayyorlanishi kerak.

Nazariy asoslardan biri — materialshunoslik tamoyillari asosida matolarni to‘g‘ri tanlashdir. Aramid, modakril, karbonli tolalar va boshqa issiqlikka chidamli kompozit tolalar neftchilar uchun eng optimal hisoblanadi. Ular yuqori haroratda erimaydi, yonmaydi va o‘zining shaklini saqlaydi. Antistatik iplar qo‘shilgan matolar elektrostatik zaryadning to‘planishini oldini oladi. Maxsus polimer qoplamalar (masalan, poliuretan, PVC) matolarga kimyoviy moddalar, neft va moylarga nisbatan bardoshlilik beradi. Membranali materiallar esa nafas oluvchi, lekin suv o‘tkazmaydigan himoya qatlamini yaratib, sovuq va nam iqlim sharoitida ishlashni yengillashtiradi[5].

Neftchilar kiyimining konstruktiv yechimi nazariyaning muhim tarkibiy qismi bo‘lib, inson tana tuzilishi, harakatlanish dinamikasi va ergonomik qulaylik mezonlariga asoslanadi. Kiyim konstruksiyasi harakat erkinligini cheklamasligi, bukilish, cho‘zilish va egilishlar vaqtida noqulaylik tug‘dirmasligi zarur. Shu maqsadda tirsak, tizza va yelka qismlariga kuchaytirilgan qavatlar qo‘shiladi, bel qismi elastiklashtiriladi, yoqa baland qilinadi, tikuv choklari esa ikki yoki uch qatlamli mustahkam holatda ishlanadi. Choklar ustidan issiqlik va mexanik ta’sirdan himoya qiluvchi lenta

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tortilishi, metall detallar minimal darajada qo'llanilishi ishlab chiqarishda xavfsizlik nuqtai nazaridan ham muhimdir.

Nazariy jihatdan maxsus kiyimlar tizimi assortimenti ketma-ketlik asosida shakllanadi. Ya'ni, turli ish sharoitlari uchun alohida komplektlar yaratiladi: bazaviy kundalik komplekt, antistatik komplekt, yuqori haroratlar uchun issiqdan himoya to'plami, sovuq iqlim uchun issiqlik izolyatsion to'plam, yomg'ir va namlikka chidamli komplekt va boshqalar. Bu assortiment tizimining modul shaklda bo'lishi iqtisodiy samaradorlikni oshiradi, hamda har xil sharoitlarda kiyim qismlarini mos ravishda almashtirish imkonini beradi[6].

Ushbu maqolada ko'rilgan masaladan shuni ko'rishimiz mumkinki nazariy asoslardan yana biri — ergonomik talablar tizimi bo'lib, u kiyimni inson fiziologik jarayonlari bilan moslashtirishga qaratilgan. Maxsus kiyim inson tanasining termoregulyatsiya jarayoniga to'sqinlik qilmasligi, terlashni kamaytirishi, yetarli havo almashinuvini ta'minlashi zarur. Kiyimning vazni yengil, ichki qatlami esa ekologik xavfsiz materiallardan tayyorlangan bo'lishi lozim. Shuningdek, kiyimlar antropometrik me'yorlarga mos ravishda erkaklar va ayollar uchun alohida konstruksiyaga ega bo'lishi ham nazariy talab sifatida qaraladi.

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KOSTYUM DIZAYNIDA SUN'IY INTELEKTNING O'RNI VA IMKONIYATLARI

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Annotatsiya: Ushbu maqolada kostyum dizayni sohasida sun'iy intellektning tutgan o'rni va imkoniyatlari, texnologiyalarning bu jarayonga qanday ta'sir ko'rsatayotgani hamda zamonaviy texnologiyalarning kreativ jarayonlarga qo'shgan hissasi haqida fikr yuritiladi. Sun'iy intellekt orqali avtomatlashtirilgan dizayn jarayonlari, mijoz talablarini tahlil qilish, yangi materiallar tanlash va shaxsiylashtirish imkoniyatlari batafsil yoritiladi.

Аннотация: В статье рассматривается роль и возможности искусственного интеллекта в области дизайна костюмов, его влияние на этот процесс и вклад современных технологий в креативные процессы. Особое внимание уделено автоматизированным процессам проектирования, анализу запросов клиентов, выбору новых материалов и персонализации с использованием ИИ.

Annotation: This article explores the role and possibilities of artificial intelligence in costume design, its impact on the process, and the contribution of modern technologies to creative workflows. It highlights AI-driven automated design processes, customer demand analysis, material selection, and personalization.

Kalit so'zlar: Kostyum dizayni, sun'iy intellekt, avtomatlashtirish, kreativ texnologiyalar, shaxsiylashtirish.

Ключевые слова: Дизайн костюмов, искусственный интеллект, автоматизация, креативные технологии, персонализация.

Keywords: Costume design, artificial intelligence, automation, creative technologies, personalization.

So'nggi yillarda raqamli texnologiyalar hayotimizning deyarli barcha jabhalariga kirib kelib, an'anaviy sohalarni tubdan o'zgartirib yubordi. Dizayn, moda va to'qimachilik sanoati ham bundan mustasno emas. Avval qo'l mehnati, ijodiy tasavvur va ko'p yillik tajribaga tayanib shakllangan kostyum dizayni bugungi kunda sun'iy intellekt (SI) bilan yangi mazmun kasb etmoqda. AI nafaqat jarayonlarni tezlashtirmoqda, balki inson tasavvuri yetmaydigan yechimlarni taklif eta oladigan darajaga yetdi. Shu bois, zamonaviy moda sanoatida SI nafaqat yordamchi vosita, balki strategik innovatsiya manbai sifatida qaralmoqda[1].

Sun'iy intellekt (SI) so'nggi o'n yillikda butun dunyo bo'ylab sanoatning turli tarmoqlariga chuqur kirib bordi. Dastlab ishlab chiqarish, avtomatlashtirish va logistika kabi yo'nalishlarda qo'llangan sun'iy intellekt bugungi kunda moda sanoati, kiyim dizayni va mato yaratish jarayonlarida ham strategik ahamiyat kasb etmoqda. Zamonaviy kostyum dizayni endilikda an'anaviy qo'l mehnati va badiiy qarashlar bilan cheklanib qolmay, balki algoritmlar, neyron tarmoqlar, generativ modellar va kompyuter grafikasi yordamida yangi bosqichga ko'tarilmoqda[2,3].

AI texnologiyalari dizaynerlarga avval tasavvur qilib bo'lmaydigan imkoniyatlarni beradi: murakkab naqshlarni bir necha soniyada yaratish, mijoz tanasi o'lchamiga mos 3D modellar ishlab

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chiqish, rang uyg'unligini matematik tarzda baholash, moda tendensiyalarini oldindan tahlil qilish, shuningdek, iste'molchilar xohishiga mos individual kiyim yaratish jarayonini avtomatlashtirish[4].

AI integratsiya qilingan 3D vizualizatsiya tizimlari hozirda prototip yaratish jarayonida inqilob yasamoqda. Maxsus dasturlar yordamida matoning harakatlanishi, burmalanishi, yorug'likda aks etishi kabi jarayonlar real fizik xususiyatlar asosida simulyatsiya qilinadi. Bu dizaynerga matoni qo'lga olib ko'rmasdan turib ham tayyor mahsulot qanday ko'rinishini baholash imkonini beradi. Bundan tashqari, brendlar AI asosidagi virtual podiumlardan foydalanib, o'z kolleksiyalarini jismoniy modellar yoki sahna xarajatlarisiz namoyish qilishlari mumkin. Bu ekologik va iqtisodiy jihatdan juda samarali yechimdir[5].

SI asosida kostyum dizaynini avtomatlashtirish: Hozirgi zamon algoritmlari, xususan, Generativ Adversarial Networks (GAN), Diffusion Models va Variational Autoencoders (VAE) kostyum dizayniga yangi imkoniyatlar ochdi. Ushbu modellar yordamida: yangi kolleksiyalar uchun g'oyalar avtomatik generatsiya qilinadi; mato teksturalari, naqshlar va rang kombinatsiyalari taklif qilinadi; vintage va zamonaviy uslubni sintez qiluvchi dizaynlar yaratish mumkin bo'ladi; brend identitetiga mos dizayn variantlari tezda shakllantiriladi[6].

Generativ modellar yordamida nafaqat tayyor kiyim dizaynlarini yaratish, balki butun boshli kolleksiyalarning konseptual asosini ishlab chiqish ham mumkin bo'lib qoldi. Masalan, Diffusion modeli asosida ishlovchi tizimlar "mavsumiy kayfiyat", "etnik uslub", "minimalizm", "futurizm" kabi mavzular bo'yicha kompozitsion eskizlarni mustaqil ravishda yaratadi. Bu esa dizaynerga ilhom olish, yangi g'oyalarni shakllantirish va original konsepsiyalarni tez topishga yordam beradi. Ushbu jarayon ijodiy eksploratsiyani ancha tezlashtiradi.

Masalan, GAN modellarida dizayner 50–100 ta namunaviy kiyim rasmni yuklashi bilan, algoritmi shu uslubga mos yangi dizaynlarni yaratib beradi. Bu jarayon qo'lda bajarilganda haftalar talab qilsa, AI yordamida bir necha daqiqa ichida amalga oshiriladi[7].

Avtomatlashtirilgan jarayonlar. Sun'iy intellekt yordamida dizayn jarayonlari avtomatlashtirilib, vaqt va resurslar tejashga erishilmoqda. Masalan, generativ dizayn algoritmlari yordamida bir nechta variantlar yaratilib, eng yaxshi natija tanlanadi. Bu usul dizaynerlarning vaqtini tejab, ularning kreativ jarayonlarga ko'proq e'tibor qaratishiga imkon beradi.

Mijoz talablarini tahlil qilish. SI asosida ishlovchi tizimlar mijozlarning didi, tanlovlari va talablarini o'rganib, ularga mos dizaynlarni taklif qilish imkoniyatini beradi. Bu nafaqat individual yondashuvni kuchaytiradi, balki xaridorlarning qoniqishini ham oshiradi.

Materiallar tanlash va innovatsiyalar. Texnologiyalar orqali yangi, ekologik toza yoki funksional materiallarni aniqlash va ulardan foydalanish imkoniyati mavjud. Misol uchun, sun'iy intellekt yordamida to'qimachilik materiallarining chidamliligi, elastikligi va boshqa xususiyatlari tezkor baholanadi[8].

Shaxsiylashtirish imkoniyatlari. SI yordamida mijozlar o'zlarining o'lchamlari va didiga mos kostyumlarni onlayn tarzda loyihalashlari mumkin. Virtual o'lchov tizimlari orqali mos o'lchamlar aniqlanadi, AR (kengaytirilgan haqiqat) texnologiyalari orqali esa tayyor mahsulotning ko'rinishi baholanadi.

Moda doim o'zgaruvchan bo'lgani sababli trendlarni oldindan aniqlash eng murakkab jarayonlardan biridir. SI esa katta hajmdagi ma'lumotlarni – ijtimoiy tarmoqlar, xarid tendensiyalari, sifatli matnlar, global moda haftaliklaridagi kontent – tahlil qilib, kelgusi mavsumlarda mashhur bo'lishi mumkin bo'lgan uslublarni bashoratlaydi. Bu brendlar uchun raqobat ustunligini sezilarli darajada oshiradi. Misol uchun, algoritmlar o'tgan yillardagi naqshlarning siklik qaytishini aniqlab,

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retro uslubning qaytishi yoki minimalizmning pasayishi kabi jarayonlarni oldindan ko'rsatib bera oladi[9].

Texnologiyalarning rivojlanishi bilan birga muammolar ham yuzaga keladi. Sun'iy intellektdan foydalangan holda yaratilgan dizaynlar avtorlik huquqi masalalarini kun tartibiga olib chiqmoqda. Bundan tashqari, texnologiyaga qaramlik ijodiy jarayonlarga zarar yetkazishi mumkin. Ushbu muammolarni hal qilish uchun SI va inson ijodi o'rtasidagi balansni ta'minlash muhimdir.

Kostyum dizaynida sun'iy intellektning qo'llanilishi tobora kengayib borayotgani sohaning yangi bosqichga ko'tarilayotganidan dalolat beradi. SI texnologiyalari ijodkorlikni cheklamaydi, aksincha, dizaynerning imkoniyatlarini kengaytirib, yangi g'oyalar yaratish jarayonini tezlashtiradi. Dizayner va texnologlarning hamkorlikda ishlashi kreativ jarayonlarni yanada samarali qiladi, mijozlar ehtiyojiga mos mahsulot yaratish imkonini oshiradi. Sun'iy intellektning to'g'ri yo'naltirilishi esa kostyum dizaynining kelajakda raqamli, qulay va innovatsion yo'nalishda rivojlanishiga xizmat qiladi.

Kostyum dizayni faqat estetika emas, balki texnologik ishlab chiqarish jarayonlarida ham AI yuksak samaradorlikni ta'minlaydi. AI yordamida mato kesish optimallashtiriladi, chiqindilar kamaytiriladi, tikuv jarayonlari avtomatlashtiriladi. Robotlashtirilgan tikuv mashinalari AI bilan birga ishlaganda mahsulot sifatida bir xil standartni ta'minlaydi va inson xatosi darajasi sezilarli kamayadi.

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**KIYIM ISHLAB CHIQRISHDA ENERGIYA VA MATERIAL SARFINI
KAMAYTIRISHGA QARATILGAN TEJAMKOR TEXNOLOGIYALARNI JORIY ETISH**

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Annotatsiya: Ushbu maqolada kiyim ishlab chiqarish jarayonlarida energiya va material sarfini kamaytirishga qaratilgan zamonaviy texnologiyalar samaradorligi tahlil etilgan. Tikuv dastgohlarining energiya iste‘molini optimallashtirish, materialni aniq kesish orqali chiqindini qisqartirish va avtomatlashtirilgan boshqaruv tizimlarining joriy etilishi asosiy yo‘nalishlar sifatida ko‘rib chiqiladi. Taklif etilgan texnologiyalar sanoat korxonalarida xarajatlarni kamaytirish, ishlab chiqarish unumdorligini oshirish va ekologik barqarorlikni ta‘minlashga xizmat qiladi.

Kalit so‘zlar: energiya tejamkor texnologiyalar, material tejash, avtomatlashtirish, chiqindisiz ishlab chiqarish, tikuv sanoati.

Аннотация: В статье рассмотрены современные технологии, направленные на снижение расхода энергии и материалов в производстве одежды. Анализируется оптимизация энергопотребления швейных машин, минимизация отходов за счет точного раскроя и внедрение автоматизированных систем управления. Предложенные решения способствуют снижению затрат, повышению производительности и обеспечению экологической устойчивости текстильных предприятий.

Ключевые слова: энергосберегающие технологии, экономия материалов, автоматизация, безотходное производство, швейная промышленность.

Abstract: This article analyzes modern technologies aimed at reducing energy and material consumption in garment manufacturing. Optimization of sewing machine energy use, reduction of fabric waste through precise cutting techniques, and implementation of automated control systems are examined. The proposed solutions help decrease operational costs, increase production efficiency, and support environmental sustainability in apparel industries.

Keywords: energy-saving technologies, material efficiency, automation, zero-waste production, garment industry.

Kirish: Yengil sanoatning jadal rivojlanishi, global raqobatning kuchayishi va ekologik talablarning ortib borishi kiyim ishlab chiqarish korxonalarida energiya va xomashyo sarfini minimallashtirishni dolzarb masalaga aylantirmoqda. Tabiiy resurslarning cheklanganligi, elektr energiyasi narxining muntazam o‘sishi, chiqindilarni kamaytirish bo‘yicha xalqaro standartlarning joriy etilishi ishlab chiqaruvchilarni yanada tejamkor texnologiyalarni qo‘llashga undaydi. Kiyim ishlab chiqarish jarayonlarida materialni tejash, energiya sarfini kamaytirish, chiqindilarni kamaytirish va jarayonlarni avtomatlashtirish korxonaning barqaror rivojlanishiga xizmat qiladigan asosiy omillardir. Shu bois, konstruksiyalashdan tortib yakuniy tikuvgacha bo‘lgan har bir bosqichda

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energiya samaradorlikni oshirish va materialdan oqilona foydalanish texnologik rivojlanishning eng muhim mezonini hisoblanadi [1].

Asosiy qism: Kiyim ishlab chiqarishning asosiy texnologik jarayonlari bir nechta bosqichdan iborat bo'lib, ularga konstruksiyalash, andozalash, joylashma tuzish, matoni kesish va tikuv operatsiyalarini bajarish kiradi. Har bir bosqich o'ziga xos energiya va material sarfini talab qiladi, shuning uchun ularni optimallashtirish texnik va tashkiliy yechimlar bilan uyg'un holda amalga oshiriladi. Masalan, konstruksiyalash bosqichida ergonomik va iqtisodiy jihatdan samarali modellar yaratish mato sarfini kamaytiradi. Andozalash va joylashma tuzishda raqamli texnologiyalardan foydalanish matoni optimal joylashtirish imkonini beradi. Kesish jarayonida avtomatlashtirilgan yoki lazerli kesish stanoklaridan foydalanish aniqlikni oshiradi va chiqindilarni kamaytiradi. Tikuv jarayonida esa energiya tejamkor motorlar, raqamli boshqaruv tizimlari va samarali operatsion ketma-ketlik ishlab chiqarish unumdorligini oshiradi. Shu tarzda har bir texnologik bosqichni takomillashtirish umumiy energiya va material samaradorligiga bevosita ta'sir qiladi.

Energiyani tejash bo'yicha texnologik yondashuvlar: Hozirgi tikuvchilik korxonalarida energiya iste'molini kamaytirish eng muhim maqsadlardan biri bo'lib, bunda servo-motrlarning qo'llanilishi muhim rol o'ynaydi. Servo-motrlar an'anaviy debriyajli motorlarga nisbatan 35-60% gacha energiya tejashini ta'minlaydi, chunki ular faqat tikuv jarayoni bajarilgan paytda energiya iste'mol qiladi, qolgan vaqtda esa kutish rejimida ishlaydi [2]. Bundan tashqari, korxonada quvvat sarfini real vaqt rejimida monitoring qilish tizimlarini joriy etish, energiya iste'moli yuqori bo'lgan jihozlarni avtomatlashtirilgan boshqaruvga o'tkazish va ishlab chiqarish jarayonlarini optimallashtirish energiya sarfini yanada kamaytiradi. Ventilyatsiya tizimlarida chastotali boshqaruv (VFD - variable frequency drive) qo'llanilganda ventilyatorlar yuklamaga mos ravishda ishlaydi va 20-25% energiya tejashi kuzatiladi [3]. Shuningdek, yoritish tizimlarida LED texnologiyalaridan foydalanish, issiqlik yo'qotilishini oldini olish va ishlab chiqarish bo'limlarida energiya sarfini tahlil qilish korxonada umumiy energiya samaradorligini sezilarli oshirishga xizmat qiladi. Bu esa korxona mablag'lari sarfini kamaytiradi hamda ishlab chiqaruvchiga sezilarli foyda keltiradi.

Material tejash texnologiyalari: Material sarfini kamaytirish kiyim ishlab chiqarish samaradorligining eng asosiy ko'rsatkichlaridan biri bo'lib, bunda konstruksiyani to'g'ri loyihalash va joylashma tuzishni optimallashtirish muhim ahamiyatga ega. Elektron marker tuzish dasturlari - Gerber, Optitex, Assyst kabi platformalar mato sarfini 8-12% gacha kamaytirishi mumkin, chunki ular andozalarni mato yuzasida eng optimal joylashtirishga yordam beradi [4]. Avtomatik va lazerli kesish komplekslari esa kesish jarayonida aniqlikni oshiradi, inson omilidan kelib chiqadigan xatoliklarni kamaytiradi va chiqindi miqdorini sezilarli darajada qisqartiradi. Bundan tashqari, 3D skanerlash texnologiyalari yordamida mijozning aniq o'lchamlari olinadi, bu esa buyurtma asosidagi ishlab chiqarishda qayta tikish ehtimolini kamaytiradi va material isrofgarchiligini oldini oladi. Tayyorlov bosqichlarida modullarni soddalashtirish, qolgan mato bo'laklaridan aksessuar yoki kichik buyumlar tayyorlash ham material tejash strategiyasining muhim qismi hisoblanadi.

Avtomatlashtirishning roli: Kiyim ishlab chiqarish jarayonlarini avtomatlashtirish korxonada samaradorlikni oshirishning eng zamonaviy yo'nalishlaridan biridir. Avtomatlashtirilgan ishlab chiqarish liniyalari, aqlli sensorlar, robotlashtirilgan tikuv modullari va raqamli texnologiyalar ishlab chiqarish jarayonining uzluksizligini ta'minlaydi, jarayonlar aniqligini oshiradi va inson omilidan kelib chiqadigan xatoliklarni sezilarli kamaytiradi [5]. Real vaqt monitoringi orqali energiya iste'moli, jihozlarning ishlash yuklamasi va jarayon parametrlari tahlil qilinadi, bu esa umumiy samaradorlikni oshirishga yordam beradi. Avtomatlashtirish tikuv operatsiyalarining tezligini oshirib,

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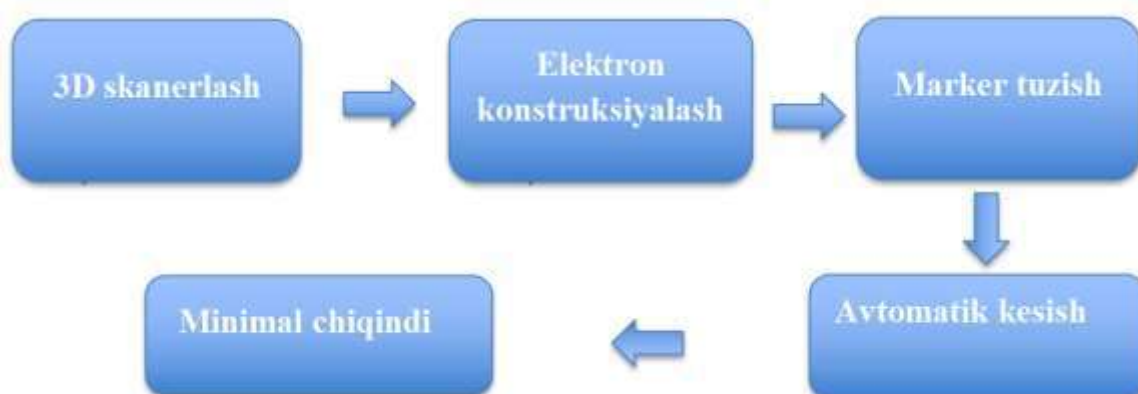
mahsulot sifatini bir xilda ushlab turadi. Raqamli boshqaruv tizimlari yordamida ishlab chiqarish jarayonlari to'liq integratsiyalashadi, natijada material sarfi optimallashtiriladi, ortiqcha zaxiralar kamayadi va ishlab chiqarish vaqtining qisqarishi ta'minlanadi.

Chiqindisiz (Zero-Waste) texnologiyalar: Zero-waste texnologiyalari kiyim dizayni va ishlab chiqarishning barcha bosqichlarida chiqindilarni minimallashtirishga qaratilgan bo'lib, asosiy maqsad materialdan maksimal darajada foydalanishdir. Bu yondashuvda geometrik shakllar asosida konstruktsiya yaratish, ya'ni mato qirqimlarining minimal chiqindi bilan joylashtirilishi hisobga olinadi [6]. Qayta ishlangan tolalar, ekologik xavfsiz matolar va barqaror materiallardan foydalanish atrof-muhitga bo'lgan ta'sirni kamaytiradi. Ishlab chiqarish jarayonida qolgan mato bo'laklari ikkilamchi mahsulotlar - sumka, aksessuar yoki yengil mahsulotlarga aylantirilishi mumkin. Zero-waste dizayn yondashuvi nafaqat chiqindini kamaytiradi, balki ishlab chiqarish xarajatlarini optimallashtiradi, ekologik toza brend imijini shakllantiradi va barqaror moda tamoyillariga mos keladi. Bu strategiya kelajakda atrof-muhitni muhofaza qilish va iqtisodiy tejamkorlik uchun eng samarali yechimlardan biri bo'lib qoladi.

1-jadval

Energiya tejamkor texnologiyalarning samaradorligi

Texnologiya turi	Tejalgan energiya (%)	Izoh
Servo-motorlar	35–60	Tikuv mashinalarida qo'llanilganda
Chastotali boshqaruv	20–25	Ventilyatsiya va dvigatellar uchun
Avtomatik kesish	10–15	Jarayon tezlashadi, chiqindi kamayadi
LED yoritish	30–40	Ishlab chiqarish sexlari uchun



1-rasm. Material sarfini optimallashtirish jarayoni

Taklif va tavsiyalar: Kiyim ishlab chiqarish jarayonlarida energiya va material tejamkorligini ta'minlash uchun bir nechta strategik yo'nalishlarni bosqichma-bosqich amalga oshirish maqsadga muvofiqdir. Eng avvalo, tikuv korxonalarida mavjud barcha elektr yuritmalarni zamonaviy servo-motorlarga almashtirish tavsiya etiladi, chunki ushbu moslamalar an'anaviy dvigatellarga nisbatan sezilarli darajada kam energiya sarflaydi va ishlab chiqarish jarayonining barqarorligini oshiradi.

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Shuningdek, joylashma yaratish bosqichida raqamli marker tuzish dasturlaridan foydalanish mato sarfini optimallashtirib, chiqindi miqdorini kamaytirishga xizmat qiladi. Ishlab chiqarish bo'limlarida real vaqt rejimida ishlaydigan energiya monitoringi tizimlarini joriy etish orqali quvvat sarfi uzluksiz nazorat qilinadi va energiya tejamkorligi bo'yicha aniq statistik ma'lumotlar shakllantiriladi. Ekologik barqarorlikni ta'minlash maqsadida qayta ishlangan tolalar va ikkilamchi xomashyolardan tayyorlangan materiallardan foydalanish tavsiya etiladi, bu esa korxonaning atrof-muhitga ta'sirini sezilarli darajada kamaytiradi. Shuningdek, chiqindisiz dizayn (Zero-Waste) tamoyillarini nafaqat ishlab chiqarish jarayonida, balki ta'lim tizimida ham keng joriy etish o'ta muhim bo'lib, bu kelajakdagi mutaxassislarining resurs tejamkor texnologiyalarni amaliyotga to'liq tatbiq eta olishiga zamin yaratadi. Ushbu takliflar kiyim ishlab chiqarish korxonalarining samaradorligini oshirish, iqtisodiy xarajatlarni kamaytirish va global raqobatda ustunlikka erishishda muhim omil bo'lib xizmat qiladi.

Xulosa: Kiyim ishlab chiqarish jarayonida energiya va material tejamkor texnologiyalardan foydalanish sanoat korxonalarining samaradorligini oshirishning eng muhim yo'nalishlaridan biridir. Elektr yuritmalarining energiya sarfini kamaytirish, avtomatlashtirilgan tizimlar yordamida nazoratni kuchaytirish, matoni aniq va oqilona ishlatish, chiqindisiz texnologiyalarni joriy etish korxonalarining raqobatbardoshligini oshiradi. Raqamli texnologiyalar, IoT-sensorlar va avtomatik kesish komplekslari integratsiyasi kelajakda kiyim ishlab chiqarish jarayonining yanada tejamkor va barqaror bo'lishiga xizmat qiladi.

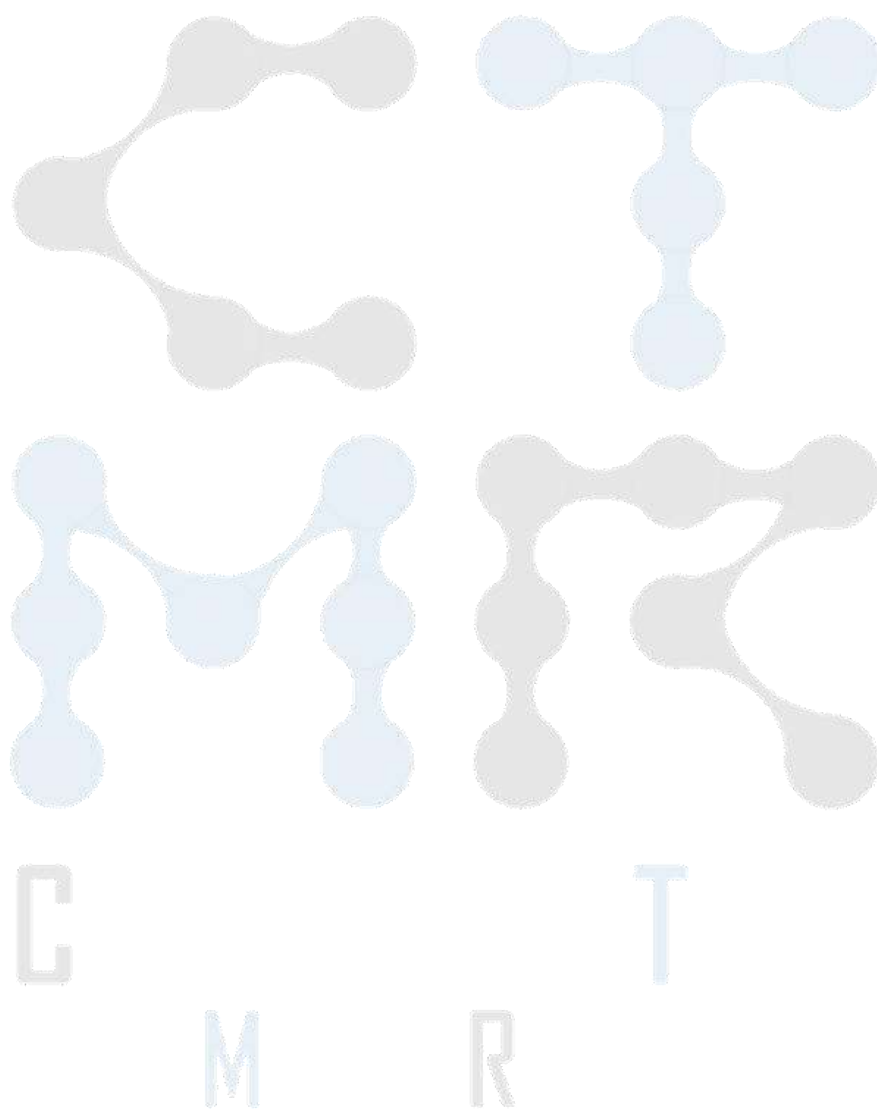
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TA'LIMDA YANGI PEDOGOGIK TEXNOLOGIYALARNING MOHIYATI VA
ASOSIY XUSUSIYATLARINI O'RNI

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Annotasiya: Ushbu ilmiy maqolada ta'lim samaradorligini oshirishda o'ziga xos zamonaviy yondoshuvlaridan biri bu innovasion yondashuv bo'lib, bunda o'qitish jarayonlarini tashkil etishda shakl, metod va vositalarning o'zaro uyg'unligini hisobga olgan holda tanlash asosida o'qituvchi va ta'lim oluvchilarning hamkorlikdagi faoliyatini rivojlantirishda pedagogik texnologiyalarni o'rni haqida ma'lumotlar keltirilgan

Kalit so'zlar: pedagogika, innovasion texnologiyalar, o'qitish uslublari, ta'lim sifati, metod va vositalar, nazariy dars jarayonlari, amaliy dars jarayonlar, ilmiy yondashuv, o'qituvchi maxorati

Аннотация: В данной научной статье изложены сведения по вопросам развития совместной деятельности педагогов и обучающихся на основе выбора форм, методов и средств организации образовательного процесса с учетом взаимной совместимости форм, методов и средств.

Ключевые слова: педагогика, инновационные технологии, методы обучения, качество образования, методы и инструменты, теоретические процессы обучения, практические процессы обучения, научный подход, мастерство учителя

Abstract : This scientific article presents information on the development of joint activities of teachers and students based on the choice of forms, methods and means of organizing the educational process, taking into account the mutual compatibility of forms, methods and means.

Key words: Pedagogy, innovative technologies, teaching methods, quality of education, methods and tools, theoretical teaching processes, practical teaching processes, scientific approach, teacher skills

Mamlakatimizning ijtimoiy-iqtisodiy rivojlanishi va "Ta'lim to'g'risida"gi Qonun bilan Kadrlar tayyorlash milliy dasturini amalda joriy etish samaradorligini oshirish uchun oliy ta'lim jarayoniga, jumladan, mutaxassislik fanlarni o'qitish jarayoniga innovatsion texnologiyalarni qo'llash bugungi kunning zaruriy talabi hisoblanadi.

Ta'lim tizimining modernizatsiyasi – jamiyatning ijtimoiy, iqtisodiy va madaniy ehtiyojlarini, uning malakali kadrlarga, shaxsning esa sifatli ta'lim olishga bo'lgan talabini qondirish, ta'lim tizimini barqaror rivojlanishini ta'minlash maqsadida mavjud mexanizmning qayta ishlab chiqilishi yoki takomillashtirilishni ko'zda tutadi.

Lug'aviy jihatdan **"innovatsiya"** tushunchasi ingliz tilidan tarjima qilinganda (**"innovatsion"**) "yangilik kiritish" degan ma'noni anglatadi. **"Innovatsiya"** tushunchasi mazmunan aniq holatni ifodalaydi.

Innovatsion ta'lim (ingl. **"innovatsion"** – yangilik kiritish, ixtiro) – ta'lim oluvchida yangi g'oya, meyor, qoidalarni yaratish, o'zga shaxslar tomonidan yaratilgan ilg'or g'oyalar, meyor, qoidalarni tabiiy qabul qilishga oid sifatlar, malakalarni shakllantirish imkoniyatini yaratadigan ta'limdir.

Innovatsion ta'lim jarayonida qo'llaniladigan texnologiyalar innovatsion ta'lim texnologiyalari yoki ta'lim innovatsiyalari deb nomlanadi.

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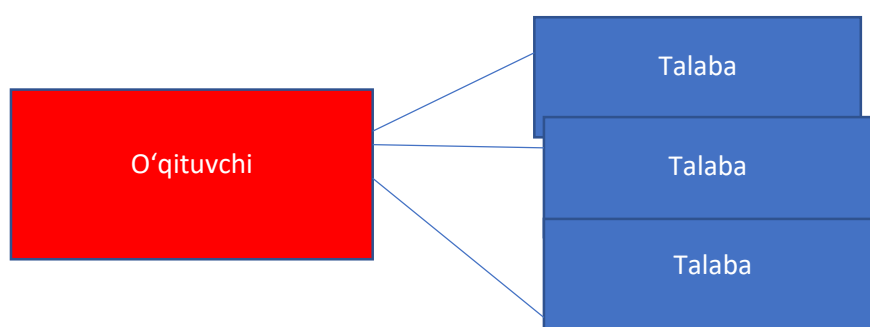
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Ta'lim innovatsiyalari – ta'lim sohasi yoki o'quv jarayonida mavjud muammoni yangicha yondashuv asosida echish maqsadida qo'llanilib, avvalgidan ancha samarali natijani kafolatlay oladigan shakl, metod va texnologiyalar hisoblanadi.

Innovatsion ta'lim – muayyan muddatga mo'ljallangan, ta'lim jarayoni markazida talaba shaxsi bo'lib, o'qitishning zamonaviy shakli, faol o'qitish metodlari va zamonaviy didaktik vositalarning majmuini ta'lim-tarbiya ishidan ko'zlangan maqsad va kafolatlangan natijaga erishishga yo'naltirishdir. Noan'anaviy ta'lim texnologiyasi an'anaviy ta'lim texnologiyasidan farq qilib, talabalarning bilish imkoniyatlarini rivojlanishiga sharoit yaratadi, mustaqil ishlashlariga alohida e'tibor beriladi, bilish faoliyatlari izlanuvchan va ijodiy harakterga ega bo'ladi

Oliy ta'lim muassasalarida tashkil etiladigan ta'lim-tarbiya jarayoniga innovatsion o'qitish texnologiyalarni qo'llash quyidagi didaktik maqsadlarni ko'zda tutadi:

- ta'lim-tarbiya jarayonini shaxsga yo'naltirish, uning Davlat ta'lim standarti bilan belgilangan bilim, ko'nikma va malakalarni egallash samaradorligini oshirish;
- talabalarning kasbiy-pedagogik, metodik tayyorgarligini oshirish, ularni innovatsion pedagogik faoliyatga tayyorlash;
- talabalarning innovatsion texnologiyalarga asoslangan mashg'ulotlarda faol ishtirok etishini ta'minlash va ta'lim-tarbiya jarayoni sub'ektiga aylantirish orqali innovatsion texnologiyalardan foydalanish uchun zarur bilim, ko'nikma va malakalarni egallashga zamin yaratish va xokazolar.



1-rasm Passiv metod

Bu metodda o'qituvchi yakka xokim sifatida dars o'tadi Bu metodda talaba faqat tinglovchi sifatida ishtirok etadilar.

Yuqorida qayd etilgan didaktik maqsadlarni amalga oshirish oliy ta'limda talabalarni kasbiy tayyorlash, ularning bilim, ko'nikma va malakalarini oshirish, mutaxassislik fanlarni o'qitishda innovatsion texnologiyalardan foydalanish zaruratini keltirib chiqaradi.

Bu esa talabalarning kasbiy mahoratlarini shakllantirishda innovatsion texnologiyalaridan foydalanishni, ta'lim-tarbiya jarayoni samaradorligini oshirish, ularni innovatsion pedagogik faoliyatga tayyorlashni ustuvor maqsad qilib belgilashni talab etadi.

Bugungi kunda pedagoglarning innovatsion faoliyat ko'nikma, malakalariga ega bo'lishlari muhim ahamiyatga ega. Pedagoglar tomonidan innovatsion faoliyat ko'nikma, malakalarini o'zlashtira olishlarida ularning innovatsion yondashuvga ega bo'lishlari talab etiladi. O'z mohiyatiga ko'ra pedagoglar tomonidan innovatsion faoliyat ko'nikma, malakalarining o'zlashtirilishi ularda innovatsion yondashuvni qaror topishi asosida kechadi. Pedagoglarda innovatsion yondashuvning qaror topishi ham murakkab jarayon bo'lib, u bir necha bosqichda kechadi.

Demak, ilm-fan, texnika, ishlab chiqarish va texnologiyaning rivojlanishi ta'lim tizimida ham tub o'zgarishlar sodir bo'lishiga olib keladi. Ta'lim tizimining modernizatsiyasi davlat va jamiyat

malakali kadrlarga, shaxsning esa sifatli ta'lim olishga bo'lgan ehtiyojlaridan kelib chiqqan holda ro'y beradi.

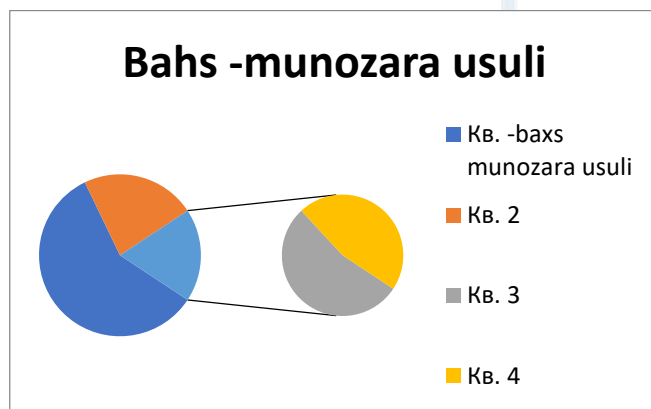


2-rasm Talabani bilim olish darajasi

Zamonaviy sharoitda ta'lim-tarbiya jarayonlarini texnologiyalashtirish kam kuch va vaqt sarflagan holda kutilayotgan natijani qo'lga kiritishga imkon beradi, o'qitish sifatini yaxshilab, samaradorligini oshiradi.

Hozirgi kunda ta'lim jarayonida faol metodlar, innovatsion texnologiyalar, pedagogik va axborot texnologiyalarini o'quv jarayonida qo'llashga bo'lgan qiziqish, e'tibor kundan-kunga kuchayib bormoqda. Bunday bo'lishining sababalaridan biri, shu vaqtgacha an'anaviy ta'limda o'quvchi – talablarni faqat tayyor bilimlarni egallashga o'rganilgan bo'lsa, zamonaviy texnologiyalar ularni egallayotgan bilimlarini o'zlari qidirib topishlariga, mustaqil o'rganishlariga, tahlil qilishlariga, xatto xulosalarni ham o'zlari keltirib chiqarishlariga o'rgatadi. O'qituvchi bu jarayonda shaxsni rivojlanishi, shakllanishi, bilim olishi va tarbiyalanishiga sharoit yaratadi va shu bilan bir qatorda boshqaruvchilik, o'naltiruvchilik funksiyasini bajaradi. Shuning uchun ta'lim muassasalarida zamonaviy o'qitish metodlari, faol usullar va interfaol metodlar, innovatsion texnologiyalarning o'rni va roli benihoya kattadir.

Munozara metodi jarayonida yuzaga keladigan bahslashish fikrlashning ifodasi bo'libgina qolmay, shakllanib kelayotgan shaxs o'zining biror narsani hal etish, mustaqillikda kattalar bilan teng xuquqli ekanligini yoqlash ehtiyojidir.



3-rasm Bahs-munozara usuli

Dars jarayonidagi bahs chog'ida o'qituvchi ta'lim oluvchilar bilan baravar haqiqat izlovchisi bo'lib harakat qiladi.



4-rasm Munozara metodi

Ana shu bahsda u o'z bilimini namoyish etadi, keng fikrlaydi, fikrlarni dalillar bilan asoslaydi, bu fazilatlar esa ta'lim oluvchilar o'rtasida o'zaro katta hurmat uyg'otadi. Bahs jarayonida har bir ta'lim oluvchining «shaxsiy fikri», o'z mavqeini ifodalash va asoslash malakasi yuksak qadrlanadi.

Topshiriq metodining ijobiy tomoni shundaki, unda ta'lim oluvchilar uchun yakka holda emas, guruh bilan birgalikda o'tilgan materialni qayta ko'rib chiqib, esga tushirishlari uchun sharoit yaratiladi. Bunda ta'lim oluvchilar bilmagan yoki yoddan chiqargan bilimlarini bir-birlaridan o'rganadilar.



5-rasm Topshiriq metodi

Mustaqil bajarishga mo'ljallangan topshiriqlar o'quv semestri davomida ta'lim oluvchilar tomonidan amalga oshirilib borilsa, ta'lim oluvchilar materialni yodlariga tushirib, yakuniy nazoratlarni yaxshi topshirishlariga yordam beradi.

Ta'lim oluvchilarning mustaqil ishlashlarini rivojlantiruvchi yana bir samarali topshiriq turi – bu muammoli topshiriqlardir.

Muammolar echimi bo'yicha ishlash quyidagi tartibda bo'lishi mumkin.

1. Ta'lim oluvchilar guruhlarda ishlaydilar. Ularga umumiy echim, mustaqil qaror qabul qilishni talab etadigan muammoli matn yoki topshiriq beriladi.
2. Ta'lim oluvchilar muammo echimini muhokama qiladilar va birgalikda muammo echimi bo'yicha umumiy qarorga kelishga harakat qiladilar.
3. Keyin guruhlar bir-birlari bilan o'zaro fikr almashadilar.

Bunday turdagi topshiriqlar odatda qiziqarli muhokamalarga olib keladi, ta'lim oluvchilarning dunyoqarashi, mulohaza yuritish, o'z fikri va yondashuvini isbotlash, qaror qabul

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qilish va umuman mustaqil ishlash ko'nikmalarini rivojlantiradi. O'qituvchi faqat topshiriq shartlari bilan tanishtiradi, qolgan ishlarni esa ta'lim oluvchilar o'zlari bajarishadi.

Bunday vazifalarni bajarish uchun ta'lim oluvchilar auditoriyadan tashqari mustaqil izlanishlarni talab etiladi va shu bilan kasbiy va amaliy ko'nikmalarni rivojlantirishga rag'batlantiriladi. Loyihaviy ishlar uchun mavzu va topshiriqlar hayotiy voqea, dalillar va namunalardan olinishi mumkin. Topshiriqlar turli shakllarda ishlab chiqarish va tashkil etilishi mumkin.

Xulosa.Ushbu ilmiy maqolada ta'lim samaradorligini oshirishda o'ziga xos zamonaviy yondoshuvlaridan biri bu innovasion yondashuv bo'lib, bunda o'qitish jarayonlarini tashkil etishda shakl, metod va vositalarning o'zaro uyg'unligini hisobga olgan holda tanlash asosida o'qituvchi va ta'lim oluvchilarning hamkorlikdagi faoliyatini rivojlantirishda pedagogic texnologiyalarni o'zni haqida ma'lumotlar keltirilgan Zero, davr talabi bo'yicha yosh mutaxassaslarni bilimli, mustaqil fikrlaydigan, innovator, komil inson sifatida shakllanishida pedagogik texnologiyalarning asl maqsadi namoyon bo'ladi. Maqolada talabalarga innovasion texnologiyalardan o'qitish texnologiyalarni usullari ko'rsatib o'tilgan.

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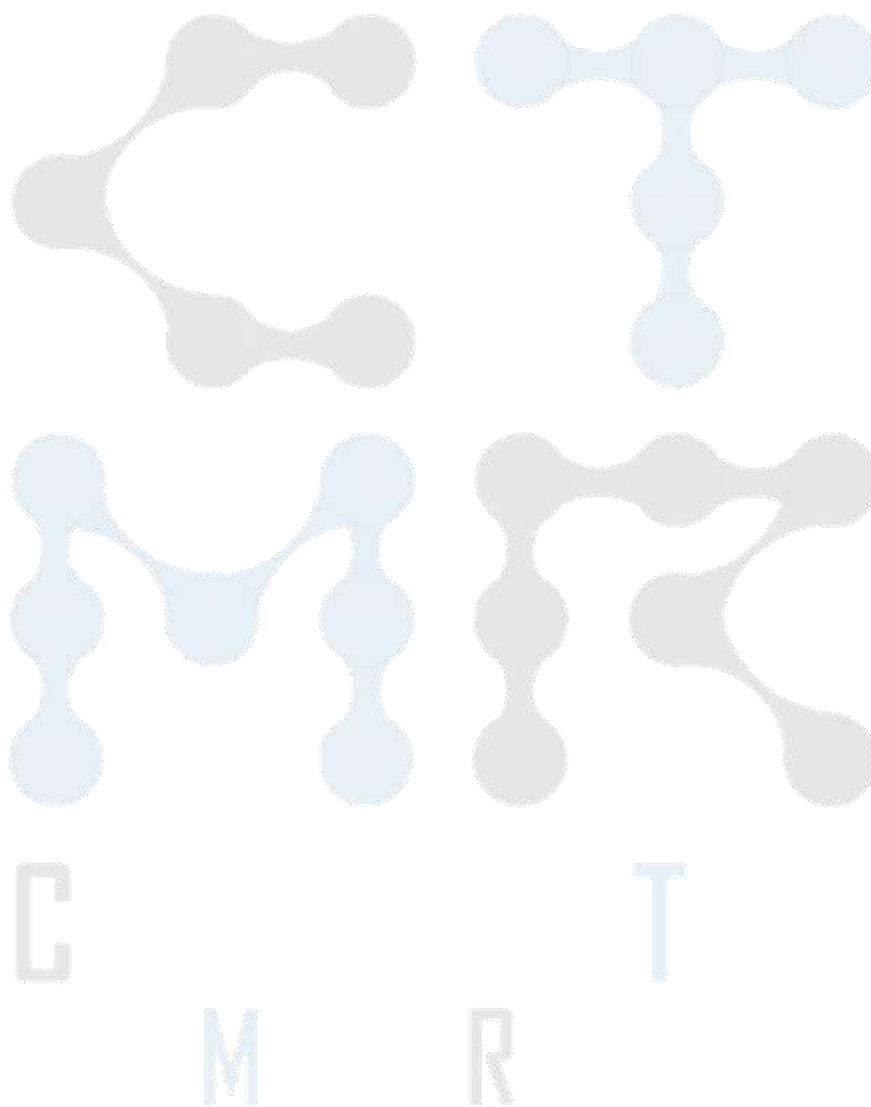
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METHODOLOGY FOR DEVELOPING THE PROFESSIONAL COMPETENCE OF FUTURE ENGINEERS USING ELECTRONIC EDUCATIONAL TOOLS

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Abstract: The integration of electronic educational tools into engineering education has significantly transformed the process of professional training for future engineers. The article analyzes the effectiveness of electronic learning platforms, virtual laboratories, simulation programs and interactive resources in strengthening professional competence. A methodological model for developing professional skills through digital technologies is proposed, with emphasis on improving independent learning ability, creative problem-solving, practical application of theory and collaboration skills. Research findings demonstrate that the systematic use of electronic instructional systems enhances technical literacy, increases motivation and prepares students for real industrial environments.

Keywords: Professional competence; electronic educational tools; engineering education; virtual laboratories; simulation technologies; digital learning resources.

Introduction: In the 21st century, rapid scientific-technological transformation has drastically reshaped industrial production, engineering processes, and professional qualification requirements. Modern engineers are expected not only to possess deep theoretical knowledge, but also to demonstrate high levels of digital literacy, practical technical skills, creativity, analytical thinking and readiness for continuous self-learning. Traditional instructional approaches, largely based on lectures and textbook-centered content, are no longer sufficient to prepare future engineers for the dynamics of modern technological environments. As a result, the integration of electronic educational tools into the structure of engineering education has become a key strategic priority.

Electronic educational tools — including virtual laboratories, simulation platforms, multimedia resources, electronic textbooks, and learning management systems — create opportunities to personalize learning, visualize complex engineering concepts, and organize practical online experiments without material limitations. Unlike conventional classroom methods, digital learning environments ensure flexible access to information resources, allow students to learn at their own pace, and support the development of professional competencies through interactive problem-solving, virtual modelling, and project-based learning.

The implementation of such technologies promotes strong engagement, enhances the quality of knowledge acquisition, and forms applied skills necessary for real industrial tasks — such as designing, testing, programming, system automation, and technical modelling. Many universities worldwide are re-evaluating engineering curricula to incorporate electronic instructional instruments, yet there is still a need for unified methodological guidelines that systematically explain **how** these tools can be effectively used to develop professional competence.

Therefore, the present study focuses on constructing a pedagogical methodology for the use of electronic educational tools in engineering training, analyzing their pedagogical effectiveness, and determining their role in forming a highly qualified future engineer who can successfully operate in a digital and innovation-driven professional environment.

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Relevance of Work: The relevance of this research is determined by the growing demand for engineers who are adaptable, technologically fluent, and capable of working with intelligent systems, digital infrastructures, and automated production environments. Modern industries are transitioning toward Industry 4.0 standards, where software integration, data handling, robotics, and simulation-based decision-making form the foundation of professional duties. This transformation requires higher education institutions to shift from knowledge-centered teaching to competence-oriented approaches enriched by digital tools.

Electronic educational resources enable universities to provide interactive, practice-based learning experiences that mirror real engineering tasks while reducing the limitations of physical laboratories, equipment, and financial resources. Their role is especially crucial in developing independent research skills, engineering modelling, system-thinking and problem-solving abilities — competencies that ensure the professional readiness of future specialists.

Despite the availability of digital tools, many educational programs lack scientifically grounded frameworks that guide the systematic development of professional competence through electronic means. This gap highlights the necessity of creating and implementing a methodological model that clarifies the mechanisms, principles, and pedagogical conditions for effective digital integration. Therefore, this study is timely, practically significant, and contributes to the modernization of engineering education in response to global technological evolution.

Purpose: The primary purpose of this study is to develop, justify, and evaluate an effective methodology for enhancing the professional competence of future engineers through the integrated use of electronic educational tools in the learning process. The study aims to:

- Identify how digital learning environments influence engineering skill formation;
- Determine the pedagogical conditions required for effective implementation of electronic tools;
- Propose a practical methodology that aligns digital resources with competence-based learning outcomes;
- Experimentally assess the impact of electronic educational tools on students' professional development.

The formulated purpose ensures a structured approach toward bridging the gap between digital technology and engineering professional readiness, contributing to the advancement of modern technical education.

Materials and Methods of Research: **The research was conducted using a combination of theoretical, empirical, and experimental methods aimed at identifying the role of electronic educational tools in developing the professional competence of future engineers.**

1. Theoretical Methods

• **Literature Review and Content Analysis:** Scientific sources on engineering pedagogy, digital didactics, competence-based learning models, and electronic instructional technologies were examined.

• **Comparative Method:** Foreign and domestic practices of integrating digital tools into engineering education were compared to identify strengths, challenges, and innovation potential.

2. Empirical and Experimental Methods

• **Pedagogical Experiment:** A controlled experiment was carried out among undergraduate engineering students. The experimental group received instruction using electronic educational tools

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(LMS, virtual laboratories, multimedia modules, simulation software), while the control group continued with traditional methods.

• **Diagnostics and Assessment Techniques:** Knowledge and skill level were measured through tests, project tasks, engineering design assignments, and problem-solving activities. Students' motivation and engagement were evaluated using survey questionnaires and observation.

3. Technological Tools Used in the Study

• **Learning Management Systems (Moodle, Google Classroom, Canvas)** — for course content delivery, assignments, feedback, and monitoring.

• **Virtual Laboratories and Simulations** (MATLAB Simulink, Multisim, SolidWorks, AutoCAD) — for modeling and testing engineering solutions.

• **Multimedia Resources and E-texts** — for visualizing complex technical concepts.

• **Online Collaborative Tools** (Zoom, Microsoft Teams, shared cloud documents) — for teamwork, discussions, and project-based learning.

4. Data Processing and Analysis

• Quantitative results were analyzed using statistical comparison of pre-test and post-test performance between groups.

• Qualitative data (surveys, interviews, observation notes) were interpreted to assess student perception, motivation, and learning difficulties.

• Correlation analysis was used to determine relationships between digital tool usage frequency and competence development indicators.

These methods collectively allowed the formation of a comprehensive understanding of the effectiveness of electronic educational tools, ensuring objectivity and reliability of the research outcomes.

Results and Discussion:

The results of the pedagogical experiment indicate that the integration of electronic educational tools has a significant positive effect on developing the professional competence of future engineers. Data obtained through diagnostic assessments, comparative analysis, and student feedback reflect measurable improvements in academic performance, independent learning behavior, and practical skill application.

1. Improvement in Academic and Practical Performance

Post-experimental testing revealed that students in the experimental group demonstrated a **30–45% increase in task completion accuracy**, particularly in analytical calculations, circuit modeling, and CAD-based design projects. Virtual laboratory tools allowed learners to simulate real-world scenarios without material risks or resource limitations, resulting in a clearer understanding of technical processes, system behavior, and troubleshooting procedures.

2. Growth of Digital and Technical Skills

Frequent interaction with simulation programs, engineering software, and online learning platforms improved students' technological literacy. The experimental group displayed higher proficiency in:

- operating design and modeling software (SolidWorks, AutoCAD, MATLAB);
- applying theoretical knowledge to solve engineering problems;
- preparing digital project reports and technical documentation;
- collaborating within virtual environments.

These outcomes confirm that electronic tools contribute directly to competence-building essential for Industry 4.0.

3. Increased Motivation and Engagement in Learning

Survey results revealed that **82% of students** in the experimental group found digital-based learning more engaging and motivating compared to traditional lecture methods. Multimedia lessons and gamified tasks maintained cognitive interest, while flexible access to online modules enabled students to manage learning independently. In contrast, the control group displayed lower engagement and required more instructional guidance.

4. Enhancement of Collaborative and Research Skills

Electronic platforms facilitated group problem-solving and project coordination through shared cloud documents and video-conferencing tools. Students reported improved communication, responsibility-sharing, and critical thinking abilities — competencies aligned with professional teamwork environments. Moreover, digital resources encouraged research-based exploration, leading to deeper subject mastery and creativity.

Overall, the research findings indicate that electronic educational tools significantly enhance the professional competence of future engineers by combining theory with interactive, practice-oriented experiences. The discussion supports the conclusion that digital integration in engineering curricula is not supplementary, but essential for producing specialists capable of adapting to modern technological and industrial challenges.

Conclusion: The conducted research confirms that electronic educational tools play a crucial role in the effective development of professional competence in future engineers. Their integration into the learning process enables the formation of practical skills and technical thinking, promotes independent decision-making, and enhances students' readiness for real industrial challenges. The experimental results clearly show that the use of LMS systems, online simulations, virtual laboratories, and multimedia resources leads to significant improvement in learners' performance, motivation, and professional preparedness compared to traditional instruction alone.

The methodology proposed in this study demonstrates that a competence-oriented approach supported by digital resources fosters not only theoretical knowledge, but also engineering creativity, technological literacy, and problem-solving ability. Electronic educational platforms provide a dynamic learning environment where theoretical models can be tested through practical simulations, thereby increasing the depth of understanding and quality of training.

To maximize effectiveness, universities should actively expand the implementation of modern digital tools, invest in technical infrastructure, and enhance the digital pedagogical competence of instructors. Future research may involve artificial intelligence-based adaptive systems, virtual and augmented reality laboratories, and large-scale comparative studies between institutions to refine and further develop the presented methodology.

In conclusion, electronic educational tools are not simply an additional resource — they represent a key element in modern engineering education, ensuring the formation of competitive, innovative, and professionally capable specialists for the technological future.

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**ЧЕСТНОСТЬ КАК НАЦИОНАЛЬНАЯ ИДЕЯ: ФОРМИРОВАНИЕ
АНТИКОРРУПЦИОННОЙ МОДЕЛИ ОБЩЕСТВА В РЕСПУБЛИКЕ УЗБЕКИСТАН**

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Аннотация: В статье представлено развернутое междисциплинарное исследование коррупции как сложно структурированного социального и правового феномена. Особое внимание уделено историко-философским основаниям осмысления коррупции, эволюции её понятийного содержания, социологическим подходам, международно-правовым стандартам и современным методам противодействия коррупции. Анализируется опыт Республики Узбекистан, где за последние годы была осуществлена масштабная системная реформа, направленная на повышение прозрачности, укрепление общественного доверия и модернизацию институтов публичной власти. Исследование обосновывает необходимость комплексного подхода, сочетающего правовые, морально-этические, социальные и институциональные механизмы противодействия коррупции.

Ключевые слова: коррупция, девиантное поведение, социологический подход, международное право, антикоррупционная политика, Узбекистан, публичная власть, общественное доверие, цифровизация, государственное управление.

Annotation (Abstract)

This article presents an expanded interdisciplinary analysis of corruption as a socially embedded and legally significant phenomenon that exerts a multidimensional impact on the functioning of public authority and societal institutions. Drawing on classical philosophical thought, modern sociological theory, international legal frameworks and contemporary public administration studies, the research explores the conceptual evolution of corruption, its historical origins, structural determinants, and forms of manifestation. Special attention is given to the case of the Republic of Uzbekistan, which in recent years has undertaken comprehensive reforms aimed at strengthening transparency, enhancing public accountability, and modernizing state institutions. The study argues that corruption should be understood not only as a legal offence but also as a systemic socio-institutional distortion that undermines public trust and hampers sustainable development. The findings highlight the importance of a holistic anti-corruption strategy that integrates legal mechanisms, digital transformation, civic engagement, and the cultivation of an ethical culture within the public sector.

Keywords: corruption; public administration; deviant behavior; institutional governance; international law; anti-corruption policy; Uzbekistan; transparency; accountability; civil society.

Введение

Проблема коррупции на протяжении многих веков остаётся одной из наиболее острых и сложных в жизни любого государства. Её масштабы и формы варьируются в зависимости от исторических, политических, культурных и экономических условий, однако суть явления — злоупотребление властью ради личной выгоды — остаётся неизменной. Изучение исторических источников и памятников свидетельствует о том, что феномен коррупции исследуется наукой уже несколько столетий.

Интерес к данной проблематике проявляют представители различных научных направлений: социологии, юриспруденции, экономики, политологии, государственного и

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муниципального управления. Естественно, каждая из этих дисциплин предлагает собственное определение и подход к пониманию сущности коррупции, что обусловлено спецификой исследовательских методов и целей анализа.

Историко-философские основания исследования коррупции выясняют, что истоки научного изучения коррупции относятся к эпохе зарождения централизованных государств и первых правовых систем. Уже Томас Гоббс подчеркивал, что коррупция является разрушительным «корнем», подрывающим законность государственного устройства. Согласно Гоббсу, ощущение безнаказанности, подкрепленное богатством или политическими связями, формирует условия для произвольного нарушения закона. Это создает ситуацию, в которой государственный служащий перестает служить обществу, превращая власть в ресурс для личной выгоды.

Никколо Макиавелли в «Государе» использовал метафору болезни, чтобы описать сущность коррупции. Он утверждал, что коррупция на ранних стадиях поддаётся лечению, но в запущенных формах становится практически неизлечимой, поскольку разрушает структурные основы государства. Его мысль о том, что «помощник, стремящийся к собственной выгоде, не может быть хорошим слугой государю», отражает фундаментальную проблему конфликта интересов и концентрации власти в руках чиновников.

Эпоха Просвещения придала изучению коррупции новое звучание. Жан-Жак Руссо связывал коррупцию с нарушением общественного договора, утверждая, что государство коррумпируется тогда, когда интересы властвующих отходят от интересов народа. Шарль Монтескье рассматривал коррупцию как следствие чрезмерной концентрации власти, когда нарушается принцип разделения властей. Эти идеи легли в основу последующих теоретических моделей, трактующих коррупцию как социальную патологию, нарушающую гармонию политической системы.

Современная социология трактует коррупцию прежде всего как форму девиантного поведения, т.е. поведения, отклоняющегося от нормативных ожиданий общества. По мнению К. Й. Фридриха, коррупция представляет собой «поведение, отклоняющееся от доминирующих политических норм вследствие мотивации личной выгоды». Дж. Най дополняет, что коррупция является нарушением формальных обязанностей публичной роли под воздействием индивидуальных или групповых интересов.

Этот подход позволяет рассматривать коррупцию как структурированное явление, порождаемое сочетанием внешних факторов (социального неравенства, закрытости институтов, дефицита прозрачности) и внутренних стимулов (личной выгоды, давления групп интересов). В этом смысле коррупция перестает быть исключительно юридической категорией и превращается в индикатор системной деградации институтов.

М. Вебер одним из первых предложил рассматривать коррупцию как феномен, связанный с функционированием бюрократии. Он отмечал, что коррупционные практики нередко возникают как результат политического патронажа, когда должности распределяются по принципу лояльности, а не компетентности.⁶ Хотя его подход подвергался критике за «оправдание» коррупции, он дал важный инструмент для изучения скрытых механизмов функционирования власти.

Я. И. Гилинский расширил этот подход, указав, что коррупция включает набор устойчивых ролей: патрон, клиент, посредник. Коррупционные сети обладают собственными нормами и даже символической системой, что позволяет рассматривать коррупцию как

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институционализированное явление. О. Г. Карпович выступает с критикой функционального подхода, указывая на его ограниченность. Он утверждает, что попытка представить коррупцию «смазочным механизмом» бюрократии не учитывает её долгосрочных разрушительных последствий, включая деградацию законности и снижение качества государственного управления.

Международно-правовое понимание коррупции сопряжены с ключевыми документами, определяющими международные стандарты борьбы с коррупцией, являются Кодекс поведения должностных лиц ООН (1979) и Конвенция ООН против коррупции (2003). Эти документы рассматривают коррупцию как злоупотребление служебным положением ради получения выгоды, подчеркивая необходимость универсального подхода к предупреждению, расследованию и наказанию коррупционных преступлений.

В социологической науке коррупция нередко определяется как отказ представителей власти от ожидаемых норм и стандартов поведения ради получения незаконной личной выгоды. Подобная трактовка акцентирует внимание на морально-этических аспектах поведения индивидов, занимающих властные или управленческие должности, и рассматривает коррупцию как девиантную форму социального взаимодействия.

Юридическая и административная наука, напротив, сосредотачивает внимание на нормативно-правовой стороне данного явления. В Кодексе поведения должностных лиц по поддержанию правопорядка, принятом Генеральной Ассамблеей Организации Объединённых Наций 17 декабря 1979 года, указывается, что, хотя понятие коррупции определяется национальным законодательством, оно в целом охватывает совершение или несовершение действий при исполнении должностных обязанностей вследствие получения или обещания подарков, вознаграждений, стимулов либо их незаконного принятия. В документе подчёркивается, что акт коррупции охватывает также попытку коррумпирования.

На Международном межрегиональном семинаре по проблемам коррупции (Гавана, 1990 г.) данное явление было определено как злоупотребление служебным положением в целях получения личной или групповой выгоды, а также как незаконное получение государственным служащим преимуществ, связанных с занимаемой должностью или служебным положением.

Таким образом, в международной и национальной научной традиции коррупция рассматривается как совокупность действий (или бездействия) должностных лиц, направленных на извлечение материальной или нематериальной выгоды в обход норм права, этики и служебной дисциплины.

В условиях глобализации и растущей взаимозависимости институтов власти проблема коррупции становится одной из ключевых угроз национальной безопасности, подрывая легитимность государства и доверие общества к правовым институтам. Коррупция препятствует экономическому росту, искажает принципы справедливости и формирует деструктивные модели поведения.

Республика Узбекистан, вступив на путь масштабных реформ, выдвинула борьбу с коррупцией в ранг национального приоритета, рассматривая её не только как правовую, но и как морально-этическую задачу. За последние 4,5 года в стране зарегистрировано 9546 коррупционных преступлений с общим ущербом свыше 3,2 триллиона сумов, из которых около 90% было возвращено государству. Эти данные отражают эффективность новой модели прозрачного следствия и рост доверия к правосудию.

1. Закон как инструмент нравственной трансформации

Принятие в 2017 году Закона Республики Узбекистан «О противодействии коррупции» стало отправной точкой системной трансформации государственной политики. Этот нормативно-правовой акт стал не просто юридическим документом, но и идеологическим манифестом, направленным на укрепление принципов честности, подотчётности и ответственности.

Закон закрепил шесть стратегических направлений противодействия коррупции, включая обеспечение прозрачности деятельности органов власти, повышение правовой культуры и развитие механизмов общественного контроля. Тем самым государство впервые институционализировало моральный принцип — служить обществу, а не использовать власть в личных целях.

2. Государственная программа: антикоррупционная карта страны

Следующим шагом стало утверждение Государственной программы по противодействию коррупции (Постановление Президента №ПП-2752 от 2017 г.), определившей 51 конкретное направление реформ. Среди приоритетов — совершенствование законодательства, цифровизация государственных услуг, внедрение комплаенс-контроля и расширение участия институтов гражданского общества.

Особое значение имеет цифровизация антикоррупционной деятельности. Внедрение видео- и аудиофиксации при приёме граждан, а также создание Telegram-бота **@antikorbot** стали инструментами общественного контроля, обеспечивающими прямую коммуникацию между государством и населением. Эти меры способствовали формированию новой культуры подотчётности и открытости.

3. Общество доверия: концепция и практические шаги

Современные исследования подтверждают, что устойчивость антикоррупционной системы напрямую зависит от уровня общественного доверия (Fukuyama, 1995; Rothstein, 2011). В этой связи эксперты Узбекистана сформулировали десять ключевых шагов, направленных на создание общества доверия. Среди них — искоренение клановости, партнёрство с независимыми СМИ, формирование онлайн-ресурса **Uzbek Corruption Map**, защита анонимности заявителей и регулярная публичная отчётность чиновников.

Эти меры направлены на формирование антикоррупционного «иммунитета» — устойчивой неприемлемости коррупционных практик на уровне массового сознания.

4. Ужесточение уголовной ответственности

Новая редакция Уголовного кодекса Республики Узбекистан (2024 г.) ввела значительные изменения в сфере наказания за коррупционные преступления. В частности, срок лишения свободы за взяточничество и посредничество увеличен до 15 лет, срок давности — на 50%, а само понятие взятки расширено до нематериальных выгод.

Международное сравнение показывает, что законодательство Узбекистана по строгости санкций приближается к стандартам стран с высокими показателями правовой культуры, таких как Южная Корея и ОАЭ.

5. Гуманизм как составляющая справедливости

Несмотря на ужесточение наказаний, уголовная политика Узбекистана сохраняет гуманистическую направленность. В случаях раскаяния и возмещения ущерба допускается смягчение наказания: перевод в колонию-поселение, исправительные работы или условно-досрочное освобождение.

Подобный подход свидетельствует о переходе от карательной к воспитательной модели уголовного права, где приоритет отдаётся исправлению личности и возвращению её в правовое поле.

6. Роль гражданского общества в укреплении честности

Ключевым фактором устойчивости антикоррупционной системы является уровень гражданской активности. Формирование правового сознания, развитие независимой журналистики и институтов общественного контроля позволяют создать «снизу вверх» систему морального давления на коррупционные практики.

Коррупция оказывает деструктивное воздействие на все сферы общественной жизни. Она подрывает доверие граждан к институтам государственной власти, искажает принципы социальной справедливости, препятствует экономическому развитию и формированию правового государства. Более того, коррупционные практики ведут к росту теневой экономики, снижению эффективности управления и ослаблению демократических институтов.

Социологические исследования показывают, что высокий уровень коррупции коррелирует с низким уровнем социальной мобильности и гражданского участия, а также с ростом социального неравенства. В правовом аспекте коррупция нарушает принципы равенства всех перед законом и подрывает авторитет правовой системы.

Заключение

Опыт Узбекистана показывает, что борьба с коррупцией становится неотъемлемой частью национальной идеи и элементом духовного обновления общества. Коррупция рассматривается не только как правовое, но и как нравственное явление, требующее системного подхода и формирования культуры честности.

Антикоррупционная политика страны эволюционирует от формального правоприменения к концепции «общества доверия», где честность становится нормой, а не исключением. Это свидетельствует о зрелости государственной системы и формировании нового общественного договора между властью и гражданами.

«Когда честность становится нормой, законы начинают работать сами собой».

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PSYCHOLOGICAL AND SOCIAL FACTORS INFLUENCING PROFESSIONAL MOTIVATION

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Abstract: In this article, the professional motivation of teachers and the psychological and social factors influencing it are systematically analyzed. Professional motivation is explained as a complex psychological and social construct that determines an individual's attitude toward their profession, as well as the effectiveness and stability of their professional activity.

Keywords: professional motivation, pedagogical activity, psychological factors, social factors, intrinsic motivation, extrinsic motivation, self-confidence, self-determination theory, professional burnout, education system, Uzbekistan, teacher motivation.

Professional motivation is a dynamic and multifaceted psychological and social construct that defines an individual's attitude toward professional activity and ensures its effectiveness and stability. It develops and evolves in close connection not only with individual psychological characteristics (such as needs, values, goals, and emotions) but also with external socio-environmental factors (such as organizational culture, social attitudes, material and technical conditions, and the legal framework).

Due to the specific nature of pedagogical activity - including high responsibility, delayed results, significant emotional load, and multidimensionality - teachers' motivation demonstrates a complex dynamic influenced by the synergistic effect of various factors. This section provides a deeper analysis of the main psychological and social factors that affect the stability and effectiveness of professional motivation.

Psychological factors represent the core and stable foundation of motivation. They are rooted in the deeper layers of an individual's personality—such as values, needs, orientations, and emotional states—and mediate the influence of external factors.

The most important factor influencing a teacher's choice of profession and decision to remain in it is the degree of alignment between their personal value system and the content of their professional activity. According to Super's (1953) theory of career development, an individual chooses and develops a profession that provides opportunities to realize their personal values [41].

Pedagogical activity primarily provides opportunities to realize values such as altruism (serving others and society), creativity (generating innovations, expressing creativity), spirituality, and knowledge sharing. If a teacher perceives their work as a "vocation" or a "calling," their motivation remains high and stable despite external obstacles. In such cases, work is not only a source of income but also a means of personal spiritual fulfillment. Conversely, a discrepancy between values and professional activity (for example, the conflict between the value of earning money and

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the low salary in pedagogy) creates a state of cognitive dissonance, which leads to a decrease in motivation.

Deci and Ryan's "Self-Determination Theory" (SDT) plays a crucial role in understanding and analyzing pedagogical motivation [43].

According to this theory, the quality and long-term sustainability of motivation are determined by the extent to which three basic universal psychological needs are satisfied:

Autonomy: The sense of control and freedom over one's activities, methods, and decisions. For a teacher, this includes the freedom to choose how to organize lessons, conduct pedagogical experiments, and work without undue pressure from others.

Competence: The feeling of effectively performing one's work, achieving success, and developing one's potential. A clear example is seeing one's contribution to students' learning and development.

Relatedness: The sense of establishing positive, trusting, and appreciative relationships with colleagues, students, and parents. This need is fulfilled within a healthy community environment.

When these three needs are satisfied, strong and stable intrinsic motivation develops, meaning that an individual engages in activities because they find them inherently interesting, meaningful, and valuable.

Extrinsic motivation (such as salary, rewards, prestige, and praise) serves only as a "hygienic factor" - it cannot be the foundation of motivation, but merely supports it or, if applied restrictively, may weaken intrinsic motivation. In the context of Uzbekistan, the degree of teachers' ability to make independent decisions (the need for autonomy) and the opportunities for continuous professional skill development (the need for competence) play a particularly important role.

Bandura's concept of self-efficacy is directly related to pedagogical motivation, referring to an individual's belief in their ability to successfully perform specific tasks [44]. A teacher with a high level of self-efficacy believes they can handle any pedagogical challenge (for example, managing a disruptive student or explaining a complex topic) and make a significant impact on students. This belief enhances their courage, initiative, perseverance, and, at the same time, their sense of professional responsibility. Professional development through training, courses, and mentoring programs not only updates their knowledge but also strengthens their self-efficacy, which directly contributes to an increase in motivation.

The teaching profession is among the most stressful occupations worldwide. According to the "Burnout" model developed by Maslach and Leiter (2016), the following three main indicators are key signs of declining motivation and decreasing professional effectiveness [45]:

Emotional Exhaustion: Depletion of emotional resources and a constant feeling of fatigue.

Depersonalization: Adopting a cold, detached, or impersonal attitude toward students and colleagues.

Reduced Personal Accomplishment: Dissatisfaction with one's professional effectiveness and achievements.

Therefore, a teacher's level of emotional intelligence and possession of effective stress-management strategies (such as accepting problems, positive thinking, reframing situations, using social support networks, and balancing work and leisure) determine their ability to maintain motivation over the long term and prevent professional burnout.

Social factors create the external context for the formation and maintenance of motivation and often determine the conditions for the full realization of psychological factors.

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Herzberg's Two-Factor Theory remains relevant for analyzing pedagogical motivation [46]. When "hygienic factors" such as salary, working hours, office equipment, classroom conditions, and transportation facilities are inadequate, they become the main source of job dissatisfaction, sharply reducing motivation and increasing the desire to leave the profession. However, these factors alone are not sufficient to enhance motivation. In recent years, reforms in Uzbekistan

- such as gradual salary increases, construction of new school buildings, equipping classrooms with modern tools and computers, and providing housing opportunities for teachers in rural areas — have been aimed precisely at addressing these "hygienic" issues, creating the minimal foundation necessary for motivation.

The prestige and value of the teaching profession in society represent important social capital for its members. According to Parsons' theory of social systems, the status of a profession is determined by its significance for society, its function, and the level of specialized training required [47]. If a teacher takes pride in their profession and receives respect, appreciation, and recognition not only from the school but also from society at large (including parents and students), this strengthens their professional identity and self-esteem, which is a crucial component of intrinsic motivation. Conversely, low prestige and societal neglect of the profession lead to distrust, dissatisfaction, and weakening of professional identification. The "Law on the Status of the Teacher" [49] is aimed precisely at restoring and enhancing the social prestige of the profession and improving society's attitude toward teachers.

The school serves as the teacher's daily social micro-environment, and the following aspects have a decisive impact on their motivation:

Leadership style: Democratic, supportive, fair, and transparent leadership satisfies teachers' need for autonomy and encourages their participation. Conversely, authoritarian, controlling, and closed decision-making leadership undermines motivation.

Collaborative culture: In a team characterized by cooperation, mutual respect, assistance, and psychological support, job satisfaction and motivation are higher. Such an environment fosters collective efficacy—the team's shared belief in its ability to overcome challenges together [48].

Reward and career growth systems: Clear, transparent, and objective criteria for recognition, incentives, and career advancement create a sense of psychological safety, enabling teachers to experiment with new pedagogical methods, take risks without fear of mistakes, openly share ideas, and pursue professional development. Laws, state programs, strategies, and national projects (such as the "Spiritual Enlightenment" program, the activities of the "Youth – Our Future" fund, and the "Law on the Status of the Teacher") determine teachers' social protection, professional development opportunities, material well-being, and overall status. Legal guarantees (such as employment contract protections, pension rights, and leave entitlements) and their effective implementation in practice create a sense in teachers that they are supported by the state and that their work is valued, which positively influences their professional prospects, job security, and, consequently, their motivation.

In conclusion, teachers' professional motivation is shaped through the interaction of psychological and social factors. Internal resources (values, autonomy, competence, relatedness, self-efficacy) form the core of motivation, while external conditions (working environment, material incentives, social status, organizational culture, state policies) serve as supporting factors. Enhancing motivation requires a comprehensive approach that strengthens internal resources and improves the social environment, which in turn contributes to the development of a modern, committed, and professional generation of educators.

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THE IMPORTANCE OF SHADOWS IN HUMAN LIFE AND SOME RULES FOR
DRAWING SHADOWS IN PERSPECTIVE IMAGES

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Abstract:

The purpose of this article is to introduce students to the fundamentals of shadow construction in perspective drawings, including determining the direction of light rays, methods for constructing cast and self-shadows, as well as developing spatial thinking skills and the ability to visualize lighting in graphic compositions. Special attention is given to the differences between shadows formed under natural and artificial lighting conditions.

In natural lighting, the primary light source is typically the Sun, which results in a strict, nearly parallel direction of light rays. This simplifies the construction of shadows, as all shadows from objects are cast in the same direction. Additionally, the intensity of light and the length of shadows vary depending on the time of day and weather conditions, which must be taken into account when creating realistic compositions.

In contrast, artificial lighting involves one or more point light sources (such as lamps or spotlights), which produce a radial, divergent direction of light rays. This requires different approaches to shadow construction: shadows may vary depending on the position of the light source relative to the object, may overlap, be duplicated, and form more complex shapes. Understanding these differences is essential for accurately and expressively depicting light and shadow relationships in architectural, design, and artistic graphics.

Thus, the article examines both the theoretical aspects of lighting and the practical methods of shadow construction, enabling students to create convincing and technically sound perspective drawings with consideration of various light sources.

Keywords:

axometry, own and cast shadows, orthogonality, geometric solids, multiplicity, student, method, specialists, laws of proportion, scientific research, didactics, theory, practical application, composition, skill.

In the "National Program for Personnel Training," one of the main tasks is defined as the preparation of specialists who, along with deep theoretical and practical knowledge in their chosen field, are able to work independently, improve their level of knowledge and qualifications on their own, creatively approach problem-solving, correctly identify and analyze problematic situations, and quickly adapt to changing conditions.

As is well known, in modern conditions where the sphere of information and knowledge is rapidly expanding, it is quite difficult to convey all the necessary information to students only during classes. Experience shows that a student can deeply assimilate knowledge only under the condition of independent work and constant improvement. The main knowledge, skills, and abilities of students

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are formed precisely in the process of independent learning, developing the ability to work autonomously and fostering interest in creative work.

Therefore, planning and organizing independent learning for students, creating all necessary conditions for this, as well as teaching students not only during lessons but also developing skills for independent knowledge seeking, indicating ways to obtain information, and providing recommendations for self-study, is one of the primary tasks of higher education institutions.

Independent student work is a systematic activity aimed at mastering a certain part of knowledge, skills, and abilities outlined in the curriculum for a specific subject, which the student performs both under the guidance and advice of a teacher and independently, both inside and outside the classroom. The organization of independent work for students at the initial stages of learning is associated with a number of tasks. It is especially difficult for first-year students to adapt to the new requirements of higher education because they almost do not know how to organize their learning activities independently. They face major difficulties in finding the necessary information from various sources, analyzing it, highlighting the main points and systematizing them, making notes, clearly and vividly expressing their thoughts, properly managing their time, as well as correctly assessing their mental and physical capabilities. Most importantly, they are psychologically unprepared for independent learning.

Therefore, every professor or teacher should first instill confidence in students about their abilities and intellectual capacities, patiently and gradually teaching them how to properly organize independent knowledge acquisition. Considering that the knowledge and skills mastered independently by students become more complex and extensive each year, it is necessary to increase their initiative and role in the learning process. A student beginning to get used to independent learning not only completes the tasks assigned by the teacher but also independently selects and master's additional knowledge according to their needs, interests, and abilities.

Depending on the specifics of the subject, students may be given various types of assignments for independent work. The decision on which assignments to give is made by the department.

Assignments should be carefully thought out and aimed at strengthening, deepening, expanding, and supplementing the knowledge acquired by students during lessons.

One of the main factors for a complete, deep, and comprehensive mastery of a subject is independent work. The reason is that the hours allocated to the curriculum are limited, and it is impossible to fully absorb the material during classes. For independent work, students need methodological materials. These methodological materials should be designed so that when solving problems and completing exercises, students refer to various information sources and educational literature.

This article aims to address this very problem.

Knowledge of descriptive geometry serves as the foundation for mastering engineering graphics.

The human eye perceives surrounding objects thanks to their illumination by some source of light.

In perspective, shadows often play a primary compositional role in revealing the content of works of visual art.

Observing objects around us, one can notice that the degree of their illumination varies.

Planes located close to the light source and illuminated at a 90° angle are strongly lit, while illumination decreases at other positions. Surfaces on which light rays do not fall remain dark.

Different illumination of an object or surface relief helps to represent their spatial form. Artists depict light and shadow using hatching, shading, toning, and color intensity. When composing or depicting

an object, it is necessary to know the rules of light and shadow distribution and their construction. To make a drawing correct and realistic, it is important to understand these patterns well.

The personal and cast shadows of objects are formed as follows. Light rays emanating from the point light source S illuminate the plane K (Figure 1). If an object stands in the path of these rays, the rays are blocked, and an unlit area forms on the plane. This area is called the cast shadow of the object. The object itself is partially lit and partially in shadow. The unlit part of the object is called its own shadow. The line dividing the illuminated and unilluminated parts is called the contour of the object's own shadow or the line of light and shadow separation.

The construction of cast and own shadows depends on lighting conditions. There are two types of light sources: artificial and natural.

An artificial light source is located close to the object. Examples include electric lamps, kerosene lamps, candles, or matches. In this case, light rays emanate from a single point and spread differently — this is called central illumination (Figure 1).

Natural light sources include the Sun and the Moon. Light rays from the Sun and Moon are considered parallel because they are very far away, and the rays reaching the Earth appear as parallel lines. Such lighting is called parallel illumination (Figure 2).

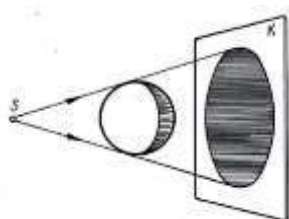


Figure 1

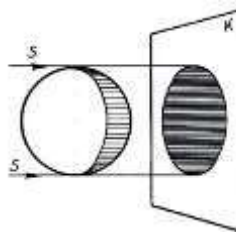


Figure 2

The intensity of cast and own shadows depends on several factors. These include the distance of the light source, the strength of illumination, the color and brightness of objects, air clarity, time of day, and others.

In real conditions, own shadows are never completely black. This is explained by the fact that such surfaces are illuminated by light rays reflected from other objects. Additionally, the surface of the own shadow is influenced by light rays scattered by dust particles suspended in the air. The illuminated part of the shadow caused by reflected rays is called the reflex. In practice, it is impossible to fully take into account all phenomena affecting the intensity of light and shadow.

Therefore, when drawing from memory or life, as well as when composing, it is necessary to highlight a number of rules for depicting light and shadow.

Own shadows of objects are depicted lighter than cast shadows because they are affected by reflex. For the same reason, the upper part of the own shadow is lighter than the lower part. If the object is polyhedral, the boundary transition from light to shadow is clearly marked by an edge (Figure 3, a). For objects with curved shapes, the transition from light to shadow is smooth and gradual (Figure 3, b).

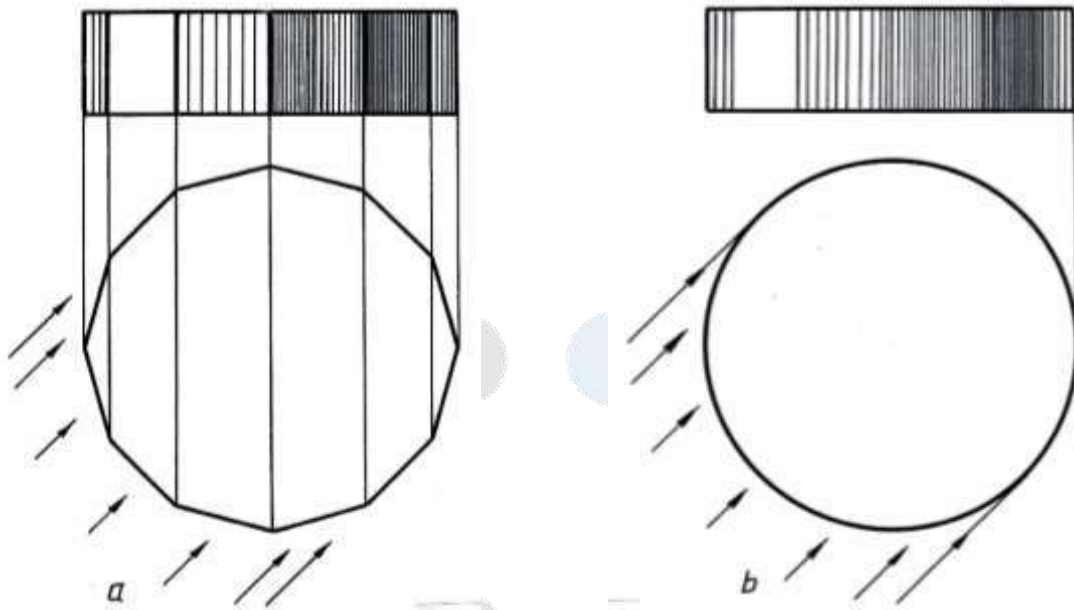


Figure 3

The most illuminated areas of objects with shiny surfaces sparkle and are called highlights. Cast shadows, as they move away from the object and the light source, become more blurred and weaker. If the shadow is large, its edges farther from the object also become less distinct.

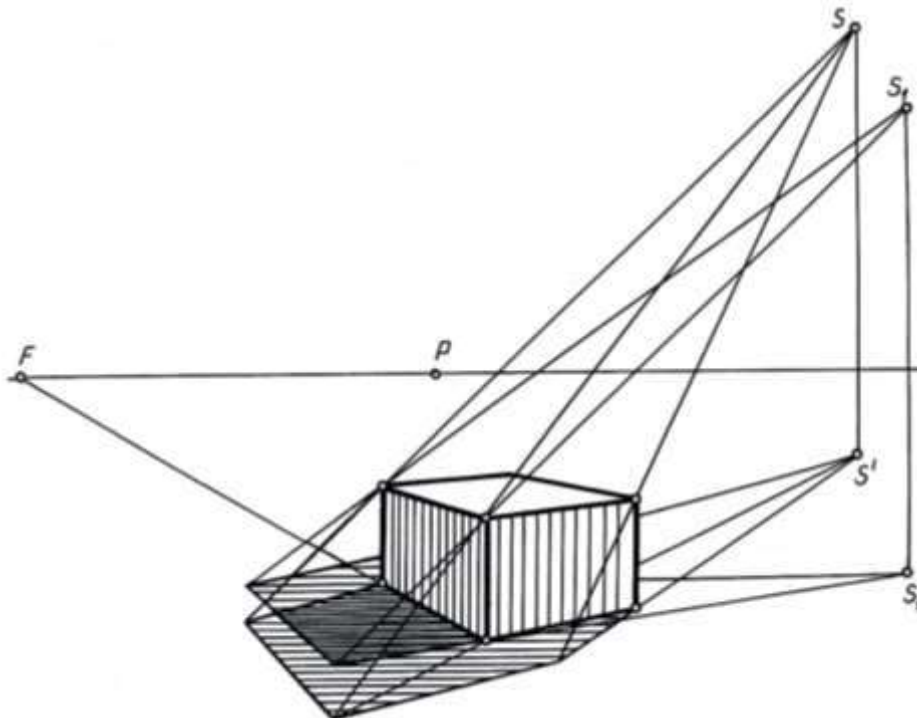


Figure 4

In practice, it is often necessary to construct shadows cast by an object when there are two light sources. In this case, the shadows may partially overlap (Figure 4). Overlapping shadows are called

full shadows, while those that do not overlap are called penumbras. Penumbras are lighter than full shadows because light rays from one source illuminate the shadow cast by the other source.

Full shadows and penumbras also form from light scattered on surfaces with soft lighting (for example, from a ceiling lamp).

Construction of Shadows from an Artificial Light Source

To construct the shadow of an object, it is necessary to know the projections of the light source. Constructing shadows in perspective is a task of determining positions. In this case, the points or lines of intersection of light rays emanating from the source or the planes of light with the surfaces on which the shadow falls are found.

The construction of a shadow from an artificial light source proceeds as follows. In Figure 5, a vertically oriented segment AB , a light source S , and its base S' are shown. To determine the shadow on the plane of the objects, rays are drawn from point S through all points of the segment. These rays form a light plane.

The light plane intersects the plane of the objects and forms the shadow of the segment. Thus, it is sufficient to determine the shadow of point A — this is the line AS — and connect it with point $B \equiv B_s$ (since point B lies on the plane of the objects, its shadow coincides with the point itself). To determine the contours of shadows cast by objects, the shadows of characteristic points are found and connected.

Suppose there is a vertically positioned rectangular plane standing on the plane of the objects and a light source — it is necessary to construct the shadow of the rectangle (Figure 6).

First, the shadows of the vertical sides are determined, and their endpoints are connected. Side AB of the rectangle is parallel to the plane of the objects. Therefore, $AB \parallel ASBS$. Hence, they intersect at point F . The intersection of parallel lines at one point simplifies the construction of shadows and allows verifying the correctness of the construction.

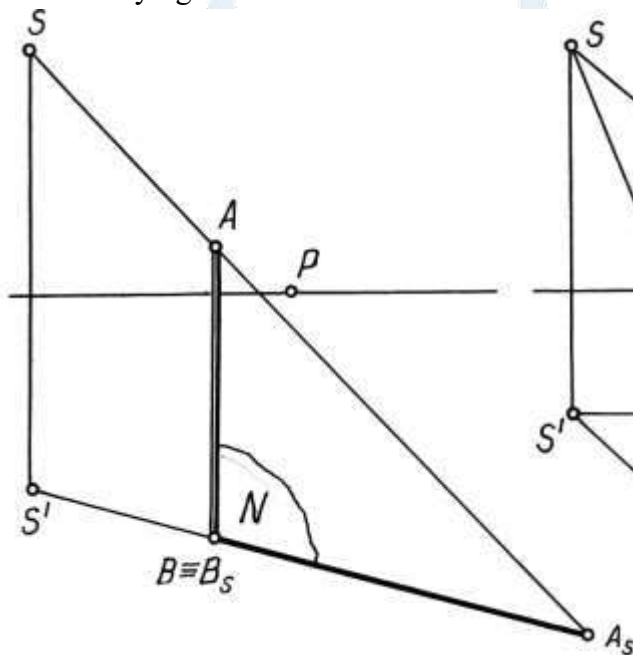


Figure 5

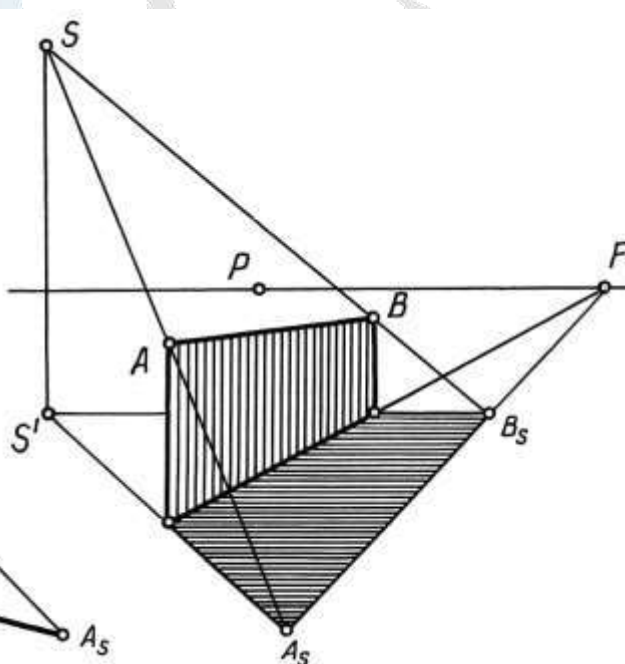


Figure 6

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In the figure, a vertical plane and a segment AB are given. It is necessary to determine the shadows of segment AB on the objects and on the vertical planes (Figure 7).

To do this, the lines of intersection of the light plane passing through line AB with the objects and the vertical planes are found. The bases of the vertical plane intersect the light plane at point 1. The vertical line passing through point 1 is the line of intersection of the planes. The light ray passing through point A intersects this line at point A_s . The broken line $B1A_s$ is the shadow of segment AB.

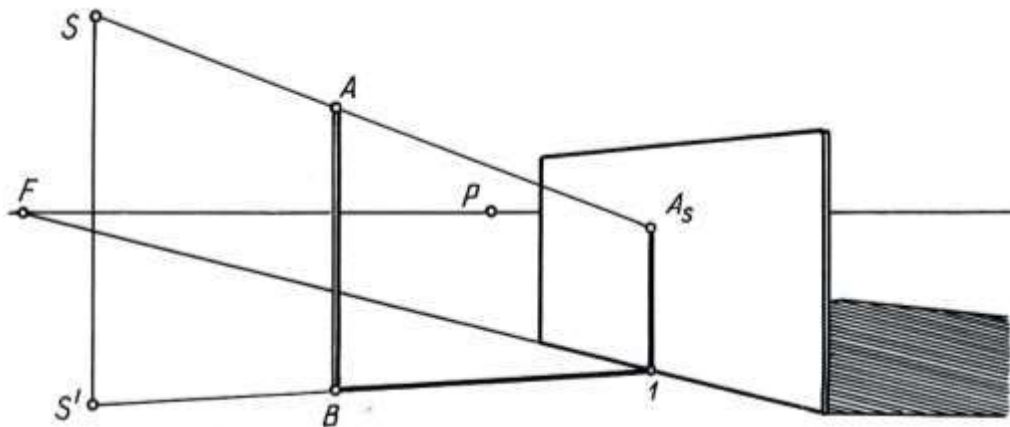


Figure 7

In the figure, a vertical plane and a segment AB resting on it are given (Figure 8). It is necessary to construct the shadows of the plane and the segment.

The shadow of the vertical plane is constructed in the same way as in Figure 6. To construct the shadow of the segment, its projection on the plane of the objects is first determined. For this, the projection of point E, which touches the plane and is denoted as E' , is found and connected with point B. Then, the projection of point A, denoted as A' , is found, and its shadow on the plane of the objects — the line AS — is determined. Points AS and BS are connected, forming the shadow ASBS.

The shadow of the segment on the vertical plane will be the line of intersection of the vertical plane with the light plane, denoted as $E1$.

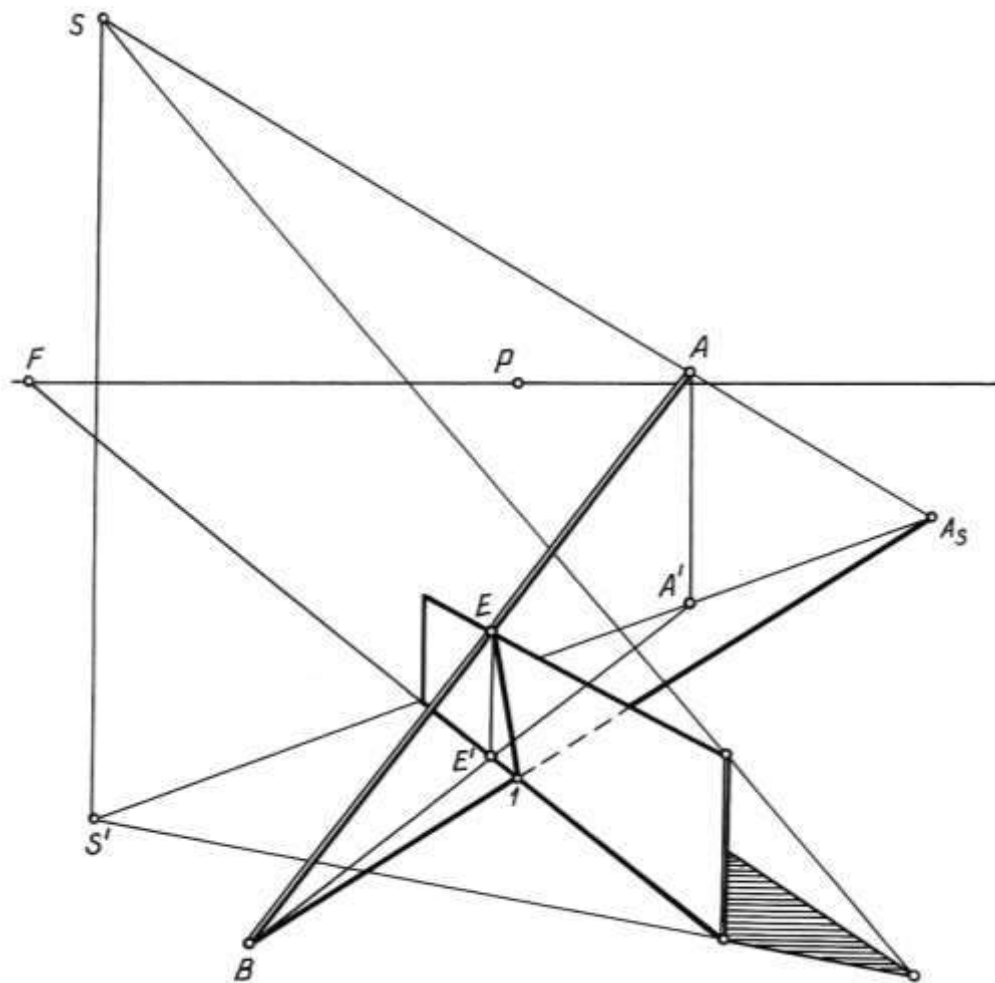


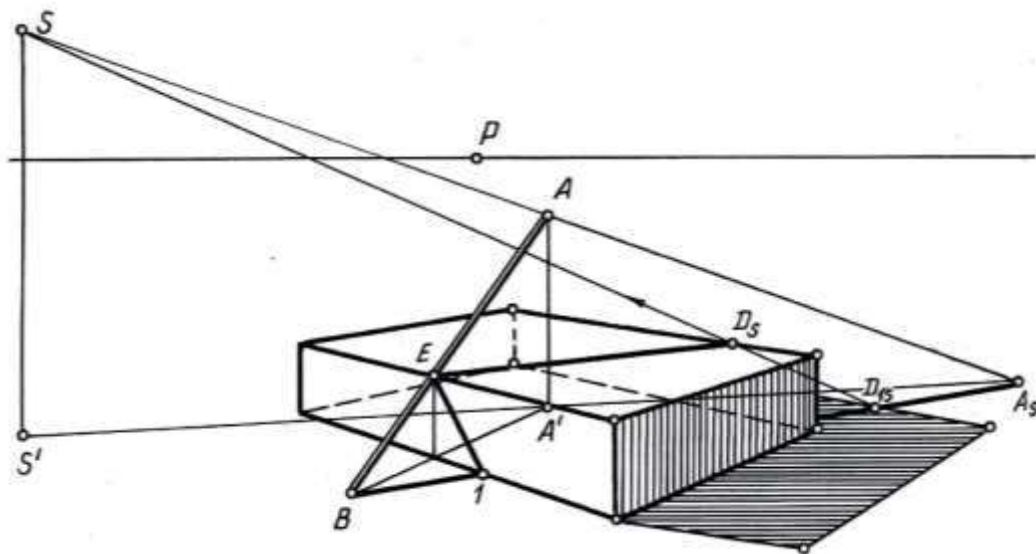
Figure 8

The figure shows a matchbox and a match resting on it. It is necessary to construct the shadows of these objects (Figure 9).

First, the shadow of the box is constructed (the method of constructing this shadow is known from previous examples and figures). To construct the shadow of the match, its projection on the plane of the objects is determined using point E, which touches the box. The projection is denoted as A'B (see Figure 8).

Then, the shadows of the match on the plane of the objects and on the vertical side of the box are constructed, as shown in the previous example. To construct the shadow of the match on the upper horizontal side of the box, two points touching the shadow are determined. One of these is point E, and the other is point DS (point DS is located on the opposite side of the intersection of the shadows of the box and the match at point D1S, which is determined by drawing a ray).

Since the shadows of the match on the plane of the objects and on the box are parallel, they share one common intersection point.



The figure shows a triangular prism lying on the plane of the objects and a vertically positioned cone (Figure 10). It is necessary to construct the shadows of these objects.

The construction of the shadow of the prism is known to us (see Figure 9). To construct the shadow of the cone, first the shadow of the apex T on the plane of the objects is determined — the line TS. Then, projections are drawn from point TS onto the base of the cone.

To construct the shadow of the cone on the face of the prism, two pairs of points touching the shadow are determined (1, 2 and 3, 4). Points 1 and 2 are found according to the known scheme (see figure). To determine points 3 and 4, the shadow of the cone is constructed on the vertical plane passing through the upper edge of the prism.

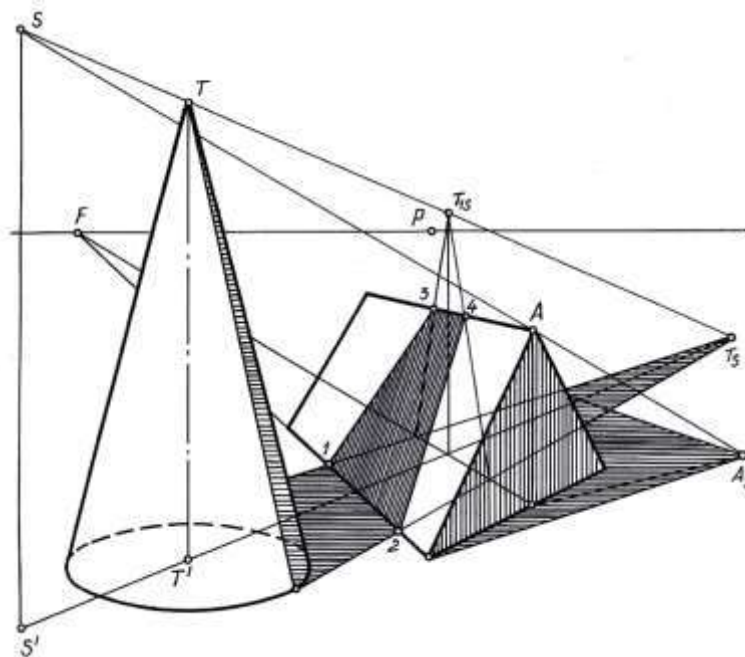


Figure 10

A lamp is suspended in the corner of a room, and it is necessary to determine the boundary of the light cast from it (Figure 11).

This problem is solved by determining the line of intersection of the light cone with the floor and the wall. The light cone intersects the floor in a circle, and the wall in a hyperbola (since the wall is parallel to two generators of the cone).

The light falling on the floor is actually a circle, which in perspective appears as an ellipse. The center of the light is point S. Using a horizontal projecting plane passing through point S, point S' is determined, as well as the major diameter of the ellipse A1SBS (the construction of the diameter is shown in the drawing). The ellipse on the floor is constructed using a square drawn outside the circle with diameter A1SBS (the ellipse construction is not shown in the drawing).

The points where the ellipse intersects the baseboard correspond to the tangent points of the hyperbola on the wall, which form the boundary of the light on the wall. Point DS is the vertex of the hyperbola and lies on the line of intersection of the wall with the horizontal projecting plane, passing perpendicularly through the light source.

Other points touching the hyperbola are determined similarly to point DS.

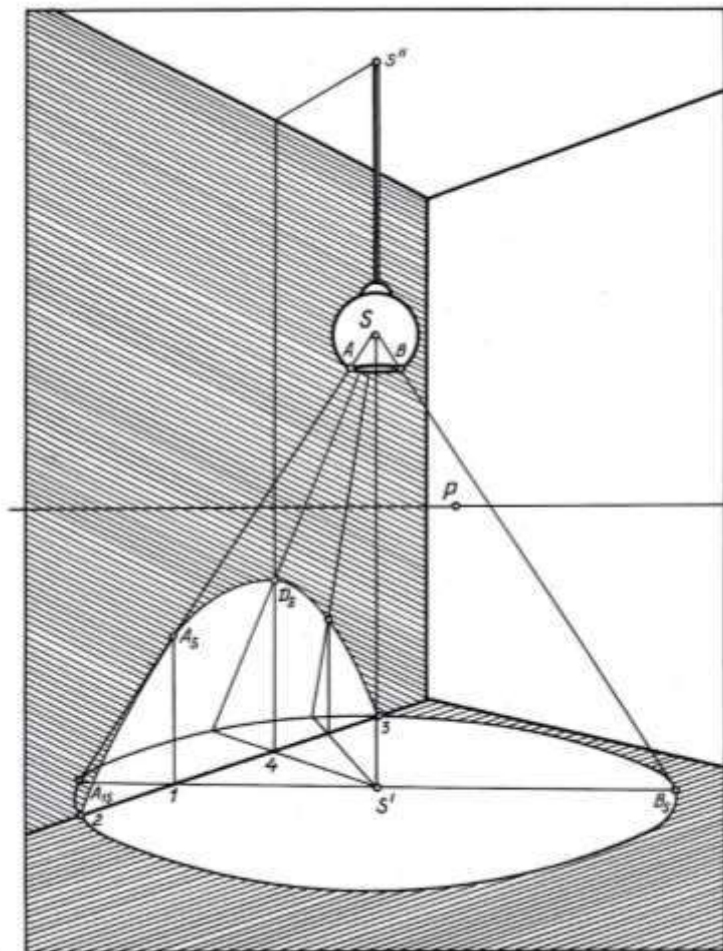


Figure 11

The perspective shows a corner of a room illuminated by a lamp, as well as furniture (Figure 12). It is necessary to construct the shadows cast by the furniture.

Since the shadows fall on the floor and on two walls, the projections of the light source S on these surfaces are determined — points S', S'', and S'''.

The shadow of the box hanging on the wall is constructed starting with finding the shadow of point 1 of the box — the line 1S. The rest of the shadow is constructed using the parallelism of the shadows cast by the edges of the box and their own shadows.

To construct the shadow of the table, the shadow of its front edge is first determined. Then, the lines of intersection of the planes of rays passing through the edges of the table with the floor and walls are found, which gives the boundaries of the shadow.

The shadow of the cabinet is constructed similarly, using points S, S', and S''.

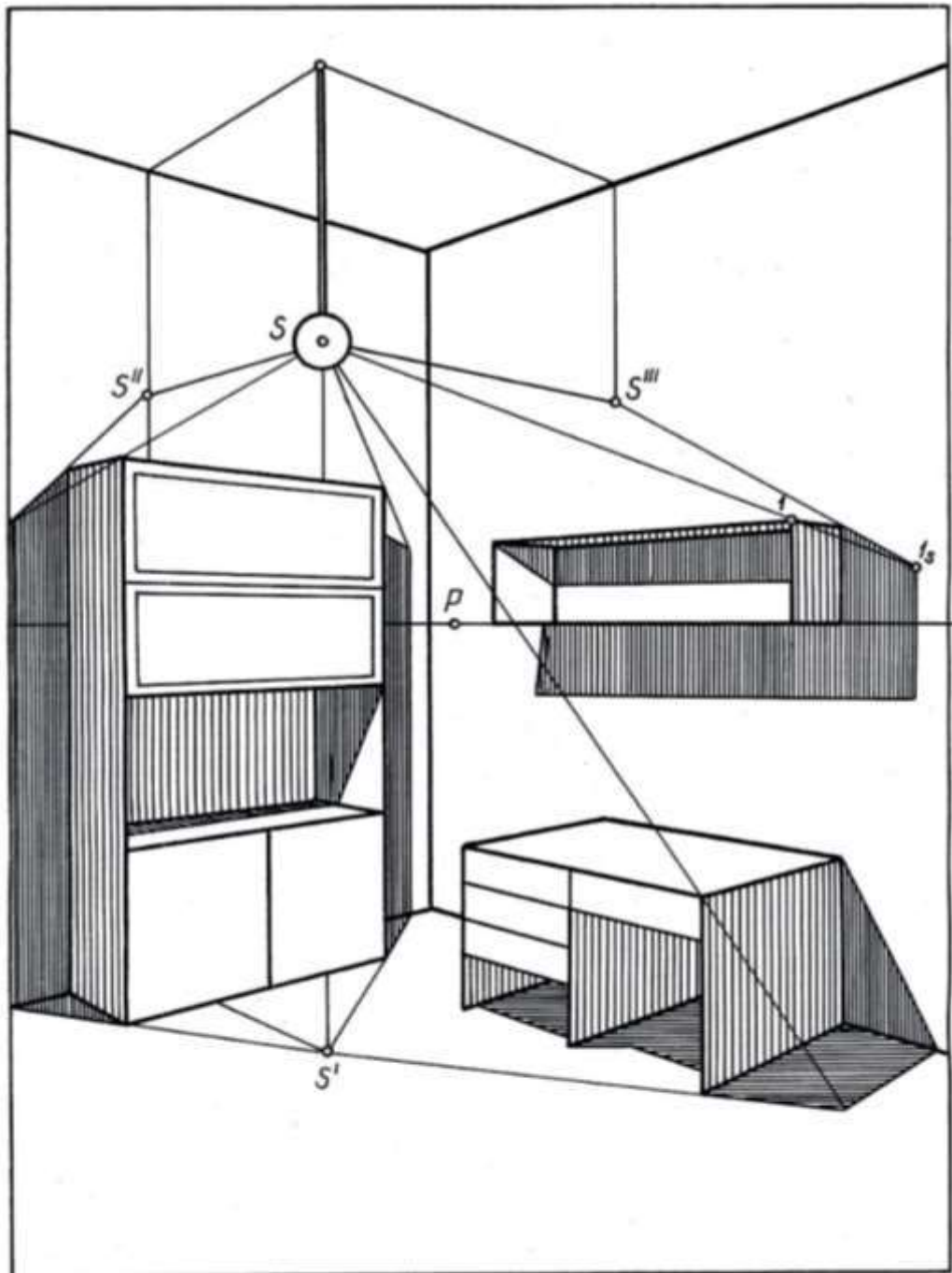
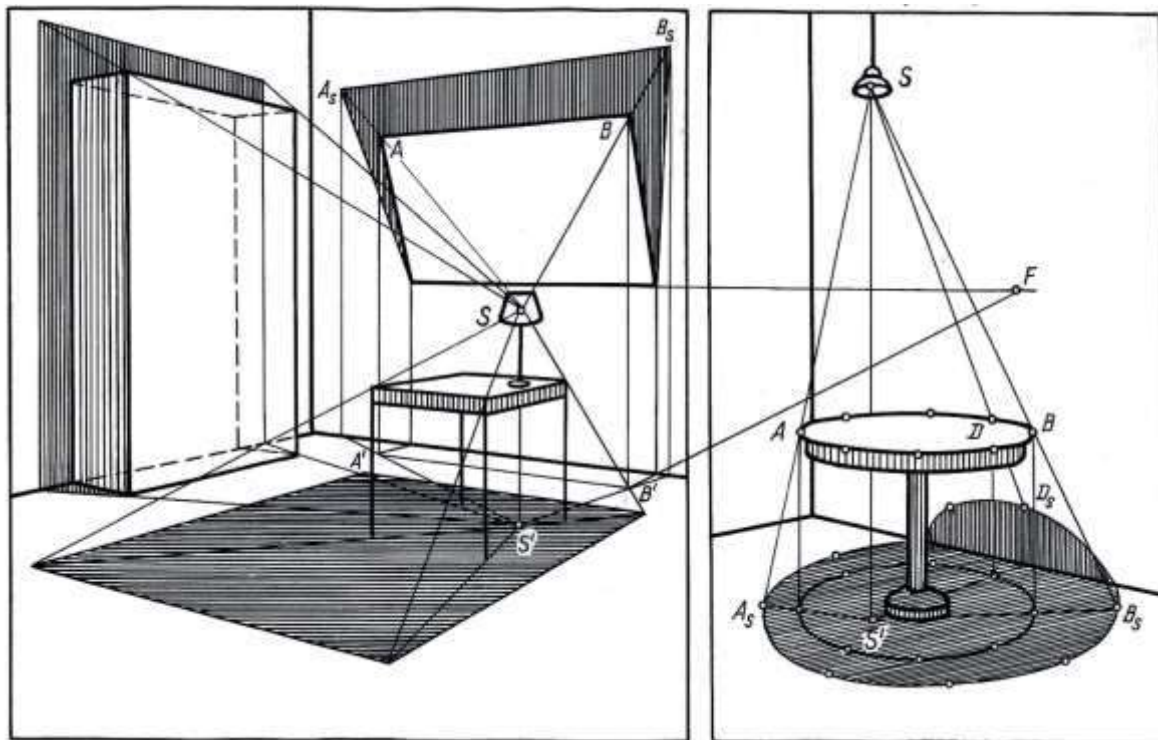


Figure 12

The shadows of the interior furniture shown in Figures 13 and 14 are constructed in the same way as in Figure 12. Their analysis is left to the discretion of the students.



Construction of Shadows Cast by a Natural Light Source

One of the main sources of natural lighting is the sun. Since the sun is at an infinitely large distance from us, its rays are considered parallel. The drawing shows the point of intersection of the rays — S — and its projection on the picture plane — S' .

In relation to the observer, the sun can be in three main positions:

1. The sun is located in front of the observer, within the object space. In this case, the point of intersection of the rays S is above the horizon line, and its projection S' lies on the horizon line (see Figure 15).
2. The sun is in the imaginary space behind the observer. Then the point S is located below the horizon line (see Figure 16).
3. The sun is in an intermediate position — to the side (left or right) of the observer. In this case, the sun rays are inclined to the picture plane at an arbitrary or given angle (see Figure 17).

In this position, there is no point of intersection of the rays, as they are parallel in perspective. The projections of the rays are parallel to the base of the picture or the horizon line (see Figure 17). Figures 15, 16, and 17 show the construction of the shadow of a vertical segment AB in the three different positions of the sun.

Artists, when creating works of visual art, choose the position of the sun arbitrarily, considering the compositional solution of the work.

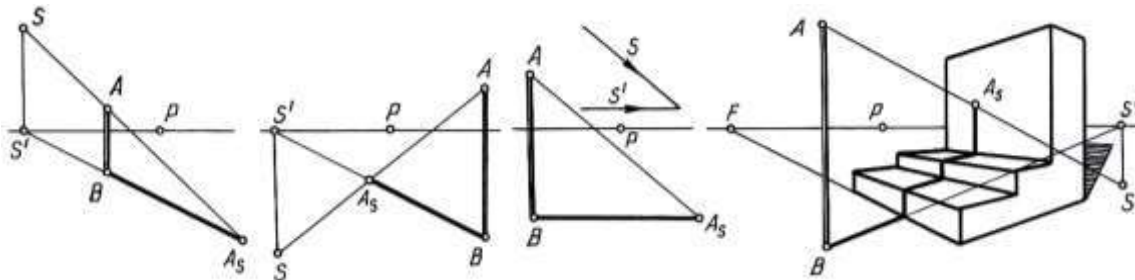
Construction of the shadow of a vertical pole on an object. The sun is located behind the observer, on the left (see Figure 18).

First, the positions of point S and its projection S' are determined. Then, a light plane is drawn through the pole, and the lines of intersection with the staircase are determined. The shadows on the horizontal

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planes of the staircase converge at point S' . Point A is connected to point S, and thus the shadow point AS on the wall of the object is found (see Figure 7).



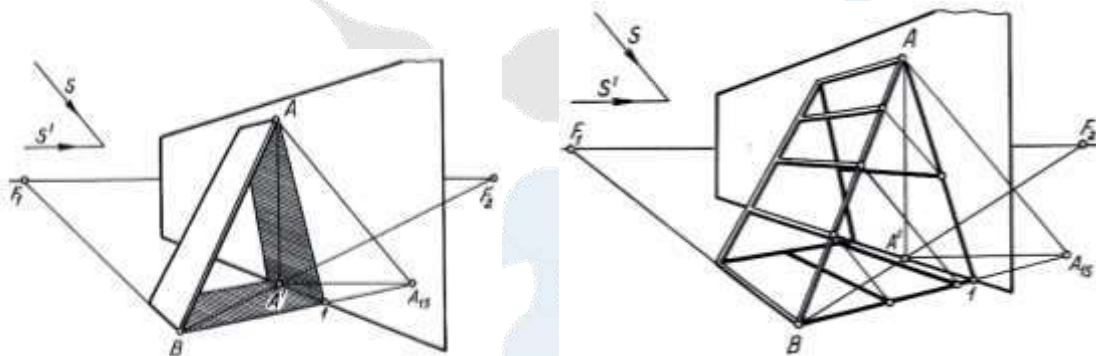
Figures 15

Figures 16

Figures 17

Figures 18

Construction of shadows cast by a board leaning against a wall. The sun is located to the left of the observer (Figure 19). The lower and upper edges of the board share a vanishing point with the lines of the wall.



Figures 19

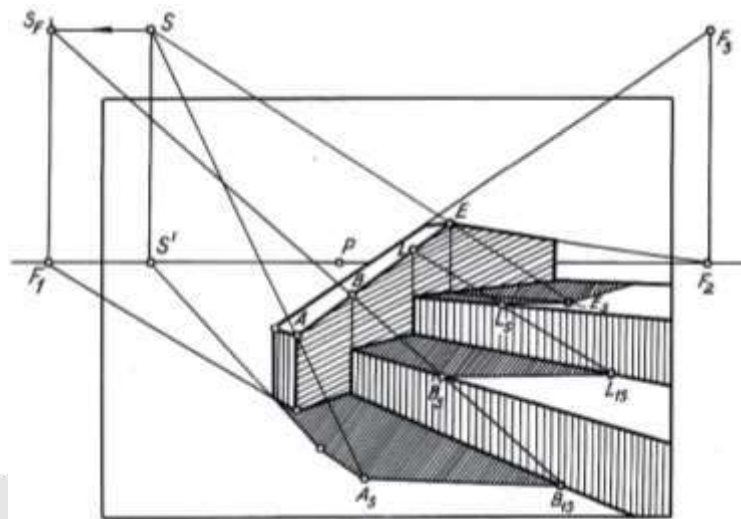
Figures 20

First, the shadow cast by the front side of the board AB is constructed. To do this, a ray is drawn from point A parallel to the direction of S. From point A', a projection parallel to S' is drawn. They intersect, giving the shadow of point A on the plane of objects — segment A1S. Segment A1S is connected with point B, forming the shadow of side AB on the plane of objects. The shadow on the base of the wall breaks at point 1 and is directed towards point A. The shadow of the second side of the board is determined in the same way. In Figure 20, the shadow of the ladder leaning against the wall is constructed similarly to Figure 19.

Construction of shadows cast by the parapet of the stair railing, falling on the floor and steps. The sun is located in front of the observer, to the left (Figure 21).

The position of the sun and its projections (S, S') are determined. First, the shadow on the ground from the horizontal edge, where point A is located, is determined. Since the edge is horizontal, its shadow will be parallel to it and directed towards point F1.

To determine the shadows cast by the inclined edge of the parapet AE onto the horizontal planes of the ground and stairs, points B and L are marked on the edge AE. Through these points, light rays are drawn onto the vertical walls. For this, point S is projected onto the intersection line of the vertical walls, forming point SF. Point SF is connected to points B and L, which allows determining points BS, B1S, LS, L1S. The figures ASB1S, BSL1S, and LSES will be the shadows of edge AE on the horizontal planes of the ground and stairs.

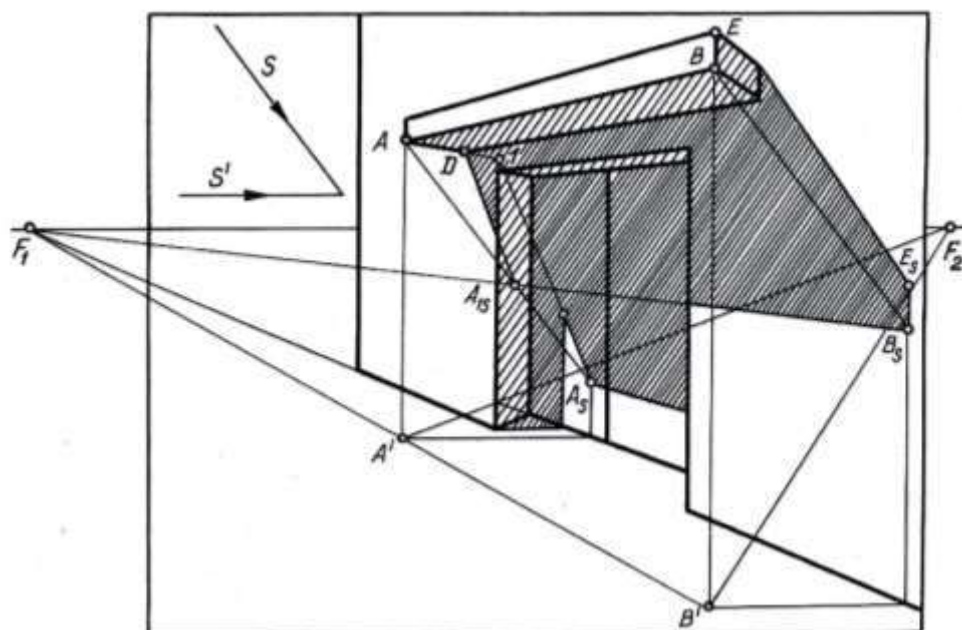


Figures 21

Construction of shadows cast from the horizontal veranda of the house onto the wall and door. The sun is located to the left of the observer (Figure 22).

First, the shadow on the wall from the edge of the veranda AB is constructed. To do this, rays are drawn from points A and B parallel to the given direction of the light. The projections of these rays pass through points A' and B' and are parallel to the horizon line. Since the edge AB is parallel to the wall, the shadow of point B — point B_s — is located and connected to point F₁. Then, shadows are constructed from the vertical line BE and from the horizontal edges passing through point E, which are perpendicular to the wall.

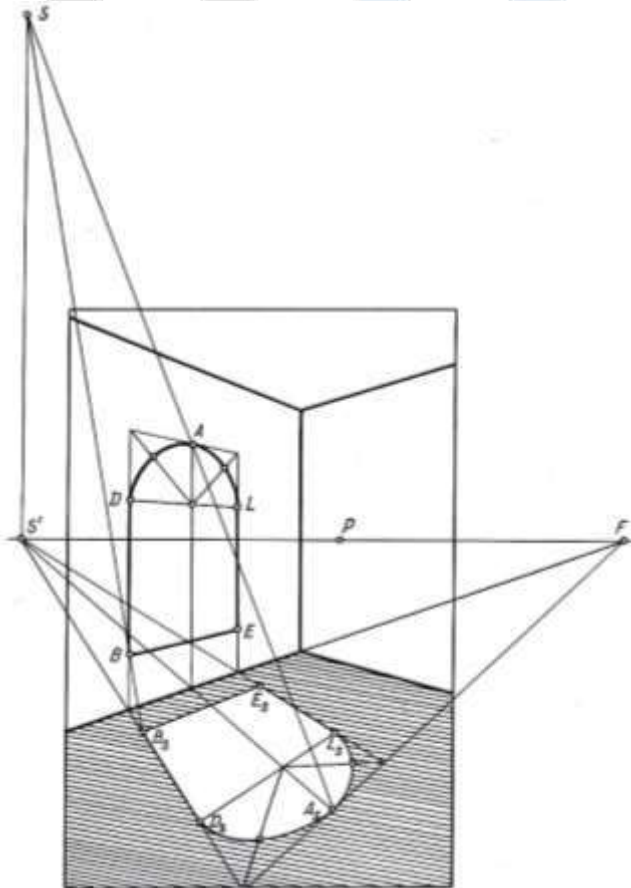
To construct the shadow falling from the veranda onto the door, the shadow of point A on the door — AS — is determined. The shadow of edge AB on the door, as on the wall, is parallel to it and directed towards point F₁. To determine the shadow of edge AD falling on the door, the edge AD is extended until it intersects with the plane of the door at point 1. This point is connected to point AS (point 1 lies on the intersection line of the vertical plane passing through edge AD and the plane of the door).



Figures 22

Construction of the light contour falling from an arched window. The sun is located in front of the observer, to the left (Figure 23). According to the condition, the light falls entirely on the floor.

First, an arbitrary point AS is marked on the floor — this is the shadow of the very top point of the window. Then, the projection of the ray ASA' is drawn, and point S' is determined on the horizon line. From point S', a perpendicular is drawn to the horizon line, and using the ray AAS, point S is found. After that, the shadows cast from the edges of the window DB and LE are determined. The shadow falling from the arched part of the window is constructed through the shadows of points located on the diagonals of half of the square.



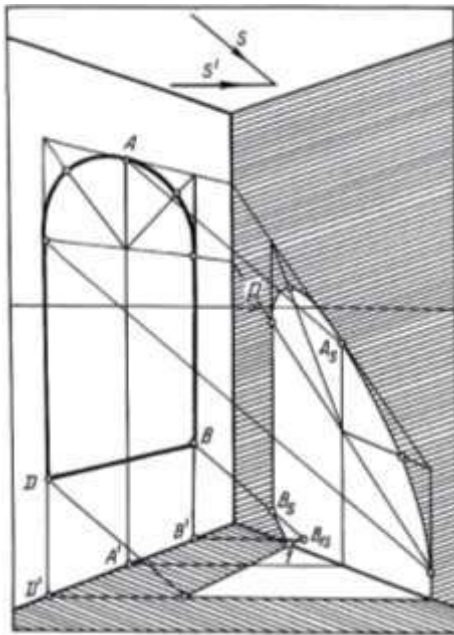
Figures 23

Figure 24 shows an example similar to the previous one. The sun is in an intermediate position, on the left. Light falls from the window both on the floor and on the wall. The direction of the ray is given by the conditions.

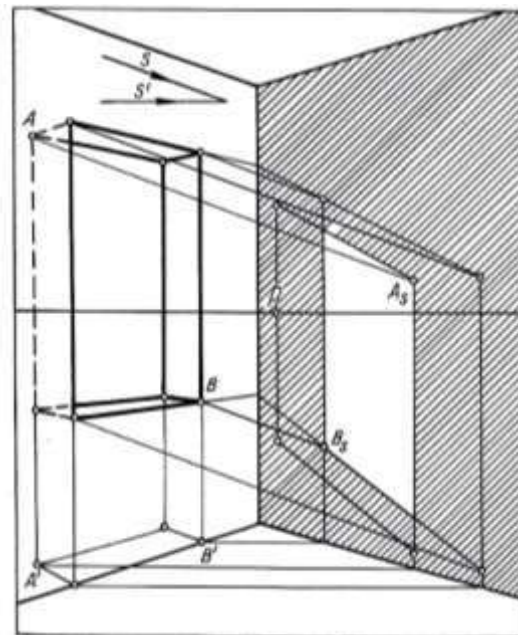
From point D on the edge of the window DB, a shadow falls on the floor (DS), and from point B — on the wall (BS). If the shadow on the floor from point DS and also the shadow B1S are constructed, then point 1, where the shadow bends at the base of the wall, will be determined. The segment BS1 is the shadow cast by the edge DB on the wall. The construction of shadows for the other parts of the window contour is known from the drawing.

In Figure 25, the light from the window falls only on the wall. The sun is located to the side of the observer, on the left. The window frame is conditionally considered absent, and the boundary of the light spot falling from the window opening is determined. To do this, shadows from the inner and outer contours of the window are constructed. The drawing shows the construction of shadows AS

and BS, cast from points A (outer contour) and B (inner contour). The contours of the shadows from the two rectangles intersect and define the boundary of the light spot.



Figures 24



Figures 25

Construction of shadows cast by the inclined planes of the roof (Figure 26). The sun is located to the left and behind the observer. The perspectives of the inclined planes are defined by the lines of intersection F1F4 and F2F3. The point of intersection of these lines, F5, is the point where the lines of intersection of the planes meet. Points F3 and F4 are the points of intersection of the largest inclined lines of the respective planes.

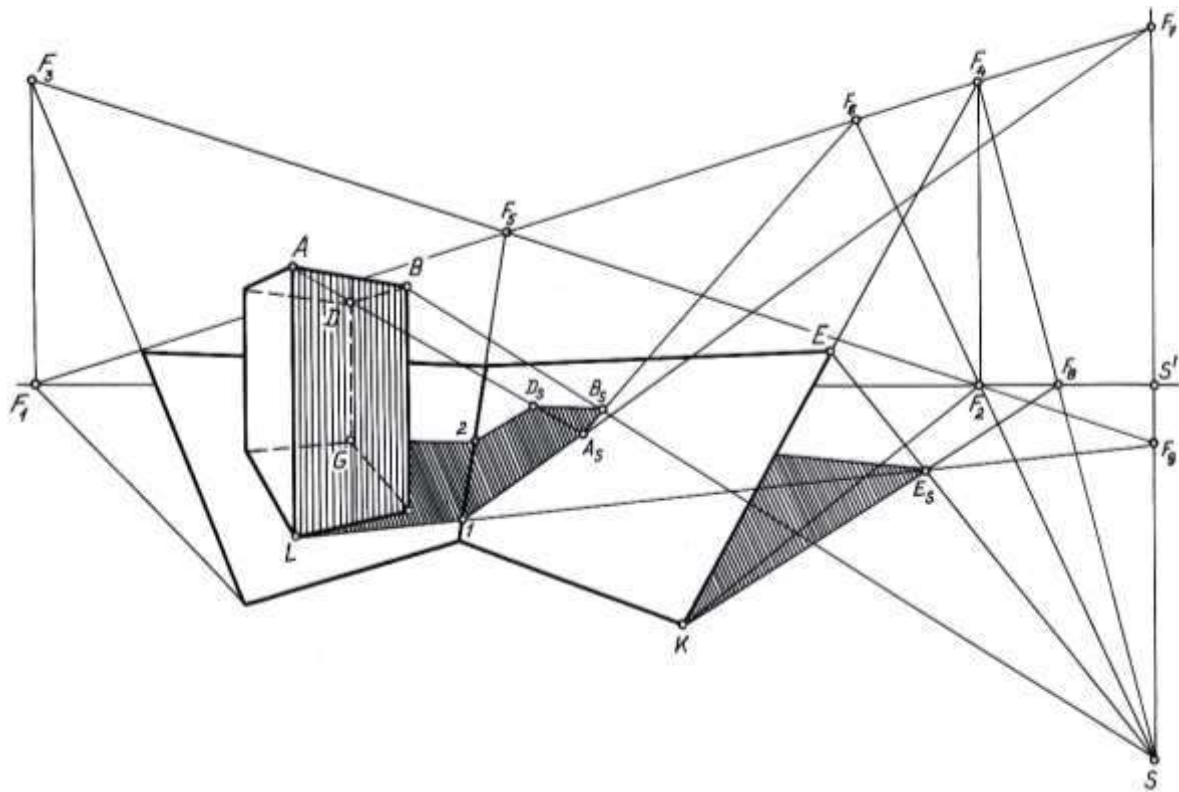
The contours of the cast shadows are the lines of intersection of the shadow planes, drawn through the shadows cast by the edges, with the planes onto which the shadow falls.

The line of intersection of the light planes passing through the vertical edges of the roof passes through the light source S, i.e., this is a vertical line. Therefore, points F7 and F9 are the points of intersection of the vertical light planes with the lines of intersection of the inclined planes. Connecting points L and G with point F9 results in the shadows of edges AL and DG on the same inclined plane. Similarly, by connecting points 1 and 2 with point F7, shadows of edges on the other inclined plane are constructed. By connecting points A and D with the light source S, the boundaries of the shadows AS and DS are determined.

The line of intersection of the light plane passing through the horizontal edge AB passes through points S and F2. Point F6 is the point of intersection of the line of intersection of the inclined plane and the light plane. Connecting point AS with F6 produces the shadow of AB on the inclined plane ASBS.

Edge DB is parallel to the inclined plane, so its shadow DSBS is parallel to it and directed toward point F1.

The line of intersection of the light plane passing through the line of the inclined plane KE is the line SF4. Point F8 is the point of intersection of the inclined plane and the ground plane (object plane). Connecting points K and F8, as well as E with the light source S, gives the shadow KES on the ground. The shadow of the horizontal line on which point E lies is directed from ES toward F1.



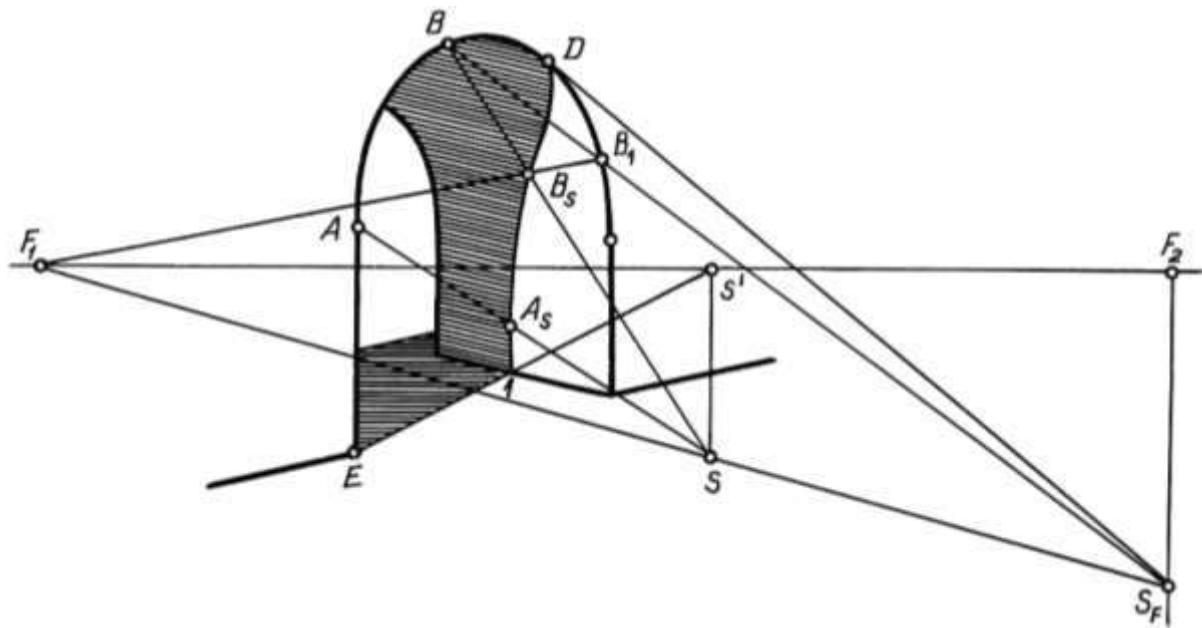
Figures 26

Construction of the shadow of a cylindrical arch (Figure 27). To construct the shadow of the arch edge AE , a vertical light plane is drawn through it. This plane intersects the ground at point E_1 — this is the shadow of the edge on the ground, and it intersects the inner wall of the arch at the vertical shadow $1AS$ (the shadow AS is formed by connecting point A with the light source S).

To construct the shadow of the curved edge of the arch, the light rays are projected onto the plane of the front wall. For this, point F_1 is connected with the light source S and extended until it intersects the vertical line passing through point F_2 . The intersection point SF is the point where the rays meet on the wall. From point SF , a perpendicular is drawn to the arch, defining point D — the upper boundary of the shadow. The shadow of the arch segment AD falls on the inner wall.

To find the shadow of an arbitrary point B , a light plane is also drawn through it. This plane intersects the arch along the line $B1F_1$. Point B is connected with the light source S . The ray SB and the line $B1F_1$ lie in the same plane, so they intersect at point BS . Point BS is the shadow of point B .

Using this method, any number of points belonging to the contour of the cast shadow can be found.



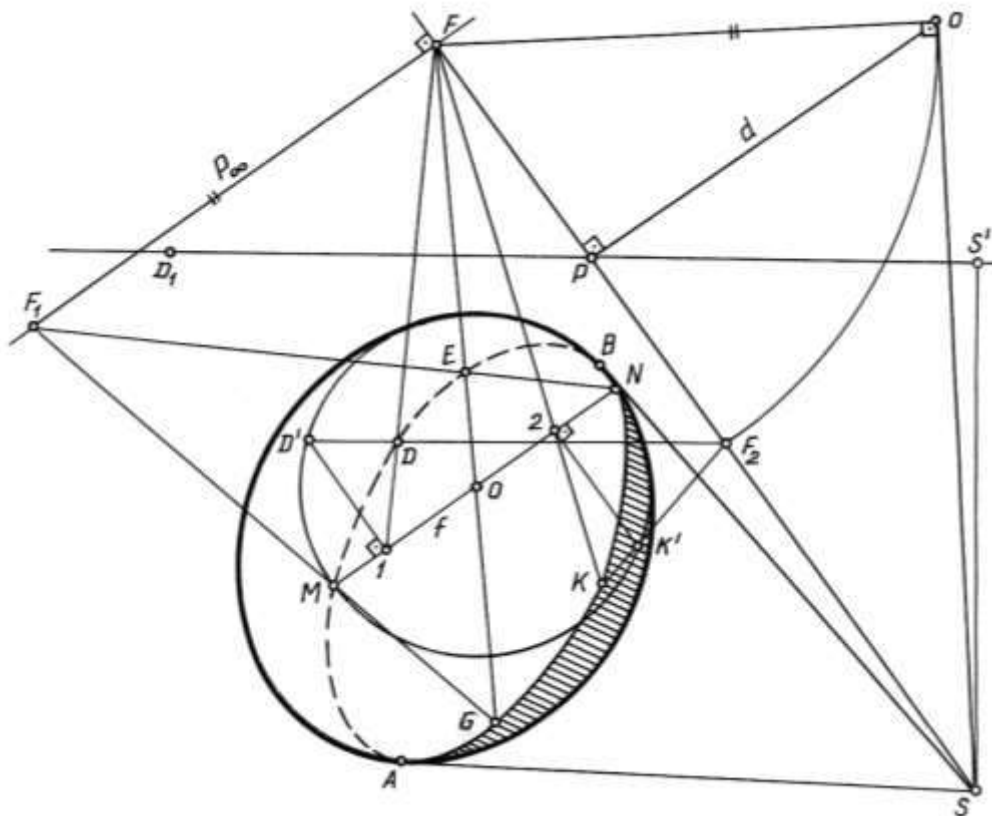
Figures 27

Construction of the self-shadow of a sphere (Figure 28).

The self-shadow of a sphere has the shape of a circle, which appears as an ellipse in perspective. The radius of the self-shadow (circle) is equal to the radius of the sphere. The plane P, on which the self-shadow lies, passes through the center of the sphere and is perpendicular to the direction of the light rays. The line of intersection of plane P with the infinite plane $P \propto P_{\infty}$ is determined by drawing a plane perpendicular to the line $P \propto P_{\infty}$.

From the center of the sphere O, a frontal line f is drawn and the diameter of the sphere is measured by marking points M and N. The segment MN is the diameter of the self-shadow. Point F is the intersection point of diameter MN and the diameter EG perpendicular to it. Points E and G are determined using point F1 (where $OF = FF_1$ and $OF = FF_1$). At point F1 on the plane of the self-shadow, lines intersect at an angle of 45° to diameters MN and EG. Therefore, by connecting points M and N with point F1, points E and G are obtained, which belong to the common diagonal corresponding to the self-shadow.

Points A and B are obtained by projecting from point S to the perspective of the sphere. Intermediate points belonging to the self-shadow can be found by establishing a homological correspondence between the frontal section of the sphere and the contour of the self-shadow. The axis of correspondence is the diameter MN, and the center of homology is point F2 (the intersection point of the axes of rotation). The drawing shows how to find points D and K.

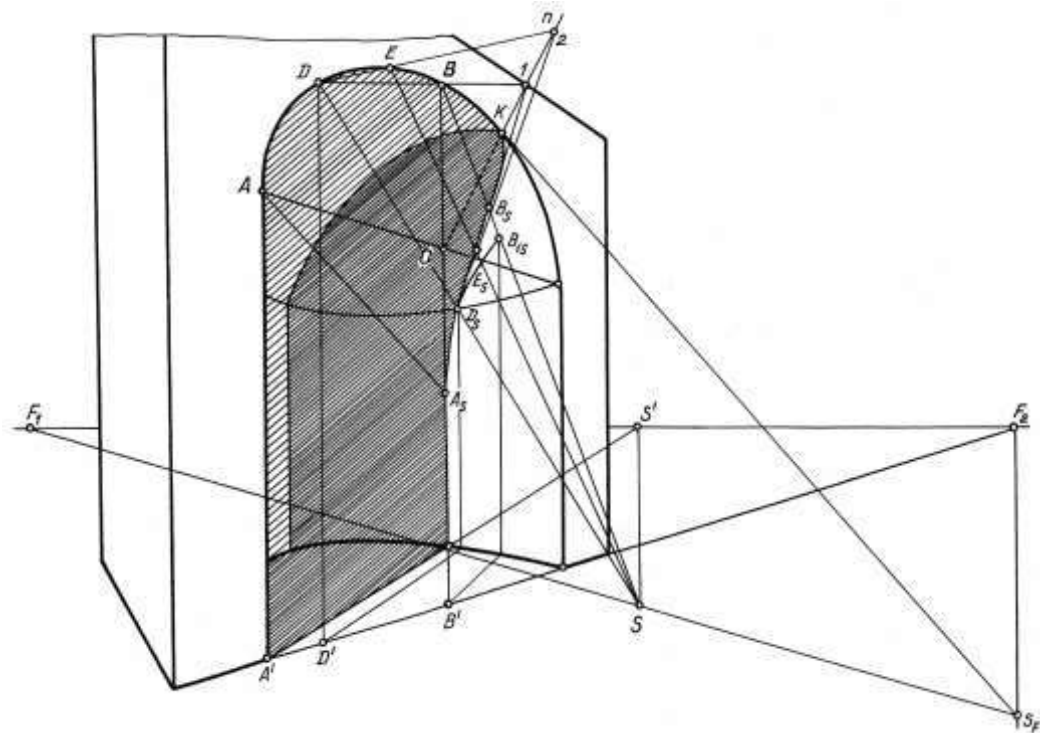


Figures 28

Construction of the shadow in a cylindrical mihrab with a spherical upper part (Figure 29).

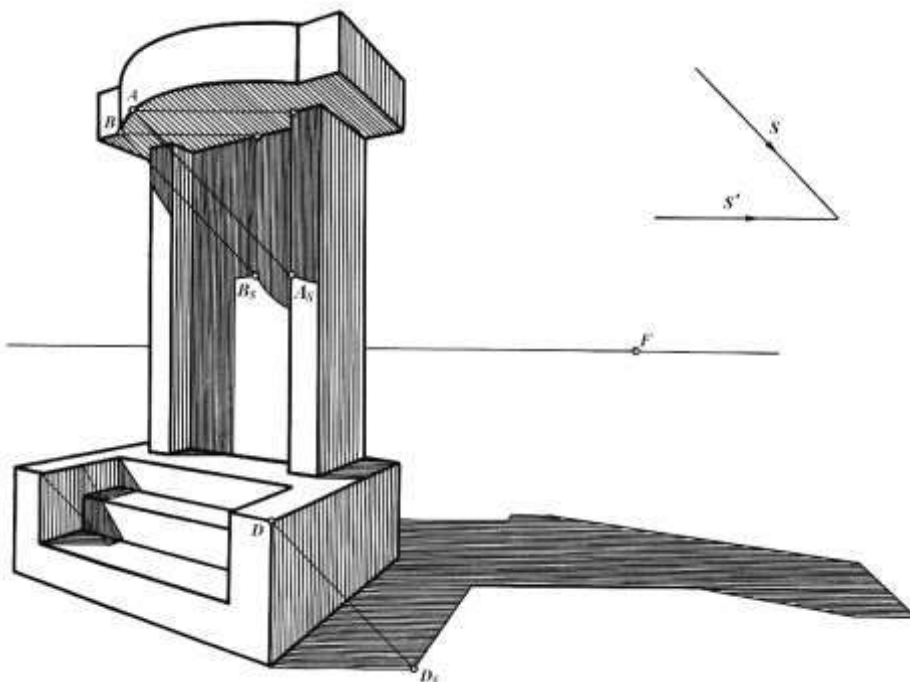
The shadow of the vertical edge of the mihrab AA_1AA_1 , falling on the ground and the inner wall of the mihrab, is determined using a light plane passing through the edge and point S. The boundary of the shadow is point AS. From point AS begins the shadow cast by the curved edge of the mihrab. Shadows from arbitrary points D and B on the curved edge fall on the cylindrical wall of the mihrab as DS and B_1SB_1S respectively (B_1SB_1S is the shadow running along the cylindrical wall). By connecting points AS, DS, and B_1SB_1S , point DS on the boundary line separating the cylindrical and spherical parts of the mihrab is determined (the randomly chosen shadow of point D falls on the boundary line).

The shadow falling on the spherical part of the mihrab can be constructed using homology. The homology is established between the circular edge of the mihrab and the contour of the cast shadow. The line OK is the axis of homology, and point S is the center of homology (O is the center of the mihrab, K is the projection point, the method of determining which is shown in Figure 27). Points relating to the contour of the cast shadow are determined in pairs of corresponding points. These are points D and DS. The drawing shows the construction of shadows ES and BS from points E and B. In this example, the construction of the self-shadow of the sphere is not shown (the construction of the self-shadow of the sphere is given in Figure 28).



Figures 29

Figure 30 shows the construction of the shadow in the perspective of the object. The sun is located to the left of the observer. Using the example of finding the shadow of point D — the shadow DS cast by the object onto the ground — the construction is demonstrated. The shadow on the stairs is constructed according to the drawing. To construct the shadow cast from the roof onto the front facade, the lower plane of the roof is used as the plan.



Figures 30

Construction of the shadow of a building

For constructing the shadow, it is advisable to use the plan projected downward, since a plan drawn on site is “compressed” and can lead to significant errors and difficulties when building shadows.

The light source (the Sun) is located to the left and behind the observer. Points S and S1 are outside the boundaries of the drawing, so their positions are determined on an additional sheet of paper attached to the drawing.

To determine the shadow AS, cast from point A of the main roof onto the auxiliary roof, a light plane N (Nn) is drawn through point A (A1). This plane intersects line 12 of the auxiliary roof. The ray passing through point A intersects line 12, creating point AS. Point BS is determined similarly. By connecting AS and BS, the shadow of the edge AB on the auxiliary roof—ASBS—is obtained. Connecting point BS with point 4 constructs the shadow BS4.

Shadows cast from the front edge of the building D (D1) onto the ground, the wall of the auxiliary room, and the roof are determined using the light plane N1 (N1H) passing through the edge. This plane intersects the ground along line DS1, the wall along line 56S, and the roof along line 67 (point 6S is found by projecting a light ray from point 6). These lines (part of line 67) represent the shadows of the building edge on the ground, wall, and roof. By connecting point 6S with the intersection point of the horizontal edges of the auxiliary roof, the shadow of the edge on the wall is obtained (since the edge is parallel to the wall, the shadow will also be parallel).

The shadow on the door is found by drawing a light plane through point G (G1).

The shadow cast from the inclined edge of the main roof onto the building wall is constructed through the shadows of two points belonging to this edge (the drawing shows the construction of the shadow of point E—ES).

The shadow cast from the chimney onto the roof is found by drawing vertical light planes through the edges of the chimney and their intersections with the roof slope.



Figures 31

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BRYNZA PRODUCT FAT CONTENT DETERMINATION USING THE GERBER METHOD

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ABSTRACT. This article provides a detailed description of the scientific-theoretical basis and practical application mechanism of the Gerber method used to determine the fat content of brynza cheese. Among the quality indicators of milk and dairy products, fat content is considered one of the most important parameters, as it directly influences the product's energy value, organoleptic characteristics, and technological properties. In particular, accurate determination of fat content in brynza is crucial for assessing the technological quality of the cheese, verifying its compliance with standard requirements, and optimizing the production process. The Gerber method is a simple, rapid, cost-effective, and widely applied unified analytical procedure in laboratory practice, based on the principle of separating milk fat using organic acids.

Keywords: brynza, dairy products, fat content, Gerber method, butyrometer, milk fat.

BRINZA MAHSULOTINING YOG‘ TARKIBINI ANIQLASHDA GERBER USULINING QO‘LLANISHI

ANNOTATSIYA. Ushbu maqolada brynza pishlog‘i tarkibidagi yog‘ miqdorini aniqlashda qo‘llaniladigan Gerber usulining ilmiy-nazariy asoslari va amaliy qo‘llanish mexanizmi batafsil yoritilgan. Sut va sut mahsulotlarining sifat ko‘rsatkichlari orasida yog‘ miqdori eng muhim parametr hisoblanadi, chunki u mahsulotning energiya qiymati, organoleptik xususiyatlari va texnologik xossalari bevosita ta‘sir ko‘rsatadi. Ayniqsa, brynza mahsulotida yog‘ miqdorini aniq aniqlash pishloqning texnologik sifatini baholash, standart talablarga mosligini tekshirish hamda ishlab chiqarish jarayonini optimallashtirishda alohida ahamiyat kasb etadi. Gerber usuli oddiy, tez, tejamkor va laboratoriya sharoitida keng qo‘llaniladigan unifikatsiyalangan analitik usul bo‘lib, organik kislotalar yordamida sut yog‘ini ajratish tamoyiliga asoslanadi.

Kalit so‘zlar: brynza, sut mahsulotlari, yog‘ miqdori, Gerber usuli, butirometr sut yog‘i.

ОПРЕДЕЛЕНИЕ СОДЕРЖАНИЯ ЖИРА В СЫРЕ БРЫНЗА МЕТОДОМ ГЕРБЕРА

АННОТАЦИЯ. В данной статье подробно описаны научно-теоретические основы и практический механизм применения метода Гербера для определения содержания жира в сыре брынза. Среди показателей качества молока и молочных продуктов содержание жира считается одним из наиболее важных параметров, так как оно напрямую влияет на энергетическую ценность продукта, органолептические характеристики и технологические свойства. В частности, точное определение содержания жира в брынзе имеет ключевое значение для оценки технологического качества сыра, проверки его соответствия стандартным требованиям и оптимизации производственного процесса. Метод Гербера представляет собой простой, быстрый, экономичный и широко применяемый в лабораторной практике

унифицированный аналитический метод, основанный на принципе отделения молочного жира с помощью органических кислот.

Ключевые слова: брынза, молочные продукты, содержание жира, метод Гербера, бутирометр.

INTRODUCTION. Dairy products are among the most biologically valuable food groups essential to human nutrition. They contain balanced amounts of proteins, fats, carbohydrates, minerals, and vitamins, and among these components, fat is one of the most important factors determining the overall nutritional value of the product. Milk fat increases the caloric value of dairy products, directly affects organoleptic properties such as taste and consistency, and contributes to structural changes during cheese ripening. Therefore, accurate determination of fat content in milk and cheese products is one of the central directions of quality control in the food industry.

Brynza cheese is widely consumed in Uzbekistan and is a distinctive, salty-tasting dairy product with a special place among cheese varieties. Its technological properties, shelf life, taste, and structural characteristics are directly dependent on its fat content. Thus, strict control of fat content during brynza production is essential to maintain product quality and ensure compliance with standard specifications.

Although several analytical methods exist to determine fat content, the Gerber method stands out due to its simplicity, rapid results, lack of need for complex equipment, and ease of application. In this method, sulfuric acid breaks down the proteins in milk, while amyl alcohol ensures complete separation of the fat. The fat is then measured in a special Gerber butyrometer as a precise volumetric reading, ensuring high accuracy and reproducibility.

This article examines, step by step, the process of determining fat in brynza using the Gerber method, analyzing experimental results, potential issues, and ways to eliminate them. Additionally, the significance of the method in assessing brynza quality, its applicability in production processes, and its effectiveness in laboratory conditions are scientifically evaluated. The findings of this study hold important scientific and practical value for certification of dairy products, improving quality control systems, and optimizing technological processes in cheese production.

MATERIALS AND METHODS. Fat is one of the main components of cheese. Depending on the fat content and the firmness of the cheese, every 100 g of product contains approximately 30 g (hard cheese), 25–35 g (semi-hard cheese), 20–25 g (soft cheese), and 0–15 g (curd cheese) of fat. According to the recommendations of nutrition societies in Germany, Austria, and Switzerland, adults should obtain 30 percent of their daily energy requirement from fat. If the daily intake is 2400 kcal, this corresponds to 80 g of fat. Therefore, a 50 g serving of cheese provides approximately 20 percent of this requirement.

The composition of milk fat is highly diverse. Around 400 different fatty acids have been identified in it. During cheese ripening (e.g., the release of free fatty acids), the composition of milk fat changes only slightly. About two-thirds of the fatty acids present in milk fat are saturated fatty acids. These are further divided into short-chain (C_4 – C_{10}), medium-chain (C_{12} – C_{14}), and long-chain (C_{16} – C_{20}) fatty acids. It should be noted that, compared to other fats, the proportion of short-chain fatty acids is high, accounting for approximately 9 percent [1-2].

The proportion of saturated, monounsaturated, and polyunsaturated fatty acids is 57–63% saturated fatty acids, 21–25% monounsaturated fatty acids, and 3.8–5.4% polyunsaturated fatty acids. These proportions vary by season and are largely influenced by the diet of the dairy cow.

A high proportion of saturated fats in the diet is often associated with cardiovascular diseases. However, recent research shows that the health effects of various fatty acids should be evaluated individually for each fatty acid type. For example, short-chain fatty acids and myristic acid are associated with levels of “good” cholesterol - LDL (low-density lipoprotein). Butyric acid, a short-chain saturated fatty acid characteristic of ruminant fats, is easily absorbed and rapidly metabolized in cells (such as intestinal epithelial cells), just like other short-chain saturated fatty acids. Therefore, it has no negative effect on blood cholesterol levels. Moreover, it also contributes to the healing of inflammation in epithelial cells [2-3].

A comparison of butter fat and cheese fat shows that cheese consumption increases blood cholesterol levels much less than butter consumption does. This may be due to the higher content of calcium, protein (especially casein), and microorganisms in cheese, or the combined effect of all these factors [3].

Analysis of the main components (composition) of food products is essential both for ensuring quality and for fulfilling legally required analytical procedures. To ensure that analyses of dry matter (or moisture), protein, and fat content reflect true values, official analytical methods must be used. In particular, official methods for determining dry matter and fat content are time-consuming [4].

RESULTS AND DISCUSSION. The fat content of cheese samples from four different groups was determined using the Gerber method. In this method, butyrometers are used to analyze the fat content of cheeses (Fig.1a). The method is briefly carried out as follows: a 3-gram sample is weighed (with an error not exceeding 0.005 g). After carefully adding 10 cm³ of sulfuric acid into the butyrometer, the liquid level is adjusted so that it is 4–6 mm below the base of the fat-measuring neck, and then 3 ml of distilled water at 60°C is added. The cheese sample wrapped in fat-resistant cellophane paper is placed inside the butyrometer, followed by the addition of 1 ml of amyl alcohol along with water heated to 60°C. The butyrometers are sealed with stoppers and placed in a water bath at $(65 \pm 2)^{\circ}\text{C}$ (Fig.1b). While stirring occasionally, the butyrometers are kept in the water bath for (60 ± 10) minutes until the proteins completely dissolve [4-5].

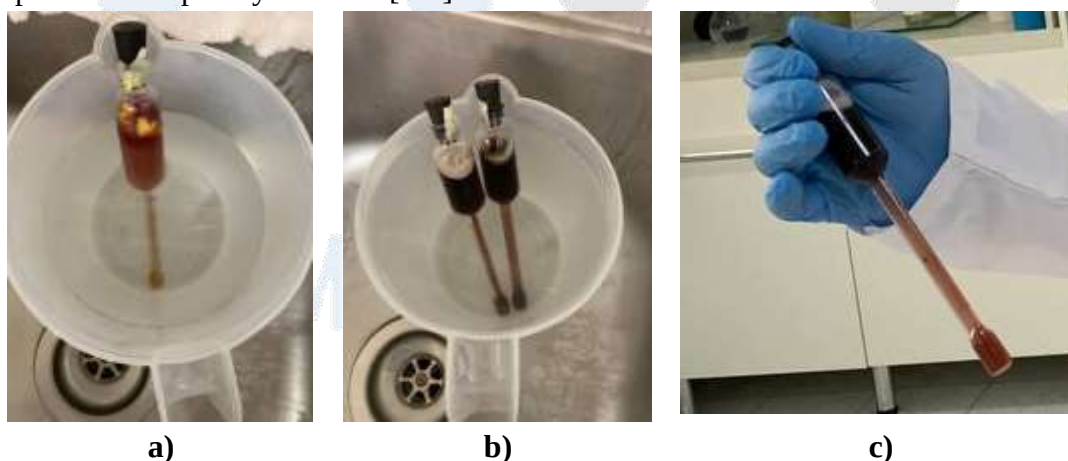


Fig.1. Determination of fat content in cheese using the Gerber method: a) the state of the butyrometer filled with reagent; b) the butyrometer with reagent placed in a 65 °C water bath; c) complete dissolution of the cheese sample and placement in the centrifuge.

To ensure complete dissolution of the cheese particles, the butyrometer is thoroughly shaken and centrifuged at 1300 rpm for 5 minutes (Figure 4.12c). Then, with the stopper side facing downward,

the butyrometer is placed in a water bath at 65 °C and held for 2–3 minutes. The fat column in the butyrometer is read, and the fat content of the product is determined [5].

If the protein has not fully dissolved within the specified time, the water bath temperature may be adjusted to (73 ± 3) °C during repeated analysis. In this case, the readings are taken after keeping the butyrometers in a water bath at (65 ± 2) °C for 5 minutes. After removal from the bath, the butyrometers are placed in the centrifuge with the graduated part facing inward. The centrifuge is operated either three times for 5 minutes or twice for 10 minutes. During the intervals between centrifugation cycles, the butyrometers are thermostated in a water bath at (65 ± 2) °C for 5 minutes [6-7].

This study was carried out in the scientific research laboratory “Processes and Apparatuses for Processing Agricultural and Food Products” at the Tashkent State Technical University. Table 4.12 presents the results of fat content analysis of four different cheese samples determined using the Gerber method [8].

Table 1

Fat content of four different brinza samples

№	Samples	Content of fat (%)
1	№1	7,8
2	№2	8,3
3	№3	8,9
4	№4	7,6

The fat content of the four cheese samples showed that Sample No. 3 contained 8.9% fat. This sample represents the author’s proposed variant, in which the vibrational pressing device ensured maximum reduction of moisture content, thereby increasing the fat concentration. Furthermore, it was demonstrated that the use of the vibrational pressing device resulted in a lower amount of whey remaining in the cheese compared to other types, which in turn led to a higher fat content [8-9].

CONCLUSION. This study confirms the practical efficiency and scientific validity of the Gerber method in determining the fat content of brynza cheese. Identifying the fat fraction in brynza is crucial for assessing product quality, controlling technological processes, and ensuring compliance with established standards. The findings demonstrate that the Gerber method is one of the most convenient, rapid, and cost-effective approaches for performing this analysis. Throughout the research, the method showed high accuracy, repeatability, and ease of application under laboratory conditions.

The chemical principles underlying the Gerber method - protein dissolution by sulfuric acid and complete fat separation through amyl alcohol - ensure stable and reliable analytical results. This enables the method to serve as a trustworthy criterion in evaluating the quality of brynza cheese. The outcomes of this research provide practical guidance for producers in optimizing technological processes, improving quality control systems, and meeting market requirements.

Overall, the Gerber method delivers accurate and reliable results in determining the fat content of brynza cheese and proves highly effective for dairy product certification, standardization, and scientific research. The results of this study contribute to enhancing quality control procedures in the dairy industry and increasing the competitiveness of cheese products.

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THE MAIN ASPECTS OF THE ACTIVITIES OF MASS MEDIA IN THE PROCESS OF
FORMING PUBLIC OPINION IN KARAKALPAKSTAN

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Abstract. This article analyzes the role and significance of mass media in the process of shaping public opinion in the Republic of Karakalpakstan. The study scientifically and theoretically explores the influence of both traditional and digital media on society, their communicative characteristics, and their interaction with audiences. The article examines the mechanisms through which television, radio, print media, internet portals, and social networks operating in Karakalpakstan affect public opinion. The findings indicate that social networks have become the most effective and dynamic platforms for shaping public sentiment, while traditional media continue to play a vital role through their stability, reliability, and analytical approach. The article concludes by presenting recommendations for improving media performance in Karakalpakstan, developing digital media culture, and ensuring information security.

Keywords: Karakalpakstan, mass media, public opinion, social networks, online publications, television, information culture, opinion formation, digital communication.

Аннотация. В данной статье проанализирована роль и значение средств массовой информации в процессе формирования общественного мнения в Республике Каракалпакстан. В ходе исследования освещено научно-теоретическое понимание влияния традиционных и цифровых медиа на общество, их коммуникативных особенностей и взаимодействия с аудиторией. В статье изучены механизмы воздействия телевидения, радио, печатных изданий, интернет-порталов и социальных сетей, действующих на территории Каракалпакстана, на формирование общественного мнения. Анализ показал, что социальные сети занимают ведущие позиции как наиболее эффективная и оперативная платформа в этом процессе. В то же время традиционные СМИ продолжают играть важную роль благодаря своей устойчивой надежности и аналитическому подходу. В заключении статьи представлены предложения по совершенствованию деятельности средств массовой информации в Каракалпакстане, развитию цифровой медиакультуры и обеспечению информационной безопасности.

Ключевые слова: Каракалпакстан, средства массовой информации, общественное мнение, социальные сети, интернет-издания, телевидение, информационная культура, формирование мнения, цифровая коммуникация.

Annotatsiya. Ushbu maqolada Qoraqalpog'iston Respublikasida jamoatchilik fikrining shakllanish jarayonida ommaviy axborot vositalarining o'rni va ahamiyati tahlil qilingan. Tadqiqot davomida an'anaviy va raqamli axborot vositalarining jamiyatga ta'sir kuchi, ularning kommunikativ xususiyatlari hamda auditoriya bilan o'zaro aloqasi ilmiy-nazariy jihatdan yoritilgan. Maqolada Qoraqalpog'iston hududida faoliyat yuritayotgan televideniye, radio, bosma nashrlar, internet portallari va ijtimoiy tarmoqlarning jamoatchilik fikriga ta'sir mexanizmlari o'rganilgan. Tahlillar shuni ko'rsatadiki, ijtimoiy tarmoqlar jamoatchilik fikrini shakllantirishda eng samarali va tezkor platforma sifatida yetakchi o'rinni egallagan. Shu bilan birga, an'anaviy OAV ham o'zining barqaror

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ishonchliligi va tahliliy yondashuvi bilan muhim rol o'ynaydi. Maqola yakunida Qoraqalpog'istonda ommaviy axborot vositalarining faoliyatini takomillashtirish, raqamli media madaniyatini rivojlantirish hamda axborot xavfsizligini ta'minlash bo'yicha takliflar bildirilgan.

Kalit so'zlar: Qoraqalpog'iston, ommaviy axborot vositalari, jamoatchilik fikri, ijtimoiy tarmoqlar, internet nashrlari, televideniye, axborot madaniyati, fikr shakllanishi, raqamli kommunikatsiya.

INTRODUCTION. In the contemporary era of globalization and rapid development of information technologies, the role of mass media in shaping public opinion has increased immeasurably. As information flows accelerate and social networks expand, people's political, social, and cultural perceptions—as well as their attitudes toward various societal processes—are increasingly shaped through mass media. Mass media serve not only as channels for disseminating events but also as a powerful social institution that molds public consciousness, promotes civic engagement, and strengthens citizens' positions in society.

In the context of the Republic of Karakalpakstan, this process has distinctive features. The region's historical, cultural, and linguistic characteristics, along with the ethnic and social diversity of its population, necessitate a well-structured and targeted organization of media activity to ensure the healthy formation of public opinion. In particular, newspapers, journals, television channels, radio broadcasts, and internet portals operating in Karakalpakstan play a decisive role in informing various social groups, broadening their worldview, and increasing social activity by drawing attention to pressing social issues.

In recent years, the reforms implemented in Uzbekistan's information policy—aimed at ensuring media freedom, supporting journalistic activities, and strengthening transparency and openness—have created favorable conditions for the emergence of a new stage in the formation of public opinion in Karakalpakstan. In this regard, the *Law on Mass Media*, the *Law on the Principles and Guarantees of Information Freedom*, presidential decrees, and resolutions of the Cabinet of Ministers have consolidated the legal framework for media activity. At the same time, digital media, online journalism, and blogging are developing rapidly across the region.

However, certain challenges persist in the process of shaping public opinion. These include the uneven distribution of information flows, weak internet infrastructure in some areas, and the spread of fake news among youth—all of which directly affect the effectiveness of media operations. Therefore, in the context of Karakalpakstan, there is a pressing need for a scientific study of the social responsibility of the media, as well as their approaches and methodologies in influencing public opinion.

RELEVANCE OF THE STUDY. The relevance of this research lies in its focus on analyzing the main directions, existing challenges, and modern mechanisms for enhancing the role of mass media in shaping public opinion in Karakalpakstan. The results of the study contribute to improving the regional information policy, strengthening social communication, and increasing the role of the media in ensuring social stability.

The main objective of this article is to conduct a systematic analysis of the activities of mass media in the process of public opinion formation in Karakalpakstan, to determine their influence on socio-political life, and to scientifically interpret the existing trends. The study provides an in-depth analysis of the functioning of regional media, the level of public trust in information, the role of digital communication tools, and the influence of social networks. Based on these findings, the research

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develops scientific and practical recommendations aimed at improving the process of public opinion formation in the Republic of Karakalpakstan.

METHODOLOGY. This research is devoted to a scientific and analytical examination of the role of mass media in the formation of public opinion in Karakalpakstan. The methodological basis of the study is grounded in theories of social communication, the sociology of mass media, and modern approaches to media analysis. The main emphasis is placed on explaining the mechanisms of media influence on public opinion, as well as identifying the regularities and tendencies within their activities.

During the research process, analytical, comparative, content-analysis, and systemic approaches were employed. Through the analytical method, existing academic sources, legal documents, governmental resolutions, and official statistical data were analyzed to evaluate the activities of mass media in Karakalpakstan, their social role, and their impact on public opinion. The comparative method was used to identify the specific characteristics of Karakalpakstan's media system by comparing it with media structures in other regions, which provided a deeper understanding of the local context.

The content-analysis method was applied to examine media materials—particularly the content and thematic direction of information presented in local newspapers, television programs, internet portals, and official social media pages. This approach made it possible to scientifically evaluate how media topics influence public attention, their role in increasing social activity, and their approach to addressing social issues.

The scientific foundation of the research is based on the *Constitution of the Republic of Uzbekistan*, the *Law on Mass Media*, the *Law on the Principles and Guarantees of Information Freedom*, as well as presidential decrees, decisions of the Cabinet of Ministers, and relevant regulatory documents adopted in the Republic of Karakalpakstan. In addition, the works of national and foreign scholars in the field of media studies, monographs on information policy, academic articles, and digital sources enriched the theoretical framework of the research.

Throughout the study, each issue was examined step by step using the principles of scientific logic, analytical reasoning, systematic thinking, and conceptual generalization. The obtained results were synthesized to provide a scientifically grounded interpretation of the influence of mass media on public opinion in the Republic of Karakalpakstan, as well as their socio-economic and cultural role. As a result, objective and theoretically substantiated conclusions were drawn about the place of mass media in the regional social system and their mechanisms of shaping public opinion (see Table 1).

Table 1. Mechanisms of the Influence of Mass Media on Public Opinion in Karakalpakstan

<i>№</i>	<i>Type of Mass Media</i>	<i>Main Audience</i>	<i>Main Communicative Approach</i>	<i>Form of Influence</i>	<i>Advantages</i>	<i>Limitations</i>
1	Television channels	Middle-aged and older population	Visual and verbal impact	Emotional and cognitive	Covers a wide audience; strong visual credibility	Low interactivity; one-way communication

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2	Radio stations	Drivers, elderly people	Auditory influence	Emotional and auditory-based opinion formation	Simple and fast information delivery	Less popular among young people
3	Print media (newspapers, journals)	Intellectuals, officials	Text-based analytical approach	Analytical and argumentative	High reliability; rich in analytical content	Narrow coverage; low speed of news dissemination
4	Online news portals	Students, young professionals	Integration of text, image, and video	Interactive and rapid influence	Easy information exchange; global reach	Sometimes low information reliability
5	Social media (Telegram, Instagram, Facebook)	Youth and active internet users	Posts, videos, comments, polls	Dynamic and emotional opinion formation	Rapid dissemination; high user engagement	High risk of misinformation

RESULTS. Within the framework of this research, the results obtained through content analysis, the examination of normative documents and media sources, and the application of comparative methods were identified along the following directions.

Firstly, the types and functional structures of mass media in Karakalpakstan are clearly differentiated. Traditional print publications (local newspapers and journals), radio broadcasts, and regional television channels remain the main sources of information transmission. However, in recent years, a rapid development of the digital media segment, particularly those relying on internet portals and social networks, has been observed. The results of the content analysis indicate that traditional media play a central role in covering official news, local developments, and cultural-educational topics, while digital media outlets have become the leading sources for disseminating fast news, opinion posts, and trending topics popular among young audiences.

Secondly, in terms of topics and coverage directions, the analysis identified the main priorities and focus areas of media content. Socio-economic issues such as employment, infrastructure, education, and healthcare; cultural heritage and language matters; and local governance initiatives are among the most frequently covered subjects. Meanwhile, political and social issues are typically reported in an official tone and mainly through formal commentary. Forms of critical journalism remain limited, and analytical materials are often based on official sources. According to the content analysis, narratives that seek constructive solutions and aim to ensure social stability tend to dominate discussions of societal problems in the media.

Thirdly, linguistic and cultural factors play a significant role. The multiethnic composition of Karakalpakstan and the existence of multiple local languages have necessitated the production of media content in several languages. The analysis revealed that while television and radio broadcasts provide sufficient content in both Uzbek and Karakalpak languages, a large share of internet and

social media content is distributed in Russian or in Uzbek-translated formats. This situation creates disparities in information access and cultural adaptation among some ethnic groups, making the issues of informational inclusivity and the homogenization of public opinion increasingly relevant.

Fourthly, the communicative strategies employed by the media in shaping public opinion have been identified. According to the content analysis, regional media actively use the agenda-setting and framing functions — promoting specific social topics, presenting their solutions in a positive context, and aligning messages with local government initiatives. Simultaneously, gatekeeping mechanisms are also coordinated; that is, news editing processes often remain dependent on official sources and the positions of state authorities.

Fifthly, the role and characteristics of digital media and social networks stand out as distinctive. The analysis revealed that Telegram channels, Facebook and Instagram pages, and several blogs facilitate the rapid dissemination of information, create platforms for public discussion, and stimulate social activity among youth. However, the anonymity and immediacy of digital platforms also contribute to the spread of misinformation and sensational content. The content-based findings suggest that while digital media enable open discussion of local issues, they simultaneously increase the risk of insufficiently verified or low-quality information.

Sixthly, the legal, operational, and organizational context was clarified through the examination of normative documents and media practices. The study confirmed the presence of several laws and regulatory documents governing the media landscape in Karakalpakstan, as well as the state's active role in regulating information policy. At the same time, content analysis revealed persistent constraints and practical challenges in media independence, journalistic professionalism, and editorial autonomy, all of which influence the transparency and independence of media activities.

Seventhly, insights into information infrastructure and technical capabilities proved to be crucial. Regional infrastructure — including internet speed, coverage, and levels of digital literacy — directly affects the accessibility and quality of media content. The analysis demonstrated that in certain remote areas with limited digital access, traditional media continue to dominate, leading to uneven distribution of information flows.

Eighthly, issues of financing and economic sustainability were analyzed. The findings of the content analysis and related analytical sources indicate that local media often face financial constraints, with limited access to advertising markets and sponsorship opportunities. As a result, they lack sufficient resources for producing quality journalistic investigations and analytical materials, which in turn pushes them toward more official and semi-commercial content.

Ninthly, the study identified patterns of social impact and public reactions based on media content. A correlation was observed between discussions emerging in interactive digital spaces and topics set by editorial agendas — indicating that media-driven agendas are frequently reflected in online discourse. Moreover, issues and criticisms raised on social media are often legitimized or rejected by local media outlets, confirming the mediating role of mass media in the process of shaping public opinion.

Tenthly, alongside the identified challenges and weaknesses, several positive tendencies were recorded. These include the diversification of media activity (particularly the emergence of digital platforms), an increase in local content production, and the development of communication mechanisms between the media and governmental institutions, which collectively enhance the effectiveness of public engagement. Content analysis revealed that socio-educational projects,

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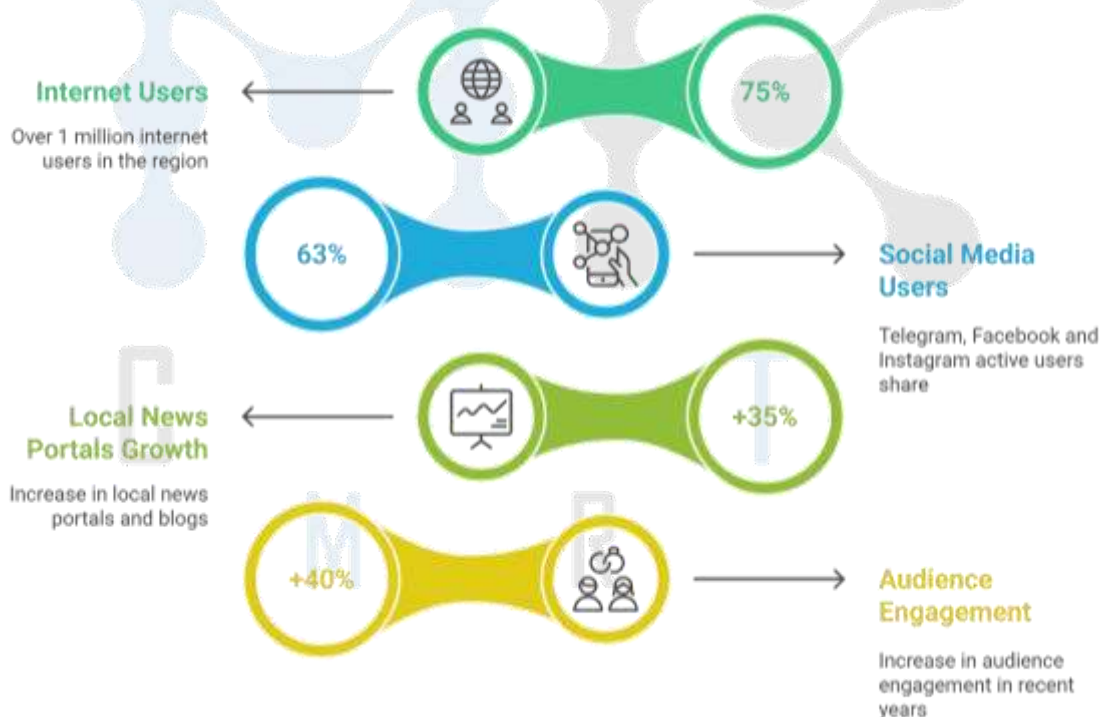
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infotainment (information + entertainment) programs, and broadcasts promoting local culture contribute to the creation of a positive informational environment within society.

In conclusion, the findings clearly demonstrate that mass media in Karakalpakstan play a multifaceted and significant role in shaping public opinion; however, the effectiveness of this role is directly linked to such external conditions as information infrastructure, media independence, linguistic and cultural compatibility, and financial stability.

Based on statistical data, it can be stated that the number and coverage of mass media outlets in the Republic of Karakalpakstan have been steadily increasing year by year. According to the Statistics Agency of the Republic of Uzbekistan and the Agency for Information and Mass Communications, as of 2024, more than 45 officially registered media outlets operate in Karakalpakstan, including 18 print publications, 6 television channels, 4 radio stations, and 17 electronic (online) outlets. Moreover, the number of internet users in the region has exceeded one million — approximately 75 percent of the total population. Social media activity has also risen considerably: around 63 percent of residents actively use platforms such as Telegram, Facebook, and Instagram. In recent years, the number of local news portals and blog pages has increased by 35 percent, while audience engagement has grown by 40 percent. These figures indicate that the information space in Karakalpakstan is expanding, and that digital media, alongside traditional outlets, are becoming increasingly important factors in shaping public opinion (see Figure 1).

Diagram 1. Media growth in Karakalpakstan republic



DISCUSSION. The results of the study demonstrate that the mass media in the Republic of Karakalpakstan operate as a significant social institution in the process of shaping public opinion. However, this process does not occur uniformly or perfectly; rather, it is influenced by various factors, conditions, and the specific characteristics of the existing media system. Based on the information and analytical findings obtained, the role, influence, challenges, and prospects of the media in society

can be interpreted as follows.

First and foremost, the main characteristic of media activity in Karakalpakstan lies in its orientation toward ensuring social stability and promoting a positive regional image. Most local publications and television channels prioritize issues such as social harmony, interethnic unity, and the preservation of cultural values. This tendency is a natural outcome of the region's historical, cultural, and political context. However, this same approach limits the development of analytical and critical journalism, resulting in public opinion being predominantly shaped by official information flows.

Secondly, the growing influence of digital media and social networks has led to the emergence of a new phase in public opinion formation. Particularly among youth, platforms such as Telegram, YouTube, and Instagram have become primary sources for receiving news and expressing opinions. This has intensified competition with traditional media. At the same time, the rapid spread of false or unverified information can lead to public misconceptions. Therefore, enhancing media literacy and developing a culture of fact-checking within the regional media ecosystem have become increasingly important priorities.

Thirdly, linguistic and cultural diversification represents a distinctive feature of the mass media system in Karakalpakstan. Local media operate mainly in Karakalpak and Uzbek, while Russian-language materials are widely circulated online. On the one hand, this multilingual environment allows for a broader audience reach; on the other hand, it can restrict access to information for certain groups. Hence, developing multilingual media content, strengthening translation services, and maintaining cultural balance should become strategic priorities in the future media policy of the region.

Fourthly, information infrastructure and digital accessibility directly affect the process of shaping public opinion. In some rural and remote districts of Karakalpakstan, limited internet coverage and low connection speeds lead residents to rely primarily on television and radio as their main sources of information. This situation creates a *digital divide* problem. Therefore, expanding digital communication infrastructure is a key condition for ensuring equal and fair distribution of media influence.

Fifthly, the issue of economic and organizational independence of media institutions plays a crucial role. Many local media outlets operate through state or semi-state funding, which limits their ability to maintain editorial independence. Consequently, opportunities for open discussion and critical journalism are constrained. In this regard, non-governmental media entities, local bloggers, and civic journalism play an increasingly important role in making the media sphere more open, diverse, and independent. However, the sustainability of such initiatives depends largely on their financial resources, legal protection, and professional competencies.

Sixthly, the model of interaction between the media and government institutions is gradually evolving. The introduction of transparency policies, the expansion of press services, and the emergence of official information portals have brought about positive changes. Nevertheless, in practice, information dissemination often remains confined to official statements. Therefore, establishing a two-way, efficient communication system between media and state bodies is necessary. Such interaction will ensure not only timely and comprehensive delivery of information to the public but also the transparency and accountability of government activities.

Seventhly, the analysis shows that the media landscape of Karakalpakstan is in a transitional phase — it has not yet fully adopted a digital model, but the dynamics of change are strong. The emergence

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of a new generation of journalists, young bloggers, and media startups is revitalizing the field. This indicates that public opinion formation is increasingly influenced not only by state-controlled media but also by independent information platforms.

In conclusion, the media system in Karakalpakstan represents a complex, multi-layered, yet progressively developing mechanism for shaping public opinion. By further improving media policies, enhancing digital literacy, supporting independent journalism, and strengthening content diversity based on linguistic and cultural pluralism, the effectiveness of the media's social influence can be significantly increased. On this basis, the media of Karakalpakstan are consolidating their role not merely as channels of information dissemination but as vital social institutions that cultivate public consciousness, discourse culture, and social cohesion (see Table 2).

Table 2. The Impact of Mass Media on Public Opinion in Karakalpakstan

No	Type of Mass Media	Coverage Level (%)	Influence Power (1–5 scale)	Audience Engagement (%)	Brief Description
1	Television channels	85	4.6	70	The majority of the population receives news through television.
2	Radio stations	55	3.8	45	Mostly popular among elderly people and drivers.
3	Print media (newspapers, journals)	40	3.2	30	Considered a traditional yet reliable source of information.
4	Online publications (websites)	75	4.5	65	Recognized as a fast and trusted source of information among youth and intellectuals.
5	Social media (Telegram, Instagram, Facebook)	90	4.9	80	The most active and dynamic platform for shaping public opinion.

CONCLUSION. In conclusion, mass media play a decisive role in the process of shaping public opinion in Karakalpakstan. Although traditional media — such as television and print publications — still maintain their importance as key sources of information for the population, the rapid expansion of digital technologies and the internet has brought new media platforms to the forefront. In particular, social networks have become crucial tools for the prompt formation of public opinion, facilitating communication among citizens and increasing social engagement.

Furthermore, mass media have broadened opportunities to influence public perceptions of state policy, socio-economic reforms, and cultural developments. This, in turn, encourages citizens to participate more actively in social and civic life. Therefore, strengthening not only the informational but also the analytical and educational functions of the media, ensuring their credibility, and

developing a digital information culture remain pressing priorities.

Overall, it can be observed that the influence of mass media on public opinion in Karakalpakstan continues to grow. To further enhance this process, it is essential to organize media activities on the basis of democratic principles, improve journalists' professional competence, and expand the infrastructure of digital media.

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**ZAMONAVIY XALQARO HUQUQDA ODILSUDLOVGA BO'LGAN HUQUQ VA BU
HUQUQNI AMALGA OSHIRISH MEXANIZMLARI**

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Kirish. Odilsudlovga bo'lgan huquq zamonaviy xalqaro huquq tizimida insonning ajralmas va asosiy huquklaridan biri sifatida e'tirof etiladi. Mazkur huquq sud jarayonida shaxsning huquqiy manfaatlarini himoya qilishi, uni noqonuniy cheklovlardan asrash, shuningdek, sud faoliyatining adolatli, mustaqil va xolis tarzda olib borilishini ta'minlashga qaratilgan universal tamoyillar majmuasini o'z ichiga oladi. Inson huquqlariga oid xalqaro normalarda odilsudlovga bo'lgan huquqning fundamental ahamiyati bevosita ta'kidlanadi. Xususan, Inson huquqlari umumjahon deklaratsiyasining (1948) 10-moddasida har bir shaxs o'zining huquq va majburiyatlari belgilanishida, unga qo'yilgan ayblovlar hal etilishida mustaqil va xolis sud tomonidan ochiq, adolatli va teng sharoitlarda ko'rib chiqilish huquqiga egaligi alohida qayd etilgan. Shuningdek, Fuqarolik va siyosiy huquqlar to'g'risidagi xalqaro paktning (1966) 14-moddasi odilsudlovga oid xalqaro standartlarning yanada batafsil va majburiy normativ asoslarini belgilab, a'zo davlatlar zimmasiga keng qamrovli majburiyatlar yuklaydi.

Global jarayonlarning tezlashuvi, davlatlararo integratsiyaning kuchayishi, shuningdek, inson huquqlarining xalqaro miqyosda himoya qilinishiga bo'lgan talablarning ortishi sud tizimlarining zamonaviy talablarga mos rivojlanishini kun tartibiga olib chiqmoqda. Jahon hamjamiyati tomonidan demokratik institutlarni mustahkamlash, huquq ustuvorligini ta'minlash va sud hokimiyatining mustaqilligini amalda qaror toptirish borasidagi intilishlar odilsudlovga bo'lgan huquqni zamonaviy sivilizatsiya taraqqiyotining bosh mezonlaridan biriga aylantirdi.

Biroq global darajada inson huquqlarini himoya qilish bo'yicha mexanizmlarning faollashuviga qaramay, odilsudlovni ta'minlash jarayonida bir qator tizimli muammolar mavjud. Ko'plab davlatlarda sud tizimining institutsional mustaqilligi yetarlicha ta'minlanmagani, sudyalarga nisbatan siyosiy yoki ma'muriy bosimning saqlanib qolayotgani, sud jarayonlarining ortiqcha cho'zilishi, advokatlarining faolligiga cheklovlar qo'yilishi kabi omillar odilsudlovga bo'lgan huquqni to'laqonli ro'yobga chiqarishga to'sqinlik qilmoqda. Ayniqsa, korrupsiya xavfi yuqori bo'lgan mamlakatlarda sud hokimiyati faoliyatining shaffofligi va xolisligiga bo'lgan ishonch barqaror emasligi kuzatilmoqda.

Shu nuqtayi nazardan, bugungi kunda odilsudlovga bo'lgan huquqni ta'minlash masalasi nafaqat inson huquqlariga oid xalqaro normalarning bajarilishi, balki davlatning demokratik taraqqiyot darajasini ifodalovchi strategik ko'rsatkich sifatida ham qaralmoqda. Xalqaro tashkilotlar, xususan, BMT, Yevropa Kengashi, Yevropa Inson huquqlari sudi, Yevropa xavfsizlik va hamkorlik tashkiloti (YXHT) kabi tuzilmalar tomonidan ishlab chiqilgan standartlar davlatlar sud islohotlarining asosiy mezonini bo'lib xizmat qilmoqda.

Zamonaviy ilmiy yondashuvlar shuni ko'rsatadiki, odilsudlovga bo'lgan huquqning amaliyotda to'liq ta'minlanishi davlatning ichki siyosiy barqarorligi, institutlar mustaqilligi, huquqiy madaniyat

darajasi va xalqaro majburiyatlarga sodiqligiga bevosita bog'liq. Shu bilan birga, raqamli texnologiyalar, elektron sud tizimlari (e-court), ochiq ma'lumotlar platformalari, masofaviy sud jarayonlari kabi yangi instrumentlar XXI asrda odilsudlovga bo'lgan yondashuvni tubdan yangilamoqda. Bu innovatsion mexanizmlar korrupsiya xavfini kamaytirish, sud jarayonining tezligi va shaffofligini oshirish, shuningdek, fuqarolarning sudga murojaat qilish imkoniyatlarini kengaytirishga xizmat qilmoqda.

Shunday qilib, odilsudlovga bo'lgan huquqning nazariy-huquqiy asoslarini, xalqaro normalarda belgilangan standartlarni, turli davlatlarning sud tizimidagi amaliy mexanizmlarni chuqur tahlil qilish magistratura tadqiqotining dolzarbligini belgilaydi. Mazkur dissertatsiya ana shu yo'nalishda odilsudlov huquqining zamonaviy konseptual asoslarini, xalqaro mexanizmlarini, milliy tajribadagi mavjud muammolar va ularning yechimlarini ilmiy asosda o'rganishga qaratiladi.

Ushbu maqolaning maqsadi — zamonaviy xalqaro huquqda odilsudlovga bo'lgan huquqning mazmun-mohiyatini ochib berish, xalqaro huquqiy asoslarni tahlil qilish hamda uning samarali amalga oshirilishini ta'minlaydigan milliy va xalqaro mexanizmlarni ilmiy nuqtai nazardan yoritishdir.

Mazkur tadqiqot zamonaviy xalqaro huquqda odilsudlovga bo'lgan huquqni chuqur o'rganish va uning amaliyotdagi amalga oshirish mexanizmlarini ilmiy asosda tahlil qilishga qaratilgan bo'lib, bu jarayonda bir nechta ilmiy-uslubiy yondashuvlar qo'llanildi. Tadqiqot metodologiyasi fundamental nazariy manbalar, xalqaro normativ-huquqiy hujjatlar, sud amaliyoti va zamonaviy ilmiy qarashlarni qamrab oladi.

1. Normativ-huquqiy tahlil

Tadqiqotning asosiy metodlaridan biri sifatida normativ-huquqiy tahlil qo'llanildi. Ushbu usul orqali odilsudlovga bo'lgan huquqning xalqaro-huquqiy asoslarini belgilovchi quyidagi hujjatlar chuqur o'rganildi:

- Inson huquqlari umumjahon deklaratsiyasi (1948)
- Fuqarolik va siyosiy huquqlar to'g'risidagi xalqaro pakt (1966)
- Yevropa Inson huquqlari konvensiyasi (1950)
- Amerika Inson huquqlari konvensiyasi (1969)
- Afrika Inson va xalqlar huquqlari xartiyasi (1981)
- BMT Inson huquqlari qo'mitasining sharhlari va qo'shimcha tavsiyalari
- Yevropa Inson huquqlari sudi, Amerika Inson huquqlari sudi, Afrika sudining tegishli qarorlari

Normativ tahlil jarayonida odilsudlov standartlarining evolyutsiyasi, xalqaro tashkilotlar tomonidan belgilangan universal me'yorlar hamda milliy qonunchilikka ta'sir mexanizmlari o'rganildi.

2. Taqqoslash (komparativ) usuli

Ushbu usul orqali turli davlatlarning sud tizimlari, odilsudlov standartlarini joriy etish mexanizmlari va xalqaro huquqni amaliy qo'llash jarayonlari solishtirildi. Taqqoslash quyidagi yo'nalishlarda amalga oshirildi:

- Sud mustaqilligi kafolatlari
- Sudyalarning tayinlanishi va intizomiy javobgarligi mexanizmlari
- Ochiq sud jarayonlari tamoyillarining qo'llanishi
- Xalqaro shartnomalarning milliy sudlarda tatbiq etilishi
- Elektron sud tizimlari joriy etilishining samaradorligi

Taqqoslash natijasida rivojlangan davlatlar (AQSh, Germaniya, Fransiya), rivojlanayotgan davlatlar va MDH mamlakatlari amaliyoti o'rtasidagi farqlar aniqlanib, samarali modellarning umumiy jihatlari tahlil qilindi.

3. Empirik tahlil

Empirik tahlil asosan xalqaro sud organlari amaliyoti asosida olib borildi. Tadqiqot davomida quyidagi institutlarning qarorlari o'rganildi:

- Yevropa Inson huquqlari sudi (ECHR) – “oqilona muddat”, “xolis sud”, “korrupsiyaviy ta'sir” kabi masalalar bo'yicha 40 dan ortiq yetakchi qarorlar tahlil qilindi.
- BMT Inson huquqlari qo'mitasi – davlatlarning ICCPR 14-moddasiga rioya qilmaslik holatlari bo'yicha misollar ko'rib chiqildi.
- Xalqaro sud (ICJ) – adolatli sudlov bilan bevosita bog'liq bo'lgan protsessual normalar bo'yicha amaliyot o'rganildi.
- Xalqaro jinoiy sud (ICC) – sud jarayonining shaffofligi va ayblanuvchining huquqlarini ta'minlash bo'yicha qarorlar tahlil qilindi.

Empirik ma'lumotlar asosida odilsudlov huquqining xalqaro miqyosda buzilishi eng ko'p uchraydigan sohalar aniqlanib, ularning sabab-oqibatlarini yoritildi.

4. Doktrinal (nazariy) yondashuv

Tadqiqotda xalqaro huquq nazariyasida odilsudlovga bag'ishlangan fundamental ilmiy qarashlar tahlil qilindi. Yetakchi olimlar - A.Cassese, M.Evans, R.Smith, C.Brown, T.Jackson, M.Jones, J.Walker va boshqa tadqiqotchilarning ishlari asos qilib olindi. Doktrinal yondashuv quyidagi jihatlarni o'rganishga imkon berdi:

- odilsudlov konsepsiyasining evolyutsiyasi;
- sud jarayonida xolislik va mustaqillikning nazariy asoslari;
- global sud standartlarining shakllanish tamoyillari;
- sud tizimining raqamlashtirilishi va yangi mexanizmlar ta'siri.

Olimlarning ilmiy qarashlari zamonaviy standartlarning mohiyatini chuqur tahlil qilishga yordam berdi.

5. Tadqiqot manbalari bazasi

Tadqiqot davomida 25 dan ortiq xalqaro manbalar, ilmiy maqolalar, sud qarorlari va rasmiy hisobotlar o'rganildi. Jumladan:

- 12 ta xalqaro normativ-huquqiy hujjat
- 8 ta xalqaro sud instansiyasining asosiy qarorlari
- 10 dan ortiq yuqori impakt-faktorli ilmiy maqolalar
- BMT, YXHT, Yevropa Kengashi hisobotlari
- Milliy qonunchilik va sud amaliyotiga oid hujjatlar

NATIJA

Tadqiqot natijalari odilsudlovga bo'lgan huquqning zamonaviy xalqaro huquqda keng talqin qilnayotganini, xalqaro standartlar asosida davlatlarning milliy sud tizimlariga qo'yiladigan talablar tobora mustahkamlanib borayotganini ko'rsatdi. Asosiy natijalar quyidagilardan iborat:

1. Odilsudlov huquqining asosiy elementlari aniqlashtirildi.

Xalqaro huquq normalariga ko'ra, odilsudlovga bo'lgan huquq quyidagi tamoyillarni o'z ichiga oladi:

- sudning mustaqilligi va xolisligi;
- sud jarayonining oshkoraligi;

- advokat yollash huquqi;
- aybsizlik prezumpsiyasi;
- asosli va oqilona muddatlarda ko'rib chiqish;
- sud qarorini shikoyat qilish huquqi.

2. Xalqaro mexanizmlarning roliga doir yangi kuzatishlar qilindi.

Tadqiqot xalqaro mexanizmlarning milliy sud tizimlari ustidan yanada faol nazorat o'rnatayotganini ko'rsatdi. Jumladan:

- Yevropa Inson huquqlari sudi (YIHS) odilsudlov bo'yicha 14 mingdan ortiq ish ko'rib chiqqan;
- BMT Inson huquqlari qo'mitasi Paktning 14-moddasiga oid 400 dan ortiq qarorlar qabul qilgan;
- Xalqaro jinoyat sudi sudlov jarayonlarining adolatli o'tishini ta'minlash bo'yicha qat'iy protsessual me'yorlarga ega.

3. Milliy sud tizimlaridagi muammolarning toifalanishi.

Tadqiqot jarayonida davlatlarda uchraydigan odilsudlovga oid muammolar 3 asosiy toifaga bo'lindi:

1. institutsional muammolar (sud mustaqilligi, moliyaviy ta'minot);
2. protsessual muammolar (sud ishlarining cho'zilishi, advokatga to'sqinlik qiluv);
3. korrupsiya va manfaatlar to'qnashuvi.

4. Takomillashtirishga doir yechimlar ishlab chiqildi

Yangi ilmiy xulosalar sifatida:

- raqamli sud tizimiga o'tish (e-court);
- xalqaro standartlarga mos sudyalarning mustaqil tayinlash tizimi;
- huquqiy yordam institutini kuchaytirish;
- sudlarning xalqaro ekspertiza asosida baholanishi taklif qilindi.

MUHOKAMA

Olimlar fikrlari va ilmiy yondashuvlar

Xalqaro huquq nazariyasida odilsudlov huquqi bo'yicha yetakchi tadqiqotchilar bir qator asosiy ilmiy yondashuvlarni ilgari surgan.

R. Smith (2020) odilsudlov huquqini "huquqiy davlatning yuragi" sifatida baholab, sudning mustaqilligi demokratik boshqaruvning ajralmas qismi ekanini ta'kidlaydi¹.

C. Brown (2019) esa odilsudlov standartlarining universal xususiyatga ega ekanini, ammo ularning tatbiqi davlatlarning siyosiy tizimi va institutlariga bog'liqligini qayd etadi².

M. Jones (2021) raqamli sud tizimining joriy etilishi bilan bog'liq masalalarda shaffoflik va korrupsiya xavfini kamaytirish imkoniyatlariga e'tibor qaratadi. Unga ko'ra, elektron jarayonlar inson omili orqali yuzaga keladigan ta'sirlarni minimallashtiradi va sud jarayonlarining obyektivligini kuchaytiradi³.

Taniqli xalqaro huquqshunos Antonio Cassese o'zining xalqaro huquq nazariyasiga oid fundamental asarlarida adolatli sudlov (fair trial) huquqi insonning ajralmas va tabiatdan berilgan asosiy huquqlaridan biri ekanini alohida ta'kidlaydi. Uning fikricha, odilsudlovga bo'lgan huquq shunchaki

¹ Smith, R. (2020). Justice and Human Rights in Modern International Law. Oxford University Press.

² Brown, C. (2019). Fair Trial Standards in International Law. *Journal of Human Rights*, 18(4), 350–367.

³ Jones, M. (2021). Digital Justice: The Future of Court Systems. *International Law Review*, 12(2), 115–140.

protsessual qoida yoki sud amaliyotining bir elementi emas, balki demokratik huquqiy davlatning mavjudligini belgilovchi asosiy mezonlardan biridir. Cassese ayniqsa, davlatlar bu huquqni cheklash yoki unga to'sqinlik qilish uchun hech qanday siyosiy, iqtisodiy, ijtimoiy yoki xavfsizlik sabablarini asos sifatida ko'rsatolmasligini qat'iy ta'kidlab o'tadi. Chunki odilsudlovga bo'lgan huquq shaxsning sha'ni, qadr-qimmati va huquqiy himoyasiga bevosita daxldor bo'lgan universallashtirilgan xalqaro tamoyildir.

Cassese yondashuvida adolatli sudlov ikki asosiy o'lchamda talqin qilinadi:

1. Protsessual kafolatlar majmui sifatida, ya'ni sudning mustaqilligi va xolisligi, aybsizlik prezumpsiyasi, mudofaa huquqi, oshkoralik tamoyili, dalillarning qonuniyligi va sud jarayonining asossiz cho'zilmasligi kabi talablar;
2. Inson huquqlarining ustuvorligi tamoyilining asosiy poydevori sifatida, ya'ni sud jarayoni — shaxsning davlat hokimiyati organlari bilan bo'lgan munosabatlarida eng muhim himoya mexanizmi. Uning ta'kidlashicha, agar davlat odilsudlovga bo'lgan huquqni to'liq ta'minlamasa, bu inson huquqlarining boshqa tarmoqlarida ham chuqur tizimli buzilishlarga olib keladi. Shu sababli xalqaro huquq normalari, xususan, Inson huquqlari umumjahon deklaratsiyasi, Fuqarolik va siyosiy huquqlar to'g'risidagi xalqaro pakt hamda Yevropa Inson huquqlari konvensiyasi odilsudlovga bo'lgan huquqni mutlaq darajada himoya qiluvchi tamoyillarni mustahkamlaydi. Cassese o'z ilmiy xulosalarida bu huquqni xalqaro huquqning *imperativ normalari* (jus cogens) bilan uzviy bog'liq deb baholaydi.

Shu nuqtayi nazardan, Cassese qarashlari mazkur tadqiqot uchun nazariy asos bo'lib xizmat qiladi. Uning ilmiy yondashuvi shuni ko'rsatadiki, adolatli sudlovni ta'minlash — bu faqat sud organlarining vazifasi emas, balki davlatning butun huquqiy tizimi faoliyatida muhim o'rin tutadigan majburiyatdir⁴.

Shuningdek, Yevropa Inson huquqlari sudi (YIHS) amaliyoti shuni ko'rsatadiki, sud jarayonining oqilona muddatda ko'rilishi tamoyili — Yevropa Inson huquqlari konvensiyasining 6-moddasi bilan kafolatlangan asosiy protsessual huquqlardan biri — eng ko'p buziladigan normalardan hisoblanadi. YIHS o'zining bir qator prinsipial qarorlarida, xususan *Kudla v. Poland*, *Scordino v. Italy* va *Frydlender v. France* ishlarida “oqilona muddat” tushunchasini uchta asosiy mezon orqali baholashni nazarda tutadi: ishning murakkabligi, sudga murojaat qiluvchining xulqi va davlat organlarining yuridik majburiyatlarni bajarishdagi tezkorligi.

Sudyalar palatasi va Kengaytirilgan palata qarorlarida qayd etilishicha, “oqilona muddat” buzilishi nafaqat protsessual normalarning texnik buzilishi, balki shaxsning adolatli sud himoyasiga bo'lgan ishonchiga, huquqiy aniqlik tamoyiliga va davlatning samarali sud tizimini ta'minlashga bo'lgan majburiyatlariga jiddiy putur yetkazadi.

YIHS statistik ma'lumotlariga ko'ra, 2020–2023 yillar davomida Sudga yuborilgan barcha arizalarning taxminan 28 foizi aynan “sud jarayonining oqilona muddatda ko'rilmaligi” bilan bog'liq bo'lgan. Bu ko'rsatkich Yevropa makonida sud tizimlarining ortiqcha yuklama, sudyalarning yetishmasligi, protsesslarni raqamlashtirish darajasining pastligi, tergov organlarining sustkashligi kabi tizimli muammolar bilan yuzma-yuz turganini yaqqol tasdiqlaydi.

⁴ Cassese, A. (2005). International Law. Oxford University Press.

Mazkur holat YIHSning o'z yillik hisobotlarida ham muntazam qayd etiladi. Xususan, Sud hujjatlarida bir qator davlatlar — Italiya, Turkiya, Ruminiya, Ukraina, Polsha va Qozog'iston bo'yicha "oqilona muddat" normalarining surunkali ravishda buzilishi tizimli muammo sifatida e'tirof etilgan. YIHS bunday holatlarni nafaqat individual pozitsiyadan, balki keng ko'lamli huquqiy islohotlarni talab qiluvchi strukturaviy muammo sifatida baholaydi.

Shu tariqa, mavjud amaliyot sud jarayonining o'z vaqtida ko'rilishi odilsudlovning ajralmas elementi ekanini, mazkur tamoyil buzilganda esa boshqa protsessual kafolatlar o'zining amaliy ahamiyatini yo'qotishini ko'rsatadi⁵

Quyidagi ilmiy xulosalar ham mavjud:

Jackson o'z tadqiqotida siyosiy institutlar qanchalik erkin va demokratik bo'lsa, sud hokimiyatining mustaqilligini ta'minlash ham shunchalik samarali bo'lishini ta'kidlaydi. Muallifning fikricha, siyosiy raqobatning mavjudligi, hokimiyatlar bo'linishi tamoyili va fuqarolik jamiyatining faolligi sud hokimiyatining siyosiy bosimdan holi bo'lishiga bevosita ta'sir ko'rsatadi. Shuningdek, u kuchli demokratik tizimga ega davlatlarda sudyalarning tayinlanishi, ular faoliyatiga aralashmaslik va sud tizimi ustidan jamoatchilik nazorati samaraliroq yo'lga qo'yilganini ilmiy dalillar asosida ko'rsatadi⁶. Adolatli sudlov ta'minlanishi korrupsiya darajasining pasayishi bilan bevosita bog'liq (Lee, 2020)⁷. Tadqiqot natijalari shuni ko'rsatadiki, sud jarayonlarida shaffoflikning oshishi, sudyalarning javobgarligi va korrupsiyaga qarshi kurash mexanizmlarining kuchayishi jamiyatda odilsudlovga bo'lgan ishonchni sezilarli darajada oshiradi. Lee korrupsiya yuqori bo'lgan davlatlarda sud jarayonlarining cho'zilishi, adolatsiz qarorlar, sudyalarning faoliyatiga noqonuniy aralashuv kabi holatlar ko'proq uchrashini qayd etadi. Buning aksincha, korrupsiya darajasi past bo'lgan mamlakatlarda sud qarorlari barqarorligi va sud tizimining samaradorligi yuqoriligi statistik tahlillar bilan asoslab berilgan.

Xalqaro sud organlarining milliy sudlarga ta'siri normativ integratsiyani kuchaytiradi. Walkerning ilmiy yondashuvida xalqaro huquq va milliy huquq o'rtasidagi integratsiya jarayoni asosiy o'rinda turadi. Muallif Yevropa Inson huquqlari sudi, Xalqaro jinoyat sudi va BMTning boshqa sud organlari amaliyoti ko'plab davlatlarda ichki qonunchilikning xalqaro standartlarga moslashuviga sabab bo'layotganini ta'kidlaydi. Xalqaro sudlar qarorlarining ijrosi nafaqat milliy qonunlarda o'zgarishlar kiritilishiga, balki sud amaliyotida yangi yondashuvlarning shakllanishiga ham olib keladi. Walker integratsiya jarayoni davomida davlatlar "xalqaro standartlarni inkorporatsiya qilish" orqali sud tizimining sifatini sezilarli darajada oshirishini ilmiy jihatdan asoslaydi⁸.

Tahlil shuni ko'rsatadiki, bugungi kunda odilsudlovga bo'lgan huquqni amalga oshirish davlatlarning suverenitetiga to'sqinlik qilmaydi, aksincha, ularning demokratik institutlarini mustahkamlashga xizmat qiladi. Xalqaro huquqning rivojlanishi bilan odilsudlov huquqi yanada keng talqin qilinmoqda va mazkur jarayon davlatlar uchun ham majburiyat, ham imkoniyat sifatida namoyon bo'lmoqda.

⁵ European Court of Human Rights. Annual Reports (2020–2023).

⁶ Jackson, T. (2018). *Judicial Independence in Comparative Perspective*. Cambridge University Press.

⁷ Lee, S. (2020). Corruption and Fair Trial: Global Study. *International Governance Review*, 14(1), 44–66.

⁸ Walker, J. (2022). International Courts and Domestic Legal Integration. *Transnational Law Journal*, 7(2), 200–219.

Biroq mavjud mexanizmlarning samaradorligi har doim ham yuqori emas. Ayrim mintaqalarda sud tizimi mustaqilligining yetishmasligi, siyosiy bosim, moliyaviy cheklovlar odilsudlov huquqining to'liq ro'yobga chiqishiga to'sqinlik qilmoqda. Shuning uchun global miqyosda:

- xalqaro sud organlari vakolatlarini kengaytirish,
- milliy sud tizimlarini baholashning indikator tizimini ishlab chiqish,
- sudyalarni xalqaro tayyorlov dasturlariga keng jalb qilish zarur.

Yevropa, Amerika va Afrika mintaqalarida mavjud inson huquqlari sudlari samarador model sifatida ko'rilishi mumkin. Ularning qarorlari nafaqat davlatlar uchun majburiy, balki xalqaro standartni shakllantiruvchi asos bo'lib xizmat qiladi.

Shuningdek, tadqiqot shuni ko'rsatadiki, raqamli sud tizimining joriy etilishi sud jarayonlarining shaffofligi, tezkorligi va nazorati uchun muhim mexanizm bo'lib qolmoqda. Bu esa XXI asr odilsudlovi uchun asosiy talabdir.

XULOSA

Zamonaviy xalqaro huquqda odilsudlovga bo'lgan huquq inson huquqlarining eng muhim va ajralmas qismi sifatida e'tirof etilib, global huquqiy tartibotning asosiy tayanchlaridan biriga aylangan. Ushbu huquqning xalqaro-huquqiy asoslari Inson huquqlari umumjahon deklaratsiyasi (1948), Fuqarolik va siyosiy huquqlar to'g'risidagi xalqaro pakt (1966) va boshqa universal hamda mintaqaviy hujjatlarda mustahkam o'rin egallagan bo'lib, davlatlar zimmasiga adolatli, xolis va mustaqil sudlovni ta'minlash majburiyatini yuklaydi.

Tadqiqot shuni ko'rsatadiki, xalqaro sud organlarining amaliyoti — xususan, Yevropa Inson huquqlari sudi, BMT Inson huquqlari qo'mitasi va boshqa tribunal qarorlari — odilsudlov standartlarining rivojlanishida hal qiluvchi omil bo'lmoqda. Ularning qarorlari sud jarayonining oqilona muddatda ko'rilishi, sud mustaqilligi, advokatga erkin murojaat qilish huquqi, shaffoflik va protsessual tenglik kabi mezonlarning aniq talqinini beradi. Shu bilan birga, ko'plab davlatlarda sud tizimining mustaqilligi, korrupsiya, siyosiy bosim, sudyalarni tayinlash jarayonidagi shaffoflik yetishmasligi kabi omillar hanuzgacha muammoligicha qolmoqda. Bu esa odilsudlovga bo'lgan huquqning to'laqonli ta'minlanishiga to'sqinlik qilmoqda.

Zamonaviy tendensiyalar esa ushbu institutni yanada takomillashtirish uchun yangi imkoniyatlar yaratmoqda. Raqamli sud (e-court), masofaviy sud majlislari, sun'iy intellekt yordamida ish yuritish, xalqaro ekspertiza institutining kengayishi va sud tizimining institutsional mustahkamlanishi adolatli sudlov sifatini oshirishda muhim ahamiyat kasb etmoqda.

Umuman olganda, odilsudlovga bo'lgan huquq nafaqat shaxsning asosiy huquqi, balki jamiyatning davlatga bo'lgan ishonchirligini belgilovchi fundamental demokratik tamoyildir. Xalqaro standartlarning izchil takomillashuvi va sud amaliyotining kengayib borishi ushbu huquqning universal xarakterini yanada mustahkamlab, davlatlar oldiga yangi talab va majburiyatlar qo'ymoqda. Kelgusida davlatlarning sud tizimini isloh qilishga qaratilgan sa'y-harakatlari, xalqaro hamkorlik va texnologik innovatsiyalar odilsudlov institutining yanada rivojlanishiga asos bo'lib xizmat qiladi.

Foydalanilgan adabiyotlar ro'yhati.

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CHAYON ZAHARINING TIBBIYOTDA VA XALQ TABOBATIDA AHAMIYATI

Ne'matova Zulayho Jamol qizi

Farmonova Sarvinoz Voxidjon qizi

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Annotatsiya. Ushbu maqolada chayon zaharining tarkibi, uning tibbiyot sohasida va xalq tabobatida qo'llanilishi hamda so'g'liq uchun foydali va zararli jihatlari ko'rib chiqilgan. Chayon zahari murakkab oqsillar, peptidlar va fermentlardan tashkil topgan bo'lib, ular nerv tizimiga ta'sir ko'rsatishi o'rganilgan. Tibbiyotda chayon zaharidan asosan dori vositalari tayyorlashda, xususan, og'riq qoldiruvchi preparatlar, saraton hujayralariga qarshi tadqiqotlarda, yurak ritmini tekshirishda hamda immun tizimini o'rganishda foydalaniladi va bular haqida ma'lumotlar keltirilgan. Shu bilan birga, chayon zahari organizmga og'ir allergik reaksiyalar, nerv sistemasining falajlanishi, nafas olish buzulishi kabi xavfli oqibatlariga olib kelishi mumkinligi, ya'ni salbiy jihatlari ham tahlil qilingan.

Kalit so'zlar: chayon zahari, tibbiyot, xalq tabobati, asab tizimi, immun tizimi, yallig'lanish, saraton kasalliklari

ЗНАЧЕНИЕ ЯДА СКОРПИОНА В МЕДИЦИНЕ И НАРОДНОЙ МЕДИЦИНЕ

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Аннотация. В данной статье рассмотрены состав яда скорпиона, его применение в медицине и народной медицине, а также полезные и вредные стороны для здоровья. Яд скорпиона состоит из сложных белков, пептидов и ферментов, влияние которых на нервную систему изучено. В медицине яд скорпиона используется главным образом для производства лекарственных средств, в частности обезболивающих препаратов, в исследованиях, направленных против раковых клеток, при изучении сердечного ритма и иммунной системы, и об этом приведены сведения. Вместе с тем проанализированы и его негативные свойства, такие как возможность вызвать тяжелые аллергические реакции, паралич нервной системы, нарушения дыхания и другие опасные последствия.

Ключевые слова: яд скорпиона, медицина, народная медицина, нервная система, иммунная система, воспаление, онкологические заболевания.

THE IMPORTANCE OF SCORPION VENOM IN MEDICINE AND TRADITIONAL
HEALING

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Annotation. This article examines the composition of scorpion venom, its use in the field of medicine and in traditional healing practices, as well as its beneficial and harmful effects on human health. Scorpion venom consists of complex proteins, peptides, and enzymes, which have been studied for their impact on the nervous system. In modern medicine, scorpion venom is mainly used in the development of pharmaceutical products, particularly pain-relieving medications, cancer cell research, cardiac rhythm analysis, and studies related to the immune system. Information on these applications is provided in the article. In addition, the harmful effects of scorpion venom such as severe allergic reactions, paralysis of the nervous system, and respiratory dysfunction are also analyzed.

Keywords: scorpion venom, medicine, traditional healing, nervous system, immune system, inflammation, cancer diseases.

Kirish. Milliy sog'liqni saqlash ma'lumotlariga ko'ra, har yili dunyo bo'ylab 1,5 millionga yaqin chayondan zaharlanish qayd etiladi, bu esa 2000-3000 kishining o'limiga olib keladi. Xavfli turlaring soni ayniqsa Shimoliy Afrika, Eron, Saudiya Arabistoni, Braziliya, Meksika va Venesuelada yuqori. Chayondan zaharlanishning birinchi alomati mahalliy og'riq bo'lib, keyin neurotransmitterlarning katta miqdorda chiqarilishini qo'zqatuvchi chayon zahari neyrotoksinlari terlash, ko'ngil aynishi va qusishni keltirib chiqaradi. O'limga olib kelishi mumkin bo'lgan gipersalivatsiya, bezovtalik va og'ir hollatlarda aritmiya, ongni yo'qotish va yurak yetishmovchiligi holatlari ham kuzatiladi. Lekin, chayon zaharining hayot uchun xavfli ta'siriga qaramay, qadimgi tibbiyotda chayon zaharining terepevtik xususiyatlaridan ming yillar davomida foydalanilmoqda.

Zaharlanish darajalari. Chayondan zaharlanish odamlarda og'ir patologik tas'sirga ega va hatto o'limga ham olib kelishi mumkin. Zaharlanishdan keyingi hosil bo'ladigan alomatlariga qarab zaharlanish uch darajaga bo'linadi: yengil, o'rtacha va og'ir. Yengil darajada zaharlanishda kuchli mahalliy og'riq, chaqish joyida shish, uyqusizlik, terlash, tana va qon hujayralari, qon atrofida to'qimalarning nekrozi kuzatilishi mumkin. O'rtacha zaharlanish holatlarida tanada qo'shimcha ravishda isitma, qorin va bo'g'imlardagi o'g'riqlar, qonda shakar miqdorining ortib ketishi, g'ayritabiiy tez nafas olish, yurak urish tezligining oshishi, ko'ngil aynishi, qusish yuzaga keladi. O'g'ir zaharlanishda neyrotoksinlar yurak-qon tomir, nevrologik va oshqozon-ichak traktining asoratlariga olib kelishi mumkin. Masalan, o'pka shishi, miokard yetishmovchiligi, aritmiya, konjestif yurak yetishmovchiligi, ekstremal mushak konvulsiyasi, gipertonik ensefalopatiya, aqliy chalkashlik va koma. Bir necha kundan keyin chayondan zaharlangan qurbonlarning aksariyati yurak yoki nafas olish yetishmovchilidan vafot etadi.

Zahar tarkibi va uning organizmga ta'siri. Chayon zahari kalsiy kanali faoliyatini kuchaytiruvchi oqsillardan, ya'ni calsindan iborat. Calsin hujayra ichidagi kalsiy chiqishini tezlashtiradi va bu keyinchalik spastik falajga olib kelishi mumkin.

Chayon zaharidan kam sonli fermentlar topilgan. Fosfolipazalar kuchli gemolitik ekanligi ma'lum, chunki ular fosfolipidlarni gidrolizlash orqali hujayra membranalarini buzadi. Ular to'qimalarning nekroziga va qon ketishiga olib kelishi mumkin. Metalloproteinase va Serine protease fermentlari trombositlar faoliyatini susaytiradi, sitokin ishlab chiqarishni boshqaradi va immun

tizimini faollashtiradi. Bu ta'sirlar birgalikda matritsa oqsillarini parchalashi orqali chayon zahari toksinlarining tarqalishini ossonlashtiradi.

Chayon zahari tarkibidagi antimikrob oqsillar ko'p funksiyali va mikroblarga qarshi kuchli ta'siriga qaramay, odatda sitotoksik ta'sir korsatadi, ya'ni hujayralarni zaharlab, uni shikastlashi yoki nobud qilishi mumkin. Lekin chayon antimikrob oqsillarining past konsentratsiyasini klassik antibiotiklar bilan birlashtirib hujayralarga sitotoksik ta'sirini chetlab o'tish uchun qo'llash mumkin.

Chayon toksinlari immunitet reaksiyalarini nazorat qilishi mumkin, immunitet tizmining faolligi ham zaharli patofiziologiyada yaxshi o'rganiladi. Chunki zahar organizmga tez so'riladi, hujayralarga kiradi, immun tizimini ishga soladi va immunologik javob tez yuzaga keladi.

Chayon zahari saraton hujayralarini "o'zini o'ldirish"ga majbur qiladi, ya'ni apoptoz jarayoni sodir bo'ladi. Saraton hujayralarining tez bo'linishini sekinlashtiradi yoki hujayra siklini to'xtatishi va saraton hujayralariga qarshi tabiiy himoya mexanizmlarini kuchaytiradi. Chayon zaharining saratonga qarshi ta'siri va samaradorligi glioma, neyroblassstoma, leykemiya, limfoma, ko'krak, o'pka va prostata saratonida sinovdan o'tkazilgan. Chayon zahari yurak ritmi va qon tomirlari faoliyatiga ta'sir qiluvchi modda sifatida tibbiyotda qo'llaniladi. Zahar ion kanallarini bloklashi yoki ochishi mumkin, bu yurak elektrik impulsini uzatish tezligini o'zgartiradi. Natijada bradikardiya, taxikardiya, aritmiya paydo bo'lishi mumkin. Yoki toksinlar tomirlarni toraytirishi aksincha kengaytirishi mumkin, bu yurakka tushadigan yukni o'zgartiradi. Qon bosimining oshishi yoki pasayishi yurak ritmiga ta'sir qiladi. Yurak mushagining qisqarish tezligini o'zgartirishi mumkin, bu saraton yoki yurak kasalliklari bo'lgan bemorlarda xavf tug'dirishi mumkin.

Xalq tabobatida ahamiyati. Chayon va uning zahari Xitoy, Hindiston va Afrikada ming yillar davomida xalq tabobatida qo'llanib kelinmoqda. Xitoyda Chayonlarning quritilgan tanasi Song sulolasidan buyon epilepsiyaga qarshi va og'riq qoldiruvchi vosita sifatida keng qo'llanilib kelinmoqda. Hindistonda chayon quritilib kukun shaklida ishlatilgan va bo'g'im og'rig'ida, mushak spazmlarida va yallig'lanishni kamaytirishda foydalanib kelingan. Qadimgi Arab xalq tibbiyotida chayon zahari tinchlantiruvchi vosita sifatida, asab buzilishida va epilepsiya simptomlarini yengillashtirishda qo'llanilgan. Afrikaning ayrim qabilalarida chayon zahari jarohat va yallig'lanishlarni davolashda ishlatilgan. Shimoliy Afrika, ya'ni Marokash va Jazoida yashovchi Berber xalqlari chayon zaharini og'riq qoldiruvchi malham sifatida foydalangan. O'rta Sharqda va Markaziy Osiyo xalqlari orasida chayon ham "yomon", ham "himoya qiluvchi" deb hisoblashgan. Ular chayonlarni qovurib yoki quritib o'simlik yog'i bilan kuydurib olinadigan yog' mahalliy og'riqni kamaytiruvchi va isituvchi malham sifatida ishlatilgan. Ibn Sinoning "Tib qonunlari" asarida ham chayon zaharining qizdiruvchi va qon aylanishiga ijobiy ta'sir ko'rsatishi haqida aytib o'tilgan.

Xulosa. Chayon zahari ming yillar davomida tibbiyotda va xalq tabobatida kasalliklarni davolashda foydalanib kelinmoqda. Chayon zahari tarkibidagi tuzlar, fermentlar va neyrotoksinar organizm faoliyatiga ijobiy yoki salbiy ta'sir ko'rsatadi. Tibbiyotda saraton kasalliklarini davolashda, asab va immun tizimiga ta'sir ko'rsatishda foydalaniladi. Xalq tabobatida asosan og'riqni kamaytiruvchi va yallig'lanishga qarshi ishlatilgan. Lekin zahar dozasi oshib ketsa salbiy oqibatlarga olib kelishi mumkin.

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BOSHQA KREDITORLAR BILAN HISOB-KITOBLARNING HISOBI

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Annotatsiya. Ushbu maqolada korxonalarda boshqa kreditorlar bilan hisob-kitoblarning hisobi tahlil qilinadi. Tadqiqot davomida xodimlar ish haqi, ssudalar, ijtimoiy sug'urta va pensiya majburiyatlari hamda sud qarorlari asosida ushlab qolingani summalar bo'yicha hisob-kitoblarning tartibi va samaradorligi o'rganildi. Shuningdek, hisob-kitoblarni yuritish tizimi, debet va kredit schotlarining ishlatilishi hamda korxona moliyaviy barqarorligiga ta'siri ko'rib chiqildi.

Kalit so'zlar: Boshqa kreditorlar, korxona qarzdorliklari, hisob-kitobning tartibi, ish haqi va ssudalar, ijtimoiy sug'urta majburiyatlari, debet va kredit schotlari, moliyaviy boshqaruv, korxona moliyaviy barqarorligi.

Аннотация. В данной статье анализируется учет расчетов с другими кредиторами на предприятиях. В ходе исследования были изучены порядок и эффективность расчетов по заработной плате сотрудников, займам, обязательствам по социальному страхованию и пенсионным выплатам, а также суммам, удержанным на основании судебных решений. Кроме того, рассмотрена система ведения расчетов, использование дебетовых и кредитовых счетов и их влияние на финансовую устойчивость предприятия.

Ключевые слова: другие кредиторы, задолженности предприятия, порядок расчетов, заработная плата и займы, обязательства по социальному страхованию, дебетовые и кредитовые счета, финансовое управление, финансовая устойчивость предприятия.

Abstract. This article analyzes the accounting of settlements with other creditors in enterprises. The study examines the procedure and efficiency of settlements related to employee wages, loans, social insurance and pension obligations, as well as amounts withheld based on court decisions. Additionally, the research explores the system of maintaining settlements, the use of debit and credit accounts, and their impact on the financial stability of the enterprise.

Keywords: other creditors, enterprise liabilities, settlement procedure, wages and loans, social insurance obligations, debit and credit accounts, financial management, financial stability of the enterprise.

KIRISH

Bugungi kunda korxonalarda boshqa kreditorlar bilan hisob-kitoblarni to'g'ri va samarali yuritish dolzarb ahamiyat kasb etmoqda. Ish haqi, ssudalar, ijtimoiy majburiyatlar va sud qarorlari bo'yicha ushlab qolishlarni aniq qayd etish moliyaviy nazoratni kuchaytiradi va korxona mablag'laridan samarali foydalanishga imkon beradi. Shu sababli, bu mavzu nafaqat buxgalteriya hisobi, balki korxona moliyaviy boshqaruvi va strategik qarorlar qabul qilish uchun ham katta ahamiyatga ega.

Boshqa kreditorlar bilan hisob-kitoblar korxonaning moliyaviy faoliyatida muhim o'rin tutadi. Boshqa kreditorlarga qarzdorliklar, xususan ijtimoiy sug'urta organlari, pensiya va ish bilan ta'minlash jamg'armalari hamda sud qarorlari asosida ushlab qolingani summalar korxona byudjeti

va xodimlarga to'lovlarni tartibga solishda asosiy moliyaviy majburiyatlarni tashkil etadi. Shu sababli, ushbu majburiyatlarning hisobini yuritish tizimi nafaqat korxona moliyaviy barqarorligini ta'minlash, balki rahbariyatga qarorlar qabul qilishda ishonchli axborot manbai sifatida xizmat qiladi.

Adabiyotlar sharhi

Boshqa kreditorlar bilan hisob-kitoblar mavzusi bo'yicha hozirga qadar ko'plab olimlar ilmiy izlanishlar olib borishgan. Jumladan, Kreditorlar bilan hisob-kitoblarning ish yuritish kapitali boshqaruviga ta'siri bo'yicha Peng va Nguyenlar tomonidan 2023-yilda yozilgan "Cash flow management and its effect on firm performance: Empirical evidence on non-financial firms of China" nomli maqolasida Xitoyning qimmatli qog'ozlar birjasida ro'yxatdan o'tgan korxonalar ma'lumotlari asosida olib borilgan tadqiqot naqd pul oqimini boshqarish va korxona samaradorligi o'rtasidagi bog'liqlikni tahlil qildi [3].

Shuningdek, savdo krediti va korxona samaradorligi o'rtasidagi murakkab munosabatlari bo'yicha Mahmud, Miah va Bhuiyan kabi olimlar tomonidan olib borilgan 2022-yildagi tadqiqotda Bangladeshda 1002 korxona-yil kuzatuvlari asosida savdo krediti moliyalashtirish va korxona samaradorligi o'rtasidagi bog'liqlikni tadqiq qildilar. Ushbu tadqiqot rivojlanayotgan iqtisodiyotlarda kreditorlar bilan hisob-kitoblarning ahamiyatini baholadi. Tadqiqot natijalari savdo krediti va korxona samaradorligi o'rtasida salbiy bog'liqlik mavjudligini ko'rsatdi, bu savdo krediti tashqi qarz moliyalashtiriga nisbatan korxona o'sishiga kam hissa qo'shishi mumkinligini anglatadi [4].

Ichki nazorat va kreditorlar bilan hisob-kitoblar sifati bo'yicha esa Nguyen va Do kabi Vetnamlik olimlar tomonidan tadqiq qilingan "Impact of internal control on the quality of accounting information at enterprises listed on the stock market in Vietnam" nomli maqolada, aksiyador jamiyati bozorida ro'yxatdan o'tgan korxonalarda ichki nazorat sifatining buxgalteriya ma'lumotlari sifatiga ta'sirini o'rgandilar [5].

Shu bilan birga, raqamli transformatsiya va kreditorlar bilan hisob-kitoblarni avtomatlashtirish bo'yicha IFOL tashkiloti tomonidan 2025 yilda o'tkazilgan tadqiqotda kreditorlar bilan hisob-kitoblar bo'limida avtomatlashtirish tendentsiyalarini tahlil qildi va 2023 yildan beri samaradorlik darajasining sezilarli o'sganligini aniqladi [6].

Tahlil qilingan adabiyotlar kreditorlar bilan hisob-kitoblarning nazariy asoslarini mustahkamlaydi va tasniflash, tan olish, nazorat qilish hamda qonunchilikka rioya qilish jihatlarini amaliy yo'l-yo'riq bilan ta'minlaydi. Tadqiqotlar shuni ko'rsatadiki, kreditorlar bilan hisob-kitoblarni samarali boshqarish korxonaning moliyaviy samaradorligiga sezilarli ta'sir ko'rsatadi.

Tadqiqot metodologiyasi

Ushbu tadqiqotda boshqa kreditorlar bilan hisob-kitoblarning hisobi mavzusi o'rganildi. Tadqiqot metodlari sifatida analitik, solishtirma va hujjatli tahlil ishlatildi. Korxonalarning buxgalteriya hisobi bo'yicha amaliy ma'lumotlar, ish haqi va ssudalar, ijtimoiy sug'urta va pensiya majburiyatlari hamda sud qarorlari bo'yicha ushlab qolishlar real hisob-kitoblar asosida tahlil qilindi.

Tahlil va natijalar

Boshqa kreditorlar — bu korxonaga tovarsiz muomalalar bo'yicha qarzдор bo'lgan tashkilotlar yoki shaxslarni anglatadi. Bunga ijtimoiy sug'urta organlari, pensiya va ish bilan ta'minlash jamg'armalari, shuningdek boshqa tegishli tashkilotlar va shaxslar kiradi. Ushbu qarzдорliklarga ishchi va xizmatchilarga berilgan individual ssudalar, sud qarorlari asosida ish haqlaridan ushlab qilingan summalar, hamda ishchilar tomonidan o'z vaqtida talab qilinmagan ish haqlari bo'yicha korxonaning majburiyatlari kiradi.

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Ma'lumki, yalpi foyda — bu mahsulot sotishdan tushgan sof daromad va ishlab chiqarish xarajatlari orasidagi farq sifatida namoyon bo'ladi. Yalpi foyda markazlashtirilgan davlat sof daromadi va korxona sof daromadiga bo'linadi. Markazlashtirilgan davlat sof daromadi qo'shilgan qiymat solig'i, aksiz solig'i va foydadan ajratmalardan tashkil topadi. Qo'shilgan qiymat solig'i va aksiz solig'i korxona mahsulotini realizatsiya qilish jarayonida belgilangan me'yorlar asosida undiriladi, foydadan ajratmalar esa korxona tomonidan taqsimlanib, davlat byudjetiga kiritiladi.

Boshqa kreditorlar bilan hisob-kitoblarning hisobini olib boradigan bo'lsak analitik hisobvarag'ida yuqorida keltirilmagan barcha hollar bo'yicha debitor va kreditorlar bilan hisob-kitoblar hisobi olib boriladi.

Shuningdek, ushbu analitik hisobvaraqa shtatda turmagan tarkibga (kompozitorlarga, artistlarga, mualliflarga) shartnoma bo'yicha bajargan ishlari va chiqimlari uchun, televizor va radioeshittirishlarda bir marta chiqish uchun qilingan buyurtmalarga beriladigan qalam haqi summolari bo'yicha hisob-kitoblar, shuningdek, uyda nogiron bolalarni o'qitadigan pedagoglarga to'lanadigan kompensatsiya to'lovlari hisobga olinadi.

Boshqa debitorlar va kreditorlar bilan olib boriladigan hisobkitoblarning analitik hisobi 408-son shakldagi (6-son memorial order) jamlanma qaydnomasida, shuningdek, 292-son shakldagi joriy hisoblar va hisob-kitoblar daftarida (kartochkasida) olib boriladi.

1-jadval.

Hisob raqamlari (O'zbekiston standartlariga mos)

Hisob raqami	Hisob nomi (O'zbekiston MChH)	Tavsifi
6710 6720	Ish haqlari hisoblari	Xodimlarga ish haqi va boshqa to'lovlarni hisoblash uchun
6970 6990 6930	Boshqa qarzdorliklar	Xodimlar va tashkilotlarga bo'lgan qarzdorliklar, ssudalar
6510 6520	Ijtimoiy sug'urta va boshqa majburiyatlar	Ijtimoiy sug'urta organlari, pensiya va boshqa jamg'armalarga qarzlar
6410 6520 4410	Budjet va byudjetdan tashqari majburiyatlar	Foydadan ajratmalar, soliq va boshqa davlatga to'lanadigan summalar
6960	Sud qarorlari bo'yicha ushlab qolishlar	Sud qarorlari asosida ish haqlardan ushlab qolingani summalar
5110 5210 5220	Bank hisob raqami	To'lovlarni amalga oshirish va mablag'larni qabul qilish uchun
6910 6970 6990	Boshqa kreditorlar	Korxonaning tovarsiz muomalalar bo'yicha boshqa qarzdorliklari (ijtimoiy sug'urta, pensiya, ishchi ssudalari va hokazo)

Tasavvur qilaylik A korxona 2025-yil noyabr oyida xodimlar ish haqi va boshqa majburiyatlarni hisobga olish va to'lash bilan shug'ullanmoqda. Ma'lumki:

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1. Xodimlar ish haqi jami 50,000,000 so'm tashkil qiladi. Ish haqi hisobida ijtimoiy sug'urta va pensiya jamg'armasiga 8,000,000 so'm ushlab qolinadi.
2. Ba'zi xodimlarga ssuda berilgan, jami 2,000,000 so'm.
3. Sud qarorlari bo'yicha ish haqlaridan 1,000,000 so'm ushlab qolinadi.
4. Xodimlarning ish haqi va ushlab qolingani summalarini bank orqali to'lash rejalashtirilgan.

Shu jumladan:

- Ish haqi bo'yicha to'lov: 41,000,000 so'm
- Ijtimoiy sug'urta va pensiya to'lovlari: 8,000,000 so'm
- Sud qarorlari bo'yicha ushlab qolingani summa: 1,000,000 so'm

Vaziyat: Korxona bu ish haqi va boshqa majburiyatlar bo'yicha hisob-kitoblarni qanday yuritadi, debet va kredit schotlarida qanday aks ettiriladi, va to'lovlar amalga oshirilgach, boshqa kreditorlar bilan qarzdorlik qanday kamayadi?

Yuqoridagi hisob raqamlarga asosan agar birorta korxonaning ma'lumotlariga asoslanib buxgalteriya hisobotini tuzadigan bo'lsak quyidagi ko'rinishga ega bo'ldi:

2-jadval.

Namunaviy hisob-kitob jadvali¹

Sana	Hisob raqamlari (Debet / Kredit)	Tafsilot / Izoh	Debet (so'm)	Kredit (so'm)
01.11.2025	6710 / 6510	Xodimlar ish haqi va ijtimoiy majburiyatlar	50,000,000	8,000,000
01.11.2025	4720 / 6710	Xodimga ssuda berildi	2,000,000	2,000,000
02.11.2025	6960 / 6710	Sud qarori bo'yicha ushlab qolindi	1,000,000	1,000,000
05.11.2025	5110 / 6710	Ish haqi to'landi bank orqali		41,000,000
05.11.2025	5110 / 6510	Ijtimoiy sug'urta va pensiya to'lovlari		8,000,000
10.11.2025	5110 / 6990	Boshqa kreditorlarga qarz to'lovi		1,000,000

Hisob-kitobni tahliliga keladigan bo'lsak:

- Debet hisoblari xodimlar ish haqi va ssudalarni, kredit hisoblari esa boshqa kreditorlarga bo'lgan majburiyatlarni ko'rsatadi.
- Bank orqali to'lovlar amalga oshirilganidan so'ng, korxonaning boshqa kreditorlarga qarzdorligi kamayadi.
- Hisob-kitoblar muntazam yuritilgan, barcha qarzdorliklar va ushlab qolishlar aniq qayd etilgan.

Tahlil natijasida ko'rish mumkinki, korxona boshqa kreditorlar bilan hisob-kitoblarni aniq va tartibli yuritmoqda. Ish haqlari, ijtimoiy majburiyatlar va sud qarorlari bo'yicha ushlab qolishlar muntazam hisobga olingan. Bank orqali to'lovlar amalga oshirilishi bilan qarzdorliklar kamayadi va korxona moliyaviy holati barqaror bo'ladi. Shu bilan birga, hisob-kitoblarning to'g'ri yuritilishi korxona rahbariyati uchun qarorlar qabul qilishda ishonchli axborot manbai bo'lib xizmat qiladi.

¹ Ushbu jadvaldagi ma'lumotlar ehtimoliy tarzda tadqiqotchi tomonidan tuzilgan

Xulosa

Umumiy xulosa qilib shuni aytish mumkinki, korxona boshqa kreditorlar bilan hisob-kitoblarni tartibli va aniq yuritmoqda. Xodimlarga to'lanadigan ish haqi, ijtimoiy sug'urta va pensiya majburiyatlari, shuningdek sud qarorlari bo'yicha ushlab qolishlar debet va kredit hisoblari orqali to'g'ri aks ettirilgan. Bank orqali amalga oshirilgan to'lovlar natijasida korxonaning boshqa kreditorlarga bo'lgan qarzdorligi kamayadi, bu esa moliyaviy holatning barqarorligini ta'minlaydi. Shu bilan birga, hisob-kitoblarni muntazam va tizimli yuritish rahbariyatga qarorlar qabul qilishda ishonchli axborot manbai sifatida xizmat qiladi hamda korxona mablag'laridan samarali foydalanishga imkon yaratadi.

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**THEORETICAL FOUNDATIONS OF THE FORMATION OF THE LANGUAGE SOUND
SYSTEM AS A SUBJECT**

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Abstract. This article explores the theoretical foundation and methodology behind the formation of the language sound system, focusing on the intersection of phonetics, phonology, and the broader linguistic structure. It highlights the critical role of phonetics in understanding the smallest units of oral speech and their organization within written language. The article discusses how phonetics is intertwined with other primary linguistic levels, such as lexis and grammar, and their secondary levels, like stylistics and morphophonology. The emergence and evolution of phoneme theory are examined through various phonological schools, with particular emphasis on their differing approaches to phoneme interpretation. The article also addresses the common confusion between speech sounds and phonemes, proposing a comprehensive method involving acoustic, articulatory, perceptive, and phonological aspects to distinguish them. Furthermore, it emphasizes the integral role of phonetics in both oral and written forms of speech, asserting that no language level can exist independently of phonetics in spoken communication. The study traces the historical development of phonetics, underscoring its roots in ancient linguistic research and its formal establishment as a distinct field in the 19th century. Ultimately, the article underscores the enduring significance of the sound system in language and its foundational role in communication.

Keywords: *phonetics, oral speech, speech sound, syllable, phonostylistics, morphology, morpheme*

INTRODUCTION. The theoretical foundation of the formation of the language sound system is crucial because it provides the necessary framework to understand how languages develop and organize their phonetic structures. This subject allows linguists to investigate the underlying principles that govern the way sounds are produced, perceived, and classified across different languages. By examining phonological rules, sound patterns, and their historical evolution, researchers can identify universal aspects of language and the unique features that distinguish individual languages. Understanding the theoretical aspects of sound system formation not only enriches our knowledge of language acquisition and processing but also aids in practical applications such as language teaching, speech therapy, and computational linguistics, thereby contributing to both theoretical and applied linguistics fields.

The sound structure of language is studied in the context of phonetics, which is one of the most important fields of linguistics. Phonetics is the scientific study of the smallest units that serve as material in the occurrence of oral speech, as well as their means. Studying the units which have the constitutive function in the formation of oral speech requires phonetics to be in direct contact with written speech. Because the rules of graphics and orthography, which reflect oral speech in writing, are formed on the basis of phonetic principles. It is known that the science of linguistics is based on three primary levels such as phonetics, lexis and grammar. Later, secondary levels of language for instance, stylistics, phonostylistics and morphophonology were formed within the framework of phonetics, lexicology and grammar. One of the main difference between the primary and secondary

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levels of language is the fact of having their own units. The primary levels of language are explored within the framework of their own units. And the secondary levels of the language, on the other hand, do not have their own units because of which they rely on the units of the primary levels in the research process.

METHODOLOGY. Studying the theoretical foundation of the formation of the language sound system involves a multidisciplinary approach that combines phonetics, phonology, historical linguistics, and typology. Researchers begin by analyzing the articulatory and acoustic properties of sounds, using tools like spectrographs and articulatory analysis to observe how sounds are produced and transmitted. Phonological theories are then applied to understand the systematic organization of these sounds in different languages, examining patterns of sound alternations, rules of syllable structure, and processes like assimilation and vowel harmony. Historical linguistics plays a key role in tracing the evolution of sound systems over time, while cross-linguistic typology helps identify universal principles and language-specific variations. Computational methods, such as corpus analysis and machine learning, are increasingly used to model phonological systems and predict sound changes. This comprehensive methodology enables linguists to uncover the cognitive, social, and historical factors that shape the sound systems of languages, providing insights into both their structure and development.

When it comes to discuss on the sound aspect of the language, the notion of the phoneme is often mentioned along with the sounds of speech. The emergence of the notion of phoneme is linked with the name of Boduen de Kurtene. On the basis of his ideas, relating to the phoneme, a few phonological theories emerged. Among these theories the most famous ones are suggested by S.- Petersburg, Moscow, Prague, London and American (USA: the dichotomy phonological and distributive phonological theories) phonological schools. A phoneme is recognized as a language unit in each of these theories though they put forward a different approach to the phoneme interpretation. For instance, the interpretation of a phoneme is based: on a word and word formation in S.- Petersburg phonological theory; on morphemes in Moscow phonological theory; on phonological oppositions in Prague phonological theory; on an acoustic aspect of sounds in the theory of London phonological school; on a relationship between phonological units in the theory of American distributive phonological school; on the method of universal classification based on binary (two) differences of phonemes in the theory of American dichotomy phonological school.

In linguistics the distinguishing of speech sounds from phonemes began in the second half of the nineteenth century. Nevertheless, understanding the difference between speech sounds and phonemes and revealing their difference completely is not always easy. The language learners confuse their difference regularly. Sometimes this problem may also be noticed among the future professionals in the field of language who have already got sufficiently profound knowledge on speech sounds and phonemes. In order to solve this problem four aspects of speech sounds should be taken into consideration in learning process. They are *acoustic*, *articulatory*, *perceptive* and *phonological aspects* of speech sounds. Studying these four aspects thoroughly is the main factor to solve the problem of confusing the difference between speech sounds and phonemes.

DISCUSSIONS AND RESULTS. The significance of scientifically studying the concepts of speech sound, phoneme, and the variants and variations of a phoneme in different positions through the example of a particular language lies in the fact that such research provides a foundation for examining the still unexplored aspects of speech sounds in other languages. As a result, along with

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revealing the phonetic and phonological features of the smallest units related to speech and language in languages of different systems, their language-specific and common characteristics from both phonetic and phonological perspectives also become clearer. From this point of view, research devoted to the sound system of a language is considered extremely important.

The sound system of a language can also be studied by the secondary levels of language along with the primary language layers. The scientific study of the secondary levels of language depending on the units of the primary levels, the secondary levels of language such as stylistics, phonostylistics and morphophonology seem as if they also have their own units. And there are special terms used in linguistics to express the units of the secondary levels of language, for instance, "*morphoneme* (morphological alternations of phonemes)" as a unit of morphonology, "*stylisteme* (emotionally-expressive variant of all units of language)" as a unit of stylistics "*phonostylisteme* (emotionally-expressive variant of phonetic units)" as a unit of phonostylistics. But these terms, according to A. Abduazizov's opinion, do not have a "Certificate" to be a linguistic unit. So, these concepts (*morphoneme*, *stylisteme*, *phonostylisteme*) cannot be a pure unit of language, since they are manifested on the basis of a unit of other levels of the language.

All the levels in a language interact within the framework of their own rules in order to carry out the communication between people, which is the main function of the language. For instance, speech sounds combine into syllables, syllables combine into words, words combine into sentences to form a speech that is a unit of communication. Speech, in its turn, consists of both oral and written forms. The function of language levels in the formation of both forms of speech is closely interrelated. They are inseparable in the performance of speech activities. But the importance of phonetics in this process is more worthy of attention, especially in oral speech. After all, since phonetics studies pronunciation, other levels of language become dependent on it in oral speech. It shows that not any level in a language can exist outside of phonetics in oral communication. Because both primary and secondary tiers are represented phonetically (through pronunciation) in oral speech. Hence, phonetics studies both the pronunciation of its own units and the pronunciation of other layer units. Despite the fact that phonetics plays such an important role in linguistics, if we look at the history of science, the formation of phonetics as a subject dates back to the XVIII and XIX centuries. V.K. Juravlev mentioned that historical phonetics originated in 1818 with Rasmus Rusk's treatise on sound changes in Germanic languages.

The formation of phonetics as a subject by the nineteenth century does not lead to the conclusion that the sound structure of language was not studied until the nineteenth century. In ancient times, the phonetic aspect of language was also studied in detail. Successful research on the sound field of language carried out in the works of ancient Indian and Greek scholars can prove it. As well as our great ancestor Abu Ali Ibn Sino, in his treatise on phonetics, gave the initial information about the phonological features of speech sounds, explaining their differences according to their formation. These data indicate that the scientific study of the sound structure of language has a very long history. Although the scientific study of speech sounds in the study of linguistic phenomena dates back to the long history, this field was not formed as a separate subject at that time. This is because at that time the phonetic field of language was studied as an integral part of the science of language in general, rather than as a separate subject. For the formation of any field of a particular science as a new subject, it must be scientifically substantiated that the field has its own object and subject of study, as well as its own unit. And this process is formed in science not suddenly, but over a period of time. The process

of formation of the sound field of language as an independent subject came to an end in the XIX century, after its long period of development.

CONCLUSION. From the above data it can be seen that phonetics, which has a special significance among the levels of language, was formed as a subject by the XIX century. However, this fact does not justify the conclusion that the sound field of language was not scientifically studied until the nineteenth century. Indeed, the importance of studying the sound structure of language in the formation of oral speech properly was known to scientists in ancient times, and they paid great attention to the scientific study of this field. Hence, the sound structure of language as science has its long history and has been the object of research since the ancient times. The fact that the study of the sound field of language dating back to long history shows that the sound field of language plays very important role among the other language levels.

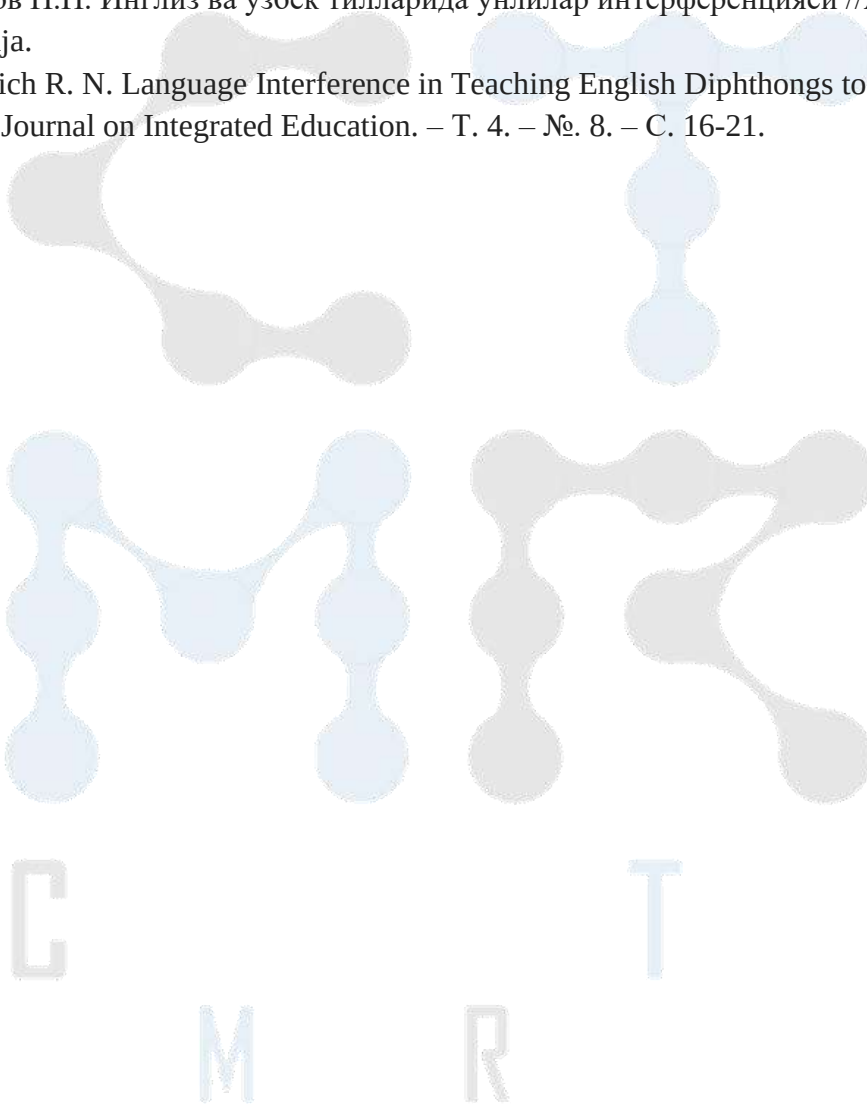
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**ДОСТИЖЕНИЯ РЕСПУБЛИКИ УЗБЕКИСТАН В СФЕРЕ ПРОФИЛАКТИКИ И
БОРЬБЫ С ОРГАНИЗОВАННОЙ ПРЕСТУПНОСТЬЮ**

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Аннотация. В статье рассматриваются вопросы в сфере профилактики и борьбы с организованной преступностью, а также вопросы дальнейшего повышения эффективности организационно-профилактических мероприятий по созданию безопасной среды в махаллях, усиления персональной ответственности субъектов, осуществляющих мероприятия социальной профилактики, внедрения механизмов адресной работы на основе отдельного подхода.

Ключевые слова: сообщество, организованная преступность, транснациональная преступность, наркотрафик, торговля людьми, киберпреступность, экономические преступления, коррупция, адресная профилактика, адресная социальная защита.

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**ON THE QUESTION OF USE OF THE RESULTS OF OPERATIVE SEARCH ACTIVITIES
IN CRIMINAL PROCESS**

Annotation: *The article discusses issues in the field of prevention and combating organized crime, as well as issues of further improving the effectiveness of organizational and preventive measures to create a safe environment in mahallas, strengthening the personal responsibility of subjects carrying out social prevention activities, and introducing targeted work mechanisms based on a separate approach.*

Key words: *community, organized crime, transnational crime, drug trafficking, human trafficking, cybercrime, economic crimes, corruption, targeted prevention, targeted social protection.*

В рамках реализуемых в Республике Узбекистан реформ особое внимание уделяется обеспечению мирной и спокойной жизни населения, а также формированию в обществе культуры законопослушания и общественной безопасности. В республике Узбекистан только за последние пять лет принято более 300 законов, свыше 4 тысяч решений Президента Республики Узбекистан, направленных на кардинальное реформирование всех сфер жизни государства и общества. В частности, внедрены принципиально новые механизмы и порядки организации работы в направлении обеспечения общественной безопасности на основе принципа «Служить интересам народа», налажено целевое взаимодействие государственных органов с общественными формированиями. В результате реформ, в республике созданы политико-правовые, социально-экономические и научно-просветительские основы, необходимые для построения Нового Узбекистана.

В целях определения приоритетных направлений реформ, направленных на дальнейшее повышение благосостояния народа, безусловное обеспечение прав и интересов человека, формирование активного гражданского общества в последующие годы на основе принципа «Во имя чести и достоинства человека». Статья 14 Конституции Республики Узбекистан гласит, что «Государство осуществляет свою деятельность на принципах законности, социальной справедливости и солидарности в целях обеспечения благосостояния человека и устойчивого развития общества».

Организованная преступность — одна из острых и сложных проблем, вставших перед мировым сообществом». Организованная преступность представляет собой значительную угрозу для глобальной безопасности. Она угрожает миру и безопасности людей, нарушает права человека и подрывает экономическое, социальное, культурное, политическое и гражданское развитие общества повсюду в мире. Согласно мнению Д. Валижонова, «В последние десятилетия это социальное зло приобрело особую общественную опасность, поскольку стало носить наднациональный характер. Преступность вышла за территориальные пределы суверенных государств, стала интернациональной». Исследование международных, региональных и национальных тенденций и закономерностей сегодняшней преступности, представляет особую значимость. Организованная преступность — это масштабное криминальное явление, основанное на деятельности устойчивых преступных групп и сообществ, которые объединяются с целью получения крупной прибыли. Это явление характеризуется иерархической структурой, профессионализмом, коррумпированными связями с представителями органов власти и бизнеса, а также регулярным применением насилия или угроз. Следует отметить, что во взглядах на организованную преступность у зарубежных юристов отсутствует единство. В частности, для описания подобных случаев в итоговом документе Международного семинара ООН по вопросам борьбы с преступностью, проходившего в Суздале 21 – 25 октября 1991 года было определено, что под организованной преступностью понимается «функционирование «относительно массовой группы устойчивых, управляемых сообществ преступников, занимающихся преступлениями как промыслом и создающих систему защиты от социального контроля с помощью таких противозаконных средств как насилие, запугивание, коррупция и хищения в крупных размерах». На VIII Конгрессе ООН по предупреждению преступности и обращению с правонарушителями организованная преступность определялась, как «сложные виды уголовной деятельности, осуществляемые в широких масштабах организациями и другими группами, имеющими внутреннюю структуру, которые получают финансовую прибыль и приобретают власть путём создания и эксплуатации рынков незаконных товаров и услуг». Как видно из приведённых цитат, организованная преступность в одном случае определяется как «массовая группа устойчивых и управляемых сообществ преступников», а в другом, как «сложные виды уголовной деятельности».

Безусловно, международное сообщество, стремясь выработать эффективные меры по предупреждению и искоренению организованной преступности, приняло ряд документов, к которым относятся конвенции Организации Объединенных Наций (например, Конвенция против транснациональной организованной преступности от 08 января 2004 года), и др. В этих документах отмечается, что организованная преступность превратилась в транснациональное явление, которое затрагивает все страны. Этим обусловлено

исключительно важное значение международного сотрудничества в области предупреждения организованной преступности и борьбы с ней, так как в настоящее время транснациональные преступные формирования используют все достижения науки и техники.

Следует отметить, что и Республика Узбекистан последнее время сталкивается с такими проблемами, как наркотрафик, торговля людьми, киберпреступность, экономические преступления и коррупция. Данному обстоятельству способствовало развитие высоких технологий, транспорта, международных финансовых сетей, изменения в международной экономической сфере. В настоящее время организованные преступные формирования используют все достижения науки и техники. Основной целью деятельности является извлечение прибыли и сверхприбыли. Материальные выгоды извлекаются как путем предоставления незаконных услуг и товаров, так и путем предоставления законных услуг и товаров в незаконной форме. Полученная незаконная прибыль «отмывается» через определенную систему банковских операций, а затем часть её идет на воспроизводство преступной деятельности и обслуживание нужд преступных организаций, часть поступает на банковские счета или вкладывается в недвижимость.

Отметим, профилактика и борьба с организованной преступностью в Узбекистане включает в себя ряд мер, направленных на усиление правовой базы, повышение потенциала правоохранительных органов и укрепление международного сотрудничества. В 2024 году Узбекистан при поддержке Управления ООН по наркотикам и преступности начал разработку первой в своей истории Национальной стратегии по борьбе с организованной преступностью. Стратегия разрабатывается при помощи Глобальной программы УНП ООН по реализации Конвенции против организованной преступности, которая предоставляет техническую помощь и поддержку государствам-членам для борьбы с организованной преступностью. Эта программа играет важную роль в разработке стратегий и стандартов ООН в области предупреждения преступности, а также помогает странам бороться с транснациональной преступностью в целом.

Одно из главных направлений это - предотвращение организованной преступности. В целях дальнейшего повышения эффективности организационно-профилактических мероприятий по созданию безопасной среды в махаллях, усиления персональной ответственности субъектов, осуществляющих мероприятия социальной профилактики, внедрения механизмов адресной работы на основе отдельного подхода в махаллях со сложной криминогенной обстановкой 8 августа 2025 года Президент Узбекистана Шавкат Мирзиёев подписал постановление № ПП-253 «О внесении изменений и дополнений в некоторые постановления Президента Республики Узбекистан, направленных на дальнейшее повышение результативности системы раннего предупреждения преступности в махаллях».

Основная цель принятия постановления:

- создание безопасной среды в махаллях со сложной криминогенной обстановкой, включенных в «красную» категорию в течение последних пяти лет, путем проведения отдельных организационно-профилактических мероприятий до конца текущего года;
- полный охват махаллей со сложной криминогенной обстановкой современными камерами наблюдения, интегрированными со специальным программным обеспечением, функционирующим на основе искусственного интеллекта;

- доведение до конца текущего года охвата средствами технической охраны имущества физических лиц до 30 процентов, имущества юридических лиц — до 60 процентов;
- повышение персональной ответственности руководителей местных хокимиятов, государственных органов и организаций, образовательных и научных учреждений за обеспечение результативности адресных мероприятий в махаллях со сложной криминогенной обстановкой.

Документ определяет приоритеты и механизмы профилактической работы, направленной на создание безопасной среды в махаллях, отнесённых к «красной» категории, то есть с высокой криминогенной обстановкой за последние пять лет.

Главное безусловно, это стабилизация ситуации и снижение уровня преступности за счёт специальных организационно-профилактических мероприятий и научно обоснованных подходов. Работа будет строиться на принципах:

- адресной профилактики;
- законности;
- индивидуального подхода к каждой семье и гражданину;
- интеграции научных и практических методов.

Соответственно, намечено продвижение здорового образа жизни, нетерпимости к правонарушениям, научное сопровождение мер профилактики — с регулярными исследованиями и методическими рекомендациями от вузов.

За выполнение положений концепции персонально отвечают:

- первые заместители генерального прокурора и министра внутренних дел;
- главы территориальных прокуратур и управлений внутренних дел;
- руководители Академии МВД, Ташкентского государственного юридического университета, Университета общественной безопасности;
- хокимы всех уровней, а также председатель Совета министров Каракалпакстана.

Несомненно, обращает на себя внимание тот факт, что постановление определяет конкретно организацию до конца года служебных кабинетов начальников районных (городских) органов внутренних дел и прокуроров непосредственно в махаллях — их служебный день будет начинаться и завершаться прямо там. Обратим внимание, что для каждой махалли ежемесячно утверждаются индивидуальные «дорожные карты». Ответственные лица (заместители прокурора, МВД и профильных служб) трижды в неделю лично работают в махалле. Кроме того, будут организованы патрули, дежурства, пункты общественного порядка, вводится по 2–3 инспектора профилактики, включая одного старшего. Каждый четверг объявлен «днём профилактики правонарушений»: руководители территориальных управлений внутренних дел будут выходить в махалли и временно исполнять обязанности инспектора.

Для усиления безопасности в махаллях вводится новый охранный режим — имущество граждан и организаций охраняется по утверждённым тарифам МВД на основе нового механизма. Использование охранных услуг станет обязательным для рынков, торговых центров, автовокзалов, наиболее оживлённых станций метро, парков, ресторанов, кафе, баров и других развлекательных заведений, а также для пустующих домов. В отдалённых районах до стабилизации криминогенной ситуации будут создаваться патрульные группы за счёт местного

бюджета. Согласно постановлению, до конца 2025 года уровень технической охраны имущества физических лиц планируется довести до 30%, а юридических — до 60%. В зонах с высоким уровнем преступности установят камеры видеонаблюдения с интеграцией в систему искусственного интеллекта и «тревожные кнопки» у общественных мест и жилых домов.

Как отмечается, в постановлении работа с определёнными категориями граждан (несовершеннолетними, женщинами, безработными и др.) теперь должна носить только системный и адресный характер:

наблюдение за проблемными семьями будет вестись не реже одного раза в три дня;

судящиеся семьи получают правовую помощь от органов юстиции;

«*махаллинская семёрка*» будет использовать планшеты с биометрической идентификацией объектов профилактики;

профилактика подростковых правонарушений станет предметом регулярных сессий между инспекторами МВД и педагогами.

Также предусмотрено создание общественных групп «агитаторы махалли» при «махаллинской семёрке», которые займутся профилактической и разъяснительной работой среди граждан.

За счёт фондов развития системы профилактики правонарушений вводятся специальные надбавки в размере двухкратного минимального размера оплаты труда (МРОТ) для инспекторов профилактики, а также дополнительная надбавка в размере одного МРОТ в течение года, если махалля выходит из «красной» зоны.

Следующие важное направление — это совершенствование законодательной базы. Отметим, что в Уголовном кодексе Республики Узбекистан определены формы соучастия в преступлении, что позволяет квалифицировать деяния как совершенные в составе организованной группы: Ст.29 Уголовном кодексе Республики Узбекистан предусматривает несколько форм соучастия, включая «организованную группу» и «преступное сообщество», а ст. 30 Уголовном кодексе Республики возлагает ответственность на руководителей, членов и других участников организованной группы или преступного сообщества за все преступления, в подготовке или совершении которых они участвовали.

Безусловно, Узбекистан активно противодействует организованной преступности, совершенствуя законодательную базу, проводя масштабные спецоперации и развивая международное сотрудничество. На сегодняшний день, сформированная в стране прочная правовая основа в этой области создает устойчивые условия и возможности для многопланового и всестороннего развития международного и регионального сотрудничества. Таким образом, на международном уровне можно выделить следующие основные формы сотрудничества, используемые в борьбе с организованной преступности:

1) обмен информацией, касающийся транснациональной преступности, в общем, сотрудничество по отдельным оперативным вопросам, таким, как:

предоставление информации о готовящихся или совершенных преступлениях и причастных к ним лицах;

содействие в проведении оперативно-розыскных мероприятий; проведение совместных заранее согласованных следственных действий и оперативно-розыскных мероприятий на территории договаривающихся сторон;

проведение скоординированных операций по предупреждению, пресечению и раскрытию преступлений;

- 2) обмен информацией по правовым вопросам.
- 3) выдача преступника (экстрадиция);
- 4) взятие лица под стражу для обеспечения выдачи.

В заключение подчеркнем еще одно, как нам представляется, **главное направление:** защита наиболее уязвимых слоёв населения.

Система защиты уязвимых слоев населения в Узбекистане непрерывно развивается, переходя от традиционных форм поддержки к более адресным и эффективным механизмам, что отражает провозглашенный принцип «Новый Узбекистан — социальное государство». В ст.57. новой редакции Конституции Республики Узбекистан закреплена обязанность государства по поддержке социально уязвимых категорий граждан, что способствует снижению социального неравенства и улучшению условий жизни. Необходимо отметить что, важным шагом стало создание в 2023 году Национального агентства социальной защиты. Агентство, курирует всю систему социальной поддержки, разрабатывает и реализует целевые программы помощи.

Также был внедрен Единый реестр социальной защиты, который позволяет адресно выявлять нуждающихся и назначать им пособия, исключая бюрократию и несправедливое распределение средств. На основе данных, собранных в этих реестрах, формируются списки граждан, нуждающихся в поддержке, для оказания финансовой помощи, обучения и содействия в трудоустройстве («Железная тетрадь», «Женская тетрадь», «Молодежная тетрадь»). Назначаются семьям с низким доходом и другим категориям граждан, нуждающимся в поддержке. Например, многодетным семьям могут предоставляться дополнительные выплаты на каждого ребенка. Предоставляются пособия при рождении ребенка, а также ежемесячные выплаты на детей.

Стоит отметить, что Узбекистан использует уникальную систему махаллинского самоуправления для адресной социальной защиты. Махалли играют ключевую роль в выявлении нуждающихся семей, одиноких пожилых людей и инвалидов, а также в распределении государственной поддержки (система «Махаллябай»). После принятия закона «О защите женщин от притеснения и насилия», в июне 2024 года утвержден регламент оказания помощи женщинам и детям, пострадавшим от насилия, что предусматривает работу кризисных центров и других служб поддержки. Безусловно, хотелось бы отметить, что в Узбекистане систематически принимаются специальные программы, направленные на обеспечение занятости социально уязвимых слоев населения, включая женщин и молодежь. Гражданам из уязвимых групп предоставляется возможность бесплатного обучения и получения новой профессии для повышения их конкурентоспособности на рынке труда. Также усиливаются меры по интеграции людей с инвалидностью в общество, создаются условия для их независимой жизни и трудоустройства. Для людей с инвалидностью предусмотрены различные льготы, включая компенсацию за коммунальные услуги и освобождение от некоторых налогов.

Несмотря на высказанные выше замечания и проблемы в сфере противодействия организованной преступности Узбекистан всё же достиг определённых достижений в частности:

- По данным *Numbeo*, в первой половине 2025 года Узбекистан был признан одной из самых безопасных стран в регионе (*низкий уровень преступности*).

• с 2021 года наметилось снижение (*при росте преступности в предыдущие годы, целом в последние годы идет явное снижение преступности*).

В заключение следует отметить, что организованная преступность в мире представляет собой сложное и динамичное явление, которое постоянно эволюционирует в ответ на изменения в обществе, экономике и технологиях. Необходимо постоянно совершенствовать стратегию и тактику противодействия организованному криминалитету. Особое значение в борьбе организованной преступностью имеют нормы права, закрепленные в международном и национальном (внутригосударственном) законодательстве.

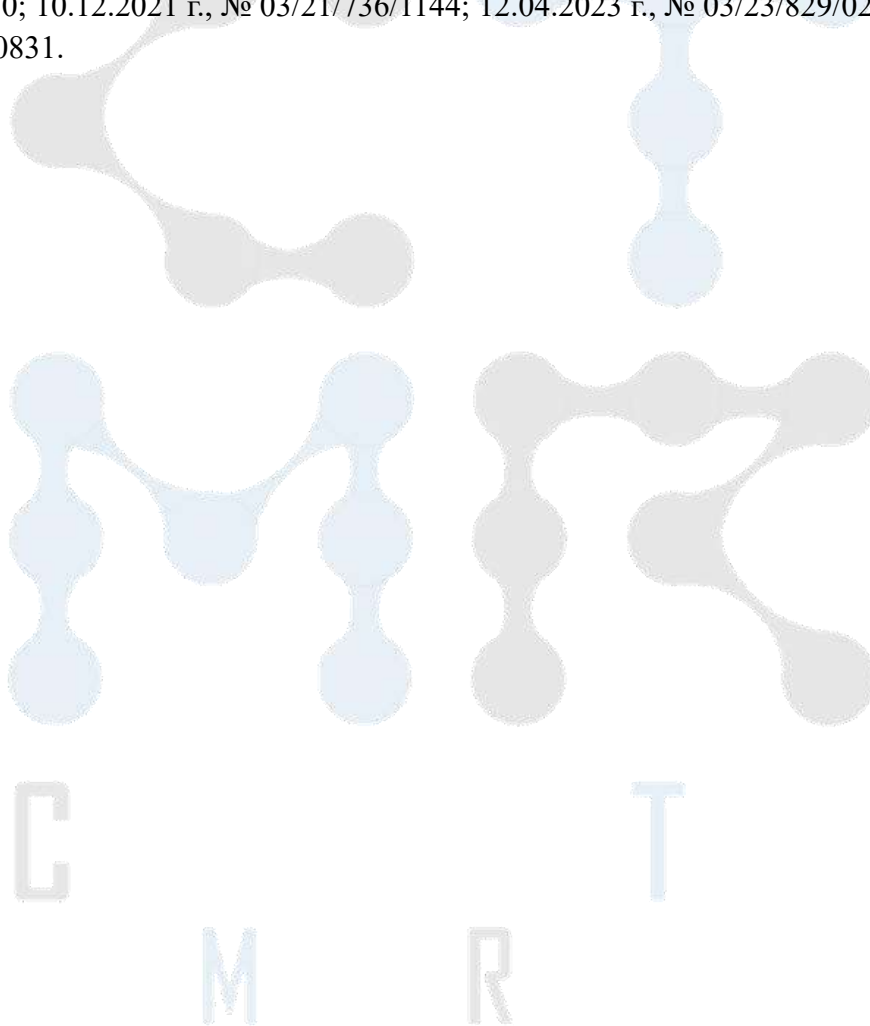
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COMBINING GAME-BASED AND INTERACTIVE APPROACHES TO ENHANCE ENGLISH VOCABULARY ACQUISITION IN YOUNG LEARNERS

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ABSTRACT

Lately, the introduction of game-based and interactive teaching approaches in English language teaching has attracted increasing attention from pedagogical staff and researchers. In many cases, traditional methods of teaching vocabulary - memorization, drilling, teacher-oriented explanation - do not satisfy the cognitive, emotional, and motivational needs of students. This article examines scientific research on the effective use of game-based learning (GDL), interactive tasks, and game pedagogy in improving the assimilation of English vocabulary among student youth in the period from 2010 to 2024. The findings show that such methods significantly improve vocabulary retention, motivation, communication skills, and activity. We came to the fact that the combination of game and interactive approaches in early English language learning creates a more meaningful, interesting, and developmentally oriented learning environment.

KEY WORDS- Game based learning, interactive learning, vocabulary acquisition, young learners, preschool English, motivation, multisensory learning, role play, contextual learning.

INTRODUCTION

Vocabulary knowledge, particularly for preschool and primary school students, forms the basis for successful language learning. Nevertheless, children of this age need approaches that are more appropriate to their developmental characteristics - movement, interest, imagination, and social attitudes - rather than rigid structure or repetitive teaching approaches (Cameron, 2001).

Game and interactive learning techniques provide an engaging learning environment, in which children familiarize themselves with new words through meaningful actions, play activities, interaction, and emotional communication. Gee (2013) argues that games naturally support learning by stimulating problem-solving, motivation, experience, and quick feedback.

During the process of teaching English words through games and interactive activities, children learn words not as a separate unit, but as part of life situations, actions, and

communication. The latter is consistent with Vygotsky's sociocultural theory (1978), according to which the process of education is carried out through interaction, social activity, and meaningful activity.

Aim of the article:

Our article explores how combining game techniques with interactive learning strategies can help young learners learn English vocabulary. The main attention in the article is paid to increasing vocabulary, motivation, and communication skills by reviewing scientific research and analyzing pedagogical practice.

Research Approach

In this study, the method of high-quality literature analysis was used, based on the synthesis of conceptual and empirical research on teaching game and interactive speech.

Collection of data

The 2010-2024 studies were selected using the following keys from ERIC, Google Scholar, JSTOR, as well as Scopus:

- ✚ "Game-based learning in EFL,"
- ✚ "interactive vocabulary teaching,"
- ✚ , "Development of the younger students' English language,"
- ✚ "game-based learning methods,"
- ✚ "activity-based teaching of language."

Data Analysis

Thematic coding identified duplicate patterns. In total, five dominant themes appeared:

1. Contextual study of vocabulary through game learning
2. Motivation and increased activism
3. Storage, enhanced by multisensor interaction
4. Developing communication in social games
5. The role of the teacher in managing playful learning.

Results and Discussion

1. Games create meaningful contexts for vocabulary use

Studies show that children learn vocabulary better in meaningful settings than in memorization (Richards & Rodgers, 2014). The game presents real situations that require the use of new words. Examples:

"Simon Says" helps to train action verbs ("jump," "turn," "touch").

Match pictures games introduce nouns and adjectives.

Role-playing games encourage the naturalistic use of phrases and expressions.

Research by Lin & Chen (2020) shows that students acquire dictionary more rapidly when engaged in contextually rich games than on traditional worksheets.

2. Games increase motivation and reduce anxiety

Children, naturally, love to play. As the learning process continues, attention and motivation sharply increase. Interactive games provide:

- ✚ competition (points, challenges),
- ✚ collaboration (team games),
- ✚ awards (badges, certificates of merit),
- ✚ Emotional activity (interesting, exciting).

A strong influence on children's memory and learning outcomes, according to Prensky (2011), are motivation and emotions. When young learners participate in English lessons in the form of games, the level of readiness to speak is high, and the level of concern about language is low.

3. Interactive activities strengthen vocabulary retention

Workshops, active games, and multiple-sensory experiments improve memorization in accordance with Paivio's (1986) theory of double-sided coding. Learners remember words better when learning involves both physical and Visual interaction.

Examples:

- ✚ **"Treasure Hunt" for finding objects linked to target words**
- ✚ **TPR (Total Physical Response) for associating action with significance**
- ✚ **Interactive flash card races to enhance quick recall**

Alqahtani's (2015) research shows that words learned through physical contact remain in human memory longer than words learned through practice.

4. Social play enhances communication skills

A lot of games require teamwork, negotiation, and discussion. Partnership naturally encourages children to use English to connect with each other:

- ✚ "It's your turn."
- ✚ "Can I have the card?"
- ✚ "Let's try again."

This phrase arises from the game itself. This is consistent with Vygotsky's (1978) view that social communication contributes to the development of language. In the development of communicative vocabulary, role-playing games, table games, and interactive stories are considered the most productive.

5. The teacher's role: facilitator, motivator, and guide

During game teaching, the teacher is not a lecturer, but a facilitators who can::

- ✚ simulates language use,
- ✚ will explain the rules,

- ✚ Supplying scaffolding,
- ✚ Incentives participation,
- ✚ the fulfillment of educational goals.

Effective teachers balance interesting and learning goals, with vocabulary goals being central.

Conclusion

Research from 2010-2024 shows that the integration of game and interactive technologies significantly improves the assimilation of English vocabulary by schoolchildren. These methods are:

- ✚ meaningful, contextual vocabulary ensures learning,
- ✚ Enhance motivation, curiosity, and active participation,
- ✚ strengthen vocabulary retention through multisensor interaction,
- ✚ social game communication support,
- ✚ creation of a joyful, supportive, and development-oriented learning environment.

While modern education is changing to more child-centred approaches, game-based learning provides a potent and effective way to train English vocabulary at an early age. The implementation of these strategies in preschool and primary grades contributes to the formation of a strong language foundation for young students and the skills necessary for the 21st century..

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MODERN METHODS AND APPROACHES TO TEACHING ENGLISH GRAMMAR IN MIDDLE AND HIGH SCHOOL

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Annotation: This article examines the persistent problem of developing communicative competence in English grammar, despite students' theoretical knowledge of grammatical rules. The study examines modern pedagogical approaches to teaching grammar and develops a system for its implementation in secondary education. Through mixed methodological studies, including literature analysis, case studies, and teacher surveys (n=50), the study demonstrates the effectiveness of communicative (CLT), task-based (TBLT), and technological approaches in increasing student engagement and language learning. The main obstacles to implementation were identified as curriculum limitations (82% of respondents), insufficient teacher qualifications (76%), and large class sizes (90%). The study proposes a model of "principled eclecticism," ensuring a flexible integration of innovative and traditional methodologies. The results show that effective modernization of grammar teaching requires the systematic implementation of the proposed system, supported by the improvement of teacher development programs and curricula.

Keywords: Teaching English grammar, communicative approach, CLT, TBLT, educational technology, principled eclecticism, secondary education.

1. INTRODUCTION

The global recognition of English as a language of international communication, professional cooperation, and academic exchange has defined the level of English proficiency as an important educational goal worldwide. This recognition prompted many educational systems to implement reforms aimed at improving English language teaching. However, despite these initiatives, grammar teaching in many secondary schools continues to emphasize traditional methodologies, particularly the Grammatical Translation Method (GTM).

Although these traditional approaches effectively develop metalinguistic awareness and reading comprehension skills, they often fail to enable students to apply grammatical structures in real, involuntary communication (Richards & Rodgers, 2014). This discrepancy leads to the emergence of students who can successfully perform discrete point grammatical exercises, but cannot use the same grammatical patterns in meaningful communication - this is a serious limitation in modern educational conditions, in which priority is given to communicative competence.

Thus, the central issue lies in methodological approaches that go beyond grammatical knowledge and facilitate the application of this knowledge. In this study, the following research question is considered: How can modern methods of teaching English grammar be effectively implemented to improve the communicative competence of middle and high school students?

This research is aimed at studying modern pedagogical foundations, including communicative language teaching (CLT), task-based language teaching (TBLT), technology integration and inductive approaches, as well as developing a practical model for their application in various educational conditions. The significance of this research lies in the fact that it provides educators, teacher-mentors,

and curriculum developers with a systematic approach to overcoming the gap between grammatical knowledge and its application in communication, thereby supporting broader educational goals of language teaching reform.

2. METHODS.

To solve the research tasks, mixed methods were used, combining qualitative and quantitative research strategies to ensure complete data collection and analysis.

2.1. Research Design

The examination was conducted in three consecutive stages:

1. Stage 1: Systematic study of literature. Having comprehensively analyzed the international pedagogical literature of recent years (2010-2024), attention was paid to empirical research and theoretical works on CLT, TBLT, technology-enriched language learning and their application in various educational conditions.
2. Stage 2: analysis of a qualitative case study. Three case studies on the successful implementation of modern grammar teaching methodology in secondary schools of Turkey, South Korea, and Finland were analyzed. These countries were selected to represent a variety of educational systems with documented successes in implementing communicative approaches.
3. Stage 3: quantitative survey. An online survey was conducted among 50 English language teachers from secondary and high schools in different regions. The survey was conducted to identify current methods, implementation challenges, and teachers' readiness to adopt innovative approaches.

2.2. Data Collection and Analysis

Data from the literature review and case studies were analyzed using thematic analysis to identify key success factors and overall implementation barriers. The questionnaire data were processed using descriptive statistics (percentage, frequency distribution) to quantify the prevalence of specific problems and methodological advantages among teachers.

3. RESULTS

The application of the described methodology yielded the following main results.

3.1. Effectiveness of modern methods

A review of the literature and a case study analysis confirmed the significant effectiveness of several personality-oriented approaches:

- Communicative Language Teaching (CLT): Showed significant improvements in students' communication fluency and readiness for sudden language use. Methods such as role-playing games, information space activities, and simulated dialogues provided meaningful contexts for grammar practice.
- Task-based language learning (TBLT): The three-stage structure (Pre-task, Task cycle, Language Focus) provided contextual grammar instruction due to communicative needs, resulting in improved long-term memorization and application capabilities.
- Enhanced technology-based learning: The introduction of digital tools such as Kahoot!, Quizizz, and story creation platforms has significantly increased student engagement and provided important rapid feedback mechanisms.
- Inductive approach: Students' discovery of grammatical rules through contextual analysis developed critical thinking skills and deeper cognitive processing compared to traditional deductive learning.

3.2. Problems of implementation

A survey of teachers revealed serious systemic and practical barriers to the implementation of these methods:

Curriculum limitations: 82% of respondents identified the established curricula and preparation for standardized examinations as the main barriers limiting the possibilities of communicative activity.

- Insufficient teacher preparedness: 76% of teachers noted the insufficiency of practical training in modern methods and expressed limited confidence in facilitating student-centered classes.

Senior classes: 90% of teachers worked with classes of more than 30 students, which caused material and technical problems for carrying out interactive and collaborative activities.

Resource limitations: 68% noted that access to reliable technological infrastructure and digital educational resources is not constant.

3.3. Development of the basis of "Principal Eclecticism"

In response to these conclusions, a practical training system was developed. This model allows for the strategic integration of methods based on specific learning objectives and contextual factors. The representative structure of the lesson includes:

1. Involvement stage (Inductive): Students encounter real language materials containing targeted structures and identify patterns through directed discovery.
2. Explanatory stage (Ductive): Teachers clearly explain the rules and emphasize the need for formal understanding.
3. Application stage (communicative/task): Students complete meaningful tasks that require the application of targeted grammar to achieve communicative goals.
4. Evaluation stage (technological): Learning outcomes are evaluated through interactive digital assessments or limited production tasks.

4. DISCUSSION.

The research results emphasize the fundamental contradiction between the indicated effectiveness of modern pedagogical approaches and the practical reality of various educational systems.

The identified implementation problems reflect the general problems in the context of educational reform. A high percentage of teachers (82%) assessing the limitations of curricula indicate the need for institutional support. Effective reform requires the introduction of consistency between pedagogical goals and assessment practices, in particular, the assessment of communicative competence in standardized measurements.

The low level of teacher preparedness (76%) indicates an urgent need for comprehensive professional development programs focused on practical classroom management strategies for communicative activity and effective technological integration. The successful implementation of the "Principal Eclecticism" model largely depends on the teacher's qualifications and independence, and without sufficient training, any innovative model can be applied incorrectly.

The proposed model of "principal eclecticism" is a pragmatic solution to these problems. It recognizes the value of precise learning, systematically incorporating communicative and technological elements. Such a balanced approach can facilitate the pedagogical transition by demonstrating that modern methodologies can improve existing practices rather than completely replace them. For example, starting lessons with inductive activity uses the advantages of learning a discovery, while subsequent deductive explanations ensure clarity of concepts and meet the requirements of the curriculum.

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The disadvantage of this study is that it relies on teachers' own reports and analysis of international cases. Future research should include experimental learning projects and classroom-based action research to empirically validate the effectiveness of the proposed system and measure its impact on students' grammatical accuracy and communication fluency in various learning environments.

CONCLUSION

This study confirms that the modernization of teaching English grammar in secondary education is necessary both from an educational and practical point of view. Teaching using modern methodologies, including CLT, TBLT, and technologies, creates a solid foundation for the development of students' communicative competence. However, their successful implementation requires the elimination of important contextual barriers, in particular, strict curricula, insufficient teacher training, and the complexity of the number of classes.

The "principal eclecticism" framework developed through this study offers teachers a flexible and practical approach to combine the strengths of traditional and innovative methodologies. For the widespread implementation of this model, the following recommendations are proposed:

1. Curriculum improvement: Introduction of evaluation based on communicative goals and effectiveness into educational standards.
2. Professional development: Implementation of meaningful, practical teacher training programs aimed at integrating classroom strategies and digital tools for teaching communicative languages.
3. Resource allocation: Ensuring equal access to technological resources and developing educational materials that support eclectic teaching approaches.

Through this strategic and balanced approach, educational systems effectively eliminate the gap between grammatical knowledge and communication skills, encouraging students to become confident and qualified English communicators.

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ГЕНДЕРНЫЕ ОСОБЕННОСТИ УПОТРЕБЛЕНИЯ ЭМОТИВНОЙ ЛЕКСИКИ В
ИНТЕРНЕТ-ДИСКУРСЕ

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Аннотация. Статья посвящена исследованию гендерных особенностей употребления эмотивной лексики в интернет-дискурсе. Также рассматривается происхождение термина «гендер» и его значение, раскрывается понятие эмотивной лексики и её связь с гендерными различиями в коммуникации. Приводятся примеры употребления эмоционально окрашенной лексики мужчинами и женщинами в социальных сетях, анализируется её роль в выражении эмоций и поддержании социальных связей. Автор подчёркивает актуальность изучения эмоциональной окраски речи в современных онлайн-коммуникациях и демонстрирует, как интернет влияет на формирование гендерных языковых моделей.

Ключевые слова: гендер, эмотивная лексика, эмоциональная окраска речи, интернет-дискурс, стикеры, эмодзи, социальные сети, онлайн-коммуникация.

Abstract. Statya posvyashchena issledovaniyu gendernyx osobennostey upotrebleniya emotivoy lexiki v internet-diskurse. Also, the origin of the term "gender" and the meaning of the ego, the concept of emotive vocabulary and the connection between gender differences and communication are revealed. Privodyatsya primery upotrebleniya emotsionalno okrashennoy lexiki mujchinami i jenshchinami v sotsialnyx netyax, analiziruetsya eyo rol v vyrazhenii emotsiy i podderjani sotsialnyx svyazey. The author demonstrates the actuality of the study of emotsionalnoy okraski rechi in modern online communication, how the internet affects the formation of gender language models.

Key words: gender, emotive vocabulary, emotsionalnaya okraska rechi, internet discourse, stickers, emojis, social networks, online communication

ВВЕДЕНИЕ.

Интернет-дискурс представляет собой динамичную коммуникативную среду, в которой язык функционирует под влиянием индивидуальных, социальных и культурных факторов. Одним из важнейших аспектов сетевой коммуникации является употребление эмотивной лексики — слов и выражений, передающих эмоциональные состояния говорящих.

Гендерные различия в коммуникации неоднократно становились объектом лингвистических исследований, однако цифровая среда создала новые условия для проявления эмоциональности, что требует дополнительного изучения.

Термин «гендер» сравнительно недавно вошёл в лингвистику и в настоящее время активно используется в различных разделах науки о языке. Изначально слово «гендер» употреблялось исключительно для обозначения категории грамматического рода. Однако с распространением термина его стали использовать в таких областях, как социальная философия, социология, история, а также психология и культурология. Термин заимствован из английского языка («gender») и впервые появился в англоязычной научной литературе в конце 1960-х годов XX века. Он был введён для различения социальных ролей мужчин и женщин в

обществе и семье, то есть для обозначения социально-культурных различий между полами, в отличие от биологического пола. В русском языке слово «гендер» не имеет точного однозначного перевода; в английских словарях, например у В. Мюллера, оно может обозначать как грамматический род, так и пол. Таким образом, гендер рассматривается как классификация, отражающая социально-культурные аспекты различий между мужчинами и женщинами. Эмотивная лексика представляет собой слова и выражения, которые передают эмоциональное состояние говорящего или вызывают эмоциональный отклик у слушателя или читателя. К её средствам относятся оценочные прилагательные («прекрасный», «ужасный»), эмоциональные глаголы («обожаю», «ненавижу»), междометия («ах», «фуу») и различные графические элементы в письменной речи, такие как повтор букв, эмодзи и восклицательные знаки. Основная функция эмотивной лексики — выражение эмоций и формирование эмоционального восприятия у адресата.

Теоретические основы исследования

1. Интернет-дискурс как лингвистическое пространство

Интернет-дискурс отличается:

- высокой скоростью коммуникации;
- мультимодальностью (текст, эмодзи, GIF, мемы);
- относительной анонимностью;
- сниженным уровнем формальности.

Эти факторы стимулируют более свободное использование эмоционально окрашенной лексики.

2. Эмотивная лексика

Эмотивная лексика — слова и выражения, передающие эмоциональное состояние субъекта речи (радость, страх, гнев, удивление, восхищение, ирония).

К ней относятся:

- экспрессивы («ух ты», «жесть», «класс», «ужас!»);
- оценочная лексика;
- эмодзи и графические средства;
- междометия.

3. Гендерный аспект коммуникации

Исследователи отмечают, что:

- женщины чаще используют эмоционально окрашенную лексику и эмодзи;
- мужчины склонны к более рациональному и прямому стилю общения, но в сети часто проявляют скрытую эмоциональность (сарказм, мемы, сленг).

Обзор литературы и методология

Гендерные различия проявляются и на уровне эмоционального выражения: женщины, как правило, демонстрируют более яркую эмоциональность и чувствительность, тогда как мужчины склонны к сдержанности и реалистичному восприятию ситуации. Интенсивность и характер проявления эмоций зависят также от воспитания и конкретных обстоятельств. По мнению Шаховского, ключевой функцией эмотивной лексики является «эмоциональное выражение говорящего».

Гендерные особенности употребления эмотивной лексики часто исследуются на материале художественных произведений, особенно в детективных жанрах, поскольку тексты этого типа

включают темы преступления, наказания и расследования, вызывая у читателей широкий спектр эмоциональных реакций — страх, тревогу, сочувствие и др. Развитие технологий оказывает значительное влияние на все сферы человеческой деятельности, включая язык, который является основным средством общения. В настоящее время самым удобным инструментом коммуникации является интернет. Общение в сети — это не только обмен текстовыми сообщениями, но и возможность проявления креативности, поскольку оно включает фотографии, видео, графические элементы, различные эффекты и другие визуальные средства.

Особое место в интернет-коммуникации занимают стикеры и эмодзи, которые пользователи отправляют друзьям, родственникам и знакомым. Эти средства позволяют выражать эмоции гораздо ярче и нагляднее, чем при помощи текста. Ранее люди пытались передать свои чувства исключительно через текстовые сообщения, что требовало дополнительных усилий. Сегодня же достаточно выбрать соответствующий стикер или эмодзи, отражающий эмоциональное состояние: грустный стикер для передачи печали или радостный для выражения веселья.

Кроме того, стикеры и эмодзи оказывают положительное влияние на психологическое состояние человека. Например, если у пользователя плохое настроение, отправка виртуальных букетов, радостных стикеров или других положительно окрашенных изображений может поднять ему настроение и вызвать эмоциональный отклик. Помимо этого, использование визуальных средств экономит время и упрощает коммуникацию: правильно подобранный стикер способен передать необходимое сообщение без длинного текстового объяснения, помогая собеседнику сразу понять эмоциональный контекст.

Результаты и обсуждение

1. Женская эмотивная лексика

Женщины чаще употребляют:

- положительные эмоции: «милашка», «классно», «очень красиво!»
- усилительные частицы: «очень-очень», «прямо вообще»



- эмодзи:
- графическое удвоение букв: «круууто», «милооо»

Особенности:

- стремление к эмоциональной поддержке собеседника;
- ориентация на межличностные отношения;
- выраженная эмпатия.

2. Мужская эмотивная лексика

Мужчины чаще используют:

- иронию и сарказм: «ну да, конечно», «логично...»
- сленг: «жиза», «жёстко», «изи»
- негативные эмоции: «бред», «ужас», «капец»
- мемные конструкции: «я так не играю», «это фиаско»

Мужчины реже используют эмодзи, но активно заменяют их мемами или короткими эмоциональными восклицаниями.

3. Нейтральные тенденции

Обе группы:

- активно используют мемы как эмоциональные маркеры;
- прибегают к смешанной эмоциональности (ирония + смех);
- употребляют англицизмы для передачи эмоций: «lol», «wow», «omg».

Заключение

Таким образом, эмотивная лексика выступает одним из инструментов выражения гендерных различий, отражая поведение и внутренние переживания героев и позволяя выявить особенности, характерные для мужской и женской речи.

Показано, что женщины чаще выражают свои эмоции открыто, используя положительно-оценочную лексику, усилители эмоций и визуальные средства, такие как эмодзи и стикеры, в то время как мужчины склонны к сдержанности, иронии или экспрессивной речи, связанной с юмором и статусом. Интернет-коммуникация предоставляет новые возможности для передачи эмоционального состояния, упрощая выражение чувств и взаимодействие между пользователями.

Исследование показывает, что в интернет-дискурсе гендерные различия в эмотивной лексике сохраняются, однако цифровая среда сглаживает традиционные коммуникативные модели. Женщины демонстрируют более открытую эмоциональность, тогда как мужчины — скрытую, выраженную через иронию, сленг и мемы.

Современный интернет-дискурс способствует формированию гибридных форм эмотивной коммуникации, где гендер играет важную, но не доминирующую роль.

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ЯЗЫКОВЫЕ НОРМЫ РУССКОГО ЯЗЫКА

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Аннотация. В статье рассматривается понятие языковых норм русского литературного языка, их роль в обеспечении единства и устойчивости речевой системы. Дается классификация основных видов норм: орфоэпических, акцентологических, орфографических, морфологических, синтаксических, лексических и стилистических. Показано значение норм для культуры речи и коммуникативной компетентности носителей языка. Отмечается динамический характер норм, их зависимость от исторического развития и социальных факторов. Материал может быть использован в учебных целях и при анализе современных процессов в русском языке.

Ключевые слова: языковая норма, орфоэпические нормы, орфографическая норма, морфологическая норма, синтаксическая норма.

Abstract. This article examines the concept of linguistic norms in literary Russian and their role in ensuring the unity and stability of the speech system. A classification of the main types of norms is provided: orthoepic, accentological, spelling, morphological, syntactic, lexical, and stylistic. The importance of norms for the speech culture and communicative competence of native speakers is demonstrated. The dynamic nature of norms and their dependence on historical development and social factors is noted. The material can be used for educational purposes and in the analysis of contemporary processes in the Russian language.

Keywords: linguistic norm, orthoepic norms, spelling norm, morphological norm, syntactic norm.

Введение. Языковые нормы — это правила употребления языковых средств, которые закреплены в традиции, отражены в словарях, грамматиках и поддерживаются культурой речевого общения. Они обеспечивают единство, стабильность и понятность русского языка, помогают участникам коммуникации понимать друг друга и создают основу для развития литературной речи.

Языковая норма — это исторически сложившийся, социально признанный и наиболее употребительный способ использования языковых элементов. Нормы формируются на основе литературного языка и регулируют разные уровни языковой системы: произношение, грамматику, лексику и стиль. Норма не является раз и навсегда фиксированной. Она меняется вместе с языком и обществом, но остаётся ориентиром, который отличает литературный язык от разговорной и просторечной речи. Основные типы языковых норм:

- Орфоэпические нормы: правила произношения и ударения.
- Лексические нормы: правильное употребление слов в их значении и сочетаемости.
- Грамматические нормы:
- Морфологические: правила образования форм слова.
- Синтаксические: правила построения словосочетаний и предложений.

- Орфографические и пунктуационные нормы: правила написания и расстановки знаков препинания, применяются в письменной речи.
- Стилистические нормы: правила использования языковых средств в разных стилях речи.

Орфоэпические нормы : Регулируют правильное произношение звукоударение в словах. Примеры: звонИт, а не звОнит, красИвее, а не крАсивее. Акцентологические нормы: Определяют правильное постановку ударения. Многие слова имеют строго закреплённый вариант — квартАл, жалюзи, торты.

Орфографические нормы: Устанавливают правила написания слов, использование букв и знаков. Например: слитное, раздельное, дефисное написание (впоследствии, по-русски, из-за).

Морфологические нормы: Регулируют образование форм слов. Примеры: правильные формы множественного числа (директора, профессора, но инженеры); род несклоняемых существительных (киви — несклоняемое, среднего рода)

Синтаксические нормы: Определяют правила построения словосочетаний и предложений. Например: согласование подлежащего и сказуемого, построение конструкций с деепричастиями, правильный порядок слов.

Лексические нормы: Регулируют употребление слов в соответствии с их значением и стилистикой. Ошибка возникает, если слово используется в несвойственном контексте (надеть шапку — правильно, одеть шапку — неверно).

Стилистические нормы: Определяют уместность употребления языковых средств в зависимости от цели и ситуации общения. Например: научный стиль не допускает разговорных выражений, а деловой стиль требует точности и официальности.

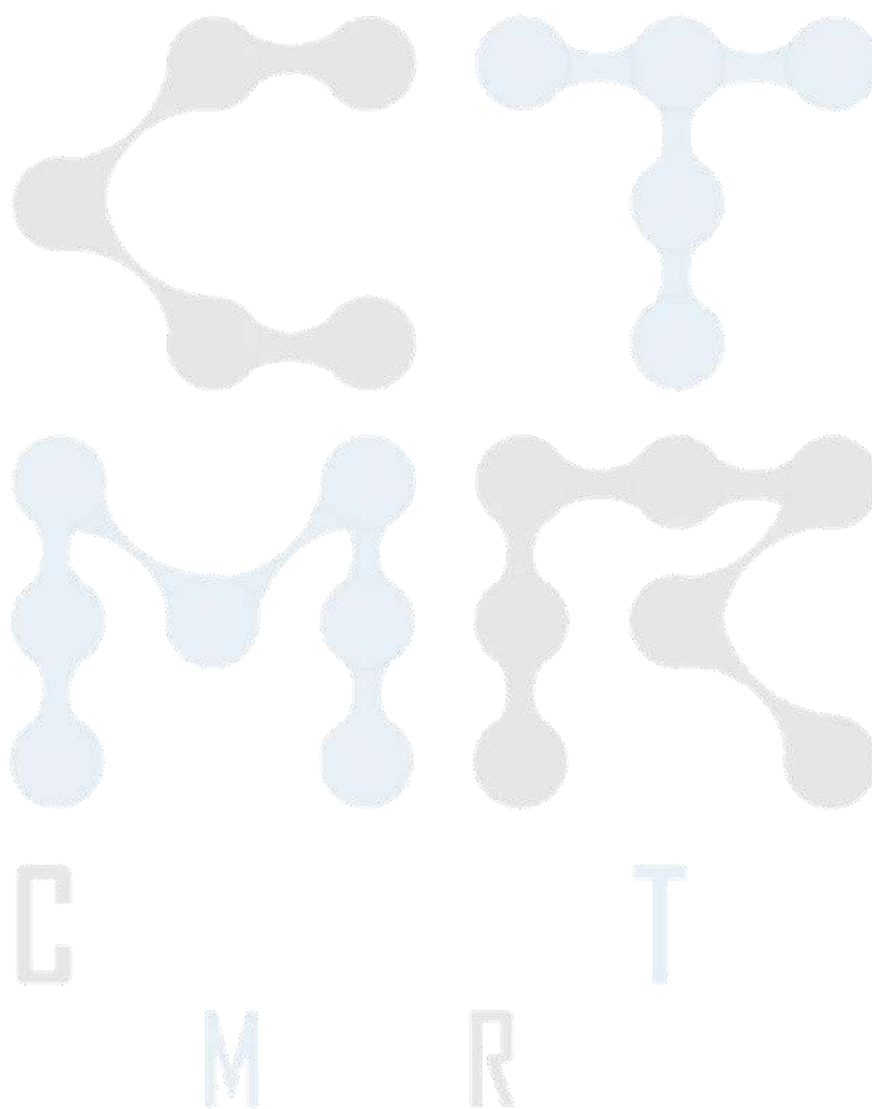
Динамика языковых норм: Русский язык постоянно развивается: появляются новые слова, меняется употребление старых, смягчаются или уточняются нормы. Современные словари регулярно фиксируют изменения, например: допустимыми становятся варианты интернет и Интернет, йогурт и йóгурт, договОр и дОговор (последний — как разговорный). Таким образом, норму следует изучать не только по школьным правилам, но и по современным авторитетным источникам: орфоэпическим и орфографическим словарям, грамматикам, справочникам Лопатина, Розенталя и др.

Заключение. Языковые нормы русского языка — это фундамент литературной речи, который обеспечивает точность, выразительность и культуру общения. Владение нормами помогает человеку грамотно выражать свои мысли, избегать ошибок и успешно взаимодействовать в профессиональной и бытовой сферах. Знание и соблюдение языковых норм является важной частью общей культуры человека и показателем его речевой компетентности.

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**TALABALARDA NIZOLI XULQNI BARTARAF ETISHDA TRENING
DASTURLARINING AHAMIYATI**

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Annotatsiya. maqolada treninglarning nazariy asoslari, talabalardagi nizoli xulqni bartaraf etishda treninglarning o'rni va ahamiyati, treninglarni tashkil etish bosqichlari, asosiy yo'nalishlari haqida yoritilgan. Shuningdek, trening dasturining asosiy tamoyillari, mashg'ulotda talabalardagi emotsiyalar, trening natijasida kuzatiladigan o'zgarishlar bayon etilgan.

Kalit so'zlar: trening, nizoli xulq, dastur, bosqich, yo'nalish, tamoyil, hissiy beqarorlik, psixologik moslashuv, emotsiyalar, muloqot, nizoli holat, "hamkorlik", "murosa", strategiyalar.

**THE IMPORTANCE OF TRAINING PROGRAMS IN ELIMINATING CONFLICT
BEHAVIOR IN STUDENTS**

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Annotation. the article discusses the theoretical foundations of training, the role and importance of training in eliminating conflict behavior in students, the stages and main directions of organizing training. It also describes the main principles of the training program, emotions in students during the training, and changes observed as a result of the training.

Keywords: training, conflict behavior, program, stage, direction, principle, emotional instability, psychological adaptation, emotions, communication, conflict situation, "cooperation", "compromise", strategies.

**ЗНАЧЕНИЕ ТРЕНИНГОВЫХ ПРОГРАММ В УСТРАНЕНИИ КОНФЛИКТНОГО
ПОВЕДЕНИЯ СТУДЕНТОВ**

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Аннотация. в статье рассматриваются теоретические основы тренинга, роль и значение тренинга в устранении конфликтного поведения студентов, этапы и основные направления организации тренинга. Описываются основные принципы тренинговой программы, эмоции студентов во время тренинга и изменения, наблюдаемые в результате тренинга.

Ключевые слова: тренинг, конфликтное поведение, программа, этап, направление, принцип, эмоциональная нестабильность, психологическая адаптация, эмоции, общение, конфликтная ситуация, «сотрудничество», «компромисс», стратегии.

Introduction. In today's era of globalization and the rapid development of the digital society, the socio-psychological adaptation, interpersonal communication and emotional stability of students are considered one of the urgent problems. As a result of the increased flow of information, increased workload, and the growing competitive environment in social networks, many students are faced with emotional instability, fatigue, and a tendency to conflict situations. In such conditions, eliminating conflict behavior in students, forming constructive communication skills, and developing social behavior based on patience, empathy, and cultural compromise are among the important

psychological tasks facing today's education system. The psychological training program developed in this direction is aimed at forming a conscious approach of students to conflict situations, managing their emotions, and developing a culture of cooperation and peace.

Literature review on the topic. The training program is based on strengthening students' socio-emotional competencies, and its scientific and methodological basis is based on the theoretical developments of such scientists as I.M. Sechenov, L.S. Vygotsky, K. Thomas, R. Kilmann, A.A. Bodalev, and D. Amirkhan on social relations, stress management, and conflict resolution. According to the classification of conflict resolution methods by K. Thomas and R. Kilmann, a person uses five different strategies in conflict situations: competition, compromise, withdrawal, adaptation, and cooperation. Based on this approach, the main goal of the training program is to teach students the strategies of "cooperation" and "compromise", and to form a culture of non-aggressive communication.

Research methodology.

The training was organized on the basis of the following main stages:

1. Diagnostic preparation stage. At this stage, students' attitude to conflict situations, level of emotional stability, behavioral culture and level of communication competence are determined. Through questionnaires, psychological interviews and observations, it is studied how students enter into conflicts and choose ways out of them. At this stage, students are prepared to understand the sources of stress, aggression or uncertainty in themselves and channel them positively.
2. Training sessions stage. This stage is the main content part of the training program. The program consists of 12 thematic sessions, each of which is aimed at developing a specific psychological mechanism. Sessions such as "Understanding the essence of the conflict", "My feelings", "The difference between me and others", "Behaving in a dispute", "Expressing your opinion peacefully", "Empathy is the key to mutual understanding", "Finding solutions in cooperation", "Stress management", "Culture of calm communication" are conducted based on interactive methods. The sessions use role-playing games, situational discussions, dramatic scenes, elements of art therapy, musical relaxation, mutual exchange of ideas and reflective writing.
3. The stage of understanding personal changes. Students analyze their own actions and feelings and come to understand the changes. Based on the "I-you" model, they develop the skills of listening to the opinions of others, expressing their position, and self-control. At this stage, students acquire values such as "not being afraid to speak their mind", "maintaining respect in conflict", "patience in communication".
4. Evaluation and Reinforcement Phase. At the end of the program, students will have the opportunity to evaluate their progress and reinforce the knowledge and skills they have acquired during the training. Through group discussions, reflective essay writing, and self-analysis exercises, they will understand their development.

The training program is based on the following psychological principles:

- The principle of activity and participation - students actively participate in each session, relying on their own life experiences.
- The principle of reflexivity - a person analyzes their behavior and consciously approaches changes.
- The principle of empathic approach - understanding the feelings of others, mitigating conflicts by taking their point of view into account.

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- The principle of systematization - ensuring the interconnection of emotional, social and communicative components.
- The principle of humanism - respecting the personal opinions, experiences and feelings of each participant.

Analysis and results (Analysis and results).

During the training sessions, students learn to manage their emotions, express their position in a culturally appropriate manner in communication, and make the right decisions in stressful situations. They begin to choose a “cooperation” strategy instead of “attack” or “withdrawal” in conflict situations. During group activities, students strengthen mutual trust, develop the skills of listening to each other, and respectfully express their opinions.

As a dynamic of personal development, students develop patience, a tendency to compromise, self-awareness, and the ability to communicate with others based on mutual respect. At the end of the training, they learn to control their emotions, seek positive solutions instead of negative reactions in conflict situations, and combine personal opinions with the interests of the team.

During the training, observations were conducted by teachers and psychologists, which revealed that the students' level of communication culture, mutual respect, and peace culture increased. Participants will apply the skills they learned in their life experiences and prioritize a compromise approach in teamwork.

Training program for eliminating conflict behavior in students

Session №	Session topic	Session objective	Methods	Duration
1	Introduction to training. Building mutual trust	Creating a positive psychological atmosphere in the group, introducing participants	Introduction game, "What does my name mean?" technique	45 minute
2	What is a conflict?	Explain the nature of conflict situations and distinguish their main types	"Brainstorming", situational analysis	60 minute
3	Me and my feelings	Developing the ability to understand, recognize, and express emotional states	"Emotion cards", mimicry game	60 minute
4	Sources of conflict	Analysis of psychological factors that cause conflict	Case study, “Cause and effect chain” chart	60 minute
5	Conflict management styles	Teaching how to choose constructive actions in a conflict situation	Role-playing, “Stop and Think!” technique	45 minute

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6	Expressing one's opinion in a civilized manner.	Developing the skill of expressing one's opinion peacefully in the process of communication.	"I-message" technique, conversation analysis.	60 minute
7	Aggression management	Controlling emotional outbursts in conflict situations and directing them into a positive channel	Reflective training, "Inner Voice" technique	45 minute
8	Empathy and listening culture	Developing the skills of understanding, feeling and active listening to others	"If I were him...", dialogue game	60 minute
9	Finding solutions in cooperation	Strengthening the skills of resolving conflict situations based on positive communication	Group discussion, "Circle of Agreement" exercise	60 minute
10	Self-management	Teaching mechanisms for maintaining calm and self-control in stressful situations	Breathing exercises, visualization techniques	60 minute
11	Muloqotdagi to'siqlar Barriers to Communication	Identifying and correcting communication errors that cause conflict	Exercise "Wall in Communication", situation analysis	45 minute
12	The art of compromise	Reconciling opposing views and building a culture of compromise	The game "Two-way win", the debate method	60 minute
13	Culture of Peace	Nonviolent conflict resolution and instilling the value of peace	"Tree of Peace" technique, positive exchange of ideas	45 minute
14	Work in a team	Increasing cooperation, mutual assistance, and responsibility	Teamwork, "Towards a Goal" game	60 minute

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15	Ways to reduce stress	Learning stress-reducing techniques in conflict situations	Music therapy, elements of art therapy	60 minute
16	Defending my opinion	Developing the ability to express one's position in a non-pressured manner	"My opinion" technique, role-playing	60 minute
17	Mediation in disputes	Learn to mediate conflicts and maintain a neutral position	"Third Party" exercise, mediator role	60 minute
18	Developing calmness and patience	Maintaining patience and calm in difficult situations	Dhikr exercises, visualization of "Inner Peace"	45 minute
19	Positive communication and feedback	Generating positive feedback, developing sincere communication	"Positive Words Circle", "Listening Without Judging" Exercise	60 minute
20	Training wrap-up and reflection	Understanding change, sharing experiences, and analyzing personal development	"How have I changed?", group discussion	60 minute

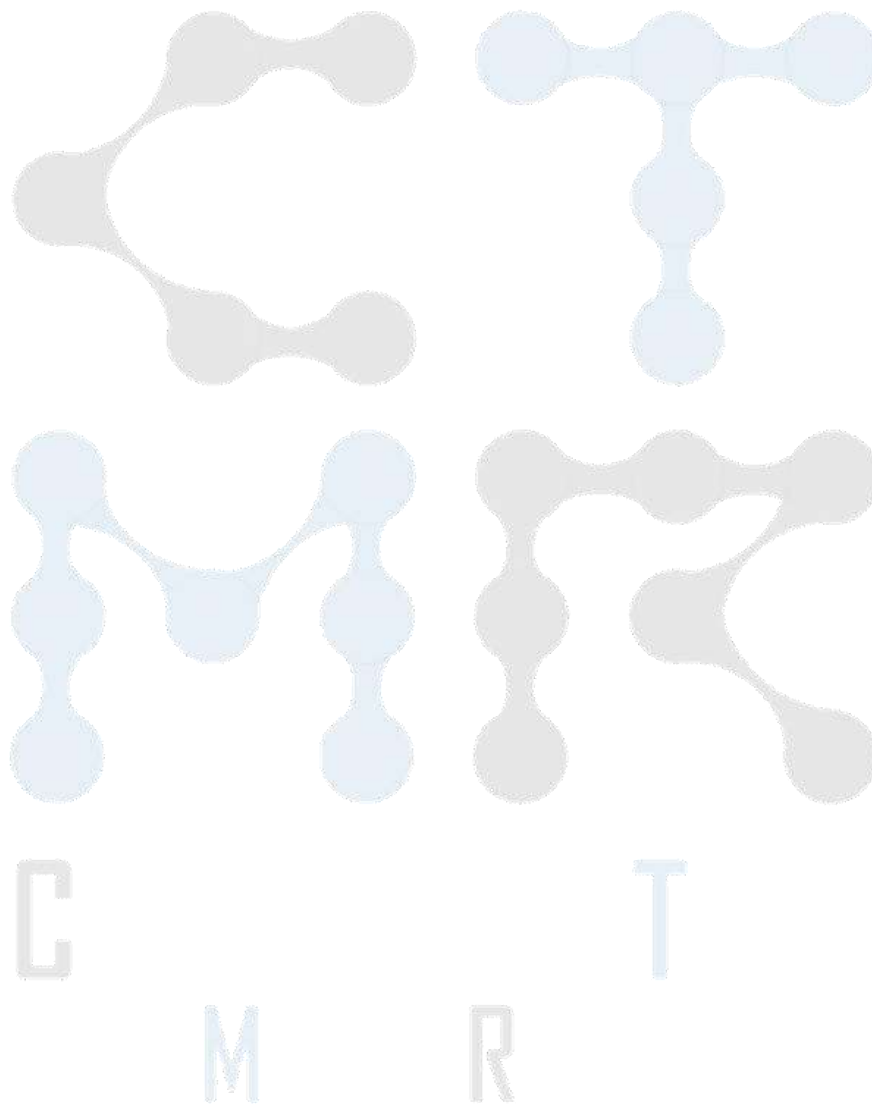
Conclusions.

The following qualitative changes are observed as a result of the training: students become aware of their own emotions, develop an empathetic attitude towards others, learn to maintain social balance, strive for peace and cooperation in the process of communication. They begin to perceive conflict not as a confrontation, but as an opportunity for personal and social growth.

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**Усиление конкуренции на внутреннем рынке Узбекистана после вступления в
ВТО**

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Аннотация. В статье рассмотрено современное состояние конкуренции и ее усиление на внутреннем рынке в процессе вступления в ВТО. Проанализированы положительные и негативные последствия по вступлению в ВТО. Выявлены проблемы и риски, а также приведены способы сглаживания возможных рисков и негативно влияющих последствий на рынок Узбекистана.

Ключевые слова: Конкуренция, ВТО, проблемы, последствия, усиление конкуренции, Узбекистан.

Введение. В условиях глобализации экономика Узбекистана переживает глубокие институциональные и структурные преобразования, направленные на создание открытой, конкурентоспособной и инновационной рыночной среды. Одним из ключевых шагов на этом пути является процесс присоединения страны к Всемирной торговой организации (ВТО), который предполагает гармонизацию национальной торговой политики с международными стандартами, расширение доступа к мировым рынкам и повышение прозрачности экономических процедур. Вступление в ВТО неизбежно усиливает конкуренцию на внутреннем рынке, поскольку снижает барьеры для импорта, стимулирует приток иностранных компаний и требует повышения эффективности отечественного производства.

Усиление конкурентной среды представляет собой не только вызов для национальных предприятий, но и значительный потенциал для модернизации промышленности, улучшения качества продукции и развития предпринимательской активности. В этой связи исследование последствий вступления Узбекистана в ВТО для внутреннего рынка приобретает особую актуальность, так как позволяет определить ключевые направления адаптации, выявить риски и возможности, а также предложить меры по повышению конкурентоспособности национальной экономики.

Целью статьи: анализ влияния вступления в ВТО на конкурентную среду внутреннего рынка Узбекистана, выявление основных факторов усиления конкуренции и оценка их влияния на развитие отечественных отраслей.

Методологию статьи: составляет сравнительный анализ, изучение нормативно-правовой базы, статистический и институциональный методы, а также обзор международного опыта стран с аналогичным этапом экономической трансформации.

Понятие конкуренции в условиях глобализации. Конкуренция (от лат. concurrere – состязаться) – соперничество между участниками рыночного хозяйства за лучшие условия производства, купли и продажи товаров. [9]. Конкуренция представляет собой экономический механизм соперничества между участниками рынка за ограниченные ресурсы, потребителя и долю рынка [1]. Она обеспечивает эффективное распределение ресурсов, стимулирует инновации, улучшение качества продукции и оптимизацию производственных процессов.

Существует несколько основных форм конкуренции: совершенная конкуренция, монополистическая конкуренция, олигополия и монополия. Каждая из них характеризуется различным уровнем влияния отдельных компаний на рыночные цены, степенью дифференциации товаров и количеством участников рынка. В условиях современной экономики важную роль играет международная конкуренция, которая охватывает соперничество производителей разных стран за присутствие на мировых и национальных рынках. [7]. Глобализация торговли приводит к тому, что внутренний рынок перестаёт быть автономным: на него воздействуют внешние факторы, такие как международные стандарты, импортные товары, иностранные компании и транснациональные корпорации. Роль международных организаций в формировании конкурентной среды. [2]. Международные экономические организации, в числе которых Всемирная торговая организация (ВТО), Мировой банк, Международный валютный фонд, играют значительную роль в формировании единого конкурентного пространства. [7]. Их деятельность направлена на упрощение торговых процедур, снижение протекционизма, защиту прав участников рынка и обеспечение добросовестной конкуренции. [8].

Особое место занимает ВТО, [3] регулирующая международные торговые отношения путём выработки общих правил. Участие страны в ВТО предполагает соблюдение принципов равного доступа к рынкам, прозрачности торговой политики, защиты от необоснованных ограничений и устранения дискриминационных мер. Это создаёт условия, при которых национальные рынки становятся более открытыми для иностранных товаров и услуг, что усиливает конкуренцию. [5].

Современное состояние конкуренции в Узбекистане. Современное состояние конкуренции в Узбекистане характеризуется активным развитием экономики и реформами, направленными на ее либерализацию и усиление. Заместитель председателя Комитета по развитию конкуренции и защите прав потребителей Фаррух Карабаев выступил с содержательной презентацией в штаб-квартире Всемирной торговой организации в Женеве (Швейцария) в рамках семинара «Экономические реформы Узбекистана для поддержки вступления в ВТО: развитие частного сектора и переопределение роли государства», проведённого на полях 11-го заседания Рабочей группы по присоединению Узбекистана к ВТО. В своем выступлении Фаррух Карабаев подчеркнул значительный прогресс, достигнутый Узбекистаном в формировании равных условий для бизнеса и укреплении конкурентной среды в рамках масштабных экономических реформ под руководством Президента Шавката Мирзиёева. [3]. Основные направления реформ включают сокращение роли государства в экономике, отмену эксклюзивных прав, внедрение принципов конкурентного нейтралитета и принятие нового Закона о конкуренции (2023 год), предусматривающего современные инструменты для предупреждения антиконкурентного поведения. Среди достигнутых результатов:

- доля государства в экономике сократилась с 55% до 30% с 2020 года;
- объем государственной поддержки уменьшился с 22% до 9%;
- число государственных предприятий снизилось на 67%;
- количество малых и средних предприятий выросло на 50%, достигнув 485 тысяч.

Узбекистан также успешно реализует либерализацию цен, структурное разделение естественных монополий в энергетике и авиации, создание независимых отраслевых регуляторов. Это позволило повысить конкуренцию более чем в 25 отраслях — от

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гражданской авиации и сельского хозяйства до цифровых рынков. Следующий этап реформ предусматривает демонополизацию 17 отраслей, полную либерализацию энергетического и транспортного секторов и дальнейшее укрепление конкурентного нейтралитета. Целью является удвоение ВВП к 2030 году и увеличение доли частного сектора до 85%. [3].

Таблица 1. Современное состояние конкуренции в Узбекистане (2023-2025).

Год	Основные события в правовой базе и политике	Исполнение и правоприменение (расследования, практики)	Ключевые отрасли/ секторные изменения	Внешняя открытость и инвестиции
2023	Принятие закона «О конкуренции»	Усиление мониторинга госпредприятий, начаты отраслевые проверки	Продолжение реформы железнодорожного сектора и подготовки приватизации	Приток международных консультаций и подготовка инфраструктуры для иностранных инвестиций
2024	Новые нормативы и практики антимонопольного комплаенса	Активные расследования в ряде секторов, публикация реестров нарушений с разбивкой по годам.	Сектор услуг – приток международных игроков и усиление конкуренции	Продолжающийся приток инвестиций, подготовка к размещению госактивов, развитие экспорта и импорта
2025	Новая редакция Закона «О конкуренции»: критерии доминирования, понятие «превосходящей переговорной силы»	Появление дорожных карт комплаенса в госструктурах и крупных корпорациях, открытые годовые отчеты Комитета и публичные реестры нарушений(2023-2025).	Подготовка к листингу активов UzNIF и приватизация отдельных пакетов. Усиление конкуренции в электронной торговле.	Много программ Мирового банка и доноров по улучшению институциональной среды и частного сектора.

Положительные последствия усиления конкуренции после вступления в ВТО. На внутреннем рынке произойдут следующие процессы: Снижение импортных тарифов, что приводит к увеличению объёмов импорта и появлению новых конкурентов; Усиление требований к качеству и безопасности продукции, что стимулирует модернизацию производств; Рост притока иностранных инвестиций, обеспечивающих внедрение инноваций

и повышение производительности; [12]. Ускорение структурных реформ в экономике; Приближение национального законодательства к международным стандартам, что делает рынок более прозрачным и предсказуемым. А также включают расширение выбора товаров и услуг для потребителей, повышение качества и снижение цен из-за необходимости улучшать свою продукцию для конкурентов. Также это стимулирует отечественное производство к модернизации, внедрению новых технологий и повышению эффективности, а также ограничивает монополизацию рынков. [6]. Конкуренция ведет к более эффективному распределению ресурсов, улучшение условий для торговли и усиление конкуренции могут способствовать привлечению иностранных инвестиций, участие в системе ВТО помогает стране адаптироваться к международным нормам ведения бизнеса. [11]. В перспективе вступление Узбекистана в ВТО будет способствовать ускорению экономического роста и структурной модернизации. Ожидается: расширение промышленного и экспортного потенциала; укрепление конкурентоспособности национальной экономики на региональном и глобальном уровнях. [10].

Негативные последствия вступления в ВТО. После вступления в ВТО возникнут негативные последствия в конкуренции. Они включают в себя ослабление национальных производителей из-за наплыва иностранных товаров, риск сокращения производства и безработицы в уязвимых отраслях, а также возможное усиление монополий и поглощение иностранных компаний более слабых отечественных. [13]. Экономические производственные последствия. Снижение конкурентоспособности: отечественные компании, особенно в высокотехнологичных и импортозависимых секторах, могут не выдержать конкуренции с более сильными мировыми игроками. [12]. Усиление конкуренции неизбежно создаёт ряд проблем для предприятий Узбекистана. Среди ключевых вызовов можно выделить: необходимость модернизации производственных мощностей, которые в ряде отраслей остаются устаревшими; ограниченный доступ к финансированию, особенно для малого бизнеса; недостаточная инновационная активность и слабое внедрение научных разработок в производство; низкая квалификация кадров по международным стандартам; возрастающее давление со стороны иностранных компаний, обладающих значительными технологическими, финансовыми и логистическими преимуществами. [10]. Поглощение отечественных производств: иностранные компании могут поглощать слабые производства. Сокращение производства и занятости: спад производственных мощностей может привести к сокращению рабочих мест, особенно в отраслях, зависящих от импортозамещения. Монополизация: конкуренция может привести к концентрации производства и усилению монополий, которые будут контролировать рынок и повышать цены. [11].

Способы сглаживания негативных последствий для Узбекистана.

Узбекистан будет последовательно снижать уровень импортных таможенных тарифов, сокращать перечень лицензируемых и квотируемых товаров, а также приводить нормативно-правовые акты в соответствие с соглашениями ВТО. [13]. Снижении тарифов и устранение нетарифных барьеров будут создавать условия для увеличения объёмов импорта, в результате чего на внутренний рынок может поступить более широкий ассортимент зарубежных товаров. [6]. Это усилит давление на отечественных производителей, обязывая их повышать качество, модернизировать производство и снижать себестоимость продукции. Для смягчения негативных последствий ВТО в Узбекистане необходимы меры по защите внутренних производителей, поддержка начинающих отраслей промышленности, которые нуждаются в

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временной тарифной защите, чтобы можно было конкурировать с более развитыми иностранными компаниями. [4]. Перенаправление инвестиций в создание новых отраслей промышленности для снижения зависимости от импорта и усиления экспортного потенциала. [11]. Меры по контролю цен на основные продовольственные товары для минимизирования инфляционного давления. [4].

Заключение. Вступление Узбекистана в Всемирную торговую организацию является важным этапом в процессе открытости и интеграции национальной экономики в мировое хозяйство. Усиление конкуренции после присоединения к ВТО станет ключевым фактором модернизации внутреннего рынка, стимулируя структурные реформы, повышение качества продукции и эффективное использование ресурсов. В то же время вступление в ВТО создаст определённые риски, связанные с повышенной конкуренцией, возможным снижением доходов слабых предприятий, необходимостью быстрой адаптации к новым правилам и увеличением нагрузки на государственные институты регулирования. Дальнейшая экономическая политика Узбекистана должна быть направлена на поддержку эффективных и инновационных предприятий, развитие экспортоориентированного производства и улучшение институтов рыночной экономики. Таким образом, присоединение к ВТО выступит мощным инструментом повышения конкурентоспособности экономики Узбекистана, а дальнейшее развитие национального рынка будет зависеть от эффективности государственной стратегии, способности предприятий адаптироваться и готовности страны активно участвовать в глобальных экономических процессах.

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Mahalla fuqarolar yig'inlarining maydonlarini o'zgarishini SASPlanet dasturida tahlil qilish(Qo'shko'pir tumani MFYlari misolida)

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Annotatsiya: Ushbu tadqiqotda Qo'shko'pir tumanidagi Mahalla fuqarolar yig'inlarining (MFY) hudud maydonlaridagi o'zgarishlar SASPlanet dasturi orqali masofadan zondlash ma'lumotlariga asoslanib tahlil qilindi. Zamonaviy kosmik tasvirlar yordamida MFYlar hududlarining kengayishi, qisqarishi va muhandislik-kommunikatsiya infratuzilmasining shakllanishi aniqlangan. Natijalar mahalla boshqaruvi, shaharsozlik va hududni rejalashtirishda muhim amaliy ahamiyat kasb etadi.

Kalit so'zlar: MFY, SASPlanet, hudud monitoringi, geoma'lumotlar, Qo'shko'pir tumani, masofadan zondlash.

Abstract: In this study, based on data from remote sensing using the SASPlanet program, changes in the territory of Mahalla Citizens' Assemblies (MCA) in the Kushkupir district were analyzed. With the help of modern satellite imagery, the expansion and reduction of the territories of mahallas and the formation of engineering and communication infrastructure were determined. The results will have important practical significance in mahalla governance, urban planning, and territorial planning.

Keywords: MFY, SASPlanet, territory monitoring, geodata, Koshkupyir district, remote sensing.

Аннотация: В данном исследовании на основе данных дистанционного зондирования с помощью программы SASPlanet были проанализированы изменения территориальных площадей сходов граждан махалли (СГМ) Кошкупырского района. С помощью современных космических снимков определено расширение, сокращение территорий МСГ и формирование инженерно-коммуникационной инфраструктуры. Результаты имеют важное практическое значение в управлении махаллей, градостроительстве и планировании территории.

Ключевые слова: МСГ, SASPlanet, мониторинг территории, геоданные, Кошкупырский район, дистанционное зондирование.

Kirish: O'zbekistonning ijtimoiy boshqaruv tizimida mahalla fuqarolar yig'inlari alohida o'rin tutadi. Mahalla nafaqat aholining o'zini o'zi boshqarish instituti, balki jamiyatning ijtimoiy barqarorligi, aholi bandligi, iqtisodiy faollik, hududiy infratuzilma va kommunal xizmatlar bilan ta'minlanishida muhim bo'g'in hisoblanadi. Shu bois mahallalarning fazoviy tuzilishi, hudud chegaralari va maydon dinamikasi yillar davomida aholi soni, qurilish jarayonlari, yer resurslaridan foydalanish va boshqaruv mexanizmlariga qarab o'zgarib keladi. Ushbu o'zgarishlarni ilmiy tahlil qilish – shaharsozlik, hududiy rejalashtirish hamda mahalliy boshqaruvning strategik vazifalaridan biridir.

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So‘nggi yillarda geografik axborot tizimlari (GAT) va masofadan zondlash texnologiyalari hududiy monitoringda muhim vositaga aylandi. Ulardan biri — SASPlanet dasturi bo‘lib, u yuqori aniqlikdagi kosmik suratlar asosida yer yuzasidagi obyektlarning vaqt bo‘yicha o‘zgarishini tezkor va aniq tahlil qilish imkonini beradi. Dastur orqali turli yillarga oid sun‘iy yo‘ldosh rasmlari yuklanadi, qiziqish obyekti – mahalla hududi poligon shaklida ajratiladi va maydon o‘zgarishlari hisoblab chiqiladi. Bu esa hududdan foydalanishdagi transformatsiyalarni ilmiy asosda kuzatish imkonini beradi.

Qo‘shko‘pir tumani Xorazm viloyatining qadimiy va demografik jihatdan faollashib borayotgan hududlaridan biri bo‘lib, bu yerda so‘nggi yillarda yangi turar-joy massivlari, infratuzilmalar, ijtimoiy obyektlar barpo etilishi natijasida mahallalar hudud ko‘lamida sezilarli o‘zgarishlar yuz berdi. Ayrim MFYlar maydoni kengaygan bo‘lsa, boshqalarida qishloq xo‘jaligi yerlari qisqarishi yoki qayta taqsimlanishi kuzatiladi. Shunday sharoitda mahallalar bo‘yicha maydon dinamikasini tizimli tahlil qilish zarurati yuzaga keladi.

Mazkur tadqiqotning asosiy maqsadi — **Qo‘shko‘pir tumani MFYlari hudud maydonlarining vaqt davomida o‘zgarishini SASPlanet dasturi yordamida aniqlash va ularni tahlil qilish**dan iborat. Tadqiqot davomida turli yillarga tegishli kosmik tasvirlar asosida mahalla hududlari aniqlanadi, maydonlar o‘lchanadi va o‘zgarish ko‘rsatkichlari hisoblanadi. Olingan natijalar mahalla boshqaruvi samaradorligini oshirish, hududni rejalashtirishda asos bo‘lishi bilan ahamiyatlidir.

Asosiy qism: Mahalla fuqarolar yig‘inlari (MFY) jamiyatning eng quyi bo‘g‘ini va davlat hamda aholining o‘zaro ijtimoiy boshqaruv tizimidagi asosiy bog‘lovchi struktura sifatida muhim ahamiyat kasb etadi. Aholining turmush darajasi, hududiy infratuzilma, ijtimoiy xizmatlar sifati va mahalla boshqaruvining samaradorligi aynan MFYlarning maydon chegaralari, aholining joylashuvi hamda hududdan foydalanish ko‘rsatkichlari bilan chambarchas bog‘liqdir. Shu sababli MFY hududlarining o‘zgarish dinamikasini muntazam o‘rganish, geografik raqamli monitoring olib borish bugungi kunda dolzarb masalalardan biri hisoblanadi.

Oxirgi yillarda raqamlashtirish jarayonlarining kengayishi, yer va mulk kadastri ma’lumotlarining ochiqalashtirilishi hududiy o‘zgarishlarni masofadan turib monitoring qilish imkonini yanada kuchaytirdi. SASPlanet kabi GEO-servis dasturlarining mavjudligi esa MFY hududlarini tarixiy kesimda solishtirish, fazoviy kengayish jarayonlarini aniqlash, notekis urbanizatsiya va demografik o‘zgarishlarni aniqlashda qulay vosita sifatida qo‘llanilmoqda. Mazkur yondashuv ayniqsa Qo‘shko‘pir tumani misolida dolzarblik kasb etadi, chunki tuman hududida oxirgi o‘n yillikda aholi zichligi ortmoqda, yangi turarjoy massivlari barpo qilinmoqda, qishloq xo‘jaligi yerlaridan foydalanish shakli ham sezilarli ravishda o‘zgarmoqda.



1-Rasm. Qo'shko'pir tumani Oshaq qal'a MFY hududining 2014-yildagi holatini SASPlanet dasturidan olingan ko'rinishi.



2-Rasm. Qo'shko'pir tumani Oshaq qal'a MFY hududining 2025-yildagi holatini SASPlanet dasturidan olingan ko'rinishi.

Tadqiqotning dolzarbligi yana shundaki, MFY maydonlarining o'zgarishi nafaqat fazoviy xarakterga ega, balki iqtisodiy, ijtimoiy, ekologik oqibatlarga ham ega. Shaharsozlik va qishloq hududlarini rejalashtirishda, mahallalarning ijtimoiy infratuzilmasini takomillashtirishda maydon o'zgarishlari bo'yicha tahliliy ma'lumotlar zarur. SASPlanet yordamida olingan aniqlashtirilgan

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koordinatalar va solishtirma xaritalar esa hududlar rivojlanishidagi tendensiyalarni ilmiy asosda baholash imkonini beradi.

Shu nuqtai nazardan, “Qo‘shko‘pir tumani MFYlari misolida MFY maydonlarining o‘zgarishini SASPlanet dasturi orqali tahlil qilish” mavzusi nazariy va amaliy jihatdan muhim bo‘lib, hududiy boshqaruv, kadastr, urbanizatsiya geografiyasi hamda mahalla infratuzilmasi rivojlanishiga oid tadqiqotlar uchun amaliy ahamiyatga ega ilmiy yo‘nalish hisoblanadi.

TADQIQOT MAQSADI VA VAZIFALARI

Maqsad:

SASPlanet dasturi orqali Oshaq Qal’a MFY hududining vaqt bo‘yicha (2014–2025) o‘zgarish dinamikasini o‘rganish va uning fazoviy rivojlanish xususiyatlarini aniqlash.

Vazifalar:

№	Tadqiqot vazifasi
1	2014 va 2025 yil kosmik tasvirlarini yuklab olish va solishtirish
2	Uy-joy zichligi, tom ranglari va qurilish intensivligini aniqlash
3	Yer maydonlarining turar-joy va q/x funksiyalariga o‘zgarishini monitoring qilish
4	Suv havzalari va xo‘jalik ob‘yektlaridagi transformatsiyani aniqlash
5	Olingan natijalarni muhokama, jadval va kartografik ko‘rinishda rasmiylashtirish

SASPLANET ORQALI TAHLIL METODIKASI

Tadqiqot quyidagi bosqichlarda amalga oshirildi:

- Hudud koordinatalari aniqlanadi**
 - SASPlanet → Google Sat, Bing Hybrid manbalari tanlanadi
- Yillar bo‘yicha tasvirlar yuklab olinadi**
 - 2014 yil — History (TimeSlider) orqali
 - 2025 yil — Active latest tile orqali
- Tasvirlar ustma-ust joylashtiriladi**
 - Layer → Add → Compare → Overlay mode
- Poligon va masofa o‘lchovlari bajariladi**
 - Measure → Polygon area → uy-joy kengayish foizi aniqlanadi
- Natijalar jadvalga kiritiladi va vizual taqqoslanadi**

TAQQOSLASH JADVALI

Ko‘rsatkich	2014	2025	O‘zgarish
Uy-joy zichligi	Past	Yuqori	▲ + keskin o‘shish
Tom modernizatsiyasi	Kam	Juda ko‘p	● yangi qoplamalar
Q/x yer maydoni	Keng	Qisqargan	■ transformatsiya
Infratuzilma darajasi	Cheklangan	Rivojlangan	▲ kengayish
Sanoat-xo‘jalik zonasi	Passiv	Faol	⚙️ iqtisodiy o‘shish

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Muhokama: Oshaq qal'a MFY hududining 2014 va 2025 yillardagi kosmik tasvirlari tahlili mahalla maydonida so'nggi o'n yil ichida sezilarli fazoviy o'zgarishlar yuz berganini ko'rsatdi. 2014 yilgi suratlarda turar-joy binolari nisbatan siyrak, uylar orasida masofa katta, qishloq xo'jaligiga ajratilgan yerlar keng maydonni egallagan. 2025 yilga kelib esa aholi sonining ko'payishi, uy-joy qurilishi faollashgani va infratuzilmaning kengayishi hisobiga mahalla hududi yanada zichlashgan.

Eng muhim o'zgarishlardan biri – tom materiallari va ranglaridagi yangilanishdir. 2014 yilda asosan oq tusdagi, ko'pincha an'anaviy tomlar ustuvor bo'lgan bo'lsa, 2025 yil tasvirida ko'k, qizil, yashil va boshqa metall qoplamali zamonaviy tomlar soni ancha ko'p. Bu holat uylarning yangi qurilgani yoki rekonstruksiya qilingani, mahallada yashash sharoitlari yaxshilanayotganidan dalolat beradi. Bundan tashqari, mahalla markaziy qismida yo'l tarmoqlari yanada zichlashgani, chorrahalar kengaygani va ayrim istiqbolli uchastkalarda yangi obyektlar paydo bo'lgani kuzatiladi.

Qishloq xo'jaligi maydonlarining qisqarishi ham diqqatga molik. 2014 yil suratida mahalla atrofi bo'ylab keng ekin maydonlari mavjud bo'lgan bo'lsa, 2025 yilga kelib ulardan bir qismi uy-joy massivlari bilan qoplangan. Bu jarayon qishloq xo'jaligi yerlarining turar-joy maydoniga bosqichma-bosqich transformatsiya bo'layotganini anglatadi. Bu holat qishloq xo'jaligi ekin maydoni kamayishiga olib kelishi mumkin, biroq mahalla urbanizatsiyasining kuchayishi, demografik o'sish va iqtisodiy faollik bilan bevosita bog'liq.

Mahalla sharqiy qismida joylashgan suv havzasi va ishlab chiqarish obyekti atrofida ham o'zgarishlar aniqlangan. 2014 yilda mazkur hudud kam foydalanilgan suv-botqoqlik maydoni ko'rinishida bo'lsa, 2025 yil tasvirida atrofida yo'l tarmoqlari kengaygani, ishlab chiqarish yoki saqlash maydonlari tashkil etilganini ko'rish mumkin. Bu ushbu hududning iqtisodiy aylanishga qo'shilganini va xo'jalik ishlari uchun moslashtirilganini ko'rsatadi.

Yuqoridagi kuzatuvlar shuni anglatadiki, 2014–2025 yillar oralig'ida Oshaq qal'a MFY hududi urbanizatsiya jarayoniga faol tarzda kirgan, uy-joy maydonlari kengaygan va yer resurslarining funksional taqsimoti o'zgargan. Ushbu natijalar SASPlanet yordamida hududiy monitoringning samarali vosita ekanini tasdiqlaydi. Mahalla hududining bunday dinamik rivojlanishi kelgusida infratuzilma rejalashtirish, yer resurslarini boshqarish va ijtimoiy ob'ekt taqsimoti bo'yicha ilmiy asoslangan qarorlar qabul qilishda muhim manba bo'lib xizmat qilishi mumkin.

Xulosa: Oshaq qal'a MFY hududining 2014 va 2025 yillardagi kosmik tasvirlari asosida olib borilgan tahlil shuni ko'rsatadiki, o'tgan o'n yil davomida mahalla hududi fazoviy va funksional jihatdan sezilarli o'zgarishlarga uchragan. Uy-joy massivlari keskin ko'paygan, tom qoplamalari modernizatsiya qilingan, yo'l tarmoqlari kengaygan va aholi zichligi oshgan. Qishloq xo'jaligi yerlari qisqargan, ularning ma'lum qismi turar-joy hududiga aylangan. Bu jarayon mahallaning urbanizatsiyaga yaqinlashganini, iqtisodiy faollik kuchayganini va infratuzilma rivojlanganini ko'rsatadi.

SASPlanet dasturi orqali olingan tasvirlarni solishtirish va monitoring qilish usuli hududiy dinamika, yer maydonidan foydalanish darajasi va mahalliy makonning rivojlanish bosqichlarini aniqlashda samarali vosita bo'lib xizmat qildi. Kelgusida doimiy monitoring tizimini yo'lga qo'yish hududni barqaror rejalashtirish, bo'sh yer resurslarini maqsadli boshqarish va aholiga xizmat ko'rsatish infratuzilmasini optimallashtirishda muhim ahamiyat kasb etadi.

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IMPROVING THE METHODOLOGICAL FOUNDATIONS FOR DEVELOPING
ELECTRONIC EDUCATIONAL RESOURCES IN THE PROCESS OF DIGITALIZATION

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Abstract: This article is devoted to the issues of improving the methodological foundations for developing electronic educational resources in the context of digitalization. The research focuses on modern approaches, methodological models, and evaluation criteria for creating electronic educational resources.

Keywords: electronic educational resources, digitalization, methodological foundations, user-centered design, adaptive learning, microlearning.

INTRODUCTION

In the modern information society, digitalization is a global process that encompasses not only technological advancement but also social, economic, and cultural spheres. The field of education has not remained outside this trend. During the pandemic, the importance of electronic learning increased sharply, becoming not just a response to the existing situation but an essential component of a continuous, flexible, and personalized future model of education.

Electronic educational resources (EERs) are any materials created and distributed in digital format for organizing, implementing, and managing the educational process. They include multimedia textbooks, online courses, interactive exercises, virtual laboratories, simulations, video lectures, podcasts, and more. However, the development of EERs is often carried out without a systematic methodology—fragmented and focused solely on technology—which negatively affects their quality and effectiveness.

Digitalization represents a global process that covers not only technological but also social, economic, and cultural sectors. In recent years, especially during the pandemic, the significance of electronic learning has sharply increased, and it has become not merely a temporary solution but an essential part of the future model of continuous, flexible, and personalized education (Bates, 2019).

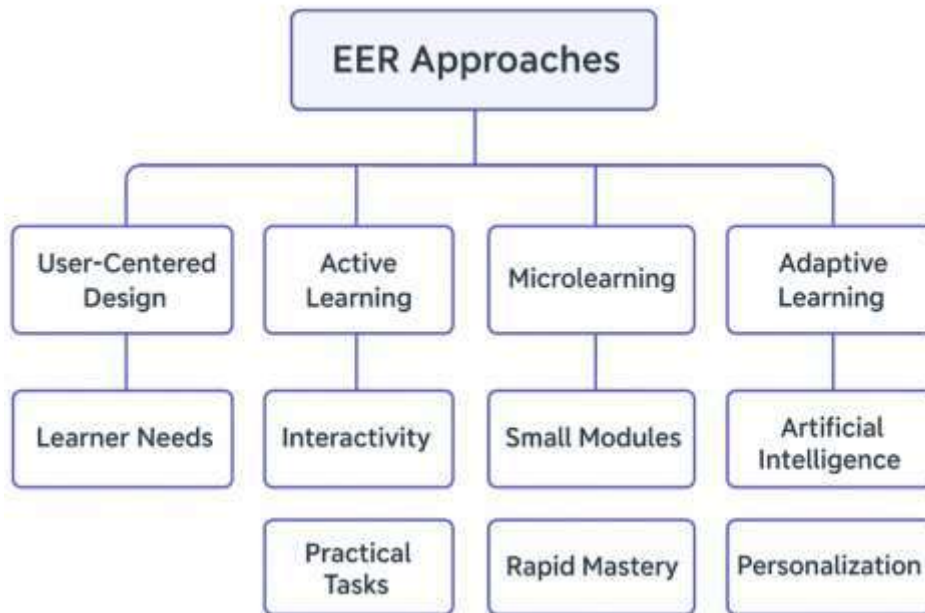
Electronic educational resources (EERs) are materials created and distributed in digital format for organizing, implementing, and managing the educational process. However, in practice, the development of EERs is often carried out without a systematic methodology—fragmented and focused mainly on technological aspects—which negatively affects their quality and effectiveness (Clark & Mayer, 2016).

The existing problem lies in the fact that the use of traditional didactic approaches in developing EERs often results in pedagogically ineffective resources. Therefore, improving the methodological foundations for developing electronic educational resources in the context of digitalization is an urgent scientific and practical issue.

For this reason, improving the methodological foundations for developing electronic educational resources during the digitalization process remains a pressing scientific and practical problem.

Main Part**1. Modern methodological approaches to developing EERs**

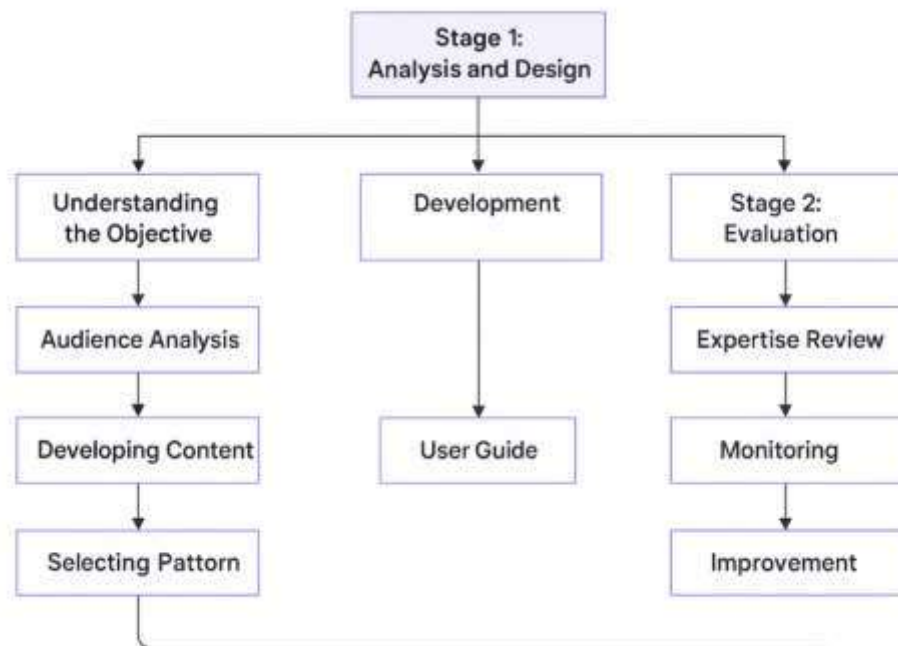
The design and development of EERs fundamentally differ from the preparation of traditional educational materials. This process should be carried out based on the following modern approaches:



- **User-Centered Design:** The design of EERs must primarily take into account the learner's (user's) needs, abilities, and psychophysiological characteristics. This includes intuitive interface design, appropriate content coverage, and an optimal level of complexity.
- **Active Learning:** EERs should not function merely as tools for delivering information but should facilitate the learner's independent development of knowledge, skills, and competencies. This is supported by interactive elements (tests, quizzes, assignments), simulations, and case studies.
- **Microlearning:** It is increasingly difficult to maintain learners' attention for extended periods. Dividing information into small, focused, and quickly digestible modules (micro-lessons) addresses this issue and integrates learning naturally into daily life.
- **Adaptive Learning:** Using artificial intelligence and data analytics technologies, EERs can adapt to each learner's knowledge level, learning speed, and areas of difficulty. This ensures a personalized learning trajectory.

2. Methodological Model and Stages of Developing EERs

The improved methodological foundations for creating electronic educational resources can be represented within the following multi-stage model:



Stage 1: Analysis and Design

- **Identifying pedagogical goals and objectives:** What is the purpose of the EER? What knowledge, skills, and competencies should it develop?
- **Analyzing the target audience:** Learners' age, knowledge level, technological literacy, and psychological characteristics are studied.
- **Structuring the content and dividing it into components:** The learning material is organized logically, consistently, and in accordance with didactic principles. Based on the principles of microlearning, the material is divided into modules.
- **Selecting methodological and technological platforms:** Which tools and platforms (LMS – Learning Management Systems, authoring tools) will be used to develop the resource?

Stage 2: Development and Production

- **Creating and assembling content:** Text, graphics, audio, video, and animation materials are prepared. The content must be presented in various formats (visual, auditory, kinesthetic).
- **Adding interactivity and multimedia elements:** Tests, drag-and-drop tasks, virtual laboratories, videos, and other interactive elements are integrated to enhance learner engagement.
- **Developing design and interface:** A convenient, visually appealing, and functional interface is created following user-centered design principles.
- **Preparing methodological guidelines and instructions:** Clear instructions for teachers and learners on how to use the resource are developed.

Stage 3: Implementation and Evaluation

- **Expert review and testing:** The developed resource is tested by a group of learners and specialists. Errors and shortcomings are identified and corrected.
- **Pedagogical monitoring and analysis:** The effectiveness of the resource during the learning process is monitored. Learners' results and their feedback are collected and analyzed.
- **Revision and improvement:** Based on the collected data, the EER is continuously updated and improved.

3. Evaluation Criteria for EERs

To assess the quality and effectiveness of electronic educational resources, clear criteria are essential. The improved methodology considers the following core criteria:

- **Scientific accuracy and relevance:** The extent to which the provided information is scientifically valid and up-to-date.
- **Methodological clarity and comprehensibility:** Logical structure and ease of perception for learners.
- **Didactic quality and level of interactivity:** The degree to which the resource promotes learner engagement and active participation.
- **Technical quality and aesthetics:** Quality of graphics, clarity of audio, page loading speed, and user-friendly interface.
- **Innovativeness and originality of the solution:** The extent to which new pedagogical or technological solutions are applied.
- **Pedagogical effectiveness:** The positive impact on learners' knowledge level and motivation.

Future Development Directions



Creating electronic learning resources (ELRs) in the context of digitalization is a complex and multi-stage process that requires a specific methodology distinct from traditional didactics. Improving the methodological foundations of ELR development involves placing the user (learner) at the center of the process, applying active and microlearning principles, and establishing a clear stage-based model for designing, developing, implementing, and continuously evaluating the resource.

Such an approach not only ensures the creation of high-quality, engaging, and interactive learning materials, but also enhances the overall effectiveness of the educational process by fostering a personalized and flexible learning environment. In the future, it is advisable to continue research on integrating advanced technologies—such as artificial intelligence, big data analytics, and virtual reality—into ELR development, as well as studying their pedagogical effectiveness.

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TASVIRIY SAN'AT VA KOMPOZITSION TAFAKKUR O'RTASIDAGI BOG'LIQLIK

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Annotatsiya: Ushbu maqolada tasviriy san'at va kompozitsion tafakkur o'rtasidagi uzviy bog'liqlik ilmiy-uslubiy jihatdan tahlil qilinadi. Maqolada bolalar va talabalarda vizual idrok, analitik va sintetik tafakkur, fantaziya va ijodiy qobiliyatni rivojlantirish jarayonida tasviriy san'atning pedagogik va psixologik ahamiyati yoritiladi. Shuningdek, interfaol metodlar, ijodiy o'yinlar va amaliy mashqlar orqali kompozitsion tafakkurini shakllantirishning samarali usullari ko'rib chiqilgan. Maqola tasviriy san'at mashg'ulotlarida rang, shakl, kompozitsion elementlar bilan ishlash va talabalarning fantaziya hamda ijodiy qobiliyatini boyitishning ahamiyatini aks ettiradi.

Kalit so'zlar; Tasviriy san'at, kompozitsion tafakkur, vizual idrok, ijodiy qobiliyat, fantaziya, pedagogik metodika, interfaol metodlar, estetik rivojlanish, amaliy mashqlar, o'quv jarayoni.

**СВЯЗЬ ИЗОБРАЗИТЕЛЬНОГО ИСКУССТВА И КОМПОЗИЦИОННОГО
МЫШЛЕНИЯ**

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Аннотация: В данной статье проводится научно-методический анализ неразрывной связи между изобразительным искусством и композиционным мышлением. В статье освещается педагогическое и психологическое значение изобразительного искусства в процессе развития у детей и студентов зрительного восприятия, аналитического и синтетического мышления, фантазии и творческих способностей. Также рассмотрены эффективные методы формирования композиционного мышления посредством интерактивных методов, творческих игр и практических упражнений. Статья отражает важность работы с цветом, формой, композиционными элементами на занятиях по изобразительному искусству и обогащения фантазии и творческих способностей студентов.

Ключевые слова: Изобразительное искусство, композиционное мышление, визуальное восприятие, творческие способности, фантазия, педагогическая методика, интерактивные методы, эстетическое развитие, практические упражнения, учебный процесс.

THE CONNECTION BETWEEN FINE ARTS AND COMPOSITIONAL THINKING

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Abstract: This article analyzes the interconnectedness between visual art and compositional thinking from a scientific and methodological perspective. The article highlights the pedagogical and psychological significance of fine arts in the process of developing visual perception, analytical and

synthetic thinking, imagination, and creative abilities in children and students. Effective methods of forming compositional thinking through interactive methods, creative games, and practical exercises are also considered. The article reflects the importance of working with color, form, and compositional elements in fine arts classes and enriching students' imagination and creative abilities.

Keywords: Visual arts, compositional thinking, visual perception, creative abilities, fantasy, pedagogical methodology, interactive methods, aesthetic development, practical exercises, the educational process.

Tasviriy san'at va kompozitsion tafakkur o'rtasidagi bog'liqlik inson ongining vizual-mantiqiy va ijodiy jarayonlarini shakllantirishda markaziy ahamiyatga ega. Insoniyat tarixi davomida san'at, xususan tasviriy san'at, nafaqat estetik didni rivojlantirish vositasi bo'lib xizmat qilgan, balki tafakkur, ijodiy fikrlash va fantaziyaning boyitishda muhim o'rin tutgan. Tasviriy san'at rang, chiziq, shakl, kompozitsiya va boshqa vizual elementlar orqali real voqelikni badiiy obraz sifatida idrok etish imkonini beradi. Shu bois pedagogik va psixologik nuqtai nazardan u kompozitsion tafakkur bilan bevosita bog'liqdir. Kompozitsion tafakkur insonning vizual-mantiqiy fikrlash jarayonini anglatadi, unda ob'ektlarning shakli, o'lchami, fazoviy joylashuvi va o'zaro munosabatlarini ongli tarzda idrok etish va badiiy ifodalay olish qobiliyati namoyon bo'ladi.

Tasviriy san'at mashg'ulotlari bolalarning vizual idrokini rivojlantiradi. Ob'ektlarning rang, shakl va strukturaviy xususiyatlarini idrok etish, ularni turli burchaklardan ko'rish va tahlil qilish orqali bola analitik va sintetik tafakkur komponentlarini shakllantiradi. Masalan, bulutlar, daraxtlar yoki shahar panoramalari kabi tabiiy va sun'iy ob'ektlarni chizish orqali bolalar kompozitsion tafakkur jarayonini o'rganadilar. Shu tariqa ular ob'ektlarni qism va bo'laklarga ajratish, ularni yangi tartibda birlashtirish va badiiy obraz yaratish imkoniyatiga ega bo'ladilar.

Kompozitsion tafakkur tarkibida vizual idrok, analitik tafakkur, sintetik tafakkur va ijodiy tafakkur komponentlari ajralib turadi. Vizual idrok ob'ektlarning tashqi ko'rinishini va ularning rang, shakl xususiyatlarini anglashni o'z ichiga oladi. Analitik tafakkur ob'ektlarni qismlarga ajratish va ularning o'zaro bog'liqligini aniqlash imkonini beradi, sintetik tafakkur esa bu qismlardan umumiy kompozitsiya yaratish jarayonini ta'minlaydi. Ijodiy tafakkur esa yangi badiiy obrazlar va variantlarni ishlab chiqish orqali fantaziya va tasavvur imkoniyatlarini kengaytiradi. Shu bilan tasviriy san'at bolalarda kompozitsion tafakkur jarayonini tizimli rivojlantiradi va ijodiy qobiliyatlarni mustahkamlaydi.

Interfaol pedagogik metodlar kompozitsion tafakkur rivojlanishida samarali vosita hisoblanadi. Vizual mashqlar, masalan, turli shakl va rangdagi ob'ektlarni chizish orqali talaba vizual idrok va tafakkurini mustahkamlaydi. Ijodiy o'yinlar, konstruksiya va modellar yaratish orqali talaba analitik va sintetik tafakkur elementlarini qo'llashni o'rganadi. Guruhda ishlash, muloqot va birgalikda ijodiy faoliyat esa talabaning ijtimoiy va kognitiv ko'nikmalarini rivojlantirib, kompozitsion tafakkur jarayonini boyitadi. Shu bilan birga, mashg'ulotlar oddiydan murakkabga, xususiyan umumiygacha bo'lgan bosqichma-bosqich yondashuv asosida tashkil qilinsa, talabalar vizual elementlarni, rang uyg'unligini va fazoviy joylashuvni ongli tarzda idrok etishni o'rganadilar.

Tasviriy san'at mashg'ulotlarida rang, chiziq, shakl va kompozitsion elementlar bilan ishlash bolalarning estetik idrokini rivojlantiradi. Rang uyg'unligi va kontrast, kompozitsion balansi va simmetriya orqali bolalar estetik sezgilarini shakllantiradi, vizual va ijodiy tafakkurini boyitadi. Shu

tarzda, tasviriy san'at bolalarning fantaziyasi, tasavvuri va ijodiy qobiliyatini faol rivojlantiradi, ularni ijodiy fikrlashga rag'batlantiradi va mustaqil badiiy yechimlarni yaratishga o'rgatadi.

O'qituvchilar va pedagoglarning asosiy vazifasi talabalarga erkin ijodiy muhit yaratishdir. Bolalarni majburlashdan saqlash, ularning ijodiy qobiliyatlariga rag'bat berish va qiziqishlarini qo'llab-quvvatlash pedagogik samaradorlikni oshiradi. Shu bilan birga, pedagoglar vizual va amaliy mashqlarni uyg'unlashtirib, talabalarga bosqichma-bosqich texnik va kompozitsion ko'nikmalarni o'rgatishlari lozim. Bu esa kompozitsion tafakkur va ijodiy qobiliyatni bir-birini to'ldiruvchi tarzda rivojlantirish imkonini beradi.

Tasviriy san'at va kompozitsion tafakkur o'rtasidagi bog'liqlik maktabgacha va boshlang'ich ta'lim yoshidagi bolalarda ham aniq namoyon bo'ladi. Bolalar oddiy shakllardan boshlanib, asta-sekin murakkab kompozitsiyalar yaratishni o'rganadilar. Rang va shakl bilan ishlash, turli kompozitsion elementlarni birlashtirish jarayoni ularning vizual, analitik va ijodiy tafakkurini uyg'un rivojlantiradi. Shu tariqa bolalar o'z fantaziyasini mustaqil ishlata olish, yangi badiiy obrazlar yaratish va tasviriy yechimlarni ishlab chiqish imkoniyatiga ega bo'ladilar.

Psixologik tadqiqotlar shuni ko'rsatadiki, tasviriy san'at mashg'ulotlari bolalarda tafakkur jarayonini tizimli rivojlantiradi. Bu jarayonda analitik tafakkur ob'ektlarni qism va bo'laklarga ajratishni, sintetik tafakkur esa ularni yangi kompozitsiyada birlashtirishni o'z ichiga oladi.

Ijodiy tafakkur esa fantaziya va tasavvur imkoniyatlarini kengaytirib, yangi badiiy obrazlarni yaratishga yordam beradi. Shu tarzda tasviriy san'at kompozitsion tafakkur bilan uzviy bog'liq bo'lib, pedagogik va psixologik jihatdan o'quvchilarning ijodiy rivojlanishida markaziy rol o'ynaydi.

Shuningdek, talabalarda kompozitsion tafakkurini rivojlantirishning samarali vositalari sifatida o'yin-testlar, muloqot, konstruksiya va modellar yaratish mashqlari tavsiya etiladi. Bu mashqlar orqali talabalar vizual idrokni mustahkamlash, analitik va sintetik tafakkur elementlarini amaliy qo'llash, fantaziya va tasavvur imkoniyatlarini kengaytirish imkoniga ega bo'ladi. Talabalar birgalikda ishlash orqali ijodiy yechimlarni ishlab chiqish va umumiy kompozitsiyalarga erishish jarayonida ijtimoiy va kognitiv ko'nikmalarini ham rivojlantiradilar.

Umuman olganda, tasviriy san'at va kompozitsion tafakkur o'rtasidagi bog'liqlik nafaqat nazariy jihatdan, balki amaliy pedagogik faoliyatda ham aniq ko'rinadi. Tasviriy san'at mashg'ulotlari orqali vizual idrok, analitik va sintetik tafakkur, fantaziya va ijodiy qobiliyat birgalikda rivojlantiriladi. Interfaol metodlar, ijodiy o'yinlar va amaliy mashqlar yordamida talabalar mustaqil badiiy yechimlar yaratish, fantaziyasini rivojlantirish va tasviriy san'at vositalaridan samarali foydalanish ko'nikmalarini egallaydilar. Shu tariqa tasviriy san'at bolalarda kompozitsion tafakkur rivojlanishini tizimli ravishda qo'llab-quvvatlaydi va ularning ijodiy salohiyatini to'laqonli shakllantiradi.

Xulosa sifatida tasviriy san'at va kompozitsion tafakkur o'rtasidagi bog'liqlik bolalarda vizual, analitik va sintetik tafakkur, shuningdek ijodiy qobiliyatni rivojlantirishda markaziy o'rin tutadi. Tasviriy san'at mashg'ulotlari orqali bolalar va talabalar rang, shakl va kompozitsion elementlarni idrok etishni, ularni birlashtirishni va yangi badiiy obrazlar yaratishni o'rganadilar. Interfaol metodlar, ijodiy o'yinlar va amaliy mashqlar kompozitsion tafakkur rivojlanishini samarali qo'llab-quvvatlaydi. Shu bilan birga, pedagogik yondashuvning tizimli va bosqichma-bosqich bo'lishi talabalarning fantaziyasi va ijodiy salohiyatini to'laqonli shakllantirish imkonini beradi. Tasviriy san'at va kompozitsion tafakkur o'rtasidagi uzviy bog'liqlik ularning pedagogik va psixologik rivojlanishdagi rolini yana bir bor tasdiqlaydi.

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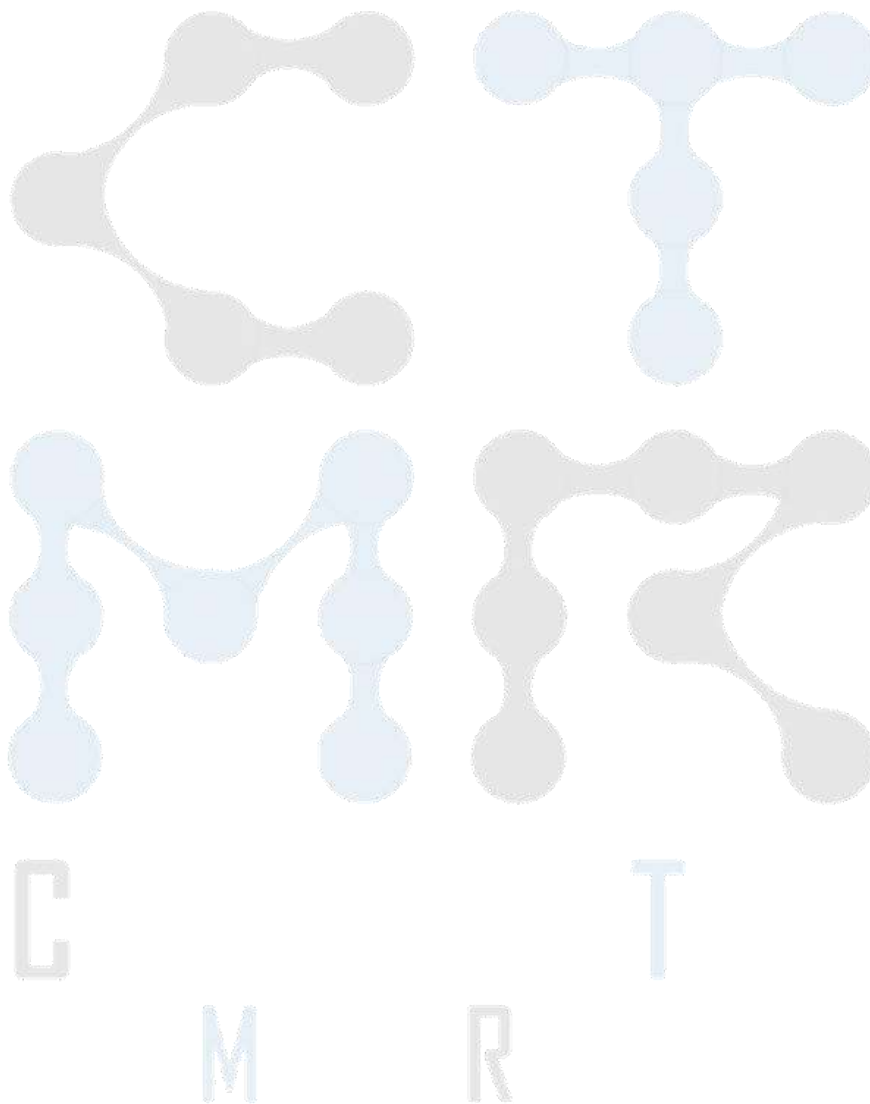
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CHANGES IN THE ACTIVITY OF SMALL INTESTINAL DISACCHARIDASES IN DIABETES MELLITUS

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ABSTRACT:

Diabetes mellitus (DM) is a chronic metabolic disease associated with insufficient insulin secretion or impaired insulin action. DM not only disrupts the metabolism of carbohydrates, fats, and proteins but also seriously affects the function of the digestive system. The aim of this article is to study the mechanisms and clinical significance of decreased activity of key disaccharidase enzymes (lactase, sucrase, maltase) located in the small intestine of patients with DM. Research results indicate that hyperglycemia, oxidative stress, and tissue insulin resistance lead to morphological and functional impairments of the small intestinal epithelium, which causes a decrease in enzyme activity and, consequently, impaired digestion of disaccharides (disaccharidase deficiency). This condition leads to the exacerbation of gastrointestinal symptoms such as abdominal pain, diarrhea, and flatulence in patients.

Keywords: Diabetes mellitus, small intestine, disaccharidases, lactase, sucrase, maltase, disaccharidase deficiency, hyperglycemia.

INTRODUCTION

The global prevalence of diabetes mellitus is increasing annually. While the complications of the disease, including nephropathy, neuropathy, and retinopathy, are well studied, changes in the gastrointestinal system (diabetic enteropathy) are relatively less explored. The small intestine is the primary site for the digestion and absorption of food, and the enzymes located in its brush border (disaccharidases and peptidases) play a crucial role in the breakdown of carbohydrates and proteins. Recent research has been accumulating data on the decreased activity of these enzymes in DM and its negative impact on the patient's nutritional status and quality of life.

1. Biological Significance of Disaccharidases

Disaccharidases (lactase, sucrase-isomaltase complex, glucoamylase/maltase), located in the microvilli of small intestinal enterocytes, break down disaccharides (sucrose, lactose, maltose) into monosaccharides. For example, lactase breaks down lactose into glucose and galactose, while sucrase breaks down sucrose into glucose and fructose. Only monosaccharides can be absorbed. Therefore, a decrease in disaccharidase activity sharply reduces the efficiency of nutrient utilization from food. Hormonal imbalance, microangiopathy, oxidative stress, and impaired trophism of the mucosal layer observed in diabetes lead to a weakening of enzyme activity.

Research shows that in diabetes:

- Even if pancreatic enzymes are synthesized sufficiently, their activation in the intestine is inadequate (due to decreased enterokinase secretion);
- Disaccharidase expression in the mucosal layer is damaged by glycation due to chronically high glucose levels;

- Insulin also acts as a trophic hormone that enhances protein synthesis, renewal, and enzyme transcription in the intestinal epithelium; its deficiency exacerbates enterocyte dysfunction;
- Oxidative stress causes damage to enterocyte membranes and enzyme active sites;
- Dysbiosis of the gut microbiota alters the metabolism of enzyme substrates.

2. Mechanisms of Decreased Enzyme Activity in Diabetes Mellitus

Direct Effect of Hyperglycemia: High blood sugar levels activate glycation processes in cells. In this process, sugar molecules in the blood react with enzyme and other protein molecules, disrupting their structure and function. The decreased activity of GLUT-2 transporters results in a reduced energy source necessary for enterocytes.

Oxidative Stress and Inflammation: DM increases the production of free radicals in the body and weakens the antioxidant defense system. Oxidative stress leads to apoptosis (programmed cell death) of enterocytes and disrupts the structure of microvilli.

Autonomic Neuropathy: Diabetic neuropathy often disrupts the innervation of the small intestine. This leads to slowed intestinal motility (hypermotility or hypomotility), increased bacterial growth (SIBO), and, consequently, damage to the mucosal layer.

Microangiopathy of Microvessels: Damage to the capillaries in the small intestinal wall impairs the nutrition and oxygen supply to the tissues, which reduces the functional activity of enterocytes.

- * Decreased breakdown of disaccharides → accumulation of substrate in the intestinal lumen → malabsorption, osmotic diarrhea;
- * Impaired protein digestion → hypotrophy, flatulence;
- * Irregular glucose absorption → increased glycemic variability.

The decrease in small intestinal enzymatic activity is a secondary consequence of diabetes, with ****insulin deficiency**** and ****microcirculatory disorders**** being the most important factors exacerbating this process. To alleviate this condition in clinical practice, the following are appropriate:

- Strict control of glucose,
- Optimization of insulin therapy,
- Use of antioxidant and pro-trophic approaches,
- Administration of enzyme preparations to facilitate digestion.

Conclusion

Diabetes mellitus is a significant factor that reduces the activity of disaccharidase enzymes in the small intestinal brush border. This impairment occurs through a number of pathophysiological mechanisms such as hyperglycemia, oxidative stress, neuropathy, and angiopathy. The resulting disaccharidase deficiency negatively affects the patient's quality of life and can further complicate blood sugar control. Therefore, in the treatment of patients with DM, it is necessary not only to control glycemia but also to early identify and correct gastrointestinal complications, including enzyme deficiency (for example, with enzyme preparations and diet).

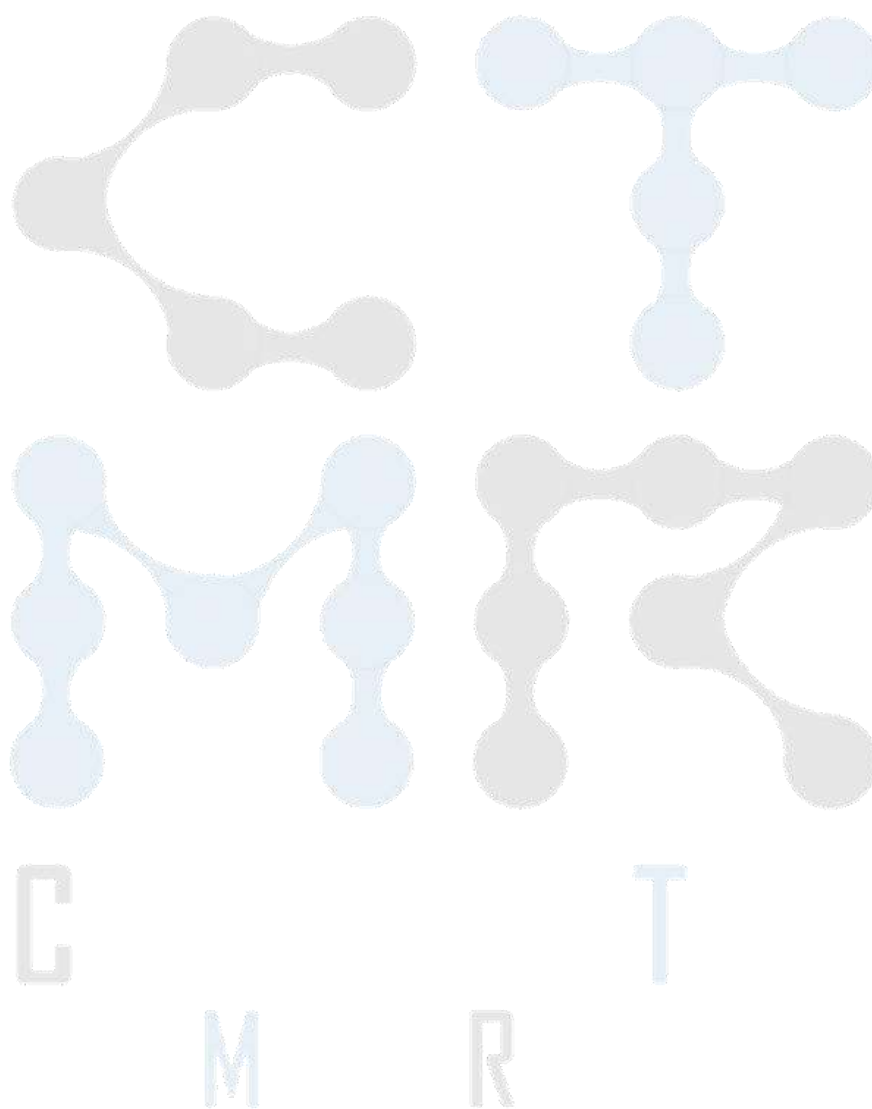
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PRACTICAL PROFESSIONAL ETHICS FOR ENGLISH TEACHERS

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Annotation. In my article, I explore the principles of professional ethics that are essential for English language teachers in today's educational environment. I examine how ethical behaviour shapes teacher-student interactions, classroom communication, fair assessment, and the personal values that inform responsible teaching. By analyzing international teaching standards, ESL methodology literature, classroom observations, and teacher interviews, I identify the key ethical challenges teachers face and offer practical, human-centred recommendations for improving professional conduct. My findings show that ethical behaviour is not an optional supplement to teaching, but a fundamental component of effective English language instruction.

Keywords: Professional ethics, English language teaching, teacher-student interaction, communicative competence, classroom culture, reflective teaching, teacher values.

ПРАКТИЧЕСКАЯ ПРОФЕССИОНАЛЬНАЯ ЭТИКА ДЛЯ УЧИТЕЛЕЙ
АНГЛИЙСКОГО ЯЗЫКА

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Аннотация. В своей статье я рассматриваю принципы профессиональной этики, которые являются необходимыми для учителей английского языка в современных образовательных условиях. Я анализирую, как этическое поведение влияет на взаимодействие между учителем и учащимися, коммуникацию на уроке, справедливое оценивание, а также на личные ценности, лежащие в основе ответственного преподавания. Опираясь на международные стандарты педагогической этики, литературу по методике преподавания английского языка, результаты наблюдений и интервью с учителями, я выявляю ключевые этические проблемы и предлагаю практические, ориентированные на человека рекомендации. Мои выводы показывают, что этическое поведение — это не дополнительный элемент, а основа эффективного обучения английскому языку.

Ключевые слова: профессиональная этика, преподавание английского языка, взаимодействие учителя и ученика, коммуникативная компетентность, учебная среда, рефлексивное преподавание, ценности педагога.

INTRODUCTION

In the 21st century, the job of an English language teacher is no longer limited to standing in front of a class and delivering lessons. Today, teachers navigate classrooms filled with cultural diversity, shifting social expectations, emotionally sensitive learners, and students who have access to more

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information than ever before. Because of this, professional ethics has become not just important, but one of the core skills every modern English teacher must develop.

Students now expect lessons that feel meaningful, relevant, and motivating. At the same time, parents look for teachers who combine academic expertise with honesty, fairness, and strong personal values. This means that ethical teaching is not simply a bonus feature of good teaching, which is an essential part of it.

In English language teaching, professional ethics involves:

- building trust and creating a psychologically safe classroom
- communicating with respect and cultural awareness
- assessing students fairly and transparently
- supporting learners both emotionally and academically
- maintaining professional behaviour in every situation

The way a teacher behaves sets the tone for the entire classroom. Ethical behaviour influences how students view their teacher not just as a source of knowledge, but as a role model whose actions matter as much as their words. In this way, a teacher's ethical choices directly shape student motivation, classroom harmony, and overall learning success.

LITERATURE REVIEW

Professional ethics in education has been a major topic of discussion in both international and national academic circles. Around the world, researchers have tried to understand what makes teaching not only effective but ethically sound. UNESCO [1], for example, highlights how essential it is for teachers to respect human dignity, promote equality, and embrace cultural diversity in their classrooms. Richards and Farrell [2] add that teachers truly grow when they reflect on their actions and communicate in ways guided by ethical principles.

Penny Ur [3] reminds us that every single classroom decision from seating arrangements to grading should put learners' interests first. Harmer [4] strengthens this view by linking ethical teaching to transparent assessment, respectful communication, and consistent professional behaviour.

Within the Uzbek educational context, scholars such as B. Hasanboev, N. Qayumov, and S. Pardayev [5] highlight a teacher's moral duty, the importance of ethical speech, and the powerful role teachers play in shaping students' values and personal growth.

Across all this literature, one message is clear: being an effective ESL teacher is not just about strong language skills or methodological knowledge. It is also about having the ability as well as the willingness to make thoughtful, principled decisions in the everyday realities of a diverse classroom.

RESEARCH METHODOLOGY

In this study, I explored ethics in English language teaching by combining theory with real classroom experiences. I began with an analytical review of international ethical codes and ESL teaching manuals to understand professional standards.

I then conducted classroom observations in five schools, paying attention to how teachers' tone, fairness, and feedback influenced student engagement and motivation. Through semi-structured interviews with twenty teachers and sixty students, I gathered personal insights into ethical challenges and what makes learners feel respected and valued.

Finally, I carried out case analyses of real classroom dilemmas such as unfair grading, stereotyping, and teacher burnout, which helped me connect theory with practice. These methods

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showed me that ethical teaching is not just about following rules, but about the daily choices teachers make that shape relationships and learning.

ANALYSES AND RESULTS

Observations showed that students closely watch how their teacher behaves. They notice the tone of voice, precisely, whether it's gentle or harsh, calm or tense—politeness, fairness in handling conflicts, and the teacher's ability to remain emotionally controlled. One 8th-grade student shared:

The Teacher's Personality as a Model

"Even when teachers get strict, it's fine—just don't talk to us disrespectfully." This shows that students value respect and fairness more than rigid rules or strict discipline.

Fair Assessment as the Foundation of Trust. Many students mentioned that unfair grading was one of the most discouraging classroom experiences. Ethical assessment means focusing on performance rather than personality, correcting mistakes without humiliation, avoiding personal biases, and giving every student an equal opportunity. Such fairness builds trust, confidence, and motivation, making the classroom a more supportive environment.

Ethical Communication and Classroom Climate. A teacher's ethical behaviour sets the tone of the classroom. Maintaining a calm and respectful tone, avoiding sarcasm or public criticism, providing supportive and constructive feedback, and ensuring that all students feel safe to participate are essential. Students describe such classrooms as places where they can "feel free to learn without fear."

Cultural Sensitivity in ESL Classrooms. Because ESL classrooms are often multicultural, teachers must avoid subtle stereotypes such as suggesting boys understand something better than girls, implying girls don't need English as much, or assuming students from a certain area are weaker. Even unintentional remarks can harm students' dignity and self-esteem. Treating each learner as an individual is crucial.

Emotional Labour and Teacher Burnout. Many ESL teachers experience emotional exhaustion, which can appear as impatience, harsh criticism, irritability, or a negative tone. Professional ethics includes recognizing these signs and taking steps for self-care. As one principle reminds us:

"Teachers are human too." Acknowledging this is part of being an ethically responsible teacher.

Practical Ethical Guidelines for ESL Teachers. Teaching ethically means putting the human first, remembering that every learner has emotions, dreams, and challenges. Using a calm and respectful tone helps preserve students' desire to learn. Transparent and fair grading, where criteria are explained openly, builds trust and confidence. It is important to separate the mistake from the student, focusing on the task rather than labeling the person.

Cultural sensitivity is essential avoiding generalizations and treating each student as an individual supports their dignity and engagement. Classrooms should be psychologically safe, where no learner fears ridicule or humiliation. Teachers must protect student confidentiality by addressing personal matters privately, not in front of peers or parents. Maintaining professional boundaries ensures a healthy balance between warmth and professionalism.

Reflecting regularly on teaching practices helps identify ethical decisions and areas for improvement. Finally, protecting mental health is vital; a healthy teacher creates a healthy classroom environment, benefiting both the educator and the students

CONCLUSION

Professional ethics in English language teaching is not just an added feature—it is the very heart of effective teaching. It shapes the classroom into a space where respect, trust, and motivation thrive. When teachers interact with students using empathy, fairness, and cultural awareness, the impact goes far beyond language learning: students feel valued, safe, and empowered, which naturally enhances both engagement and academic achievement.

The English teacher, therefore, is much more than a conveyor of grammar rules, vocabulary, or pronunciation. They are a guide, role model, and mentor who demonstrates integrity, respect, and human dignity through every interaction. How a teacher responds to mistakes, acknowledges differences, and balances professionalism with warmth leaves a lasting impression on students—not just in language acquisition, but in life skills, self-confidence, and social awareness.

Ethical behaviour in teaching is not a checklist or occasional practice; it is a way of being that informs every decision, interaction, and response. By embracing ethical principles as a natural part of daily practice, teachers create classrooms where learning becomes meaningful, relationships are nurtured, and students develop not only linguistic competence but also respect for themselves and others. In this way, the ethical teacher transforms education into a human-centered journey, where both teacher and student grow together.

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**LEGAL ISSUES IN DETERMINING THE LEGAL STATUS OF PERSONS
PARTICIPATING IN A CASE AND PERSONS NOT INVOLVED IN THE CASE, ON
WHOSE RIGHTS AND OBLIGATIONS THE COURT HAS MADE A DECISION:
THEORY AND PRACTICE UNDER THE LEGISLATION OF UZBEKISTAN**

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ABSTRACT

This article analyzes the concept of parties to a case, their types, rights, and obligations. Proposals are made regarding the procedural and legal status of parties not involved in the case, whose rights and obligations the court has decided upon.

Keywords: participant in legal relations, participant in legal proceedings, participant in a procedural action, participants in a court hearing.

According to Article 41 of the Economic Procedural Code of the Republic of Uzbekistan, persons participating in the case include: parties, third parties, the prosecutor, state bodies and other persons in accordance with the powers vested in them, as well as applicants and other interested persons in special categories of cases provided for by the Economic Procedural Code.

The legality of the consideration and resolution of an economic case by a court is largely determined by the correct determination of the procedural legal status of the participants in the economic process¹.

The concept of "participants" is an important and currently one of the most controversial topics. Despite its long history, it has attracted the attention of scholars specializing in procedural law².

Some scholars emphasize the need to expand the circle of persons involved in the case³, while others propose excluding from this category entities with state or public interests.⁴

¹ Abidov J. The concept and significance of reviewing court documents in light of newly discovered circumstances // Interdisciplinary dialogue of science and society in the era of ecological changes. – 2025. – T. 1. – No. 1. – P. 159-169.

² Artebyakina N.A. Theoretical and practical problems of the institute of persons participating in the case: dis. ... candidate of legal sciences. - Saratov, 2010. - 182 p.

³ Gorodnova O.N., Makarushkova A.A. Problems of determining the legal status of persons participating in a civil procedural case // Siberian Legal Review. - No. 1. 2020. - P.134-139.

⁴ Artebyakina N.A. Theoretical and practical problems of the institute of persons participating in the case: dis. ... Cand. of Law. - Saratov, - 2010. - 182 p.

According to Article 41 of the Economic Procedural Code of the Republic of Uzbekistan, it should be noted that the range of parties to a case is quite broad and diverse. We believe that all parties to a case should be classified according to the type of their legal interests⁵. This is due to the fact that each of the persons participating in the case is granted a set of certain rights and obligations established by law and inherent only to him.

The specified set of rights and obligations may differ among the persons participating in the case⁶. The scope of the rights and obligations of the parties and other persons with personal (subjective) interests does not correspond to the rights and obligations of the prosecutor, who has state or public interests and has special rights and obligations, for example, giving an opinion on the case.

The composition of the parties to the case must be based on two groups:

- the main parties to the case, i.e., those with a personal (subjective) interest;
- other parties to the case, i.e., those with a state or public interest.

The correct determination by the court of the composition of the persons participating in the case directly affects the achievement of the goal of the economic process - the protection of the violated or disputed rights of the parties or their legally protected interests⁷.

In addition to the concept of "persons participating in the case", the Economic Procedural Code of the Republic of Uzbekistan uses such concepts as "participants in legal relations", "participants in legal proceedings", "participants in procedural actions", "participants in court hearings", "participants in economic legal proceedings", "participants in legal proceedings" (Articles 10, 25, 58, 127, 128, 165, 167, 171, 203 of the Economic Procedural Code of the Republic of Uzbekistan). However, the concept of "subjects of legal relations" is not a procedural-legal one, but implies substantive-legal ("civil, corporate and other") relations. Therefore, from a legal point of view, it would be appropriate to equate the concepts of "participants in procedural actions", "participants in court hearings", "participant in legal proceedings", "participant in legal proceedings" with the concept of "persons participating in the case".

Furthermore, the concept of "other participants" frequently found in the Economic Procedure Code of the Republic of Uzbekistan (Articles 4, 59, 127, 179, 201, 220, 280, 303, 3249) lacks legal

⁵ Yusupov I., Khaitboev A. O. Specific features of securing claims in economic courts //Scientific progress. – 2023. – T. 4. – No. 2. – P. 56-60.

⁶ Salimova I. Eligibility criteria: theoretical, legal and procedural aspects // Review of legislation of Uzbekistan. - 2018. - No. 4. - P. 40-44.

⁷ Abidov D. Objects of review of judicial acts that have entered into legal force in economic judicial proceedings in the light of newly discovered circumstances //Science, innovation and education: key vectors of social progress. – 2024. – T. 1. – No. 1. – P. 75-83.

definition. The range of "other participants" in economic proceedings is significantly broader than the circle of persons participating in the case. These include government agencies and their officials, witnesses, experts, specialists, and translators.

In scientific literature, these expressions diverge from the rules established by law⁸. In some cases they are used in a single meaning, in others – in the form of such concepts as «subjects of legal relations»⁹, «participants in the economic process»¹⁰, «subjects of legal proceedings»¹¹, «participants in economic proceedings»¹², «participant in legal relations»¹³, «subjects of legal proceedings»¹⁴, which are established in the Economic Procedural Code of the Republic of Uzbekistan. This diversity of existing expressions, as well as references in legal literature to the ambiguous and controversial use of the term "persons participating in the case" throughout procedural legislation, demonstrate the need for a clear understanding of this conceptual framework. A.S. Pigolkin notes that incorrect wording or use of the term in legislative texts generates disputes and the need for additional clarification¹⁵.

Currently, there are various approaches to the relationship between the concepts of "judicial process" and "economic litigation." Some authors equate the meaning of these expressions. According to their theory, judicial process (economic litigation) is defined as "the procedure for the consideration and resolution of legal cases within the jurisdiction of the courts, regulated by the rules of procedural law"¹⁶. In other words, the goals of the trial are identified with the objectives of the implementation of legal proceedings¹⁷.

In administering justice in economic disputes, the economic court enters into certain relationships with the parties to the proceedings. These relationships are called economic procedural

⁸ Rakhmanova Z. CONVENIENCES ARE BEING CREATED FOR ENTREPRENEURS IN COURTS //For Teachers. – 2025. – T. 74. – No. 1. – P. 90-92.

⁹ Shakaryan M.S. Subjects of Soviet civil procedural law. – M.: VYuZI, 1970. – 214 p.

¹⁰ Chechina N.A. Civil procedural relations // Selected works on civil procedure. – St. Petersburg: Publisher. House of St. Petersburg University, 2004. – 656 p.

¹¹ Vikut M.A. Participation of third parties in Soviet civil proceedings: Abstract of Cand. Sci. (Law) Dissertation. – Moscow: Moscow State University, 1953. – 24 p.; Parties – the main persons in the litigation proceedings. – Saratov: Publishing House of Saratov University, 1968. – 84 p.

¹² Shcheglov V.N. Civil procedural legal relationship. – M.: Legal lit. 1966. – 168 p.

¹³ Shcheglov V.N. Subjects of judicial civil law: Lectures for students. – Tomsk: Era, 1979.

¹⁴ Vikut M.A. On persons participating in a civil case // Civil proceedings in a changing Russia: International scientific and practical conference (September 14-15, 2007) / Ed. O.V. Isaenkova. – Saratov, 2007.

¹⁵ Pigolkin A.S. The concept of legislative technique and its importance for lawmaking // Actual problems of the legal process in a people's state. Interuniversity thematic collection. / Ed. V.M. Gorshenev. - Yaroslavl, 1979. - Issue I.

¹⁶ Civil Procedure: Textbook / Edited by M.K. Treushnikov. – M., 2007; Large Law Dictionary / Edited by A.Ya. Sukharev, V.D. Zorkin, V.E. Krutskikh. – M., 1999.

¹⁷ Ryzhakov A.P. Commentary on the Civil Procedure Code of the Russian Federation. – M., 2008.

legal relationships. Economic procedural legal relationships are complex in nature and have generated considerable debate among legal scholars. On the one hand, during the course of legal proceedings, an entire system of economic procedural legal relationships is created, consisting of interconnected elements (elements of legal relationships).

The structure of legal relations is defined as follows: 1) subjects; 2) object; 3) content of the legal relationship. It follows that the use of the term "subject of legal relations" is entirely logical. A subject is an element of certain legal relations, particularly economic procedural relations.

Along with the concept of "subject of legal relations," the expression "participant in legal relations" is also used. For example, V.N. Shcheglov and N.I. Matuzov equate the concepts of "subject of legal relations" and "participant in legal relations".

In philosophical terms, a subject is defined as an actively acting and perceiving entity possessing consciousness and will. In jurisprudence, subjects of legal relations include not only individuals but also organizations and enterprises that are participants in the economic process, exercising their rights and fulfilling their obligations under current legislation¹⁸.

To correctly classify participants in an economic process into a particular group, it is necessary to examine the specific criteria for distinguishing these entities.

Current legislation does not define the concept of a "person participating in a case," and the doctrine only defines the characteristics of this institution: the presence of an independent legal interest in the outcome of the case (as the primary criterion for a person's membership in this group of participants), the ability to perform procedural actions in one's own name, and the right to express one's will at one's own discretion¹⁹.

Currently, the list of parties to a case is regulated by law. However, it should be noted that in practice, the range of such parties is multifaceted and may vary depending on the stage and type of economic process.

Analyzing other articles of the Economic Procedural Code of the Republic of Uzbekistan (Articles 148, 163, etc.), it should be noted that the range of interested parties is significantly broader than the list reflected in Article 41 of the Economic Procedural Code of the Republic of Uzbekistan. For example, the legislation does not include procedural participants in writ proceedings—the creditor and the debtor—in the general list, despite their material and procedural interests. Some scholars

¹⁸ Shcheglov V.N. Civil procedural legal relationship. – M., 1966.

¹⁹ Theory of State and Law / Edited by V.M.Korelsky, V.D.Perevalov. – M., 1997; Syrykh V.M. Theory of State and Law. – M., 1998.

argue that the creditor and the debtor should be included in Article 41 of the Economic Procedural Code of the Republic of Uzbekistan²⁰.

In our opinion, introducing such legislative changes will impact practice. In procedural law, the creditor and debtor are considered parties to the proceedings, and therefore their legal status is equivalent to that of the plaintiff and defendant, as well as to parties to a claim. According to Article 41 of the Economic Procedural Code of the Republic of Uzbekistan, parties are defined as persons participating in the case. Thus, the creditor and debtor are parties to the case and have corresponding rights and obligations.

Of particular interest are persons not involved in the case, whose rights and obligations the court has decided. Such persons are specified by the legislature in appellate, cassation, and revision proceedings (Articles 259, 282, and 307 of the Economic Procedural Code of the Republic of Uzbekistan).

Referring to the Resolution of the Plenum of the Supreme Court of the Republic of Uzbekistan dated March 25, 2024 No. 10 "On certain issues of consideration by courts of economic cases in appellate and cassation proceedings", it can be concluded that in judicial practice their legal status is equal to the legal status of persons participating in the case²¹.

If a court decision affects a person's rights and obligations or violates their legitimate interests, that person has a substantive or procedural interest. Consequently, they should have not only the right to appeal the court decision but also all the rights inherent to parties to the case.

Current legislation does not fully define the procedural and legal status of persons not involved in the case, on whose rights and obligations the court has made a decision.

In this regard, it is advisable to supplement the Economic Procedural Code of the Republic of Uzbekistan with Article 41¹, **"Rights of Persons Not Involved in the Case, on Whose Rights and Obligations the Court Has Made a Decision"**. Article 41¹ of the Economic Procedural Code of the Republic of Uzbekistan should be amended as follows:

«Article 41¹. Rights of Persons Not Involved in the Case, on Whose Rights and Obligations the Court Has Decided

Persons not involved in the case, on whose rights and obligations the court has decided, have the right to appeal the court's decision through appellate, cassation, and revision proceedings. Such persons enjoy the rights and obligations of persons participating in the case».

²⁰ Isaenkova O.V., A.A. Demichev Civil procedural law of Russia // Norma. - Moscow, - 2009. - P. 86.

²¹ <https://www.lex.uz/ru/docs/6878576>

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The introduction of this article will make it possible to more accurately determine the procedural and legal status of these persons after the court has accepted the complaint for proceedings, as well as their rights and obligations during the review of the case.

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**CLINICAL EVALUATION OF A PLANT-BASED BIOLOGICAL FILM FOR THE
TREATMENT OF DENTURE STOMATITIS IN WEARERS OF REMOVABLE ACRYLIC
DENTURES**

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Abstract

Background. Removable acrylic dentures remain one of the most widely used methods of prosthetic rehabilitation in patients with partial or complete edentulism because they are relatively simple to fabricate, affordable, and capable of restoring chewing efficiency and aesthetics. However, long-term denture use is frequently associated with pathological changes in the denture-bearing tissues, most notably denture stomatitis, which according to different authors affects more than half of all wearers of removable dentures. The aetiology of this condition is multifactorial and includes mechanical trauma, microbial biofilm formation, *Candida* colonisation, and the presence of residual methyl methacrylate monomer in acrylic base materials.

Aim. To evaluate the condition of the denture-bearing mucosa in wearers of removable acrylic dentures and to compare the clinical efficacy, tolerability, and socio-economic benefits of a plant-based biological film with those of a conventional Parodium® gel in the treatment of denture stomatitis using quantitative light-fluorescence diagnostics.

Materials and methods. A total of 80 patients with clinically diagnosed denture stomatitis related to removable acrylic dentures were examined. The severity and extent of mucosal inflammation were assessed with the AIO BIO Qscan Plus device, which is based on quantitative light fluorescence and bioimpedance analysis. For comparative clinical evaluation, two main treatment groups were formed: Group 1 received the plant-based biological film applied to the affected mucosa, while Group 2 received standard care with Parodium gel. In both groups, local treatment was combined with correction of prosthetic bases where needed and reinforcement of denture-hygiene instructions. Patients were followed for 7 days with dynamic clinical and instrumental monitoring.

Results. Use of the plant-based biological film led to more rapid reduction in pain, a faster decrease in the area of inflamed mucosa, and earlier complete epithelialisation of the denture-bearing tissues compared with Parodium gel. No adverse reactions were recorded in either group. Patient satisfaction was higher in the biological-film group (92% 'very satisfied') than in the Parodium group (78% 'satisfied'). The accelerated resolution of inflammation allowed a reduction of direct outpatient treatment costs by approximately 45,000 Uzbek sum per patient and saved up to 20 person-days of working capacity per 100 treated patients.

Conclusions. The plant-based biological film is an effective and well-tolerated local agent for the treatment of denture stomatitis in wearers of removable acrylic dentures. Its use in routine prosthodontic practice improves clinical outcomes, enhances patient quality of life, and provides measurable socio-economic advantages compared with conventional gel therapy.

Keywords: denture stomatitis; removable acrylic dentures; denture-bearing mucosa; plant-based biological film; Parodium gel; quantitative light fluorescence; AIO BIO Qscan Plus.

Introduction

Prosthodontics is one of the most dynamically developing branches of dentistry. Its primary task is to restore lost teeth and to normalise the functional state of the stomatognathic system in patients with partial or complete edentulism. Removable acrylic dentures remain highly relevant in clinical practice due to their relative simplicity of fabrication, accessibility for socially vulnerable patient groups, and adequate functional and aesthetic outcomes.

At the same time, numerous clinical studies and everyday practice show that long-term wear of removable dentures is often accompanied by adverse changes in the tissues of the denture-bearing area. One of the most frequent complications is denture stomatitis, characterised by diffuse or focal erythema, oedema, burning, and discomfort in the mucosa covered by the denture base. Various epidemiological data indicate that the prevalence of this condition ranges from 30 to 70% among denture wearers, depending on the population studied and diagnostic criteria.

The aetiology of denture stomatitis is multifactorial. Local mechanical trauma from an ill-fitting denture, accumulation of microbial biofilm and *Candida* species on the denture surface, insufficient oral and denture hygiene, systemic diseases, and toxic effects of residual methyl methacrylate monomer in acrylic bases all play a role. Incomplete polymerisation of cold-cured resins, violations of the manufacturer's technical protocol, or accelerated laboratory procedures may increase the residual monomer content and thereby intensify mucosal irritation. These factors are particularly important in elderly patients and individuals with reduced adaptive capacity of the oral mucosa.

Conventional treatment approaches for denture stomatitis include temporary discontinuation of denture wear, correction, relining or remaking of the prosthesis, prescription of antiseptic and antifungal agents, the use of hypoallergenic or thermoplastic base materials, and active patient education in denture-hygiene procedures. Despite the wide range of available topical medications, clinical practice demonstrates the need for agents that simultaneously provide a pronounced anti-inflammatory and reparative effect, form a protective barrier on the mucosal surface, and are suitable for prolonged use without significant adverse reactions.

In recent years, plant-based biological films containing bioactive extracts and polymer carriers have been proposed as promising topical agents. Such films adhere to the inflamed mucosa, gradually release therapeutic components, reduce microbial contamination, and promote epithelial regeneration. However, clinical data on their comparative effectiveness versus widely used gels, including Parodium, remain limited. Another important methodological aspect is the use of objective diagnostic tools to quantify mucosal changes. Devices based on quantitative light fluorescence, such as the AIO BIO Qscan Plus, allow the non-invasive visualisation of inflammatory and dysplastic lesions and make it possible to monitor the dynamics of tissue response during treatment.

In this context, a comprehensive clinical and instrumental evaluation of a plant-based biological film for the treatment of denture stomatitis is of both scientific and practical interest.

Materials and Methods

Study design and participants

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The present prospective clinical study included 80 patients with denture stomatitis associated with the use of removable acrylic dentures. All participants were treated at dental clinics affiliated with the International University of Kimyo in Tashkent. The study protocol complied with the principles of the Declaration of Helsinki and was approved by the local ethics committee. Informed consent was obtained from all patients prior to inclusion.

Inclusion criteria were the presence of a removable acrylic denture worn for at least three months, clinical signs of denture stomatitis in the mucosa of the denture-bearing area, and the patient's ability to comply with follow-up visits. Patients with acute systemic diseases, severe immunodeficiency, a history of hypersensitivity to the components of the tested products, or recent use of systemic antibiotics or antifungals were excluded.

Clinical assessment

The severity of denture stomatitis was assessed clinically using standard criteria, including the extent and intensity of erythema, oedema, and subjective symptoms (burning, pain, discomfort). Pain intensity was recorded using a visual analogue scale. For instrumental assessment, the AIO BIO Qscan Plus device was employed. This system is based on quantitative light fluorescence and bioimpedance analysis and enables detection of pathological changes in the oral mucosa, including inflammatory and initial dysplastic lesions, under excitation by specific wavelengths of light. The device generates a fluorescence map of the examined mucosal area, and specialised software calculates the proportion of tissue exhibiting pathological fluorescence patterns. This percentage was used as an objective parameter of the area and activity of mucosal involvement. Examinations were performed at baseline and on days 3, 5, and 7 of treatment.

Intervention

For comparative purposes, two main treatment groups were formed. In Group 1, a plant-based biological film was applied to the affected areas of the denture-bearing mucosa once or twice daily according to the manufacturer's instructions. The film contained a polymer carrier with plant extracts possessing anti-inflammatory and reparative properties and was designed to form a thin protective layer on the mucosal surface.

In Group 2, patients received topical treatment with Parodium gel, which is widely used in dental practice for inflammatory conditions of the gingiva and oral mucosa. The gel was applied to the affected areas with comparable frequency. In both groups, where indicated, the denture bases were adjusted or relined to eliminate traumatic factors, and all patients received detailed instructions on oral and denture hygiene. Systemic pharmacotherapy was not used unless required for concomitant diseases.

Outcome measures

The primary outcomes were the reduction in pain intensity and the decrease in the area of inflamed mucosa as measured by quantitative light fluorescence. Secondary outcomes included the time to complete epithelialisation of the denture-bearing tissues, the incidence of adverse effects, and patient-reported satisfaction with treatment. Patient satisfaction was graded using a simple verbal scale ('very satisfied', 'satisfied', 'not satisfied'). Descriptive statistics were used to summarise the clinical and instrumental data.

Results

Clinical dynamics

Both treatment regimens resulted in improvement of clinical symptoms of denture stomatitis over the seven-day observation period. However, the rate and extent of improvement were greater in the group treated with the plant-based biological film.

By day 3, patients in Group 1 demonstrated a marked reduction in burning and pain sensations in the denture-bearing area, whereas the decrease in subjective complaints in Group 2 was less pronounced. Instrumental examination with the AIO BIO Qscan Plus confirmed a faster reduction of the fluorescent-positive mucosal area in the biological-film group.

On day 5, most patients in Group 1 presented only mild residual erythema without significant oedema. The fluorescence maps indicated a substantial reduction in the proportion of inflamed mucosa, which correlated with the clinical picture. In contrast, a considerable number of patients in Group 2 still exhibited areas of active inflammation according to both clinical examination and quantitative light fluorescence data.

By day 7, complete epithelialisation of the denture-bearing mucosa was achieved in the majority of patients treated with the plant-based film, while in the Parodium group the healing process was often still incomplete, with residual erythema or persistent focal lesions.

Adverse effects and patient satisfaction

No significant adverse reactions were recorded in either treatment group. The plant-based biological film was well tolerated; patients did not report discomfort associated with its application or retention on the mucosal surface. Importantly, the film did not interfere with denture wear when used as recommended.

Patient-reported satisfaction with the treatment outcomes was higher in Group 1: 92% of patients rated the results as 'very satisfactory', whereas in Group 2 this level of satisfaction was observed in 78% of cases, with some patients noting slower relief of symptoms and a need for repeated courses of gel application.

Overall, the combination of clinical observations and quantitative light-fluorescence data indicates that the plant-based biological film provides a faster and more stable therapeutic effect compared with Parodium gel in the management of denture stomatitis.

Social and Economic Effectiveness

The accelerated resolution of inflammatory changes in the denture-bearing mucosa has important social and economic implications. Rapid relief of pain and discomfort improves the quality of life of patients, especially older individuals for whom removable dentures are often the only available method of prosthetic rehabilitation. Earlier restoration of normal masticatory function enables patients to maintain adequate nutrition and reduces the risk of gastrointestinal and systemic complications associated with prolonged oral dysfunction.

From the standpoint of direct medical costs, the use of the plant-based biological film in the treatment of denture stomatitis reduced the duration of active local therapy and the need for additional visits. According to the economic estimates, outpatient treatment expenses decreased by approximately 45,000 Uzbek sum per patient compared with traditional management with Parodium gel. Furthermore, the faster recovery of the oral mucosa allowed patients to return to full social and professional activity earlier. It is estimated that for every 100 patients treated with the biological film, up to 20 person-days of working capacity were preserved.

Thus, the introduction of the plant-based biological film into routine practice is justified not only by

clinical advantages but also by its positive socio-economic impact for both patients and the health-care system.

Conclusions

The data obtained in this clinical and instrumental study demonstrate that a plant-based biological film is an effective and well-tolerated agent for the treatment of denture stomatitis in wearers of removable acrylic dentures. Compared with Parodium gel, the biological film provides faster relief of subjective symptoms, a more pronounced reduction in the area of inflamed mucosa as confirmed by quantitative light fluorescence, and earlier complete epithelialisation of the denture-bearing tissues.

The absence of significant adverse reactions and the high proportion of 'very satisfied' patients support the feasibility of wide clinical use of this topical formulation. In addition, the reduction in direct treatment costs and the preservation of patients' working capacity highlight the socio-economic benefits of the biological film.

Further research with larger samples and longer follow-up periods will help to refine indications for its use, optimise treatment protocols, and evaluate long-term preventive effects on recurrent denture stomatitis. Nevertheless, the results of the present study indicate that incorporating the plant-based biological film into comprehensive prosthodontic care can contribute to improving the functional outcomes and quality of life of patients requiring removable acrylic dentures.

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STEP BY STEP DESCRIPTION OF THE TOOTH IN PERIODONTITIS BASED ON
RADIOGRAPHIC DIAGNOSTIC DATA

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Annotation

X-rays are a common tool in dental practice and are widely used in the diagnosis of periodontitis. This is documented in treatment protocols. CT scans have been used for this purpose sporadically to date. It has been noted that the use of a step-by-step protocol for describing pathology based on radiological diagnostic data ensures adequate treatment tactics in the future. However, a step-by-step diagnostic protocol for describing a tooth with periodontitis based on radiological diagnostic data is not provided. This determines the relevance of this work.

Keywords: radiological diagnosis, periodontitis, apical constriction, tooth root assessment.

Research objective. To present a working version of the proposed and tested protocol for step-by-step description of teeth in periodontitis based on radiographic data and to explain why it is necessary.

Materials and methods. The methodology for conducting a step-by-step description of the tooth based on radiological diagnostic data in periodontitis, proposed and tested at the departments of orthopedic dentistry, as well as radiological diagnostics and radiation therapy at the M. Gorky Donetsk National Medical University.

Results. The tested protocol for step-by-step description of periodontitis based on radiological diagnosis data provides the following algorithm: assessment of the tooth and mouth cavity; identification of anomalies in the pulp cavity; determination of the number of roots; characterization of the number of root canals as well as other manifestations of pathology in them; apical characterization of the canal: curvature of the tooth roots and canals and their shape: morphological form of apical periodontitis; canal filling; detection of perforations: assessment of the success of the treatment.

Conclusions. The presented protocol for a step-by-step description of dental examination for periodontitis based on radiographic data is an effective method for multifactorial assessment of dental status.

Radiographic methods of dental examination are a justified step in providing dental care to patients. They play a special role in endodontic practice.

X-rays are a routine part of dental practice in cases of periodontitis. This is recorded in treatment protocols. It is the most widely used method of additional examination, while CT scans are used sporadically at the examination stage.

The analysis of studies to obtain data for assessing dental status in this pathology is carried out directly by dentists.

At the same time, in practical healthcare, for some reason, the protocol for providing medical care does not require a description and its registration in the medical history (card).

Standard radiographic methods for examining periodontitis have been used for quite some time and have proven their usefulness in examination, but a number of authors believe that they only provide approximate information about the pathological process (dental status). Computed tomography (CT) allows for the diagnosis during the patient's lifetime and invasive assessment of the destructive process in the periodontium and the structural features of the "tooth-periodontium" complex.

To diagnose pathological changes, a clear understanding and knowledge of radiographic anatomy is necessary, and according to CBCT data, it has its own characteristics.

We have not identified an algorithm for the diagnostic analysis of a number of dental diseases based on the results of radiographic diagnostics for these methods.

Therefore, a step-by-step diagnostic protocol for describing a tooth with periodontitis based on radiographic and CT examination data has not been developed either, which determines the relevance of this work.

Research objective. To present a working version of the proposed and tested protocol for a step-by-step description of a tooth with periodontitis based on radiographic diagnostic data and to explain why it is necessary.

Materials and methods. The research materials are interdepartmental research on the topic: "Long-term results of endodontic treatment of chronic periodontitis, causes of adverse outcomes, and ways to solve them."

The protocol description methodology was proposed and tested at the Department of Prosthetic Dentistry of the M. Gorky Donetsk National Medical University.

It should be noted that the literature describes multiple atypical and diverse terms that are used to describe the same morphological variants of tooth structure. Alternatively, the same names are used to designate two different anatomical variations. Terms that have become popular over time due to their simplicity are often erroneous and inaccurate. Such terms cannot anatomically determine the location of the canals and have no analogues in scientific terminology. No consensus has been reached to date.

A complete list of anatomical structures, taking into account the above, which should be taken into account when conducting an analysis, is included in the proposed protocol according to the available information in the protocols for the provision of dental care in the treatment of periodontitis [9] and ICD-10 (ICD-C).

1. Assessment of the connection between the tooth cavity and the mouth

1.1 Presence of a connection (no, yes)

1.2 Localization of the connection (distal, medial, central, oral, buccal, combined).

Why it is important: determines the tactics for opening the pulp chamber and the extent of odontopreparation. In addition, the absence of communication with the pulp chamber allows for certain rational endodontic treatment techniques.

2. Identification of anomalies in the pulp cavity (crown part).

2.1 Denticles.

Why it is important: their location can complicate surgical access for endodontic treatment, which determines the tactics of tooth preparation.

3. Determining the number of roots.

3.1 Teeth with possible (encountered) variability in their number.

3.1.1. First premolar in the upper jaw. More often than not, there is only one, but it may have two canals with a different number of constrictions in the apex.

3.1.2 Molars of the upper jaw - occur with two (connected buccal) and one root. In the latter case, the molar has only one canal. Anthropologists attribute such teeth to the Mongoloid race.

3.1.3. Third molars (wisdom teeth) - various options are possible.

3.2 Presence of an extra root.

3.2.1 More common in molars, especially in the upper jaw.

Why it is important: the number of roots mainly determines the number of main canals.

4. Characteristics of the number of root canals in a tooth or a specific root.

4.1. Number of canals.

4.1.1. Corresponds to anatomical indicators: one root, one canal.

4.1.2. Well-known variants of two canals in one root - for example, the medial root of the first and second molars of the lower jaw and the first premolar of the upper jaw with one root.

4.1.3 Atypical number.

It should be noted that the presence of lateral canals may be associated with periapical pathology. Recent (latest) studies show that additional canals are common but play a minor role in periradicular pathology.

Why it is important: the number of root canals determines the number of endodontic treatments performed, i.e., the scope of endodontics. An undetected (unidentified) and, as a result, untreated canal will lead to undesirable consequences that will negate the quality of treatment of others. For high-quality endodontic treatment of a tooth, it is essential to detect all canals. This is ensured by CT examination.

4.2 Internal resorption.

The pathology is considered from the perspective of ICD-C. It is diagnosed on the basis of X-ray examination.

Why it is important: specific tactics are required, not only for endodontic treatment.

The treatment plan is largely determined by the class – ICD-C.

5. Assessment of the tooth root.

5.1 External resorption is considered in terms of ICD-C. □ 1 □ It is more common in cases of pulp necrosis and apical bone resorption, which can lead to loss of taper in the structure. Unfortunately, it is only detected in 20% of cases during radiological diagnosis.

Why it is important: it is considered the main factor determining the advisability of endodontic treatment.

6. Apical characteristics of the canal.

6.1 Location. Traditionally, the apical endpoint of the canal is set at a distance of 1 mm from the apical radiograph. However, another researcher found that in 92% of the teeth examined, the apical constriction was 0.5-1 mm from the apex. The results of this study showed deviations of the openings from the apex in 76% of roots under microscopy and 57% under radiography; the average distance was 1 mm. A subsequent study found that none of the openings coincided with the long axis of the root, and the distance varied from 0.2 to 3.8 mm.

Why it is important – determines the endodontic treatment plan and the prognosis for its effectiveness.

7. CURVATURE OF THE TOOTH ROOTS AND CANALS AND THEIR SHAPE.

7.1 Type: S-shaped root canal (root)

S-shaped root canal (root)

Abnormal canal (root) structure

Why it is important (indicated in cases requiring the use of special endodontic instruments).

7.2 Shape of the roots of the lateral teeth (molars):

- funnel-shaped;
- cylindrical;
- conical;
- barrel-shaped.

Why it is necessary: this shape determines the choice of endodontic instruments for high-quality treatment, especially in the area of barrel-shaped roots, although it has certain features for other shapes as well.

8. Morphological shape of the apical periodontium.

8.1 Fibrous.

8.2 Granulating.

8.3 Granulomatous.

8.4 Ankylosis.

8.5 Hypercementosis.

Why it is important: details the diagnosis form. This determines certain features of the treatment plan.

9. CANAL FILLING. Characteristics of endodontic treatment—the quality of filling (sealing) is considered.

9.1 - necrotic decay, putrid masses;

9.2 - the level and quality of root canal obturation, especially in its apical part, determines the prognosis of treatment, root filling materials: (filling performed).

- Meets requirements;
- Incomplete filling;
- Overfilling;
- Insufficient density of the filling material;
- Voids in the canal;
- Presence of posts and fragments of endodontic instruments.

9.3 - stage of endodontic treatment.

- Previously started treatment;
- Periapical periodontitis at the stage of treatment;
- Previously treated.

Insufficient filling material in the apical third of the canal (underfilling). This is a common mistake that too often goes unnoticed.

Overfilling or removal of filling material beyond the apical openings. However, removal of filling material beyond the apical opening does not guarantee three-dimensional filling of the canal. Filling material may extend beyond the root canal without providing a sealed isolation of the apical opening.

Insufficient density of the filling material in the apical part of the canal is indicated by low radiographic density of the filling material in the apical part of the canal on the X-ray. Blurred canal contours, pores, and voids in the filling material are observed, as well as poor adhesion to the canal walls. The problem becomes more apparent when using root sealants with minimal radiopacity.

10. Perforation: we consider it necessary to highlight and detail in a separate class the characteristics (according to assessment) of endodontic root perforations, due to the prevalence of this type of pathology in healthcare.

10.1 Presence of perforation.

10.2 By location:

- ostial - in the area of the root canal opening;
- mid-root - in the middle third of the root;
- apical - in the apical third of the root;
- apical - at the tip of the root.

This significantly determines the tactics for choosing a root sealant and, to a large extent, the assessment of the status.

11. Problems with assessing recovery, success, and failure.

According to the guidelines of the European Society of Endodontology (ESE), regular monitoring is necessary for 4 years. The first check-up is after one year.

ESE criteria based on the results of radiographic examination.

11.1. Complete recovery.

Ro: definition of a continuous periodontal gap of normal width (i.e., Ro signs of bone regeneration).

11.2. Incomplete recovery.

Ro defined reduction of damage caused by pulp disease.

11.3. No recovery.

Absence of Ro signs indicates a decrease in periapical etiology, sometimes the formation of a new periapical lesion and/or Ro-confirmed progressive external resorption.

Conclusion.

Analysis of the identified pathology based on radiographic data in periodontitis according to the proposed protocol allows you to choose the necessary diagnostic approach and avoid misinterpretation of the study results.

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OPTIMIZATION OF THE PARAMETERS OF THE DEVICE FOR HARVESTING AND
PILING CUNJUT TUPLES

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Abstract. This article presents the results of multifactorial experiments conducted according to the Hartley-3 (Ha3) plan to verify the values obtained in theoretical and single-factor experimental studies for determining the parameters of a device that cuts and piles sesame plants, as well as to establish their optimal values.

Experiments were conducted on the harvesting of the local sesame variety "Tashkent-112" for the 2025 harvest. As a result of the research, it was established that to ensure the reaping and piling of sesame bushes at the required level, the speed of the unit should be 7.2-9.6 km/h, and the installation angles of the piler relative to the direction of movement and the vertical should be 35° and 10°, respectively.

Keywords: Sesame, mowing, stacker, installation angle.

1. INTRODUCTION

In many sesame-growing countries of the world, a large part of the harvest is harvested by manual labor, which accounts for about 80 percent of the total costs of sesame cultivation. Therefore, reducing manual labor during sesame harvesting and minimizing costs and grain losses remains one of the pressing issues [1].

In our republic, comprehensive measures are being implemented to reduce labor and energy consumption in agricultural production, conserve resources, cultivate agricultural crops based on advanced technologies, and develop high-performance agricultural machinery, including special attention being paid to the production of technical means that ensure high-quality execution of technological work processes with minimal energy consumption [2,3,4].

To ensure the quality of the technological harvesting process at the required level, when creating promising high-efficiency harvesting devices for sesame harvesting, it is advisable to optimize the device parameters, determine the patterns of sesame bush stacking depending on the speed of the unit's movement, the stacker's installation angles relative to the vertical, and the direction of movement.

Based on the above, a device for mowing sesame bushes was developed at KKhMITI [5,6]. The device is a mounted one, aggregated with 0.6 class mini-tractors, and consists of the following main components: frame 1, mounted device 2, cutting apparatus 3 and its drive 8, inner 7 and outer 4 shoes, right 5 and left 6 working organs forming shafts (Figure 1).

To process the results of theoretical and single-factor experimental studies of a sesame bush harvesting device and determine their optimal values, multi-factor experiments were conducted according to the Hartley-3 (Ha3) plan.

The following factors were taken as the factors that had the greatest impact on the device's performance indicators: X1-the angle of installation of the plant stem guide relative to the direction of movement, X2-the speed of the unit's movement, and X3-the angle of installation of the plant stem guide relative to the vertical (Table 1).



Figure 1. Rear view of the harvesting device in the aggregated state

Table 1. Factor designations, levels, and variation intervals

Factors and their units of measurement	Condi-tional designa-tion	Range of variation	Factor le	
			-1	0
1 Angle of installation of the stacker relative to the direction of movement, deg.	X ₁	5	30	35
2 Unit movement speed, km/h	X ₂	1.2	7.2	8.4
3 Angle of installation of the stacker relative to the vertical, deg.	X ₃	5	5	10

The results of the experiment were processed in the prescribed manner, and the following regression equations were obtained, adequately expressing the evaluation criteria:

Average width of stacks, mm

$$Y_1 = +39,565217 - 2,500000 X_1 - 1,277778 X_2 - 0,833333 X_3 + 3,876812 X_1^2 + 2,083333 X_1 X_2 + 2,876812 X_2^2 - 1,289855 X_3^2. \quad (1)$$

Distance of stem displacement from the cut place, mm

$$Y_2 = +69,681159 + 13,944444 X_1 - 1,500000 X_2 + 6,398551 X_1^2 + 3,416667 + X_1 X_3 + 3,231884 X_2^2 - 1,101449 X_3^2. \quad (2)$$

Analysis of the obtained regression equations and graphs constructed based on them (Figures 2 and 3) shows that all factors had a significant impact on the evaluation criteria. The obtained regression equations (1) and (2) were solved together using MS Excel and PLANEXR programs from the conditions that the Y1 criterion should be 400 mm or less, and the Y2 criterion should tend to a minimum. The obtained results showed that at the unit's speed values of 7.2-9.6 km/h, to ensure the harvesting of sesame stalks at the required level, the stacker's installation angles relative to the movement direction and vertical should be 35° and 10°, respectively (Table 2). At these values, the

average roll width and the distance of stem movement from the cutting point were 350 mm and 500 mm, respectively, which ensured the high-quality execution of the technological process.

Table 2. Optimal values of the parameters of the device for harvesting and piling

X_2		X_1		X_3	
Encoded	Natural	Encoded	Natural	Encoded	Natural
-1	7,2	0,19	36	-0,54	7,3
0	8,4	0,02	34,9	-0,1	9,5
+1	9,6	0,007	35	1	10

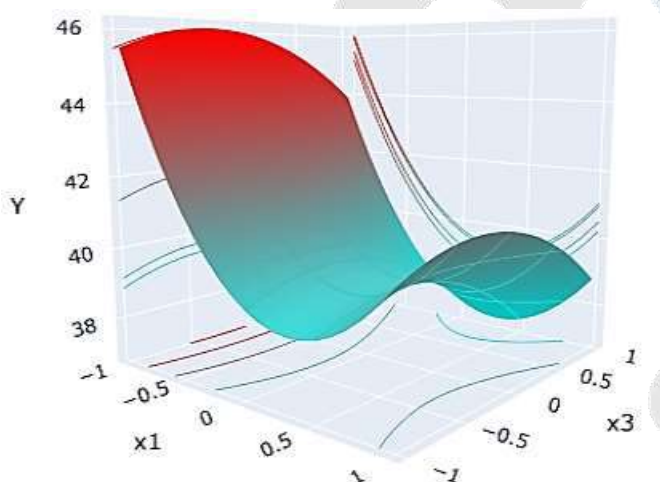


Figure 2. Change in the width of the heap depending on factors X_1 and X_3 at $X_2 = 0$

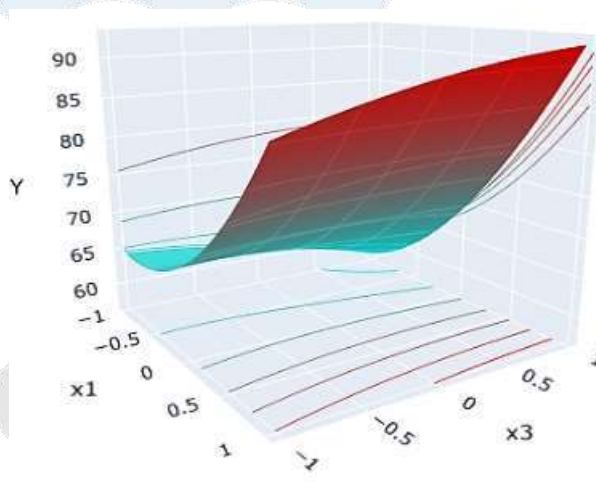


Figure 3. Change in stem displacement distance depending on factors X_1 and X_3 at $X_2 = 0$

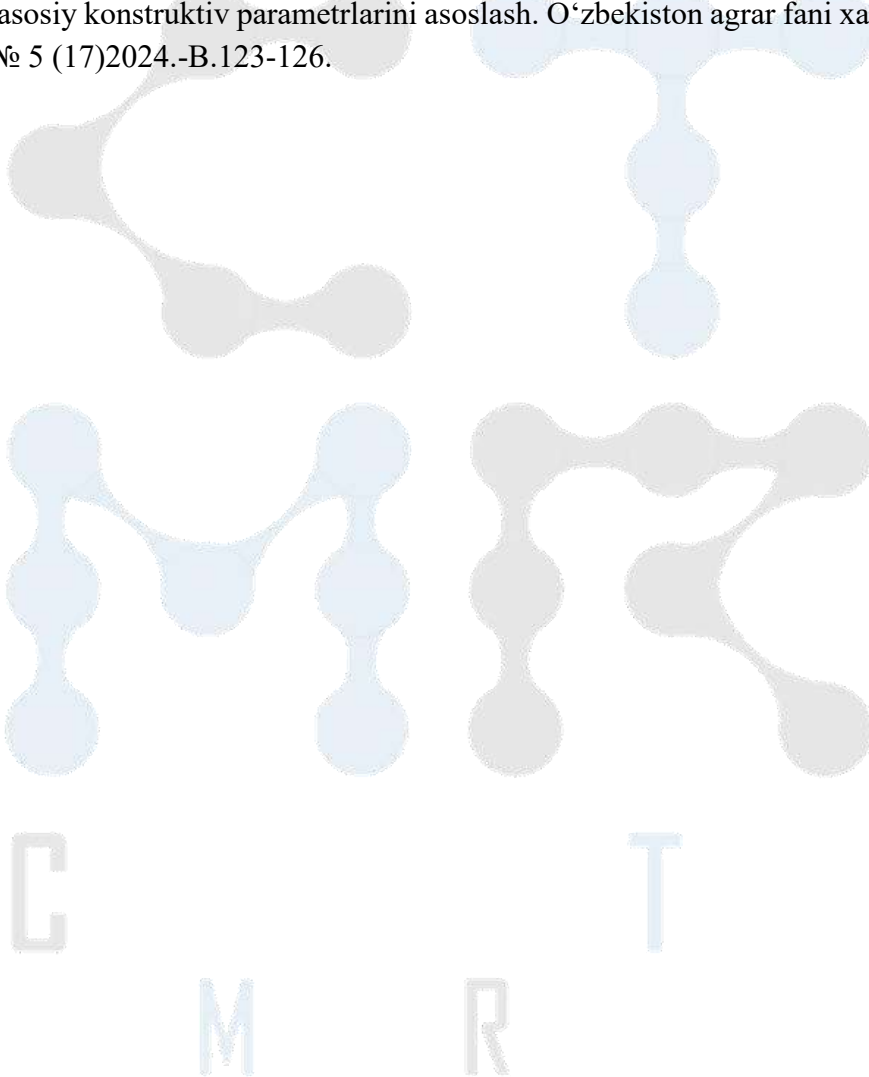
Conclusion

To minimize grain loss during harvesting, it is necessary to ensure that sesame stems are not crushed by the unit's wheels and are moved at minimal distances. The high-quality execution of the technological process was ensured when the installation angles of the stackers relative to the direction of movement and vertical were 35° and 10° , respectively, and the unit's movement speed was within 7.2-9.6 km/h, while the average distance of stem movement was 500 mm, and the stack width was 350 mm.

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TECHNOLOGICAL FACTORS IN INTEGRATING MORAL EDUCATION WITH THE LEARNING PROCESS TO ENHANCE STUDENT ENGAGEMENT

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Abstract

This paper examines the technological factors that support the integration of moral education with the academic learning process to enhance student engagement. As educational environments become increasingly digitized, the need to combine cognitive development with value-based instruction is more significant than ever. The study analyzes pedagogical theories, technological tools, and instructional strategies that promote both moral formation and active learning. Results show that digital platforms, interactive media, and value-oriented instructional design can meaningfully improve engagement and support holistic student development. Recommendations for implementing integrated moral–academic learning environments are proposed.

Keywords

Moral education; student engagement; educational technology; integrated learning; value-based instruction; pedagogy

INTRODUCTION

The rapid digitalization of education has transformed traditional learning environments, presenting new opportunities to enhance student engagement and moral development simultaneously. In contemporary education systems, academic achievement alone is insufficient; students must also possess strong ethical values, social responsibility, and emotional awareness. Integrating moral education with the learning process through technological means is emerging as an effective strategy to foster holistic development.

Moral education aims to instill ethical reasoning, empathy, cultural understanding, and responsible behavior. When aligned with technological tools and modern pedagogy, it can create a powerful environment that promotes deeper learning participation. However, many institutions struggle to balance academic requirements with moral development due to curriculum overload, lack of teacher training, or insufficient digital resources.

The purpose of this article is to analyze the technological factors that enable successful integration of moral education into academic learning, thereby increasing student engagement. The paper follows the IMRAD structure and synthesizes recent research, theoretical models, and practical approaches relevant to integrated moral learning environments.

Methods

This study is based on qualitative content analysis of academic literature, policy documents, and empirical research published between 2016 and 2024. Sources include peer-reviewed journals in education, psychology, and digital pedagogy.

The research method consists of:

1. Theoretical Review – examining philosophical and pedagogical foundations of moral education and student engagement.
2. Technological Analysis – identifying tools, platforms, and digital resources that support integrated learning.
3. Comparative Evaluation – comparing different instructional models that combine moral and academic learning.

Data were analyzed through thematic coding, focusing on relationships between digital technologies, moral instruction, and student engagement. No experimental interventions were conducted, making the method suitable for conceptual and theoretical exploration.

Results and Discussion

Analysis of the literature shows that combining moral education with modern learning technologies significantly increases student engagement. Several technological factors play a central role:

1. Digital Learning Platforms Supporting Value-Based Content

Learning Management Systems (LMS), such as Moodle, Google Classroom, or Edmodo, allow educators to embed ethical discussions, reflective tasks, and collaborative activities into academic lessons. These platforms encourage students to think critically about real-life moral dilemmas while engaging with subject content.

2. Interactive Multimedia for Moral and Cognitive Development

Videos, animations, documentaries, and virtual simulations promote empathy, cultural understanding, and ethical awareness. When students interact with digital storytelling or virtual scenarios, they actively engage both emotionally and cognitively, improving learning retention.

3. Gamification for Ethical Decision-Making

Game-based learning environments can incorporate moral choices, consequences, and problem-solving tasks. Such systems motivate students through rewards, progress

tracking, and interactive challenges while reinforcing moral values embedded in gameplay.

4. Communication Technologies for Collaborative Moral Learning

Online discussion forums, group chats, and digital debate platforms allow learners to exchange perspectives, practice respectful communication, and develop ethical reasoning. Structured dialogue enhances engagement and builds a community-oriented learning culture.

5. Artificial Intelligence and Personalized Moral–Academic Instruction

AI-driven tools can provide personalized feedback, identify gaps in moral reasoning, and guide students through reflective exercises. Adaptive learning systems encourage critical thinking and self-regulation—both of which enhance engagement.

6. Challenges in Integration

Despite the benefits, several challenges exist:

- Teachers may lack training in combining moral instruction with technology.
- Overuse of technology can weaken interpersonal moral development if not properly balanced.
- Some moral topics require sensitivity and cannot rely solely on digital tools.
- Infrastructure limitations may hinder implementation in resource-poor institutions.

Overall, the findings suggest that technological integration strengthens both moral development and cognitive engagement when applied thoughtfully and systematically. Moral education becomes more dynamic, relatable, and impactful when delivered through interactive and student-centered digital methods.

Conclusion

The integration of moral education into the academic learning process through technological tools represents a powerful approach to enhancing student engagement. This study concludes that digital platforms, interactive media, AI-driven personalization, and gamified instructional strategies serve as essential technological factors that promote both ethical development and active learning.

To achieve effective integration, schools must invest in teacher training, develop value-oriented digital curricula, and ensure access to technological infrastructure. Future research should investigate experimental models that combine technological innovation with culturally grounded moral values, as well as explore long-term effects on student behavior and academic performance.

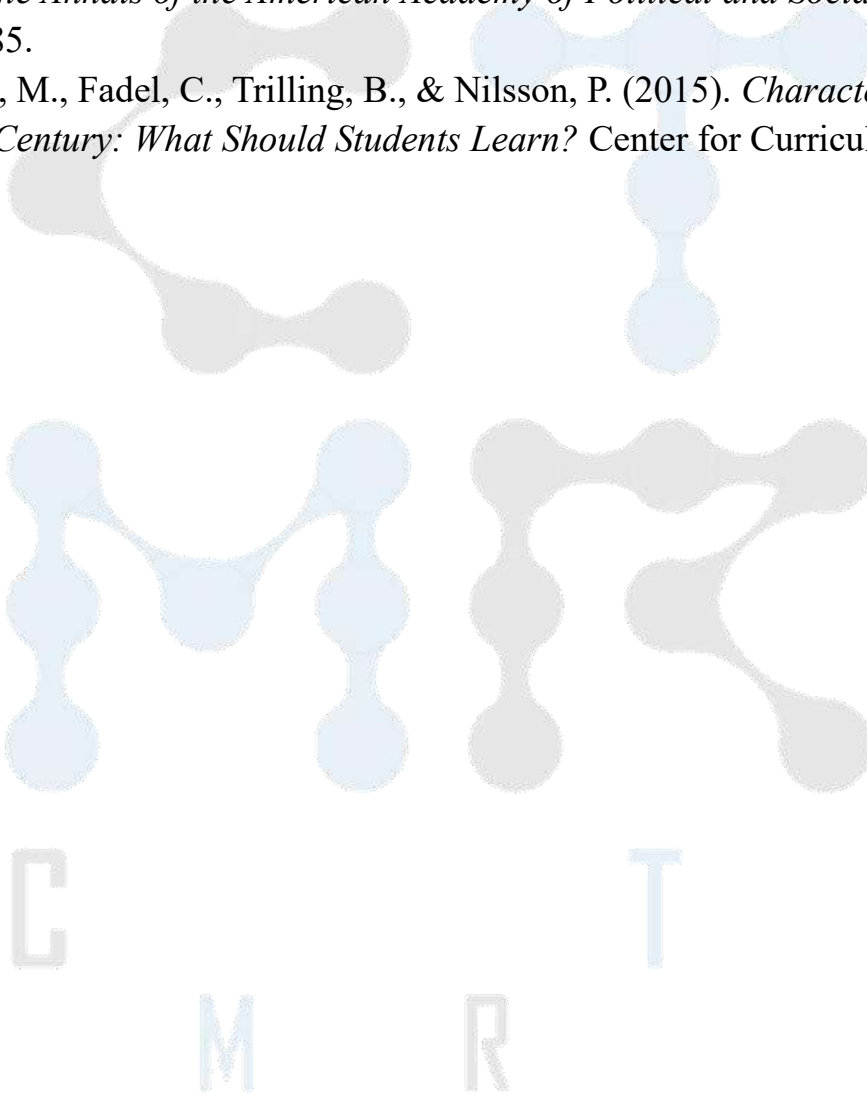
Holistic education—uniting knowledge, skills, and moral character—is vital for preparing students to succeed in an interconnected and ethically complex world.

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DESIGNING AND IMPLEMENTING EXPERIMENTAL GAMIFICATION-BASED
TEACHING METHODS FOR RUSSIAN LANGUAGE IN TECHNICAL HIGHER
EDUCATION

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ABSTRACT. This article examines a methodological model for designing and implementing gamification-based instructional technologies aimed at improving Russian language teaching for students of technical higher education institutions. The study outlines the theoretical foundations of gamified learning, the development of simulation-based and AI-adaptive tasks, and the integration of communicative game formats tailored to technical contexts. Experimental results demonstrate substantial improvement in communicative competence, task engagement, and the ability to apply Russian in profession-related situations. The findings confirm the effectiveness of gamification as a pedagogical tool aligned with the cognitive and motivational characteristics of engineering students.
Keywords: gamification, Russian language teaching, technical education, adaptive AI tasks, communicative competence, simulation learning, digital pedagogy.

Introduction. The rapid evolution of digital pedagogy, artificial intelligence, and interactive learning technologies has reshaped contemporary higher education, creating unprecedented opportunities for redesigning language instruction across various academic disciplines. In this context, technical universities face a particularly complex challenge: preparing students for effective professional communication in multilingual environments where Russian remains one of the essential languages of engineering documentation, industrial cooperation, and scientific discourse across the post-Soviet and Eurasian regions.

Traditional approaches to teaching Russian as a foreign or second language—often centered on grammar-translation techniques, rote memorization, and monologic instruction—frequently fail to meet the cognitive styles and learning preferences of engineering students. Technical students tend to exhibit analytical thinking, system-oriented reasoning, and a preference for applied, problem-solving tasks that closely resemble real-world engineering situations. As a result, purely theoretical language instruction often appears detached from their academic and professional realities, leading to reduced motivation, passive participation, and limited communicative competence in authentic contexts.

Against this background, the integration of gamification-based learning models has emerged as an innovative and pedagogically justified solution. Gamification does not merely add entertaining components to the educational process; rather, it incorporates structured game mechanics—such as levels, quests, leaderboards, performance badges, adaptive challenges, and scenario-based simulations—to create a dynamic, feedback-rich learning environment. These mechanisms align well with the motivational and cognitive profiles of engineering students, who are accustomed to interactive systems, logic-driven tasks, and performance-based progression.

Moreover, gamification supports multimodal engagement, activating visual, auditory, and kinesthetic learning channels simultaneously. Competitive and collaborative game formats increase students' intrinsic motivation, sustain long-term engagement, and cultivate positive emotional responses to

complex linguistic tasks. When linguistic content is embedded within realistic engineering scenarios—such as troubleshooting simulations, technical case studies, or project-based missions—students not only learn Russian vocabulary and grammar but also gain experience in applying the language to professional problem-solving activities.

The growing demand for profession-specific communication skills, particularly in domains such as mechanical engineering, energy systems, computer science, and industrial technologies, further strengthens the relevance of gamified methods. Engineering specialists are expected to interpret technical documentation, communicate within multinational teams, and present project solutions in Russian-speaking professional environments. Therefore, language instruction must go beyond general communicative competence and move toward contextualized, industry-oriented language proficiency.

In this regard, the present study proposes a comprehensive methodological framework that operationalizes gamification as a pedagogical tool for enhancing Russian language acquisition in technical contexts. The research emphasizes not only game-based motivation, but also the cognitive authenticity of tasks, the integration of simulation technologies, and the use of AI-driven adaptive learning systems that personalize instruction based on students' performance dynamics.

By aligning gamification with the linguistic, technological, and cognitive demands of engineering education, the study provides an evidence-based foundation for transforming traditional Russian language courses into interactive, profession-oriented, and learner-centered learning environments, thereby contributing to contemporary research in digital pedagogy and applied linguistics.

METHODS.

This study was carried out through a sequence of research activities designed to understand how gamification can support the development of Russian language skills among students of technical majors. The methodological approach combines analytical work, instructional design, and an experimental phase conducted in real classroom conditions.

The first step focused on examining the current curriculum and the way Russian is usually taught in technical higher education. Course programs, textbooks, and practical sessions were reviewed to determine how well they address the communication needs of engineering students. This analysis showed that many existing materials do not fully reflect the linguistic demands of modern technical fields, which led to the creation of a new gamified instructional model.

To build this model, the following actions were taken:

Identifying key linguistic skills that students need in their future profession (technical vocabulary, concise reporting, understanding equipment descriptions, giving instructions, etc.).

Selecting appropriate game elements, such as point systems, levels, quests, and progress indicators, to create a structured yet engaging learning environment.

Designing tasks of different complexity, ensuring that simpler exercises support the acquisition of basic terminology, while more advanced tasks encourage students to use Russian in simulated professional situations.

Throughout this stage, teachers and subject specialists provided feedback to help adjust the design to real educational needs.

Four gamified tools formed the core of the instructional intervention. Each tool reflects a different aspect of language learning and technical thinking:

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This interactive quiz system helps students develop quick recall of technical terms. The format is fast, competitive, and encourages repeated exposure to vocabulary that is commonly used in engineering contexts.

Students work through short scenarios that imitate real technical problems. These simulations require them to read or listen to situation descriptions, discuss possible solutions, and use Russian to justify their decisions. The activity supports the development of situational language competence.

This collaborative workshop invites students to propose and defend technical ideas in Russian. Although the tasks are simplified compared to real engineering design, they still demand logical explanation and clear communication, helping students gain confidence in speaking.

This tool guides students through short dialogues, provides hints when necessary, and highlights common mistakes. Because the tasks become harder or easier depending on the student's performance, it offers a more personalized experience than traditional drills.

These tools were chosen because they combine linguistic practice with elements of engineering logic, which makes language learning more meaningful for technical students.

The effectiveness of the gamified model was assessed through several complementary methods:

Observations during lessons were used to track students' engagement, willingness to speak, and participation in group activities.

Interviews with students and teachers helped reveal attitudes toward the new approach and identify difficulties encountered during the experiment.

Language tests were administered at the beginning and end of the study to measure changes in vocabulary, grammar, and communicative ability.

Digital analytics from the gamification tools provided additional information about how often students participated, how many tasks they completed, and which types of exercises were most challenging. To compare progress objectively, the results of the experimental group were contrasted with those of a control group that continued to study using traditional methods. Simple statistical procedures were used to check whether the observed changes were meaningful.

The participants were 124 first- and second-year students enrolled in various engineering programs. All of them studied Russian as a required subject. Students were divided into two groups: one that experienced the gamified program and one that continued with the standard curriculum. The experiment lasted for six months, allowing enough time to observe stable patterns of behavior and learning outcomes. Participation was voluntary, and all ethical requirements—including confidentiality and informed consent—were observed throughout the study.

RESULTS.

The experimental work produced several meaningful outcomes that help explain how the gamified approach influenced students' linguistic and learning performance. The data collected over the six-month intervention show consistent improvements across key competencies.

Students who studied within the gamified environment demonstrated a noticeable rise in their command of Russian. Although the exact level of progress varied from student to student, the overall trend was clear:

- learners became more confident in sustaining communicative exchanges, showing an increase of roughly one-third compared to their initial results;
- the ability to use technical terminology appropriately grew substantially, with performance rising by about forty percent during the intervention;

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- students' dialogue skills, especially in short professional exchanges, improved by close to thirty percent.

These gains indicate that exposure to repeated practice through short challenges, simulations, and AI-assisted tasks strengthened both vocabulary retention and active language use.

Another important outcome concerns students' overall engagement:

- participation in classroom activities increased from around two-thirds to nearly nine out of ten students by the end of the experiment;
- the number of students who regularly completed independent tasks also grew sharply, shifting from slightly more than half to over eighty percent;
- attendance and activity in online components of the course rose from less than half to well over ninety percent.

Such shifts confirm that the game-based structure—levels, instant feedback, point systems, and small competitive elements—created a learning environment where students were more willing to attend class, complete tasks, and maintain steady interest in language practice.

The adaptive exercises supported by artificial intelligence played a crucial role in sustaining progress, particularly for students who initially struggled.

These tools helped in several ways:

- tasks adjusted automatically depending on how quickly and accurately students worked, which helped prevent overload or boredom;
- frequent errors were highlighted clearly, allowing learners to see which aspects of grammar or vocabulary required additional practice;
- short feedback messages helped students correct mistakes immediately rather than waiting for teacher review.

Because of this personalized support, the students in the experimental group progressed at a pace reported to be about one and a half times faster than their peers in the control group. The “Tech-Case Simulation” component proved particularly effective for developing practical and profession-related communication. During these sessions, students:

- practiced describing technical issues, reporting faults, or explaining simple engineering decisions in Russian;
- learned to cooperate in small groups while negotiating solutions to simulated problems—an ability that mirrors their future workplace tasks;
- became more capable of formulating clear, concise arguments during discussions.

These findings support the idea that simulations provide a bridge between classroom language learning and real engineering communication.

DISCUSSION.

The results of the study suggest that the gamified learning model introduced in the experimental groups resonated well with the way technical students typically process information and approach academic tasks. Unlike traditional language lessons that rely heavily on memorization, rule interpretation, and passive listening, the gamified format encouraged students to take a more active part in the learning process. This shift from passive reception to active participation appears to be one of the central reasons behind the improvement in their performance.

One of the recurring observations throughout the experiment was that competitive and reward-based elements helped sustain interest even during more demanding linguistic tasks. Simple mechanisms

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such as accumulating points, advancing through levels, or attempting to outperform classmates on leaderboards created a sense of progress that many engineering students found motivational. These elements did not replace learning but rather made the process more goal-oriented and engaging.

Another important factor influencing learner progress was the use of simulation-based tasks. When students interacted with scenarios resembling real engineering environments—reporting a malfunction, explaining a design idea, or interpreting instructions—they tended to use Russian more naturally and confidently. The scenarios served as a bridge between their technical background and the linguistic requirements of their future profession, making the language learning experience more meaningful.

Artificial intelligence tools also contributed to the effectiveness of the model. By adjusting task difficulty and highlighting frequent errors, AI-based exercises allowed students to advance at a pace suitable to their abilities. This reduced frustration for slower learners and prevented quicker learners from feeling constrained. As a result, students spent more time practicing language skills that matched their individual needs, contributing to balanced skill development.

While the experiment showed clear benefits for learners, it also revealed that teachers require more methodological preparation to implement gamification effectively. Designing simulation tasks, integrating digital feedback tools, and ensuring that game mechanics support rather than distract from learning objectives demand specific pedagogical skills. Many instructors expressed interest in further training on creating linguistically rich scenarios, monitoring student performance in digital settings, and aligning game-based activities with course outcomes.

Overall, the findings indicate that gamification can serve as a powerful approach in technical higher education when used thoughtfully and supported by proper instructional design. It creates a learning environment where students interact with Russian in realistic contexts, develop communicative confidence, and stay motivated throughout the learning process.

CONCLUSION

The findings of this study show that introducing game-oriented learning tools into Russian language instruction can make a noticeable difference in technical higher education settings. Students who worked with the gamified model not only learned vocabulary and grammar more confidently but also became more willing to communicate, take initiative, and participate in classroom discussions. The combination of small challenges, professional simulations, and adaptive feedback helped create a learning environment where students could connect the language with their future technical work, rather than treating it as a separate academic subject.

One of the most important outcomes is that the gamified approach supported both stronger and weaker learners alike. Because tasks were varied in format and complexity, each student could follow a path that matched their pace. The presence of real-life technical scenarios also encouraged more authentic language use, something that is often missing in traditional courses. Learners practiced explaining problems, offering solutions, and negotiating ideas in Russian—skills that will likely benefit them in their professional careers.

The methodological framework designed in this research can be applied flexibly in different technical programs. It does not require radical changes to existing curricula but rather extends them with interactive elements that make lessons more meaningful. At the same time, the experience gathered through this study highlights the need for continued teacher development in digital pedagogy, as teachers play a decisive role in planning and guiding these activities.

Overall, the study suggests that thoughtfully implemented gamification can contribute to the ongoing digital transformation of language teaching. It opens the door to new ways of integrating communication practice, technical thinking, and modern educational technologies, offering a foundation for further experimentation and refinement in the field.

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**TABIIY FANLAR MAJMUASIDA INTEGRATSIYA: FIZIKA, KIMYO VA BIOLOGIYA
KESISHUV NUQTALARINI ANIQLASH.**

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Annotatsiya: Ushbu maqolada tabiiy fanlar – fizika, kimyo va biologiya fanlari o'rtasidagi integratsiya jarayonlari, ularning o'zaro bog'liqligi hamda kesishuv nuqtalari ilmiy asosda tahlil qilingan. Biofizika, biokimyo va fizik kimyo kabi fanlararo yo'nalishlar misolida tabiiy hodisalarni kompleks o'rganishning ahamiyati yoritilgan. Shuningdek, ta'lim jarayonida integratsion yodashuvning o'quvchilarda ilmiy tafakkur, tizimli fikrlash va amaliy ko'nikmalarni shakllantirishdagi roli ochib berilgan.

Kalit so'zlar: tabiiy fanlar, integratsiya, fizika, kimyo, biologiya, biofizika, biokimyo, fizika kimyo, fanlararo yodashuv.

**ИНТЕГРАЦИЯ В КОМПЛЕКСЕ ЕСТЕСТВЕННЫХ НАУК: ВЫЯВЛЕНИЕ ТОЧЕК
ПЕРЕСЕЧЕНИЯ ФИЗИКИ, ХИМИИ И БИОЛОГИИ**

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Аннотация: В данной статье научно проанализированы процессы интеграции между естественными науками – физикой, химией и биологией, их взаимосвязь и точки пересечения. На примере таких междисциплинарных направлений, как биофизика, биохимия и физическая химия, раскрыта значимость комплексного изучения природных явлений. Также показана роль интеграционного подхода в формировании у обучающихся научного мышления, системного анализа и практических навыков.

Ключевые слова: естественные науки, интеграция, физика, химия, биология, биофизика, биохимия, физическая химия, междисциплинарный подход.

**INTEGRATION IN THE COMPLEX OF NATURAL SCIENCES: IDENTIFYING THE
INTERSECTION POINTS OF PHYSICS, CHEMISTRY AND BIOLOGY**

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Abstract: This article provides a scientific analysis of the integration processes among the natural sciences – physics, chemistry and biology – highlighting their interconnections and intersection points. Using interdisciplinary fields such as biophysics, biochemistry and physical chemistry as examples, the importance of studying natural phenomena in a comprehensive and holistic manner is emphasized. The paper also discusses the role of the integrative approach in developing students' scientific thinking, systematic reasoning and practical skills.

Keywords: natural sciences, integration, physics, chemistry, biology, biophysics, biochemistry, physical chemistry, interdisciplinary approach.

Hozirgi zamon ta'lim tizimida fanlararo integratsiya muhim didaktik yondashuv sifatida e'tirof etilmoqda. Xususan, tabiiy fanlar — fizika, kimyo va biologiya — bir-biriga uzviy bog'liq bo'lib, ularning kesishgan nuqtalarida yangi bilimlar, texnologiyalar va tushunchalar shakllanadi. Shu bois bu fanlar majmuasida integratsiyani ta'minlash o'quvchilarda tabiat hodisalarini yaxlit holda idrok etish, ilmiy tafakkurni rivojlantirish hamda amaliy ko'nikmalarni mustahkamlashga xizmat qiladi. Fanlararo integratsiya tushunchasi ilmiy ta'limda XX asrning ikkinchi yarmidan boshlab faol rivojlana boshladi. Olimlarning ta'kidlashicha, integratsiya — bu turli fanlar o'rtasidagi aloqadorlikni ta'minlash, yagona ilmiy dunyoqarashni shakllantirish jarayonidir.

Tabiiy fanlar majmuasi — bu inson va tabiat o'rtasidagi o'zaro munosabatni, tabiatdagi jarayon va hodisalarning mohiyatini, ularning qonuniyatlarini o'rganadigan fanlar yig'indisidir. Unga asosan fizika, kimyo, biologiya, geografiya, astronomiya, ekologiya kabi fanlar kiradi. Bu fanlar o'quvchilarda ilmiy dunyoqarash, mantiqiy fikrlash, tahlil qilish va sabab-oqibat bog'liqliklarini anglash ko'nikmalarini shakllantiradi.

Pedagog olim V. I. Vernadskiy o'z asarlarida tabiatni yaxlit tizim sifatida o'rganish zarurligini ta'kidlagan. Uning fikricha, "tabiatdagi barcha jarayonlar bir-biri bilan uzviy bog'liq bo'lib, ularni faqat fanlararo yondashuv orqaligina to'liq tushunish mumkin"ligini ta'kidlagan. O'zbekistonlik metodist

olima

M. X. To'xtayeva ham shu o'rinda tabiiy fanlarni integratsiyalashni "o'quvchilarda ilmiy tafakkur va ekologik madaniyatni shakllantirishning eng samarali vositasi" sifatida ko'rsatadi.

Tabiat hodisalari murakkab va ko'p qirrali bo'lib, ularni to'liq tushunish uchun alohida fanlarning chegarasidan chiqish zarur. Fizika, kimyo va biologiya tabiiy fanlarning uch asosiy yo'nalishi bo'lib, ularning har biri tabiatning muayyan tomonini o'rganadi. Fizika — energiya va materiya harakatining umumiy qonuniyatlarini, kimyo — moddalarning tarkibi va ularning o'zaro ta'sirini, biologiya esa tirik tizimlarning tuzilishi va faoliyatini tadqiq etadi. Shunga qaramay, bu fanlar o'rtasida uzviy bog'liqlik mavjud. Masalan, biologik jarayonlarning mohiyatini tushunish uchun kimyoviy reaksiyalar va fizik qonunlarni bilish muhimdir. Shu bois tabiiy fanlar majmuasida integratsiya o'quvchilarga hodisalarni yaxlit tizim sifatida anglash imkonini beradi. Tabiiy fanlarning kesishuv nuqtalari asosan fanlararo yo'nalishlar orqali namoyon bo'ladi. Ular orasida eng muhimlari — biofizika, biokimyo va fizik kimyodir.

Biofizika — tirik organizmlarda kechadigan fizik jarayonlarni o'rganadi. Masalan: yurak faoliyati elektr impulslar asosida boshqariladi; asab tizimida axborot uzatish elektr signallari yordamida amalga oshadi; muskul qisqarishida mexanik ish energiya o'zgarishlari bilan bog'liq; hujayra membranalarida ion oqimlari va potentsiallar fizikaning elektromagnit qonunlariga asoslanadi; suyak tayanch vazifasini bajaradi.

Biokimyo — tirik organizmlarda kechadigan kimyoviy reaksiyalarni o'rganadi. U biologik jarayonlarning molekulyar asoslarini tahlil qilib, hayot faoliyatining kimyoviy mexanizmlarini tushuntiradi. Masalan: fermentlar yordamida modda almashinuvi, energiya almashinuvida ATP molekulasiining roli, DNK va RNK sintezi, oqsillar, yog'lar, uglevodlar almashinuvi kabi jarayonlar.

Fizik kimyo — moddalar xossalariining fizik asoslarini o'rganadi. Bu yo'nalish kimyoviy reaksiyalarning tezligi, energiya sarfi, muvozanat holati kabi masalalarni tahlil qiladi. Ushbu qonuniyatlar biologik tizimlarda ham muhim ahamiyatga ega. Masalan: o'pka alveolalaridagi gaz almashinuvi diffuziya qonunlariga asoslanadi; termodinamika qonunlari hujayra energetikasini

tushunishga yordam beradi; osmos hodisasi o'simlik va hayvon hujayralarida suv muvozanatini ta'minlaydi.

Integratsiyaning ta'lim jarayonidagi ahamiyati. Fanlararo integratsiyani ta'lim jarayoniga tatbiq etish — o'quvchilarning ilmiy dunyoqarashini kengaytirishning samarali vositasidir. Integratsion yondashuv yordamida o'quvchilar:

- tabiatni yaxlit tizim sifatida angelaydi;
- bir hodisani turli fanlar nuqtai nazaridan tahlil qilishni o'rganadi;
- nazariya va amaliyot o'rtasidagi bog'liqlikni tushunadi;
- ilmiy tafakkur, mantiqiy va ijodiy fikrlash ko'nikmalarini rivojlantiradi.

Masalan, fotosintez mavzusini o'rganishda:

1. **fizika** nuqtai nazaridan — yorug'lik energiyasi, kvantlar va energiya o'zgarishlari;
2. **kimyo** nuqtai nazaridan — karbonat ангидрид va suvdan glyukoza hosil bo'lish reaksiyasi;
3. **biologiya** nuqtai nazaridan — xloroplastlar va fermentlarning ishtiroki tahlil qilinadi.

Shu tarzda o'quvchilar hodisaning mohiyatini chuqurroq angelaydi va bilimlarni amalda qo'llashni o'rganadi.

Integratsiyaning zamonaviy fan va texnologiyalardagi roli. O'quvchilarda ilmiy tafakkur, ijodkorlik va mustaqil fikrlash rivojlanadi. Nazariya bilan amaliyot o'rtasidagi bog'liqlik mustahkamlanib, tabiiy fanlarga qiziqish ortadi, o'quv jarayoni hayotiy misollar bilan boyiydi. Fanlararo loyihaviy va tadqiqot ishlari samarali tashkil etiladi.

Bugungi kunda ilm-fan rivoji aynan fanlararo integratsiyaga tayanadi. Masalan: biotexnologiya — biologiya, kimyo va fizika yutuqlarining uyg'unlashuvi natijasidir; tibbiyot fizikasida radiatsion diagnostika, lazer terapiyasi va ultratovush texnologiyalari keng qo'llaniladi; atrof-muhit muhofazasi sohasida kimyoviy analizlar, biologik monitoring va fizik modellash tirish usullari birgalikda ishlatiladi.

Xulosa o'rnida aytish joizki integratsiya nafaqat ta'limda, balki ilmiy-amaliy sohalarida ham yangi innovatsiyalarni yaratishga asos bo'lmoqda. **Ta'limdagi integratsiyaning kesishuv nuqtalarini aniqlash va o'zlashtiruvchilarga to'liq va ishonchli ma'lumotlarni olishda hamda** ilmiy izlanishlarga yo'naltirish va ta'lim samaradorligini oshirishda beqiyos ahamiyatga ega. Fanlar kesishgan nuqtalarda yangi bilimlar, yangi fanlar va innovatsion texnologiyalar vujudga keladi — bu esa zamonaviy ta'limning strategik yo'nalishidir.

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HYBRID LEARNING IN UZBEKISTAN: OPPORTUNITIES FOR PRESCHOOL AND
SCHOOL EDUCATION

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Abstract. This article analyzes the opportunities, advantages, and challenges of implementing hybrid learning in preschool and general school education in Uzbekistan. Hybrid learning, which combines traditional face-to-face instruction with digital and online components, is discussed as a means of enhancing students' individual development, expanding access to educational resources, and increasing the overall effectiveness of the teaching process. The study also highlights the importance of technological infrastructure, teacher preparedness, and parental involvement as key factors for successful integration of hybrid education.

Keywords. hybrid learning, digital pedagogy, preschool education, general school education, Uzbekistan, online learning, innovative methods

Annotatsiya. Ushbu maqolada O'zbekistonda maktabgacha va umumiy o'rta ta'lim tizimida gibrid ta'limning joriy etilish imkoniyatlari, afzalliklari va mavjud muammolari tahlil qilinadi. Gibrid ta'limning an'anaviy va raqamli ta'lim shakllarini uyg'unlashtirish orqali o'quvchilarning individual rivojlanishini qo'llab-quvvatlash, ta'limga kirish imkoniyatlarini kengaytirish hamda pedagogik jarayon samaradorligini oshirishdagi roli yoritiladi. Shuningdek, texnik infratuzilma, o'qituvchilar malakasi va ota-onalar bilan hamkorlik gibrid ta'lim muvaffaqiyatining muhim omillari sifatida ko'rib chiqiladi.

Kalit so'zlar. gibrid ta'lim, raqamli pedagogika, maktabgacha ta'lim, umumiy o'rta ta'lim, O'zbekiston, onlayn ta'lim, innovatsion metodlar

Аннотация. В данной статье рассматриваются возможности, преимущества и проблемы внедрения гибридного обучения в систему дошкольного и общего школьного образования Узбекистана. Гибридная модель, сочетающая традиционные очные занятия и цифровые образовательные технологии, анализируется как инструмент поддержки индивидуального развития учащихся, расширения доступа к учебным ресурсам и повышения эффективности педагогического процесса. Особое внимание уделяется технической инфраструктуре, профессиональной подготовке педагогов и сотрудничеству с родителями — ключевым факторам успешной реализации гибридного обучения.

Ключевые слова. гибридное обучение, цифровая педагогика, дошкольное образование, школьное образование, Узбекистан, онлайн-обучение, инновационные методы

Relevance of the Study. The rapid digital transformation taking place in Uzbekistan has created favorable conditions for the introduction of hybrid learning models across all levels of education. As the country prioritizes modernization, innovation, and the integration of ICT into the education sector, hybrid learning presents significant opportunities to enhance teaching quality and expand access to learning resources. The relevance of this study lies in the urgent need to develop effective, context-appropriate hybrid education strategies for preschool and school-aged children. Understanding the pedagogical, technological, and organizational factors influencing the successful implementation of

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hybrid learning is essential for ensuring equal learning opportunities, improving educational outcomes, and supporting national education reforms.

Introduction. Hybrid learning—an approach that combines traditional face-to-face instruction with online and digital learning components—has become one of the most transformative trends in global education. In recent years, Uzbekistan has actively invested in digital infrastructure, teacher training, and educational technology platforms, making hybrid learning a promising direction for the country's evolving education system. This approach can support personalized learning, increase student engagement, and create flexible learning environments suited to the diverse needs of children in both urban and rural regions. In the context of preschool and general school education, hybrid learning can help strengthen home–school collaboration, provide access to interactive materials, and enhance the development of foundational skills. However, successful implementation requires careful consideration of technological readiness, teacher competence, curriculum adaptation, and parental involvement. This paper explores the opportunities, challenges, and strategic approaches for integrating hybrid learning into Uzbekistan's preschool and school education systems.

Research Methodology. This study employs a qualitative and mixed-method research design aimed at examining the opportunities and challenges of implementing hybrid learning in preschool and school education in Uzbekistan. The methodology is grounded in a comparative analysis of hybrid learning models, contextual evaluation of Uzbekistan's educational environment, and data collection from key stakeholders including teachers, administrators, and parents. A socio-constructivist pedagogical framework was used to analyze how digital and face-to-face learning components can be integrated to support child development and improve instructional practices.

Research Methods. A systematic review of national policy documents, educational development strategies, preschool and general education standards, and international research on hybrid learning was conducted. This method provided a foundation for understanding current reforms, technological capacities, and regulatory frameworks in Uzbekistan.

All participants were informed about the purpose of the research, and their consent was obtained. The study ensured confidentiality and anonymity, particularly in relation to children and school data. Ethical guidelines for educational research were strictly followed.

Table 1.

Survey questionnaire for teachers, parents, and school administrators

No.	Survey Question	Target Group	Purpose of the Question	Response Type
1	What digital devices are available for teaching/learning at home or school?	Teachers, Parents	To determine digital readiness	Multiple choice
2	How stable is your access to the internet?	Teachers, Parents	To assess technological infrastructure	Multiple choice (Good/Average/Poor)

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3	How familiar are you with hybrid learning methods?	Teachers	To measure pedagogical preparedness	Likert scale (1–5)
4	What benefits do you see in hybrid learning?	Teachers, Parents	To identify perceived advantages	Open-ended
5	What challenges have you experienced with technology-based learning?	Teachers, Parents	To explore implementation barriers	Open-ended
6	How engaged are children during online learning activities?	Teachers	To evaluate child engagement	Likert scale (1–5)
7	How willing are you to continue using hybrid learning in the future?	Teachers, Parents	To assess acceptance of hybrid models	Likert scale (1–5)
8	Does your institution provide training for using digital tools?	Teachers, Administrators	To measure institutional support	Yes/No
9	What type of support do you need to improve hybrid learning?	Teachers, Administrators	To identify capacity-building needs	Open-ended
10	How effective do you find the combination of online and face-to-face lessons?	Teachers, Parents	To evaluate overall hybrid learning effectiveness	Likert scale (1–5)

The survey questionnaire presented in the table was designed to examine the key factors influencing the implementation of hybrid learning in preschool and school education in Uzbekistan. The questions target three main respondent groups—teachers, parents, and school administrators—ensuring a comprehensive understanding of pedagogical, technological, and organizational conditions. Each question serves a specific purpose and contributes to building a well-rounded dataset for analysis. Overall, the survey is structured to collect both quantitative and qualitative data, allowing for a thorough analysis of hybrid learning readiness, perceptions, and practical challenges. The results contribute to forming evidence-based recommendations for improving the integration of hybrid learning within Uzbekistan's preschool and school education systems.

Discussion. The results of the survey provide valuable insights into the current state of hybrid learning readiness within Uzbekistan's preschool and school education systems. Overall, the findings reveal a growing acceptance of hybrid learning among teachers and parents, yet they also highlight significant gaps in technological access, pedagogical preparedness, and institutional support.

A key observation is that technological readiness varies considerably among respondents. While many teachers and urban families report access to essential digital devices, respondents from rural

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areas frequently indicate limited or inconsistent internet connectivity. This disparity suggests that digital infrastructure remains a major barrier to equitable hybrid learning implementation, reinforcing the need for targeted government investment and community-based support programs.

The survey also shows that teacher preparedness for hybrid learning is still developing. Although educators express positive attitudes toward blended instructional approaches, their familiarity with digital tools and hybrid methods is generally moderate. This indicates a strong demand for professional development programs focused on digital pedagogy, instructional design, and online classroom management. Schools that already provide such training report higher confidence levels among teachers, demonstrating the importance of ongoing capacity-building initiatives.

Another noteworthy finding concerns children's engagement during online activities. Teachers observe that younger learners—especially preschool children—struggle to maintain attention during extended virtual sessions. This highlights the need for age-appropriate digital content, shorter and more interactive online activities, and stronger collaboration between educators and parents to support learning at home.

Respondents widely acknowledge the benefits of hybrid learning, including increased flexibility, access to diverse learning materials, and opportunities for individualized instruction. However, they also emphasize persistent challenges such as technical issues, insufficient digital literacy among some parents, and the additional workload placed on teachers who must prepare both online and face-to-face activities.

Importantly, the majority of respondents express a willingness to continue using hybrid learning in the future, provided adequate training and resources are available. This positive attitude signals strong potential for long-term adoption, especially if systemic issues—such as infrastructure gaps and uneven support—are addressed.

Institutional support emerges as a critical factor. Schools that offer structured digital training, technical assistance, and clear guidelines for hybrid teaching report smoother implementation and higher satisfaction among educators. In contrast, institutions lacking such support face more challenges, suggesting that national policies and local leadership play essential roles in shaping the success of hybrid learning initiatives.

Overall, the survey findings indicate that hybrid learning has considerable potential to enhance Uzbekistan's preschool and school education systems, but its effective implementation requires a strategic, context-sensitive approach. Strengthening digital infrastructure, improving teacher training, engaging parents, and developing high-quality digital content are essential steps toward building a sustainable hybrid learning environment that supports all learners.

Conclusion. The findings of this study demonstrate that hybrid learning holds significant potential for enhancing the quality, accessibility, and flexibility of preschool and school education in Uzbekistan. As the country continues its digital modernization efforts, the integration of hybrid models can serve as a powerful tool for improving learning outcomes and aligning the education system with global trends. The survey results indicate that teachers, parents, and administrators generally recognize the benefits of hybrid learning, including increased access to digital resources, opportunities for individualized instruction, and the ability to maintain learning continuity during disruptions.

However, the study also reveals several challenges that must be addressed to ensure successful implementation. Unequal access to technology, inconsistent internet connectivity—particularly in

rural areas—limited digital literacy among some parents, and the need for more comprehensive teacher training represent critical constraints. Moreover, the differing engagement levels of younger children in online environments underscore the importance of age-appropriate content and pedagogical approaches tailored to early childhood needs.

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TURLI RANGLARNING TURFA MA'NOLARI XUSUSIDA

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Annotatsiya: Ushbu maqolada ranglarni shartli ravishda ikkiga: axromatik va xromatik ranglarga bo'lish mumkinligi, ranglarning turli ma'nolarni ifodalashi, bu ranglarning rassomlar va kulollar uchun katta ahamiyat kasb etishi haqida qiziqarli fikrlar bildiriladi.

Kalit so'zlar: Rassom, dizayner, kulol, ranglar, ranglarning ramziy ma'nolari, xususiyatlari, axromatik ranglar, xromatik ranglar, D.N.Kardovskiy.

Аннотация: В данной статье приводятся интересные мысли о том, что цвета можно условно разделить на две группы: ахроматические и хроматические; что цвета выражают различные значения; и что эти цвета имеют большое значение для художников и гончаров.

Ключевые слова: художник, дизайнер, гончар, цвета, символические значения цветов, их особенности, ахроматические цвета, хроматические цвета, Д.Н. Кардовский.

Annotation: This article presents interesting insights about the fact that colors can be conditionally divided into two groups: achromatic and chromatic; that colors convey various meanings; and that these colors hold great importance for artists and potters.

Keywords: artist, designer, potter, colors, symbolic meanings of colors, their characteristics, achromatic colors, chromatic colors, D.N. Kardovskiy

Ma'lumki, ranglar yorug'lik nuri tovlanishidan hosil bo'ladi. Shu sabab narsalarning rangi quyosh charaqlab turgan kunduz kuni va quyosh botayotgan oqshom paytida turlicha jilolanadi.

Darvoqe, rassomlar uchun rang faqat o'z fikrlari va tuyg'ularini emas, balki asarlaridagi qahramonlarning yani odamlarning ichki dunyosini, ruhiyatini, quvonch va iztiroblarini, tabiatini, xarakterini ifodalaydigan ramzdir. Ranglarning ma'nolari, siru sinoatlarini bilish rassomlar uchun qanchalik muhim bo'lsa, shoir, yozuvchi, fotograf, dekorator, rejissyor, dizayner, arxitektor, tikuvchi, kulol kabi boshqa ijodkorlar uchun ham shunchalik ahamiyatga ega. Ranglarning ramziy ma'nolari, xususiyatlari, sirlari haqida ko'plab izlanishlar amalga oshirilgan. Kurinadiki, ranglar dunyosining o'zi bir fandır.

Kuzatishlardan ma'lum bo'ladiki, ko'zimiz ko'ra oladigan hamma ranglarni shartli ravishda ikkiga: axromatik va xromatik ranglarga bo'lish mumkin.

Oqdan to'q qoragacha bo'lgan ranglar axromatik ranglarga, (oq, kulrang, qoramtir, qora, to'q qora), qolganlari esa xromatik (qizil, sariq, ko'k va h.k) ranglarga kiradi.

Quyida biz yuqorida qayd etib o'tganimiz ranglarning ayrimlari ifodalaydigan ma'nolarga to'xtalishni lozim topdik. Jumladan:

Qora rang – aslida ranglarning inkoridir. Qora boshqa barcha ranglarni “yutib” yuborgani kabi inkor va umidsizlikni o'zida ifoda etadi, oqning ziddi hisoblanadi va salbiy asosga ega. Qora rangli kiyim kiyishni yoqtiruvchi odam hamma narsalarga qarshi o'jar, isyon bilan hammasidan voz kechishni istaydi. Biroq, qora rangning ijobiy sifatlari ham yo'q emas: masalan, nikoh to'ylarida kuyovning qora kostyum-shimda bo'lishi yoki qora kostyum-shimning rasmiy marosimlarda kiyilishi bu rangning obro'- e'tibor, tantanavorlik ramzi ekanligini ham ifodalaydi.

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Oq rang- tozalik, musaffolik, iffat, yorug'lik, donishmandlik, haqiqat va ezgu iroda ramzidir. Bular oq rang sifatlarining bir jihati. Biroq boshqa jihatdan u motam, o'lim, qo'rqqoqlikni o'zida ifodalaydi. Yaponiya va Xitoyda aynan oq rang motam va qayg'u rangi hisoblanadi. Shu sababli oq rangni yoqtiruvchilar ham ma'lum ruhiy qiyinchilikni boshdan kechirishayotgan bo'ladi, ammo ular o'z muammolarini ko'pincha "Alloh irodasi"ga yo'yishadi. Shu sababli aksariyat dinlarda oq rangli kiyim kiyish an'ana tusini olgan.

Qizil rang - insonga eng kuchli hissiy ta'sir ko'rsatadi. Qizil bu faoliyat ko'rsatishga, harakatga intilish, muvaffaqiyatga erishish, impuls, g'alabaga intilish, tiriklik va quvvatning barcha shakllari. Bir so'z bilan aytganda, qizil rang inson hayotidagi eng kuchli hayajonni ifodalaydi. Qizilning manbai-olov, u issiqlik va haqorat beradi, shuningdek, u muhabbat rangi hisoblanadi.

Ko'k rang – ochiq osmon va dengiz rangi sifatida o'zida yuqsaklik va chuqurlikni ifoda etdi. U an'analarga, azaliy qadriyatlarga, oqilfaoliyat ona g'oyalarga sodiqlik, muntazamlik va mushoh+adakorlikka moyillik beradi. Ruhshunoslarning kuzatishlaricha, ranglar inson asablarini tinchlantiruvchi ta'sirga ega.

Yashil rang – faoliyat, maqsadga intiluvchanlik, iroda, tirishqoqlik, qat'iyat, chidamlilik, qarshilik, o'z "men"iga yuqori baho berish kabi xususiyatlarni ifodalaydi. Yashil - tiriklik, o'sish va umid ramzi, bahor fasli chechaklari rangidir.

Sariq rang – ochiqlik, faollik, ozodlikka, shon- shuhrat va kuch – quvvatga intilish rangi. Sariq quyosh va yoz faslining rangi. U kelajakka umidvorlikni o'zida ifodalaydi. Sariq oltin rangi bo'lganligi uchun shon - shuhrat va ilohiy hukmronlik ramzi ham hisoblanadi.

Kul rang – u na oq, na qora, o'rtaliqdagi neytral, chegara rangdir. Kimki, bu rangga ko'proq moyil bo'lsa, demak, u o'zini hamma narsadan to'sib, chegaralab olishni, har qanday majbutiyatlardan xalos bo'lib, hiech narsada ishtirok etmaslikni istaydi. Kul rang kiyingan odam boshqalarning o'zi haqida bilishlarini istamaydi. Ko'rinadiki, bu rang sirlarni yashirish xususiyatiga ega ekan.

Jigarrang – eng ziddiyatli ranglardan biri. Bir jihatdan, zamin, mo'l - ko'lechilik, onalik tuyg'usini ifodalaydi. U jismoniy ehtiyoj va sezgilarni o'zida aks ettiradi. Kimki jigarrangda kiyinishni xush ko'rsa, u bir tomondan, o'z tanasi ehtiyojlariga jiddiy e'tibor beradi, boshqa tomondan, atrofdagi insonlarga nisbatan ta'sirchan va talabchandir.

Binafsharang – eng ikkiyoqlama rang sifatida qaraladi. Unda qizil va ko'k ranglarning qo'zg'ovchi va bosib turuvchi sifatlari birlashadi. Demak, binafsharangdagi asosiy ziddiyatli sifat ham ana shundandir. Shuningdek, bu rang tenglashtiruvchi va tenglik rangidir. U o'lchov, mezon, bosiqlik va muvofiqlik, ilm va oqillik, ilohiyot va donishmandlik, qudrat rangidir.

Binobarin, ranglarning ma'nolari, siru sinoatlarini bilish rassomlar uchun qanchalik muhim bo'lsa, ana shu sohani o'rganishga endigina kirishayotgan o'quvchi va talaba – yoshlarga bu borada atroflicha tushuncha va bilim berishning ilg'or usul va metodlarini ishlab chiqib, uni amaliyotga tatbiq etish shu kunning dolzarb masalalaridan sanaladi. Negaki, rus rassomi va pedagogi D.N.Kardovskiy "San'atni o'rganayotganlar tasvirlashning yo'llari va usullari, ya'ni narsalarning rangi, shakli, nisbatlari yorug'ligi, xususiyati va harakat qonuniyatlariga bo'ysunishga majburdirlar", - deb yozganida yuz karra haqli edi².

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**EVALUATION OF THE EFFECTIVENESS OF DIGITAL AND ANALOG
TECHNOLOGIES IN THE MANUFACTURE OF COMPLETE REMOVABLE DENTURES**

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Annotation

Modern orthopedic dentistry is undergoing a stage of digital transformation, affecting all aspects of diagnostics, modeling and manufacturing of orthopedic structures. Special attention is paid to improving the methods of manufacturing complete removable dentures, aimed at improving accuracy, reducing treatment time and improving patient adaptation. The purpose of this work is to conduct a systematic analysis and comparison of modern technologies for manufacturing complete removable prostheses, including analog, milled and 3D-printed methods, from the standpoint of accuracy, biocompatibility, aesthetics and clinical effectiveness.

Keywords: complete removable dentures, CAD/CAM, 3D printing, milling, adaptation, digital prosthetics, biocompatibility.

INTRODUCTION

Modern orthopedic dentistry is currently undergoing an intensive stage of digital transformation, which significantly affects the technologies used for the fabrication of complete removable dentures. The problem of complete secondary edentulism remains one of the most urgent issues in clinical practice, since total loss of teeth leads to pronounced disorders of the dentoalveolar system's functions—mastication, speech, swallowing and breathing—as well as to deformation of the lower third of the face, deterioration of facial aesthetics and a decline in the patient's psycho-emotional stability. According to the World Health Organization, the prevalence of complete edentulism in individuals over 60 years of age ranges from 15 to 25%, and among patients older than 75 years exceeds 40%. At the same time, a significant proportion of such patients cannot receive fixed prosthodontic constructions for medical or economic reasons, which makes complete removable dentures the most accessible and in-demand method of restoring the functions of the dentoalveolar system. The traditional technology for manufacturing removable dentures, based on manual tooth arrangement and heat polymerization of an acrylic base, remains widely used, but has several disadvantages. In recent years, digital CAD/CAM (Computer-Aided Design / Computer-Aided Manufacturing) technologies and additive manufacturing (3D printing) have been introduced into orthopedic practice. These methods provide high accuracy of fit, dimensional stability and predictable esthetic outcomes. The use of digital protocols makes it possible to design the denture in a virtual environment, minimize the number of clinical appointments, and create constructions with high accuracy of adaptation and optimal occlusion. In this regard, three main approaches to the fabrication of complete removable dentures are forming in modern dentistry: 1. Analog methods, based on conventional laboratory technology of pressing polymethyl methacrylate. 2. Monolithic milled constructions, fabricated from solid blocks of acrylic plastic or polymers using subtractive processing on CNC milling machines. 3. Segmented milled or 3D-printed constructions, created

using CAD modeling with subsequent assembly of the base and tooth segment from separate elements. Each of these technologies has its own advantages and limitations related to accuracy, biocompatibility, cost, fabrication time and patient adaptation. A number of studies (Goodacre et al., 2021; Al Helal et al., 2022; Bidra et al., 2023) have shown that digital dentures demonstrate less shrinkage and a more uniform distribution of masticatory pressure compared to traditional dentures, which contributes to improved adaptation and a reduced rate of inflammatory complications of the denture-bearing mucosa. At the same time, questions remain unresolved concerning the clinical and laboratory rationale for choosing a particular technology in different clinical conditions, evaluation of denture longevity and stability, and the economic effectiveness of these technologies.

Aim of the study To conduct a clinical and laboratory evaluation of complete removable dentures fabricated using different techniques, and to determine the optimal technology that provides high accuracy, durability and comfort for patients with complete edentulism.

Materials and methods

The study was carried out at the Department of Orthopedic Dentistry of the Tashkent State Dental University. The work was conducted over four years, from 2021 to 2025. Examination and orthopedic treatment of patients with complete secondary edentulism were performed in the clinical facilities of the department and in the university dental laboratory, equipped with modern devices for both digital and conventional prosthodontics. The study included 90 patients (43 men and 47 women) aged 45 to 75 years who sought orthopedic care due to complete loss of teeth in both jaws. Inclusion criteria were: absence of teeth in one or both jaws (diagnosis K08.1), satisfactory general health, absence of contraindications to orthopedic treatment, and signed informed consent to participate in the study. Exclusion criteria were: severe systemic diseases in the decompensation stage, oncological and infectious diseases, severe occlusal abnormalities, as well as psychoneurological disorders that hinder cooperation with the doctor. **Study design** Patients were divided into three groups of 30 people each, depending on the method used to fabricate the complete removable denture: Group 1 – monolithic milled dentures fabricated by subtractive processing (CAD/CAM milling from solid PMMA blocks). Group 2 – segmented milled dentures, where the base and tooth segment were fabricated separately with subsequent digital assembly in a virtual environment. Group 3 – analog dentures fabricated using the traditional method of pressing acrylic resin (heat-cured polymerization). Patient allocation was carried out using random sampling with equal distribution by sex and age, which made it possible to avoid systematic bias during comparisons.

Clinical stages of the study At the initial examination, medical history was collected, patients were photographed, and the condition of the denture-bearing mucosa was recorded. The following parameters were assessed: inter-alveolar height, retention potential, condition of the mobile mucosa, and the prominence of alveolar ridges. To assess baseline functional parameters, the following methods were used: - Hamburg test (Ahlers M.O., 2000) to determine symmetry of mandibular movements; - Palpation of masticatory muscles and TMJ to detect tenderness and joint sounds (clicking); - Registration of the centric relation of the jaws using both conventional and digital techniques with the aid of bite rims and the electronic axiograph KaVo ARCUSdigma II.

Methods of denture fabrication

For the analog group (Group 3), the traditional technology according to the standard five-stage protocol was used: anatomical and functional impressions, registration of jaw relations, tooth

arrangement, try-in, and final pressing of the base. Monolithic milled dentures (Group 1) were designed in the Exocad DentalCAD software package. The base and tooth segment were then milled from a solid block of acrylic PMMA. The use of monolithic milling eliminated polymerization shrinkage and deformation typical of pressed constructions. Segmented milled dentures (Group 2) were created using a combined technology: the base and tooth segment were modeled separately, which allowed more precise correction of inter-tooth contacts and tooth axis inclinations. After verification of the virtual model, the elements were joined using a thermoactivated resin. In all groups, the following parameters were evaluated: Accuracy of base adaptation (by digital scanning); Occlusal relationships (T-Scan III); Stability of denture fixation; Presence of complaints and duration of the adaptation period. Condition of the mucosa at 1, 3, 6 and 12 months. Laboratory and instrumental methods. To assess the accuracy of adaptation and base parameters, the following were used:

3D comparison of models in Exocad and Geomagic Control X software; Radiovisiography to analyze base contacts with the alveolar ridge; Scanning of impressions and dentures using the Medit T500 scanner with an accuracy of 7 μm ; Analysis of masticatory load distribution using the T-Scan III computerized system (Tekscan, USA). To study the microstructure of material surfaces, scanning electron microscopy (SEM) was performed, and flexural strength was evaluated using an Instron 5982 testing machine with loads up to 3 kN. Statistical analysis

Data processing was carried out using IBM SPSS Statistics v26 and Microsoft Excel 2019.

Descriptive statistics methods were applied; the Mann–Whitney and Kruskal–Wallis tests were used for intergroup comparisons, and Pearson correlation analysis was used to identify associations between fit accuracy and adaptation time. Differences were considered statistically significant at $p < 0.05$.

Results

A comprehensive evaluation of clinical-functional and laboratory parameters of complete removable dentures fabricated using different techniques was performed. The analysis included assessment of base adaptation accuracy, masticatory load distribution, adaptation period, condition of the denture-bearing mucosa and patients' subjective satisfaction. Analysis of the accuracy of denture base adaptation. Comparative analysis of 3D model superimposition data showed that the smallest deviations between the digital prototype and the finished denture were observed in the group of monolithic milled constructions. The mean discrepancy was 0.048 ± 0.007 mm, whereas it was 0.072 ± 0.011 mm for segmented milled dentures and 0.182 ± 0.025 mm for analog dentures ($p < 0.001$). Computer analysis with the T-Scan III system demonstrated a more uniform distribution of masticatory load in patients using monolithic milled dentures. In this group, the percentage ratio of pressure between the right and left sides was 51.2% / 48.8%, which is close to physiological norms. In the group with segmented milled dentures, a slight shift of load was noted (53.5% / 46.5%), while in the analog group there was marked asymmetry (57.8% / 42.2%), indicating the presence of premature contacts and uneven base adaptation. The mean occlusal time (time to reach stable occlusal contact) in the monolithic milled group was 0.21 ± 0.05 s, whereas in the analog group it was 0.36 ± 0.08 s, indicating better functional adaptation with the digital protocol. Evaluation of clinical retention and stability. One month after denture insertion, satisfactory retention was observed in 93% of patients with monolithic milled dentures, 87% with segmented milled dentures, and only 68% with analog constructions. After six months of use, the indicators

decreased slightly in the digital groups (by 3–4%), whereas in users of traditional dentures, the need for adjustment or rebasing was noted in 26% of patients.

This difference is associated with the surface characteristics of the base. Milled dentures have a smooth, dense structure that hinders microbial adhesion, whereas pressed acrylics are characterized by microporosity and residual monomer that contribute to tissue irritation.

Subjective assessment of comfort and adaptation

According to patient questionnaires using the modified OHIP-14 scale, the satisfaction level after 1 month of denture use was: Monolithic milled dentures – 82.6 ± 4.1 points; Segmented milled dentures – 78.3 ± 4.8 points; Analog dentures – 63.7 ± 5.2 points ($p < 0.001$).

After 6 months, scores in the digital groups remained stable, whereas patients with analog dentures showed a gradual decrease in comfort due to base deformation and the need for repeated adjustments. **Laboratory assessment of mechanical properties**

Flexural strength testing showed that milled dentures withstood loads up to 2.85 ± 0.18 kN, while analog constructions failed at 2.03 ± 0.22 kN. SEM surface analysis revealed an absence of microcracks and air inclusions in milled bases, which correlated with their greater durability.

Discussion

Comparative analysis of the clinical and laboratory parameters of different methods for fabricating complete removable dentures revealed clear differences in accuracy, stability and adaptive capacity, which is consistent with trends reported in contemporary literature. The obtained data confirm that digital CAD/CAM technologies and subtractive milling provide higher accuracy of adaptation and reproducibility of occlusal relationships compared to traditional analog methods.

In the present study, monolithic milled dentures showed the best performance across all functional criteria. Minimal discrepancies in base adaptation (0.048 mm) indicate the precision of digital manufacturing, which eliminates the polymerization and thermal deformations inherent to conventional acrylic pressing. This is supported by foreign studies reporting that CAD/CAM dentures are characterized by stable geometry and high reproducibility of parameters during long-term wear (Goodacre et al., 2021; Al Helal et al., 2022). Particular importance is attached to the uniformity of masticatory load distribution as recorded by T-Scan III. For monolithic milled constructions, the distribution was closest to physiological (51.2% / 48.8%), indicating harmonious occlusion and reduced risk of overloading the denture-bearing mucosa. Similar results were obtained in studies by Kerstein R.B. (2019), where it was noted that digital occlusal adjustment allows balanced contacts to be achieved at an early stage of adaptation. The functional advantages of digital technologies were also observed in terms of clinical stability and subjective comfort. After six months of use, milled constructions maintained retention in 90% of cases, whereas analog dentures required adjustment in almost one third of patients. These differences can be explained by the absence of residual monomer, lower base porosity and a smoother surface in milled dentures, which reduce microbial adhesion and the probability of denture stomatitis. According to literature data, the incidence of inflammatory complications with traditional dentures reaches 30–35%, while for digital dentures it does not exceed 10% (Mangano et al., 2020; Bidra et al., 2023). Questionnaire results using the OHIP-14 scale confirmed faster adaptation to digital dentures. Already one month after insertion, patients reported a marked improvement in oral health-related quality of life. Similar conclusions were drawn in the study by Fenlon et al. (2018), where subjective satisfaction directly correlated with the accuracy of adaptation and a reduction in complaints about mucosal

irritation. Mechanical testing showed that milled dentures have significantly higher flexural strength and resistance to microcracks. This is consistent with in vitro studies in which CAD/CAM acrylics demonstrated a 25–40% increase in strength due to the absence of internal stresses and a homogeneous material structure (Saponaro et al., 2022). At the same time, it should be noted that segmented milling, despite somewhat lower accuracy parameters, remains clinically relevant when individual correction of tooth-arch form and esthetic parameters is required. This makes the technique a compromise solution between cost-effectiveness and functional efficiency.

Conclusion

The study demonstrated that the choice of technology for fabricating complete removable dentures has a significant impact on their clinical and laboratory characteristics and on the effectiveness of orthopedic treatment. The obtained results convincingly confirm that the use of digital CAD/CAM technologies ensures higher accuracy in reproducing the anatomical structures of the denture-bearing area, stability of occlusal relationships and quality of base adaptation to the mucosa. Monolithic milled constructions showed the smallest deviations from the virtual model, high stability during mastication and a minimal number of complications related to the denture-bearing mucosa. Segmented milling, despite somewhat greater variability in accuracy parameters, made it possible to achieve optimal esthetic and functional outcomes due to the possibility of individualized correction of tooth-arch form and intermaxillary relationships. These constructions provided a high degree of patient adaptation and comfort while preserving the advantages of digital modeling. At the same time, traditional analog methods based on acrylic pressing demonstrated limited accuracy of adaptation, greater shrinkage and a tendency toward base deformation, which negatively affected denture stability and patient satisfaction. According to questionnaire data, users of digital constructions reported a more pronounced improvement in oral health-related quality of life, reflecting not only functional but also psychological advantages of digital dentures. The use of modern diagnostic systems such as electronic axiography and T-Scan III computerized occlusal analysis made it possible to increase the accuracy of centric relation registration, improve the balance of masticatory loads and shorten the adaptation period. Mechanical testing confirmed that milled dentures possess higher strength and durability compared to analog dentures, which is due to the homogeneous structure of the material and the absence of polymerization deformations.

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**PROSTHETIC STOMATITIS ASSOCIATED WITH THE USE OF REMOVABLE AND
FIXED PROSTHODONTIC APPLIANCES**

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ABSTRACT

Removable dentures remain one of the most widely used methods of prosthetic rehabilitation in patients with complete and partial edentulism. However, the use of acrylic plate dentures is frequently accompanied by inflammatory and dystrophic changes in the denture-bearing mucosa and by disturbances of local immune protection and oral microbiocenosis. The present article provides a clinical and laboratory substantiation of the use of a newly developed biologically active bioresorbable film containing the immunocorrective agent Imudon. The study design, methods of assessment of local humoral and cellular immunity, microbiological characteristics of the denture-bearing mucosa and functional indices of the masticatory system are described. The results demonstrate that inclusion of the Imudon-containing film in the complex of prosthetic treatment increases the effectiveness of rehabilitation, normalises local defence mechanisms, restores the microbial balance of the oral cavity and shortens the period of adaptation to removable dentures.

Keywords: removable dentures, acrylic base, denture stomatitis, local immunity, Imudon, biologically active film, oral microbiocenosis, prosthetic rehabilitation.

INTRODUCTION

In modern dental practice, removable plate dentures continue to play a key role in the rehabilitation of patients with complete and partial edentulism. Despite the active development of implant-supported prosthetic technologies, economic, medical and anatomical limitations often make conventional removable dentures the only realistic option for many patients. At the same time, clinicians are increasingly confronted with complications associated with the long-term use of acrylic denture bases. These complications include chronic traumatic injuries, denture stomatitis, candidal lesions and combined inflammatory-dystrophic changes of the denture-bearing mucosa. Acrylic denture base resins, while possessing satisfactory mechanical, technological and aesthetic properties, cannot be regarded as fully biologically inert materials. Residual monomer and other components of the polymer matrix may exert toxic and allergenic effects. Moreover, the presence of a rigid plate covering large areas of the mucosa leads to chronic mechanical pressure, thermal insulation, impaired aeration and stagnation of saliva. All of these factors together disturb microcirculation, modify local immune responses and favour colonisation of the denture-bearing tissues by pathogenic and opportunistic microflora. As a result, the oral mucosa becomes more vulnerable to infection and trauma, and the period of adaptation to the prosthesis is often characterised by pronounced discomfort and inflammatory phenomena.

Traditional preventive measures include optimisation of impression techniques and occlusal relationships, improvement of the fit of the denture base, careful finishing and polishing of acrylic surfaces, as well as patient education in oral and denture hygiene. Although these measures are

obligatory and undoubtedly reduce the risk of complications, they are often insufficient to fully compensate for the biological disadvantages inherent to plate dentures.

The present work provides a detailed clinical and laboratory analysis of the effectiveness of a biologically active film containing Imudon, used in combination with removable dentures. Particular attention is paid to the dynamics of local humoral and cellular immunity, changes in the structure of the oral microflora, the severity of inflammatory lesions of the denture-bearing mucosa and the functional state of the masticatory system.

Aim of the study

The aim of this study was to increase the effectiveness and predictability of prosthetic rehabilitation in patients with complete and partial absence of teeth through the development and comprehensive clinical and laboratory evaluation of a biologically active bioresorbable film containing the immunocorrector Imudon, intended for use in the denture-bearing area during adaptation to removable plate dentures.

Materials and methods

Study design and characteristics of the patients

The clinical study included adult patients aged 51 to 70 years with complete or partial edentulism of one or both jaws who required prosthetic treatment with removable plate dentures. Individuals with severe general somatic pathology in the stage of decompensation, as well as patients with acute inflammatory diseases of the oral mucosa or systemic immunodeficiency, were excluded from the investigation. All participants gave informed consent to take part in the study.

Treatment protocols

Patients of Group 1 (control group) received conventional prosthetic treatment: fabrication and clinical adjustment of removable plate dentures without the use of any medicated films or additional local pharmacotherapy during the adaptation period.

In Group 2, prosthetic treatment followed the same protocol as in the control group; however, during the first days of adaptation a commercially available bioresorbable film Protופן-M containing Solcoseryl was applied to the internal surface of the denture base. Solcoseryl is known to possess trophic and wound-healing properties and is widely used in dentistry to stimulate tissue repair.

Group 3 received removable plate dentures in combination with a newly developed biologically active film incorporating the immunocorrective drug Imudon. The film was based on a thin biopolymer matrix, which was non-toxic, elastic and capable of gradual dissolution in saliva, thereby ensuring sustained local release of the active substance.

Technique of application of the films

In Groups 2 and 3, before inserting the denture into the mouth, the internal surface of the base was carefully washed and dried. A thin sheet of the corresponding film was then adapted to the entire basal surface so that its borders coincided with the borders of the denture in the vestibular fold and in the palatal or lingual areas. Excess material was trimmed with scissors. After that the denture was positioned in the oral cavity in the usual way and the patient was asked to close the jaws in centric occlusion.

In the case of the Imudon-containing film, the procedure was carried out 2–3 times daily during the first 7–10 days after insertion of the denture. Patients were instructed not to remove the denture for

at least 30–40 minutes after application of the film in order to provide intimate contact between the material and the mucosa, and to minimise eating and drinking during this period.

Methods for evaluation of local immunity

To substantiate the effect of the proposed method on local defence mechanisms, levels of secretory immunoglobulin A (sIgA), IgA and IgG in saliva were determined using radial immunodiffusion. unstimulated mixed saliva was collected in the morning on an empty stomach, centrifuged to remove cellular elements and stored at low temperature until analysis. Lysozyme activity was assessed according to the classical turbidimetric method based on the rate of lysis of a *Micrococcus lysodeikticus* suspension. The functional state of neutrophils was evaluated using a latex particle phagocytosis test with calculation of the phagocytic index (percentage of phagocytosing cells) and the phagocytic number (mean number of latex particles engulfed per phagocyte).

Microbiological examination

Microbiological studies were carried out on smears taken from the mucosa of the denture-bearing area (palate and alveolar ridge for the maxilla, alveolar ridge and retromolar region for the mandible). Sampling was performed prior to prosthetic treatment and subsequently on days 10, 30, 60 and 90 of denture use. Standard methods of cultivation on selective and differential media were applied. The frequency of detection and the colony-forming units of *Escherichia coli*, *Staphylococcus aureus*, *Candida albicans*, *Neisseria*, *Enterococcus faecalis*, *Klebsiella*, β -haemolytic streptococci and other conditionally pathogenic microorganisms were recorded.

Functional evaluation of the masticatory system

The functional state of the masticatory system was examined by means of automated registration of mandibular movements. The duration of the chewing cycle, the number of chewing strokes per minute and the duration of the swallowing period were determined when patients chewed a standard test food. These indices reflect the degree of coordination and efficiency of the masticatory apparatus and are sensitive markers of the patient's adaptation to the prosthesis.

Schedule of examinations and statistical analysis

All types of examination were carried out before denture insertion, on days 3, 7 and 10 after insertion and at 1, 2 and 3 months of follow-up. Statistical processing of the data included calculation of means and standard deviations. Differences between groups at similar time points, as well as intra-group changes in dynamics, were assessed using appropriate parametric and non-parametric tests with the level of significance set at $p < 0.05$.

Results

Dynamics of local humoral and cellular immunity

Before treatment, all patients exhibited decreased levels of sIgA, IgA and IgG in saliva, reduced lysozyme activity and lowered phagocytic index and phagocytic number compared with reference values, which reflected a chronic deficiency of local immune protection in the oral cavity.

In the control group, insertion of removable dentures led to a further decline of these indices during the first 10 days. Only by the second and third months did the values gradually return to the baseline level, which indicated a slow and strained adaptation process. In Group 2, where Protoplen-M was used, a moderate transient improvement of immunological parameters was observed, but by the third month the indices were again close to their initial values.

In contrast, in Group 3 the use of the Imudon-containing film resulted in a significant and persistent increase in levels of sIgA, IgA and IgG already by day 10. Lysozyme activity increased to values

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near the upper limit of the physiological range, and both phagocytic index and phagocytic number rose substantially. Although a slight decline was noted at later time points, all indices remained significantly higher than the baseline values throughout the three-month observation period. This confirms the immunocorrective potential of the proposed method.

Changes in oral microbiocenosis

Microbiological analysis demonstrated that in the control group the colonisation of the denture-bearing mucosa by pathogenic and opportunistic microorganisms intensified after denture insertion. The number of colonies of *E. coli*, *Staphylococcus aureus*, *Candida albicans* and other species increased, and this unfavourable pattern persisted for at least one month. In Group 2 a certain decrease in microbial contamination was noted by day 30, but the reduction was modest and unstable.

In Group 3, already by day 10 of treatment with the Imudon-containing film the total number of colonies of pathogenic and opportunistic microflora decreased sharply. By one month, many species were either not detected or were found only in isolated cases. The composition of the microflora approached that typical of a clinically healthy oral cavity in denture wearers, which indicates restoration of microbiocenosis under the conditions of immunocorrective therapy.

Condition of the denture-bearing mucosa

Clinical and macrohistochemical examinations showed that immediately after denture insertion all patients developed inflammatory changes under the base, manifested as areas of hyperaemia and oedema. The total area of inflammatory zones was similar in all groups at the initial stage.

In the control group these changes persisted for a long time: even by the end of the first month extensive areas of inflammation remained, and many patients continued to complain of burning and discomfort. In Group 2 the regression of inflammatory phenomena was faster; however, the area of lesions still exceeded the values recorded in Group 3.

The most favourable dynamics were observed in patients receiving the Imudon-containing film. By the end of the first month the total area of inflammatory zones was several times smaller than at baseline and was significantly lower than in the other groups. Hyperaemia and oedema were mild or absent, and subjective complaints were minimal. This indicates an accelerated and more comfortable adaptation of the mucosa to the prosthesis.

In Group 2 moderate improvement of functional parameters was recorded; nevertheless, they did not reach optimal values. In Group 3, on the contrary, the chewing cycle shortened significantly by day 10 and continued to normalise during the observation period. The number of chewing strokes per minute approached physiological norms, and the swallowing period became shorter and more stable. Patients of this group quickly achieved confident and efficient mastication of solid food with their new dentures.

The combination of immunocorrective action with the properties of a prolonged-release dosage form is of crucial importance. Continuous and controlled release of Imudon at the interface between the denture base and the mucosa ensures a stable therapeutic effect without significant systemic exposure. This approach can be regarded as an example of rational local pharmacotherapy in prosthetic dentistry.

Conclusions

The clinical and laboratory data presented in this article allow the following conclusions to be drawn:

1. Patients treated with removable plate dentures frequently exhibit a decrease in local humoral and cellular immunity, activation of pathogenic and opportunistic microflora and development of inflammatory changes in the denture-bearing mucosa, which complicate and prolong the period of adaptation to the prosthesis.
2. Conventional bioresorbable films with trophic and wound-healing components provide only partial and unstable improvement of clinical and laboratory parameters and do not ensure persistent normalisation of oral microbiocenosis and immune protection.
3. The newly developed biologically active film containing Imudon has a pronounced immunocorrective effect, leading to a significant and sustained increase in levels of sIgA, IgA and IgG in saliva, normalisation of lysozyme activity and enhancement of neutrophil phagocytic function.
4. Application of the Imudon-containing film is accompanied by a marked reduction in colonisation of the denture-bearing mucosa by pathogenic and opportunistic microorganisms and by restoration of a microbiocenosis typical of clinically healthy denture wearers.
5. Against the background of treatment with the biologically active film, the area and severity of inflammatory lesions under the denture base decrease more rapidly, subjective complaints fade earlier and the functional indices of the masticatory system reach more favourable values compared with conventional treatment.
6. Inclusion of the Imudon-containing film in the complex of prosthetic rehabilitation can be recommended as an effective and pathogenetically justified method for improving the results of treatment and the quality of life in patients with complete and partial edentulism using removable plate dentures.

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ПРОФИЛАКТИКА СЕРДЕЧНО-СОСУДИСТЫХ ЗАБОЛЕВАНИЙ У МОЛОДЁЖИ

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Аннотация: В данной статье представлены растущие показатели сердечно-сосудистых заболеваний (ССЗ) среди молодёжи, их основные факторы риска и научно обоснованные методы профилактики. Подробно рассмотрены вопросы первичной и вторичной профилактики, формирование здорового образа жизни, правильного питания, физической активности, управление психоэмоциональным стрессом и снижение вредных привычек. В статье предлагаются эффективные подходы для уменьшения распространённости ССЗ среди молодого населения.

Ключевые слова: Сердечно-сосудистые заболевания, атеросклероз, артериальная гипертензия, здоровье молодёжи, профилактика, факторы риска, здоровый образ жизни.

Актуальность темы: В последние годы сердечно-сосудистые заболевания встречаются не только среди лиц пожилого возраста, но и всё чаще выявляются у молодёжи в возрасте 18–30 лет. Изменение образа жизни, широкое употребление fast-food, снижение физической активности, высокий уровень стресса, курение и употребление алкоголя — все эти факторы способствуют развитию раннего атеросклероза, артериальной гипертензии и метаболического синдрома. Проведение профилактических мероприятий с молодого возраста является наиболее эффективным способом предупреждения тяжёлых сердечных заболеваний в будущем.

Основная часть: Сердечно-сосудистые заболевания (ССЗ) занимают первое место среди причин смертности в мире. Если ранее эти болезни в основном наблюдались у людей старше 40 лет, то за последние 10–15 лет их частота значительно возросла и среди молодёжи.

Согласно исследованиям:

- Распространённость артериальной гипертензии среди молодых людей 18–30 лет составляет 10–15%.
- Признаки раннего атеросклероза по данным ультразвуковой диагностики выявляются в 20–40% случаев.
- Даже у лиц моложе 25 лет регистрируются случаи инфаркта миокарда, основными причинами которых являются курение, стресс, наследственная предрасположенность и употребление энергетических напитков.

Эти данные показывают, что сердечно-сосудистая система молодых людей подвергается серьёзной нагрузке в период, когда организм ещё полностью не сформирован.

Патофизиологические основы развития ССЗ у молодёжи

Развитие атеросклероза и гипертензии в молодом возрасте имеет научное объяснение. Основные механизмы включают:

Раннее развитие атеросклероза

Атеросклеротический процесс начинается с эндотелиальной дисфункции. У молодёжи существует множество факторов, повреждающих эндотелий:

✓ Курение — никотин и СО снижают выработку эндотелиального NO (оксида азота).
Транс-жиры — способствуют окислению ЛПНП.

✓ Стрессовые гормоны — катехоламины увеличивают частоту сердечных сокращений и вызывают вазоконстрикцию.

Энергетические напитки — резко повышают секрецию катехоламинов.

В итоге:

- ✚ эндотелий повреждается,
- ✚ ЛПНП-липиды фиксируются в сосудистой стенке,
- ✚ накапливаются воспалительные клетки,
- ✚ происходит утолщение интимы.

Это приводит к развитию субклинического атеросклероза у молодых людей.

Рост сердечно-сосудистых заболеваний среди молодежи является одной из серьезных проблем современного общества. Сегодня многочисленные исследования показывают, что среди лиц в возрасте 18–30 лет значительно увеличилось частота артериальной гипертензии, раннего атеросклероза и функциональных нарушений сердца. На это влияют такие факторы, как стремительное изменение образа жизни, вредные привычки, снижение физической активности, неправильное питание, психологические нагрузки и генетическая предрасположенность. Несмотря на то, что метаболические процессы у молодых людей активны и энергозатраты высоки, нездоровый образ жизни наносит прямой вред сердечно-сосудистой системе.

Одним из наиболее значимых факторов риска является нарушение пищевого поведения. Фаст-фуд, трансжиры, сладкие напитки и высококалорийная пища стали частью ежедневного рациона молодых людей. Такое питание приводит к повреждению эндотелиального слоя сосудистых стенок, накоплению липидов в интимах сосудов и, как следствие, к раннему развитию атеросклероза. Кроме того, избыточное потребление соли способствует раннему повышению артериального давления, задержке жидкости в организме и увеличению нагрузки на сердце. Эти изменения со временем вызывают гипертрофию миокарда, потерю эластичности сосудов и расширение пульсового давления.

Вторым важным фактором является недостаток физической активности. Современная молодежь проводит значительную часть дня в сидячем положении или перед экраном. Такая гиподинамия способствует развитию метаболического синдрома, инсулинорезистентности, ожирения, замедлению кровообращения и ослаблению сердечной мышцы. Недостаточная циркуляция крови вызывает венозный застой, кислородное голодание тканей и снижение

аэробной выносливости сердца. Нехватка физической активности может приводить к несоответствию между потребностями сердца и возможностями организма даже в 20-летнем возрасте.

Стресс и психологические нагрузки также играют ключевую роль в росте сердечно-сосудистых заболеваний среди молодежи. Учебные нагрузки, экзамены, давление социальных сетей, личные проблемы приводят к постоянному повышению уровня стресс-гормонов — катехоламинов и кортизола. Эти гормоны ускоряют сердечный ритм, сужают сосуды, повышают артериальное давление и вызывают метаболические нарушения. На фоне хронического стресса сердце работает с перегрузкой и со временем изнашивается.

Вредные привычки — особенно курение, употребление алкоголя и энергетических напитков — широко распространены среди молодежи и являются одними из наиболее опасных факторов, поражающих сердце. Курение вызывает сужение сосудов, повышает риск тромбообразования и ускоряет атеросклеротический процесс. Энергетические напитки нарушают сердечный ритм, резко повышают давление и могут вызывать аритмии. Иногда молодые люди одновременно употребляют энергетики, кофеин и никотин, что значительно увеличивает риск внезапной остановки сердца.

Наиболее эффективным способом профилактики является формирование здорового образа жизни с юных лет. Правильное питание — отказ от жирной и быстро приготовляемой пищи, увеличение потребления овощей и фруктов, ограничение соли, регулярное употребление рыбы, орехов и бобовых — способствует защите сердца. Повышение физической активности, ежедневная ходьба в объеме не менее 8–10 тысяч шагов, регулярный бег, плавание или физические упражнения укрепляют миокард и нормализуют артериальное давление. Большое значение имеет и гигиена сна. Достаточный и **качественный сон** стабилизирует сердечный ритм, снижает уровень стресс-гормонов и улучшает метаболизм. Наоборот, недосыпание, поздний отход ко сну и нарушение режима дня наносят значительный вред сердечно-сосудистой системе. Кроме того, отказ от вредных привычек, прекращение курения и избегание энергетических напитков являются ключевыми элементами профилактики.

Профилактика: крайне важно, чтобы молодые люди регулярно проходили профилактические медицинские осмотры. Постоянный контроль артериального давления, ежегодное проведение липидограммы и анализа уровня глюкозы позволяют выявить заболевание на ранних стадиях и предотвратить его прогрессирование. Даже незначительные нарушения, обнаруженные в молодом возрасте, со временем могут привести к тяжелым патологиям, поэтому профилактические меры должны начинаться как можно раньше.

Заключение: Рост сердечно-сосудистых заболеваний среди молодежи является актуальной проблемой, требующей своевременного принятия профилактических мер. Изменение образа жизни, неправильное питание, низкая физическая активность, психологические нагрузки, вредные привычки и генетическая предрасположенность способствуют раннему развитию этих заболеваний. Несмотря на относительную физиологическую устойчивость сердечно-сосудистой системы в молодом возрасте, регулярное воздействие неблагоприятных факторов приводит к повреждению эндотелия, изменениям артериального давления, нарушениям липидного обмена и раннему началу атеросклероза.

Поэтому формирование культуры здорового питания, увеличение физической активности, управление стрессом, отказ от вредных привычек и регулярные профилактические обследования являются наиболее эффективными мерами предупреждения заболеваний. Раннее внедрение профилактических мероприятий позволяет предотвратить развитие сердечно-сосудистых патологий в будущем, снизить уровень инвалидизации и смертности, а также укрепить общее здоровье общества.

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THE INFLUENCE OF DIFFERENT SELECTION VARIETIES ON THE CLEANING
PROCESS OF COTTON STRUCTURE COMPOSITION

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Abstract: *In this article, experimental work was carried out at an enterprise in the LLC cluster system. It processed Andijan-36, 52-4, China-31, China-29, and 52 selection varieties imported from China, grown in Andijan, and studied the effect of the structural composition of different selection varieties on the ginning process.*

Keywords: *fiber porosity, fiber volumetric mass, cotton fragments, cotton structure composition*

1. INTRODUCTION

Several regulations have been adopted to objectively evaluate new cotton varieties found out by breeders of our republic in terms of morphological, economic and technological indicators of their fiber, to select them for future expansion, to study the implementation of seed production work in elite farms that primarily reproduce seeds of new and promising cotton varieties, to study the acceptance of seed cotton at cotton ginning plants and cotton receiving points, and to study their separate collection and storage by varieties and generations.

Many researchers have stated that one of the main factors that affects the efficiency of cotton structure ginning is the initial processing of cotton in cotton ginning enterprises.

The cotton structure coefficient was proposed primarily by R.Z. Burnashev and A.E. Lugachev as an indicator of cotton structure as a cleaning object. However, other scientists considered it only as an indicator of the number of cotton fragments.

In fact, it is not true for real cotton since the number of seeds connected by fibers can vary in a given piece of cotton. In the currently available cotton selection varieties, there can be up to 5-9 seeds in a piece of cotton. However, it should be noted that the main element of the cotton piece is a single fiber-coated seed, which consists of a seed with a width of 3-6 mm, a length of 6-9 mm, and a fiber with a length of 29-36 mm, as well as fluff of various lengths. However, in nature, the fibers in the seed are in a dense state, bent in the boll of the cotton, and do not reach their maximum length even during technological processes.

A piece of cotton consisting of 6-9 fiber seeds is stretched as a result of mechanical effects. In the process of separating the seeds, the fibers attached to them can be straightened and lengthened as a result of mechanical effects.

During the drying and cleaning processes, the separated seed fibers can be further reduced in fiber length due to friction on the working surfaces of dryers and cleaners.

The analysis can be concluded that even if the number of cotton pieces and the number of seeds in them are the same, the sizes of the cotton pieces, that is, the fiber surfaces involved in cleaning, may be different. This situation leads to the possibility that the cleaning efficiency of the cleaners may be different even if the value of the coefficient m , which is measured by the ratio of the number of seeds in the cotton to the number of cotton pieces, is the same.

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A number of studies focused on the effect of cotton density on cleaning efficiency found that an increase in its value leads to a decrease in cleaning efficiency. The following formula determines cotton density.

The porosity depends on the V_m .

$$V_m = \frac{\pi}{6} d_{\text{эКБ}}^3 - \left(\frac{T}{1000} \cdot \frac{B_{\min}}{m_b} \cdot \frac{\ell_t}{\delta_b} + \frac{\pi}{6} a_r^2 \ell_r \right) \quad (1)$$

here $d_{\text{эКБ}}$ - equivalent diameter of a fiber single seed; T - fiber thickness, tex; $B_{\min}$ - fiber output; m_n - fibrous single seed mass; m_b - single fiber mass; ℓ_r - fiber length; δ_b - volumetric mass of fiber; a_r, ℓ_r - width and length of the seed, respectively.

(1) The parameters included in the formula are the same for a single batch of cotton. Therefore, the porosity of the fibers V_m . It is largely determined by the size of each fiber or the length of the cotton sliver that substitutes for them.

Generally, it is scientifically significant to compare and analyze the structure of machine-picked and hand-picked cotton and their influence on the efficiency of cleaners.

2. METHODS

This article describes the change in the structure of cotton due to technological processes, its optimal preparation for ginning, and how to determine the coefficient that characterizes the structure of cotton. To know that some experiments were conducted in the Chinabad cotton ginning factory.

We used the cotton variety **China-29½** collected by hand and by machine. After passing the cotton ginning machine 2CB-10 and the YXK cleaners, samples were taken, and then the number of seeds as well as cotton fragments were measured three times.

The value of the coefficient was calculated by this formula:

$$m = \frac{N}{M} \quad (2)$$

Here N - number of single fiber-coated seeds; M - number of cotton fragments.

3. RESULTS

Results of experiments are provided in the first table. Moisture of cotton collected by hand accounts for 10.3% and moisture of cotton collected by machine accounts for 13.1%.

1-table

Change in the cotton structure due to the technological process

No.	Spot from where the sample	Number of fiber-coated seeds in cotton									M	N	m
		1	2	3	4	5	6	7	8	9			

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	was taken												
Hand-picked cotton													
1.	From the cotton heap	25	13	14	14	13	15	20	13	-	127	534	4,2
2.	After 2СБ-10	62	92	16	8	16	9	13	9	-	225	531	2.36
3.	After YXK	330	40	7	9	7	3	3	2	-	401	517	1,29
Machine-picked cotton													
1.	From the cotton heap	80	30	12	10	11	15	13	5	-	176	492	2,8
2.	After 2СБ-10	125	55	10	40	9	10	4	-	-	253	558	2,21
3.	After YXK	470	34	7	9	4	6	4	-	-	534	679	1,27

From the results of the study, it is clear that cotton is separated into small pieces after passing through pneumatic transport, the drying drum of 2СБ-10, and the cleaning flow of YXK. Therefore, the number of single fiber-coated seeds increases, leading to an increased number of cotton fragments.

With the hand picking, the value of the coefficient is decreasing from 4.2 to 1.29, and with machine picking, from 2.8 to 1.27. Although the coefficient of cotton's structure with hand-picking and machine picking after the cleaning flow of YXK is almost the same, we can see a significant change in its composition. In particular, the quantity of single fiber-coated seeds picked by hand is 620, while the fiber-coated seeds picked by machine – 125. In addition, the number of double seeds is 92 and 55, respectively. There are other noticeable changes in other parts of cotton.

The registered cases show that previous recommendations of the cotton structure's coefficient did not include the types of cotton picking.

Besides that, the samples of 50g, 100g, and 150g were taken, and after the technological process of the cotton-ginning factory, the number of single fiber-coated seeds in the composition of cotton was obtained. The attained results are provided in tables 2-4 below:

2- table

The quantity of fiber-coated seeds in the 50g of cotton is in the sequence of the technological process of the cotton-ginning plant.

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No.	Spot from where the sample was taken	Cotton composition (number of fiber-coated seeds)									M	N	m
		1	2	3	4	5	6	7	8	9			
1.	From the cotton heap	16	6	9	8	3	10	2	7	4	65	268	0.24
2.	At the transfer point	48	15	11	3	6	6	6	5	-	100	271	0.37
3.	After 2 СБ-10	46	25	12	9	2	7	6	2	-	109	278	0.39
4.	After УХК	150	37	9	2	1	2	3	-	-	204	297	0.69
5.	From the gin tray	177	29	12	2	1	1	-	-	-	222	290	0.76

3-table

The quantity of fiber-coated seeds in the 100g of cotton in the sequence of the technological process of the cotton-ginning plant.

T/p	Намуна нуктаси	Cotton composition (number of fiber-coated seeds)									M	N	m
		1	2	3	4	5	6	7	8	9			
1.	From the cotton heap	34	17	14	9	12	18	18	7	6	135	550	0.25
2.	At the transfer point	99	33	21	23	7	12	11	5	-	211	544	0.38
3.	After 2 СБ-10	116	41	18	12	9	13	14	5	1	229	570	0.40
4.	After УХК	364	31	12	7	5	3	2	2	3	429	590	0.72
5.	From the gin tray	394	37	16	5	3	3	3	-	-	461	590	0.78

4-table

The quantity of fiber-coated seeds in the 150g of cotton is in the sequence of the technological process of the cotton-ginning plant.

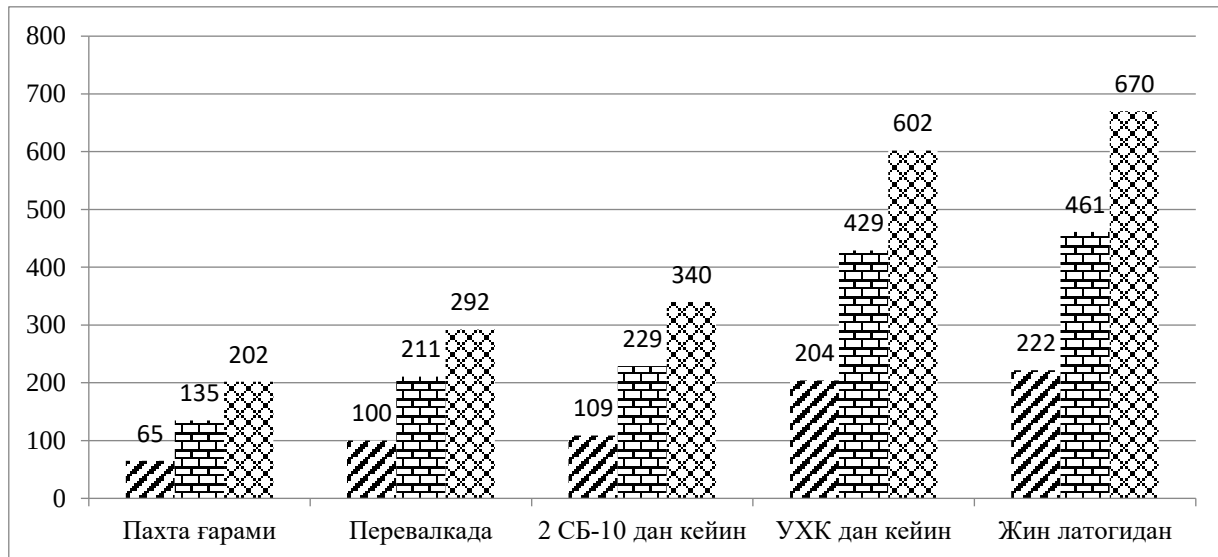
T/p	Намуна нуктаси	Cotton composition (number of fiber-coated seeds)									M	N	m
		1	2	3	4	5	6	7	8	9			
1.	From the cotton heap	52	28	11	23	22	22	23	16	5	202	809	0.25
2.	At the transfer point	125	49	31	24	15	9	20	14	5	292	838	0.35
3.	After 2 СБ-10	187	67	16	23	14	20	8	10	1	340	784	0.43
4.	After УХК	489	52	23	14	8	5	8	1	2	602	870	0.69
5.	From the gin tray	548	81	18	7	14	2	-	-	-	670	874	0.77

Based on the results of the study in pictures 3.7-3.9 show histograms of the change in quantity of single fiber-coated seeds, of cotton fragments, and the change of coefficient that determines the cotton

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structure in cotton samples of different weights during the technological process of the cotton-ginning factory.

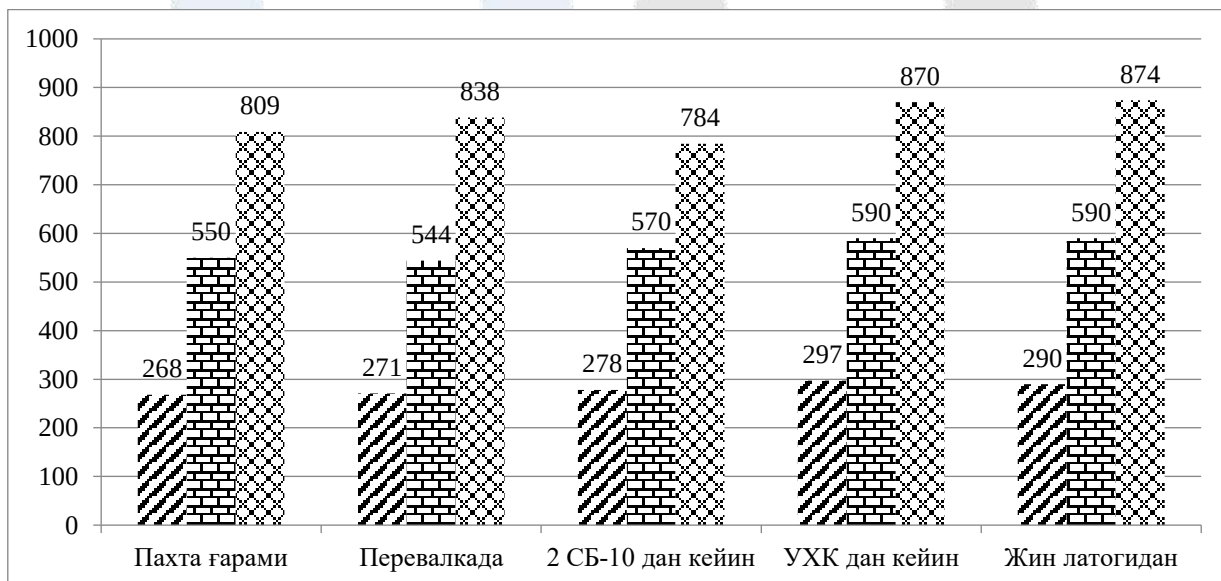


Sequence of technological process

-50g sample ; -100g sample; -150g

Технологик жараён кетма-кетлиги

1-picture. The number of fiber-coated seeds in cotton samples of different weights during the technological process of the cotton-ginning factor.

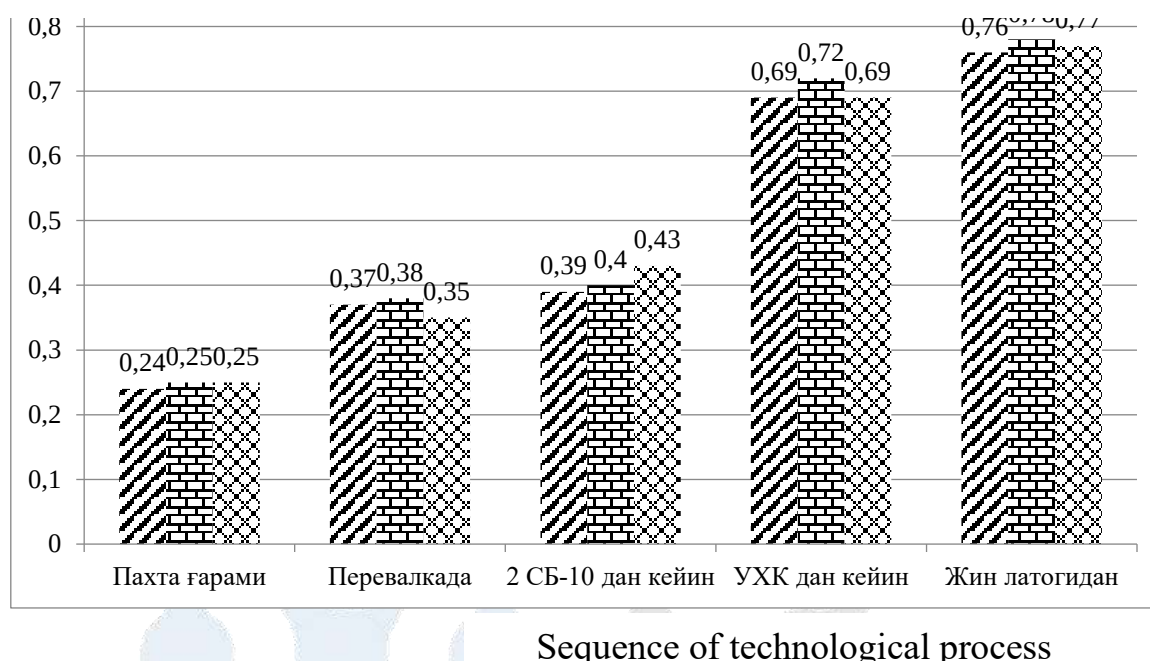


Sequence of technological process

-50g sample; -100g sample; -150g



2-picture. The number of fiber-coated seeds in cotton samples of different weights during the technological process of the cotton-ginning factor.



-50g sample ; -100g sample; -150g



3-picture. The number of fiber-coated seeds in cotton samples of different weights during the technological process of the cotton-ginning factor.

4. CONCLUSION

The results of the study show that with an increase in the weight of the sample, the number of single fiber-coated seeds and cotton fragments increases in accordance with the number of cotton fibers of different weights in the technological process of the cotton ginning factory, and the coefficient characterizing the structure of cotton is almost the same in all samples.

In conclusion, there is a need to conduct extensive research in connection with the efficiency of ginning to develop a coefficient characterizing the structure of cotton as an object of cleaning.

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**MAKTABDA STEAM TEXNOLOGIYASI ASOSIDA TABIIY FANLARNI
O'QITISHNING ILMIY-METODIK ASOSLARI**

Termiz davlat Pedagogika instituti

Ta'lim tarbiya nazariyasi va
metodikasi 1-kurs magistranti

Panjiyeva Xaniza Bobir qizi

Annotatsiya. Ushbu maqola zamonaviy ta'lim sohasida keng qo'llanila boshlagan integratsiyalashgan ta'lim va STEAM (Fan, texnologiya, muhandislik, san'at, matematika) dasturlarining boshlang'ich ta'limdagi ahamiyati, metodikasi va samaradorligini o'rganadi.

Xususan, boshlang'ich sinf o'quvchilarida fanlararo bog'lanishlar orqali bilimlarni chuqurroq o'zlashtirish, loyihalar asosida o'qitish va kreativ yechimlarni topish ko'nikmalarini shakllantirish masalalari yoritilgan.

Kalit so'zlar: STEAM, integratsiya, amaliyot, boshlang'ich ta'lim, loyihalar asosida o'qitish, kreativlik, ta'lim innovatsiyalari.

Zamonaviy dunyoda ta'lim sohasida yangi yondashuvlar va innovatsion metodlarning paydo bo'lishi bilim olish jarayonini sifat jihatidan yangi bosqichga ko'tarib kelmoqda. Ayniqsa, boshlang'ich ta'lim bosqichida qo'llaniladigan integratsiyalashgan ta'lim va STEAM (Science, Technology, Engineering, Arts, Mathematics) dasturlari bolalarning bilim olish qobiliyatlarini rivojlantirishda muhim rol o'ynaydi. Bugungi kunda pedagogik amaliyotda an'anaviy o'qitish usullaridan voz kechib, fanlararo bog'lanishlarga asoslangan, amaliy ko'nikmalarni rag'batlantiruvchi yondashuvlar qo'llanilmoqda. STEAM ta'limi bolalarga nafaqat fundamental bilimlarni, balki ularni qo'llash, mantiqiy fikrlash va ijodiy yechimlarni topish qobiliyatlarini ham shakllantirishga qaratilgan. Bu kabi tadqiqotlar natijasida, boshlang'ich ta'limda integratsiya va STEAM dasturlarining o'rni, ahamiyati, shuningdek, xorijiy va mahalliy tajribalar asosida ularni ta'lim jarayoniga tatbiq etish usullarini tahlil qilishdan iborat. . Xususan, integratsiyalashgan ta'lim – bu turli fanlarni o'zaro bog'lab, murakkab bilim va ko'nikmalarni shakllantirishga qaratilgan yondashuv, ya'ni, bolalarga murakkab tushunchalarni oddiy va qo'l keladigan tarzda o'rgatish, STEAM esa, STEM (Fan, Texnologiya, Muhandislik, Matematika) ga san'at (Arts)ni qo'shish orqali yaratilgan innovatsion yondashuv bo'lib, asosiy maqsadi, ijodkorlik va mantiqni birlashtirish – masalan, dasturlashni badiiy loyihalar bilan o'rgatish, real hayotga moslashtirish-

robototexnika, 3D-dizayn kabi sohalarda qo'llash, gender tenglik–qizlarni texnik fanlarga jalb qilish hisoblanadi.

Ta'lim tizimida STEAM yondashuvi boshlang'ich sinflarda kreativlik– san'at (masalan, rasim chizish) orqali matematik tushunchalarni o'rganish, muhandislik– oddiy qurilmalar yasash (LEGO, robototexnika), kompyuter savodxonligi- dasturlash asoslari (Scratch Jr, Blockly) jihatlarni rivojlantirishga qaratilgan.

STEAMning pedagogik samaradorligi sifatida, tadqiqotlar ko'rsatadiki, STEAM usullari bolalarning mantiqiy fikrlashini 30% ga, ijodkorlik qobiliyatini 40% ga oshiradi.

Ya'ni, STEAM - bu nafaqat fanlar birlashmasi, balki kelajak avlod uchun yangi dunyoqarash yaratishdir. Boshlang'ich sinflarda integratsiya va STEAMni qo'llash usullarida amaliy misollar sifatida, matematika + san'at: geometrik shakllarni rangli qog'ozlar bilan yasash, symmetry (simmetriya) tushunchasini naqshlar orqali tushuntirish- tabiiy fanlar + muhandislik: "Qalampir qo'yish" loyihasi – o'simlik o'stirish va kuzatish jurnali, oddiy mexanizmlar (lever, ramp) yasash, dasturlash + matematika - Scratch Jr dasturi orqali sodda algoritmlar yaratishni ko'rsatish mumkin. Hamda, "STEAM Academy" loyihasi – Toshkent va Nukus shaharlarida boshlang'ich sinflar uchun eksperimental dasturlari, "Raqamli avlod" dasturi – 1-4-sinflarda dasturlash asoslarini joriy qilishni O'zbekistondagi amaliy tajribalar sifatida aytish mumkin. Shuningdek, Finlandiya modeli- hodisalar asosida o'qitish (Phenomenon-Based Learning) usulini adaptatsiya qilish masalan, tabiat hodisalarini matematika, san'at va texnologiya bilan bog'lab

o'rganish, Singapur Tajribasi- "Math + Art" integratsiyasini kuchaytirish, Geometriya va ranglar nazariyasini birlashtirgan dasturlarni ishlab chiqish, "AQSh Amaliyoti"- Next Generation Science Standards (NGSS) ni mahalliy sharoitga moslashtirish, loyihalar asosida o'qitishni maktablarga joriy qilish xalqaro tajriba asosidagi takliflar sifatida kiritilmoqda.

STEAM ta'limiy yondashuvi fanlararo integratsiyani rag'batlantirib, o'quvchilarni kompleks dunyo muammolariga yechim topishga tayyorlaydi. STEAM fanga joriy etilganda, u nafaqat an'anaviy fan darslarini yaxshilaydi, balki o'quvchilarni innovatsion tadqiqotlar, global muammolar va yangi texnologiyalar dunyosiga tayyorlaydi. STEAM yondashuvining boshlang'ich ta'limda qo'llanilishi bolalarning kognitiv, ijtimoiy va kreativ qobiliyatlarini rivojlantirishda muhim rol o'ynaydi. Bunda bolalar bilimni faol tajriba orqali qurishadi, STEAM loyihalari (masalan, LEGO yordamida qurilish) orqali tushunchalarni mustaqil kashf etishadi.

Fanlararo aloqadorlik va STEAM dasturiga misol sifatida, "Qushlar uchun uya loyihasi"–biologiya (hayvonlar harakati) + muhandislik (qurilish), 5–12 yoshda

miyaning plastikligi yuqori bo'lgani uchun fanlararo integratsiya kognitiv moslashuvchanlikni oshiradi (OECD, 2022) matematika+san'atda geometrik shakllarni rangli origami yasash orqali o'rganish, raqamli san'at: Pixel art yordamida kasrlar tushunchasi (masalan, $\frac{1}{4}$ qismini bo'yash), fan (Science) + texnologiyada tabiat hodisalari: "O'simliklar fotosintezi" loyihasi – har bir kun davomida o'simlik o'sishini kuzatish (ilmiy usul) + timelapse video yaratish (texnologiya), "Robot yordamchi": o'quvchilar Arduino yordamida suvni avtomatik sug'oradigan qurilma yasaydilar, 7 yoshdan boshlab dasturlashni san'at va matematika bilan o'rgatish (Scratch yordamida multfilm yaratish), muhandislik+fanda qurilish loyihalari (qog'ozdan minoralar qurib, ularning barqarorligini tekshirish (gravitatsiya va muvozanat)) kabilarni misol qilish mumkin. Bu bog'liqlik shuningdek guruh loyihalari asosida o'quvchilarning kommunikatsiya va liderligini oshiradi (PISA, 2022). Ushbu jarayonlardan ko'zlangan natija o'quvchilarning mantiqiy fikrlash ko'nikmalari 35% oshirgan. Zero, boshlang'ich ta'limda STEAMni joriy etish bolalarni tadqiqotchi, innovator va kreativ mutaxassislar sifatida shakllantiradi.

Asosiy muvaffaqiyat kaliti – o'yin, loyihalar va real hayot misollari orqali o'qitish hisoblanadi.

Xulosa sifatida, STEAM markazlarini kengaytirish-Toshkent va Nukusda tajribalarni barcha viloyatlarga tarqatish, har bir maktabda mini-STEAM laboratoriyalari ochish, o'qituvchilar tayyorlash- Xalqaro hamkorlikda (masalan, Erasmus+ loyihalari) STEAM bo'yicha malakali

o'qituvchilar tayyorlash dasturlarini ishlab chiqish, "O'quv dasturlarini yangilash"- Davlat standartlariga STEAM modullarini kiritish, masalan, 1-4-sinflar uchun "Tabiat + Matematika + Dizayn" integratsiyalashgan fanlar yaratish, jamiyatni jalb qilish-ota-onalar bilimni oshirish, STEAM mavzusida ota-onalar uchun seminar va master-klasslar tashkil etish, xususi sektor

ishtiroki-IT kompaniyalarini maktablar bilan hamkorlikka jalb qilish (masalan, "IT Park" loyihalari), ijtimoiy media platformalari- STEAM loyihalari uchun maxsus YouTube kanali yoki Telegram-bot

yaratib, yosh avlod qiziqishini oshirish kabilarni O'zbekiston kontekstiga moslashtirilgan yechimlar sifatida ko'rsatish mumkin.

Foydalanilgan adabiyotlar ro'yxati:

1. "STEAM in Early Childhood" (Demetra, 2021).
2. "Integrating STEM in Primary Schools" (Angela Fitzgerald, 2020).
3. Yakman, B. (2010). STEAM Education: An Overview of Creating a Model of Integrative Education.
4. OECD (2021). Early Childhood Education and STEAM: Global Practices

KLASTERLASH ORQALI SUBYEKTLARNI RIVOJLANTIRISHNING STRATEGIK
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Annotatsiya: Maqolada klasterlash asosida iqtisodiy subyektlarni rivojlantirishning asosiy omillari tahlil qilingan. Klasterlash orqali rivojlantirish jarayoni bosqichma-bosqich amalga oshirilishi ko'rsatilib, har bir bosqichda o'ziga xos strategik yo'nalishlar yoritilgan. Shuningdek, zamonaviy taraqqiyot sharoitida iqtisodiy klasterlarning samaradorligini oshirishga xizmat qiluvchi muhim omillar va ularning amaliy ahamiyati bayon etilgan. Kalit so'zlar: klaster, klasterlash, potensial, marketing, eksport, logistika, investitsiya, yashil energiya, yashil texnologiyalar, yashil iqtisodiyot.

Аннотация: В статье проанализированы основные факторы развития экономических субъектов на основе кластеризации. Показано, что процесс развития через кластеризацию состоит из последовательных этапов, на каждом из которых раскрываются собственные стратегические направления. Кроме того, изложены важнейшие основы, способствующие повышению эффективности экономических кластеров в условиях современного развития, а также их практическое значение.

Ключевые слова: кластер, кластеризация, потенциал, маркетинг, экспорт, логистика, инвестиции, зелёная энергия, зелёные технологии, зелёная экономика.

Abstrakt: The article analyzes the main factors for developing economic entities based on clustering. It shows that the process of development through clustering consists of consecutive stages, each with its own strategic directions. In addition, the paper outlines the key foundations that enhance the efficiency of economic clusters in the context of modern development and their practical importance.

Keywords: cluster, clustering, potential, marketing, export, logistics, investment, green energy, green technologies, green economy.

Klasterlash orqali subyektlarni rivojlantirishning strategik yo'nalishlari- subyektlar o'rtasida bilimlar almashinuvi va texnologiyalarni tezroq qo'llash imkonini beradi, bu esa, ularning raqobatbardoshligini kuchaytiradi. Globallashuv sharoitida xalqaro bozorlarda raqobat qilishni istagan kompaniyalar uchun muhimdir. Klasterlash orqali resurslardan birgalikda foydalanish mumkin bo'lib, bu xarajatlarni kamaytiradi hamda subyektlarning samaradorligini oshiradi. O'z navbatida, bu klasterlar moliyaviy barqarorlikka erishishiga yordam beradi va turli sohalar vakillarining yaqin hamkorligi innovatsiyalari uchun muhim shart-sharoit yaratadi. Bu omillar subyektlar orasida yangi texnologiyalarni joriy etish, mahsulot va xizmatlarni takomillashtirish uchun tezkor muhitni ta'minlaydi.

Shuningdek, klasterlash yangi ish o'rinlari yaratishda va hududiy iqtisodiy o'sishni rag'batlantirishda muhim ahamiyatga ega. Bu mahalliy darajada iqtisodiy barqarorlikni ta'minlaydi va ijtimoiy rivojlanishga hissa qo'shadi, investitsiyalarning jalb qilinishini yengillashtiradi. Chunki rivojlangan klasterlar, ko'pincha, xorijiy investitsiyalar uchun jozibador hisoblanadi. Bu mahalliy iqtisodiyotga xorijiy kapital oqimini kuchaytirishga xizmat qiladi. Klasterlash jarayonida tashkil etiladigan o'quv dasturlari va malaka oshirish kurslari subyektlarning raqobatbardoshligini oshirishga yordam beradi.

Bu nafaqat o'z xodimlari, balki hududdagi umumiy kadrlar bazasining rivojlanishiga olib keladi hamda mahalliy iqtisodiyotga turtki beradi. Chunki ular o'z atrofidagi kichik va o'rta bizneslarni rivojlantiradi, shu bilan birga, hududiy iqtisodiyotni barqarorlashtiradi. Bu ayniqsa, iqtisodiy rivojlanish imkoniyatlari cheklangan mintaqalarda juda dolzarbdir. Bundan tashqari, yashil texnologiyalarni joriy etish va ekologik toza ishlab chiqarish usullarini qo'llash osonlashadi. Bu esa, uzoq muddatli ekologik barqarorlikka erishishga xizmat qiladi hamda jamiyatga ijobiy ijtimoiy ta'sir ko'rsatadi.

Ushbu jihatlar klasterlashning nafaqat hududiy, balki milliy iqtisodiyot uchun ham dolzarb va muhim ekanligini ko'rsatadi. Klasterlash jarayoni resurslarni birlashtirish, malakali kadrlarni tayyorlash va innovatsiyalarni tezroq amalga oshirish imkoniyatini taqdim etadi, bu esa, uzoq muddatli iqtisodiy barqarorlik hamda ijtimoiy farovonlikka erishishga yordam beradi.

Mavzuga doir adabiyotlar tahlili: "Klaster" tushunchasi XX asrning 80-yillarida Maykl Porter tomonidan iqtisodiy tushuncha sifatida ilmiy jarayonga kiritilgan. Porterning ta'kidlashicha, klaster – ma'lum sohalarda faoliyat ko'rsatayotgan kompaniya va institutlarning jug'rofiy jihatdan tarmoqlararo birlashuvi¹ hisoblanadi. Bu ta'rif 1990-yilda Maykl Porter tomonidan tayyorlangan "Davlatlarning raqobatdosh afzalligi" nomli asarida keltirilgan. Demak, klaster – o'zaro bog'liq korxonalarni birlashtirishning bir usuli bo'lib, bu hudud iqtisodiyotining raqobatbardoshligini oshirish imkonini beradi. Tashkillashtirish jihatidan, klaster – vertikal ravishda integratsiyalashgan tuzilmadir.

2005-yillarda iqtisodchi olimlar – A.Rasulev, R.Alimov, D.Kurbanovalarning "O'zbekistonda paxtachilik kompleksini rivojlantirishda klaster iqtisodiy siyosatining muhim yo'nalishlari"² maqolasida mamlakatda klasterlarni rivojlantirish asoslari yoritilgan.

Journal of Management ("Value & Ethics" Gwalior Management Academy. India ISSN-2249-9512, 2022 November Special Issue Page: 222-236 (08.00.00; №6)) jurnalida chop etilgan mualliflar Rahimov Odil Berdievich, Mukhitdinov Khudayar Suyunovichning "Kashkadarya province activity of economic subjects econometric modeling of inter-territorial clustering" maqolasida subyektlarni hududlarda klasterlashni ekonometrik modellashtirish masalasini hamda "Экономика и предпринимательство" (научный журнал, 2024 г №1 (162), ISSN 1999-2300, Журнал включен в Перечень ВАКа РФ, стр.673-676.) ilmiy jurnalida chop qilingan muallif O.B.Rahimovning "Econometric model of interterritorial clustering of economic subjects" maqolasida iqtisodiy subyektlarni klasterlashni ekonometrik modellari o'rganilgan.

Tadqiqot metodlari: Iqtisodiy tahlillar.

Bizning yondashuvimizga ko'ra, klasterlarni strategik rivojlantirish va boshqarishni ekonometrik modellashtirish quyidagilarga asoslanib amalga oshiriladi:

- sanoat va ishlab chiqarishni optimallashtirish;
- hudud potensialidan foydalanish samaradorligini oshirish;
- ko'p omilli ekonometrik modellarni qurish;
- ishlab chiqarish iqtisodiy o'sish dinamikasini prognozlash.

¹ Porter M. Clusters and the New Economics of Competition. Harvard Business Review, 1998 // <http://hbr.org/product/clusters-and-the-new-economics-of-competition/an/98609-PDF-ENG>.

Klasterlash orqali subyektlarni rivojlantirishda, asosiy strategik yo'nalishlar, asosan, resurslarni optimallashtirish va o'zaro hamkorlikni oshirish bo'lib, bir xil yoki o'xshash sohadagi subyektlarni birlashtirish resurslardan unumli foydalanishga yordam beradi. Bu jarayon:

- birinchidan, resurslarning umumiy foydalanilish xarajatlarini kamaytiradi, foydani oshiradi va yashil energiya hamda texnologik yangiliklarni qo'llash imkoniyatlarini kengaytiradi;

- turli subyektlar o'rtasidagi yaqin hamkorlik innovatsiyalarni tez hamda samarali qo'llash uchun zamin yaratadi. Bu yondashuv yangi mahsulotlar yoki xizmatlarni joriy etishni va texnologik yechimlarni rivojlantirishni tezlashtiradi;

- xalqaro hamkorlikni hamda xalqaro miqyosda raqobatbardosh subyektlarni rivojlantirishda muhim rol o'ynaydi. Eksport imkoniyatlarini oshirish, texnika va exnologik almashinuvini yo'lga qo'yish bilan xorijiy bozorlar uchun zarur sifatli mahsulotlarni taklif qilish mumkin;

- logistika, transport va ta'minot tizimini samarali boshqaradi. Birlashgan subyektlar o'rtasida logistika, ta'minot va xomashyo yetkazib berish jarayonini optimallashtirish osonlashadi. Bu har bir subyektning jadal samaradorligini oshiradi;

- kadrlar tayyorlash, subyektlar o'rtasida malakali kadrlar almashinuvi hamda ularni o'qitish, o'quv dasturlarini yo'lga qo'yish uchun ko'proq imkoniyatlar yaratiladi. Barqaror rivojlanishga yo'naltiradi, ekologik toza, yashil texnologiyalar asosida va barqaror ishlab chiqarishni rivojlantirishga ham imkon beradi. Bu yo'nalishda yashil texnologiyalarni joriy etish, energiya samaradorligini oshirish kabi choralar ko'riladi.

Bu esa, raqobatbardoshlikni oshirish, mahalliy va xalqaro bozorlarda raqobatbardoshlikni kuchaytirish uchun klaster doirasida maxsus marketing strategiyalarini ishlab chiqish hamda amalga oshirishda muhim ahamiyatga egadir. Ushbu strategiyalarni amalga oshirish subyektlar o'rtasidagi raqobatni oshiradi, hamkorlikni kuchaytiradi va hudud yoki mintaqa iqtisodiyotini rivojlantirishda katta rol o'ynaydi.

Klasterlashning strategik yo'nalishlari sifatida – resurslarni to'g'ri taqsimlash, innovatsion muhit yaratish, logistika samaradorligi, xalqaro hamkorlik, kadrlarni tayyorlash, barqaror rivojlanish hamda raqobatbardoshlikni oshirish kabi jarayonlarni keltirish mumkin.

Natija va muhokamalar: Klasterlash orqali subyektlarni rivojlantirish jarayoni ketma-ket bosqichlardan iborat bo'lib, har bir bosqichda o'ziga xos strategik yo'nalishlar mavjud:

- 1) Tahlil qilish va baholash bosqichi, imkoniyatlarini aniqlash uchun hududiy sharoitlar, mavjud resurslar, mavjud infratuzilma va iqtisodiy muhit tahlil qilinadi. Potensial subyektlarni aniqlash, klasterda qatnashishi mumkin bo'lgan korxonalar va ularning resurslari, mutaxassislari hamda bilim bazasi baholanadi. Raqobat va hamkorlik imkoniyatlarini o'rganish orqali, boshqa klasterlar bilan raqobat qilish yoki hamkorlik qilish imkoniyatlari o'rganiladi;

2) Strategik rejalashtirish bosqichi, klasterning umumiy vazifasi, asosiy maqsadlari va kelajakdagi rivojlanish bosqichlari ishlab chiqiladi. Maqsad hamda strategiyalarni belgilaydi, har bir bosqich uchun maqsadlar, ularga erishish yo'llari va strategiyalar aniqlanadi, masalan, eksport salohiyatini oshirish kabi. Tashkil etish va huquqiy asos bo'lib, klasterning huquqiy maqomini aniqlash, tashkilot tuzilmasini va boshqaruv mexanizmlarini ishlab chiqishdan iborat;

3) Infratuzilma va resurslarni jalb qilish bosqichi, resurslarni birlashtirish, klasterning moliyaviy, insoniy va texnik resurslarini to'plash hamda birlashtirish, zarur infratuzilmani tashkil qilish zarur. Investitsiya va grantlarni jalb qilish, investitsiyalar, davlat grantlari, xalqaro tashkilotlar yordamidan foydalanish va resurslarni jalb qilish, ta'lim va malaka oshirish, xodimlar malakasini oshirish, yangi texnologiyalar hamda metodlarni o'rganish uchun treninglar tashkil etishdan iborat;

4) Faoliyatni tashkil etish va boshqarish bosqichi, ishlab chiqarish hamda xizmatlar ko'rsatish tizimi, subyektlar o'rtasida samarali ishlab chiqarish va xizmat ko'rsatish tizimini tashkil etish. Logistika va ta'minot tizimini tashkil qilish, xomashyo yetkazib berish hamda mahsulotni sotish jarayonlarini optimallashtirish uchun infratuzilmani yo'lga qo'yishdan iborat. Bu esa, hamkorlikni rivojlantirish, klaster ichida hamkorlikni mustahkamlash, resurslar almashinuvi va bilimlarni o'rtoqlashishni qo'llab-quvvatlashga yordam beradi;

5) Marketing bosqichi, raqobatbardosh klasterlarni rivojlantirish hamda mahalliy, xalqaro bozorlarda tanitish, bozorni tadqiq qilish va sotuvni kengaytirish, bozor tahlillari asosida klaster mahsulotlari hamda xizmatlarini keng ko'lamda sotishni yo'lga qo'yish, marketing strategiyalari ishlab chiqish, eksport va ichki bozor uchun marketing strategiyalarini ishlab chiqish hamda mahsulotlar yetkazib berishni tashkil qilishdan iborat;

6) Monitoring va tahlil qilish bosqichi, faoliyatni nazorat qilish - klaster ish faoliyatini nazorat qilish hamda har bir bosqichda bajarilgan ishlarni tahlil qilish bo'lib, klasterning samaradorligini baholash, rivojlanish yo'nalishlarini tahlil qilish va xulosalar tayyorlash, monitoring natijalariga ko'ra strategik rejalarga o'zgartirishlar kiritish, samaradorlikni oshirish uchun yangi yo'nalishlarni aniqlash zarur. Ushbu bosqichlar orqali klasterlash tizimi yo'lga qo'yiladi va subyektlar samarali rivojlanish imkoniyatiga ega bo'ladi. Bu jarayon hududiy hamda iqtisodiy rivojlanishga ijobiy ta'sir ko'rsatadi.

Xulosa va takliflar : Xulosa qiladigan bo'lsak, subyektlarni klasterlash strategiyalari iqtisodiy rivojlanishni qo'llab-quvvatlash, innovatsiyalarni targ'ib qilish va mintaqaviy raqobatbardoshlikni oshirish uchun muhim ahamiyatga ega. Bunday omillarni qo'llash jarayonida klaster ichidagi subyektlarni aniq maqsadlar asosida guruhlash, resurslardan samarali foydalanish va ishlab chiqarish jarayonlarini optimallashtirish maqsad qilinadi. Quyidagi asosiy xulosalar klasterlash strategiyalarining samaradorligini ta'minlaydi. Klasterlash strategiyasi mintaqaning iqtisodiy, geografik va sanoat xususiyatlariga mos ravishda tanlangan bo'lishi zarur. Maqsadli sohalarni aniq belgilash orqali klaster ichidagi subyektlarning imkoniyatlarini to'g'ri yo'naltirish va ular uchun maxsus strategiyalar ishlab chiqish mumkin bo'ladi. Subyektlarni klasterlash jarayonida innovatsion infratuzilma, laboratoriyalar va texnologik parklar tashkil etilishi talab qilinadi. Bu klaster a'zolarining o'zaro aloqada bo'lishiga, bilim va texnologiyalar almashinishiga ko'maklashadi. Strategiya subyektlarni faqat iqtisodiy jihatdan emas, balki ilmiy jihatdan ham birlashtirishga yo'naltirishi lozim. Bu esa, universitetlar, tadqiqot markazlari va sanoat korxonalarining hamkorlikda ishlashiga hamda ilmiy tadqiqotlarni tezroq tijoratlashtirishga imkon yaratadi. Klasterlar ichidagi subyektlarni xalqaro hamkorlikka jalb qilish orqali xorijiy tajriba va texnologiyalarni mintaqaga olib kelish, shu orqali innovatsion rivojlanishga turtki berish strategiyaning

muhim qismi hisoblanadi. Bu mahalliy tadbirkorlikni jadal rivojlantirishga yordam beradi. Klasterlashda ekologik barqarorlik tamoyillarini kiritish – atrof-muhitni asrash, resurslardan oqilona va samarali foydalanish, chiqindilarni qayta ishlash va energiya tejaydigan texnologiyalarni qo'llash, yashil energiyalarga o'tish hamda unumli foydalanish, yashil iqtisodiyotga o'tish orqali mintaqaviy rivojlanishni barqaror qilishga xizmat qiladi. Klaster ichidagi subyektlarga imtiyozlar va rag'batlar berish orqali ular innovatsion loyihalarga jalb qilinadi. Soliq imtiyozlari, subsidiya va grantlar bilan qo'llab-quvvatlash klasterni yanada mustahkamlaydi va yangi subyektlarni jalb qilish imkonini beradi. Klasterlash strategiyasining muvaffaqiyati mintaqada ishlab chiqarish va xizmat ko'rsatish jarayonlarini yaxshilash, texnologik taraqqiyotni tezlashtirish hamda raqobatbardosh mahsulot yaratishda yangi imkoniyatlarni ochib beradi. Shu tariqa, klasterlar orqali iqtisodiy rivojlanishni kuchaytirish va innovatsiyalarni yanada kengroq qo'llashga erishiladi.

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**YANGI O‘ZBEKISTON TARAQQIYOT STRATEGIYASI KONTEKSTIDA OILALI
TALABALARNING O‘QUV, OILAVIY VA IJTIMOIIY MOSLASHUV JARAYONLARINI
TAKOMILLASHTIRISH**

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Annostatsiya: Mazkur maqolada Yangi O‘zbekiston taraqqiyot strategiyasi doirasida oilali talabalarning o‘quv, oilaviy va ijtimoiy muhitga moslashuv jarayonlarini takomillashtirish omillari tahlil qilinadi. Tadqiqotda psixologik qo‘llab-quvvatlashning ahamiyati, oila–ta’lim–jamiyat integratsiyasini mustahkamlash mexanizmlari hamda oilali talabalarning psixologik barqarorligini oshirishga xizmat qiluvchi zamonaviy yondashuvlar ko‘rib chiqiladi. Maqola natijalari oilali talabalarning moslashuvini yaxshilash, ularning ta’lim jarayonidagi ishtirokini kuchaytirish va ijtimoiy farovonlikni ta’minlashga qaratilgan amaliy takliflar bilan yakunlanadi.

Kalit so‘zlar: oilali talabalar, moslashuv jarayoni, o‘quv faoliyati, oilaviy qo‘llab-quvvatlov, ijtimoiy integratsiya, Yangi O‘zbekiston taraqqiyot strategiyasi

Аннотация: В данной статье анализируются факторы совершенствования процессов учебной, семейной и социальной адаптации студентов, состоящих в браке, в контексте Стратегии развития Нового Узбекистана. Исследование рассматривает значимость психологической поддержки, механизмы укрепления интеграции «семья–образование–общество», а также современные подходы, направленные на повышение психологической устойчивости студентов. Результаты исследования завершаются практическими рекомендациями, направленными на улучшение адаптационных возможностей студентов и повышение их социальной благополучности.

Ключевые слова: студенты, состоящие в браке, процесс адаптации, учебная деятельность, семейная поддержка, социальная интеграция, Стратегия развития Нового Узбекистана

Abstract: This article explores the factors influencing the improvement of academic, family, and social adaptation processes of married students within the context of the “New Uzbekistan Development Strategy.” The study examines the importance of psychological support, mechanisms for strengthening family–education–society integration, and modern approaches aimed at enhancing the psychological resilience of married students. The findings conclude with practical recommendations designed to improve students’ adaptation, increase their engagement in the educational process, and promote overall social well-being.

Keywords: married students, adaptation process, academic activity, family support, social integration, New Uzbekistan Development Strategy

Yangi O'zbekiston taraqqiyot strategiyasida ta'lim tizimini modernizatsiya qilish, yoshlarni har tomonlama qo'llab-quvvatlash, oilaning jamiyatdagi o'rnini mustahkamlash va inson kapitalini rivojlantirish asosiy ustuvor yo'nalish sifatida belgilangan. Strategiyada aynan "yoshlarning sifatli ta'lim olishi, ularning ijtimoiy faolligini oshirish va psixologik farovonligini ta'minlash" davlat siyosatining muhim vazifalaridan biri sifatida qayd etiladi. Ushbu yondashuv oilali talabalarning ta'lim jarayonidagi ehtiyojlari va moslashuv jarayonini chuqur o'rganishni talab qiladi.

Oilali talabalarning vaziyati oddiy talabalar guruhiga nisbatan murakkabroq bo'lib, ular bir vaqtning o'zida o'quv faoliyati, oilaviy mas'uliyat va ijtimoiy rollarni muvozanatda ushlashlari kerak. Bu jarayon ko'pincha vaqt yetishmovchiligi, rol ziddiyati, psixologik charchoq va motivatsiya pasayishi kabi omillar bilan kechadi. Shuning uchun oilali talabalarning o'z o'quv va ijtimoiy muhitiga moslashuvini qo'llab-quvvatlash Taraqqiyot strategiyasida belgilangan inson kapitalini rivojlantirish maqsadlariga to'liq mos tushadi.

Mazkur tadqiqot oilali talabalarning o'quv, oilaviy va ijtimoiy moslashuv jarayonlarini takomillashtirishga qaratilgan bo'lib, strategiyadagi "ta'lim-oila-jamiyat" integratsiyasini kuchaytirishga oid vazifalar bilan bevosita bog'liqdir. Mavzuning dolzarbligi shundaki, oilali talabalarning psixologik farovonligi nafaqat ularning ta'lim jarayonidagi natijalariga, balki yosh oilalarning barqarorligiga, jamiyatning psixologik salomatligiga ham ta'sir ko'rsatishi mumkin.

MAVZUGA OID ADABIYOTLAR TAHLILI

Oilali talabalarning moslashuv jarayoniga oid tadqiqotlar psixologiya, pedagogika va sotsiologiya fanlarida muhim yo'nalishlardan biri hisoblanadi. Psixologiya fanining klassik namoyandalari bo'lgan A. Maslou, K. Rojers, E. Erikson, A. Bandura, G. Selye moslashuv, stress, motivatsiya va shaxsning psixologik rivojlanishiga doir nazariy asoslarni yaratgan. Maslou inson ehtiyojlari ierarxiyasi orqali talabaning o'quv faoliyatidagi muvaffaqiyati xavfsizlik, hissiy qo'llab-quvvatlash, ijtimoiy tegishlilik kabi omillarga bog'liqligini ko'rsatgan. Rojersning humanistik yondashuvi esa shaxsning o'zini anglash, psixologik erkinlik va ijobiy muhitga ehtiyojini urg'ulaydi.

E. Eriksonning psixososial rivojlanish nazariyasiga ko'ra, yoshlik davri shaxsning ijtimoiy va oilaviy rollarni shakllantirish bosqichi bo'lib, bu davrda moslashuv jarayonining buzilishi stress, ijtimoiy uzilish va motivatsiya pasayishiga olib kelishi mumkin. A. Bandura esa ijtimoiy o'rganish nazariyasida shaxsning moslashuviga oila, ta'lim muassasasi va atrof-muhitdagi rollar qanday ta'sir etishini tushuntiradi.

Xalqaro adabiyotlarda V. Bronfenbrennning ekologik tizimlar nazariyasi oilali talabalarning moslashuvini tahlil qilishda asosiy konseptlardan biri hisoblanadi. Uning aytishicha, shaxs rivojlanishi oila, ta'lim muassasasi, mezo va makro ijtimoiy tizimlar o'rtasidagi uyg'unlikka bog'liq. Shuningdek, Tinto integratsiya modeli talabalarning o'quv jarayonidagi muvaffaqiyati akademik qo'llab-quvvatlov, ijtimoiy integratsiya va oilaviy sharoitlar bilan bevosita bog'liq ekanini ko'rsatadi. O'zbekistonlik psixolog olimlar — A. Jalilov, N. Sayfullayeva, D. Karimova, G. Abdurahmonova, M. To'rayev va boshqalarning ilmiy izlanishlarida talabalarning psixologik barqarorligi, emotsional holati, stressga chidamliligi, o'z-o'zini boshqarishi va ijtimoiy moslashuvi kabi masalalar chuqur o'rganilgan. Biroq, manbalar tahlili shuni ko'rsatadiki, aynan oilali talabalarga tegishli psixologik moslashuv yo'nalishi bo'yicha maxsus tadqiqotlar yetarli emas.

Shu sababli mazkur tadqiqot oilali talabalarning moslashuv jarayoniga ta'sir etuvchi psixologik, ijtimoiy va oilaviy omillarni chuqur tahlil qilishni, mavjud ilmiy qarashlarni umumlashtirishni hamda

Taraqqiyot strategiyasidagi ustuvor vazifalar bilan uyg'un integrativ yondashuvni taklif qilishni maqsad qiladi.

TADQIQOT METODOLOGIYASI

Tadqiqot kombinatsiyalashgan (mixed-method) yondashuv asosida olib borildi. Bu usul sifat va miqdoriy tadqiqot metodlarini birlashtirib, oilali talabalarning o'quv, oilaviy va ijtimoiy moslashuv jarayonini har tomonlama o'rganishga imkon berdi. Tadqiqot ishtirokchilari 20–27 yoshdagi oilali talabalardan iborat bo'lib, tasodifiy tanlama asosida tanlandi.

Ma'lumotlar anketalashtirish, psixologik testlar va yarim strukturalashtirilgan intervyular orqali yig'ildi. Anketalar talabalarning o'quv samaradorligi, oilaviy qo'llab-quvvatlov va ijtimoiy integratsiyasini o'lchashga mo'ljallangan. Psixologik testlar orqali stress darajasi, o'z-o'ziga ishonch va oilaviy qo'llab-quvvatlov baholandi. Intervyular esa talabalarning individual tajribasi, qiyinchiliklari va ehtiyojlarini chuqur o'rganishga yordam berdi.

Olingan ma'lumotlar deskriptiv statistika, korrelyatsion va regressiya tahlili, faktorial tahlil hamda intervyularni tematik tahlil qilish usullari yordamida qayta ishlandi. Tadqiqot psixologik nazariyalar (Maslou, Rojers, Erikson, Bandura, Bronfenbrenner, Tinto) va zamonaviy oila psixologiyasi yondashuvlariga tayandi.

TAHLIL

Tadqiqot natijalari shuni ko'rsatdiki, oilali talabalarning moslashuv jarayoni o'quv faoliyati, oilaviy majburiyatlar va ijtimoiy muhit o'rtasidagi murakkab integratsiyaga bog'liq. Vaqt taqsimoti, o'quv yuklamasi va akademik stress talabaning o'quv samaradorligiga bevosita ta'sir qiladi. Oilaviy qo'llab-quvvatlov darajasi va rollar taqsimoti moslashuvni prognozlashda asosiy omillar sifatida aniqlangan. Oilali talabalarda tengdoshlar bilan muloqotning cheklanishi va ijtimoiy faollikning pasayishi ularning umumiy moslashuv jarayonini murakkablashtiradi. Statistika tahlili shuni ko'rsatdiki, o'quv, oilaviy va ijtimoiy moslashuv ko'rsatkichlari bir-biri bilan mustahkam bog'liq bo'lib, psixologik qo'llab-quvvatlov va stressni boshqarish qobiliyati eng muhim prediktor sifatida aniqlangan.

XULOSA

Yuqoridagi tahlillar shuni ko'rsatadiki, Yangi O'zbekiston taraqqiyot strategiyasi sharoitida oilali talabalarning moslashuv jarayonini qo'llab-quvvatlash dolzarb ilmiy va amaliy masala hisoblanadi. O'quv, oilaviy va ijtimoiy moslashuvning integratsiyasi talabaning psixologik holati, ta'limdagi muvaffaqiyati va oilaviy barqarorligiga bevosita ta'sir qiladi. Tadqiqot natijalari asosida talabalarning moslashuvini kuchaytirish uchun psixologik qo'llab-quvvatlov, stress-menejment, oilaviy treninglar, shuningdek, universitet va mahalla hamkorligini rivojlantirish lozimligi aniqlanadi. Shu bilan birga, Yangi O'zbekiston taraqqiyot strategiyasidagi "inson kapitalini rivojlantirish", "oilaviy barqarorlik" va "ta'lim sifatini oshirish" tamoyillari ushbu masalalarga amaliy hissa qo'shadi va oilali talabalarning psixologik, ijtimoiy va akademik moslashuvini yaxshilash imkonini beradi.

Mening fikrimcha, oilali talabalarning muvaffaqiyati nafaqat ularning shaxsiy rivoji va oilaviy barqarorligiga, balki jamiyatning umumiy farovonligiga ham to'g'ridan-to'g'ri ta'sir qiladi. Shu sababli, oliy ta'lim muassasalari va davlat siyosati oilali talabalarni qo'llab-quvvatlashda yanada tizimli va samarali chora-tadbirlar ishlab chiqishi kerak. Tadqiqot davomida olingan ma'lumotlar shuni ko'rsatdiki, oilali talabalarning o'quv va ijtimoiy muhitga muvaffaqiyatli moslashuvi jamiyatdagi barqaror oila va sog'lom yosh avlodni shakllantirishning muhim sharti hisoblanadi. Shu

nuqtai nazardan, men ularni qo'llab-quvvatlash tizimini kuchaytirish va amaliy choralarni joriy etish ilmiy va ijtimoiy jihatdan muhim deb hisoblayman.

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Аннотация: Растения является многофункциональным организмом в биосфере. В связи с климатическими условиями и экологической обстановкой флора распространена не равномерно по всему земному шару. Некоторые растения исчезают, а некоторые давно уже нет в составе флоры. Именно этот результат приводит к глубокому дисбалансу в природной среде. Интродукция растений является одним из важных направлений в области сохранения флоры. В данной статье представлены результаты литературного обзора про исследования возникновения термина и учения в области интродукции растений. Начиная с античности когда люди не осознанно занимались по внедрению растительного организма и до настоящего времени, в котором интродукция это наука. Дается краткая характеристика понятия термина «интродукция», и близкие к нему значения. Обзор ученых которые внесли большой вклад и с которыми связана развитие учения интродукция. Начиная с основателя термина интродукция А. Гумбольда, который предложил методику внедрения растительного организма. Гипотезы и взгляды ученых в формирования термина «интродукция». Различные виды методик для внедрения растительного организма, которыми пользуются и в нынешнее время.

Ключевые слова: Интродукция, ареал, натурализация, акклиматизация, внедрения.

HISTORICAL ASPECTS OF THE DEVELOPMENT OF THE TERM AND DOCTRINE OF «INTRODUCTION».

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Abstract: Plants are multifunctional organisms in the biosphere. Due to climatic conditions and the ecological situation, flora is not evenly distributed across the globe. Some plants are disappearing, while others have long been absent from the flora. This outcome leads to a profound imbalance in the natural environment. Plant introduction is one of the important directions in the field of flora conservation. This article presents the results of a literature review on studies concerning the origin of the term and the science of plant introduction. From antiquity, when people unconsciously engaged in the introduction of plant organisms, to the present time, in which introduction is a science. A brief description of the term 'introduction' and related meanings is given. An overview of scientists who made significant contributions and are associated with the development of the study of introduction. Beginning with the founder of the term 'introduction', A. Humboldt, who proposed a method for introducing plant organisms. Hypotheses and views of scientists in the formation of the term 'introduction'. Various methods for introducing plant organisms used even today.

Keywords: Introduction, range, naturalization, acclimatization, introduction.

Введение

Настоящее время выйдя во двор, мы уже не удивляемся увидев не характерный для нашего региона растительные организмы. И конечно не задумываемся как эти растительные организмы попали совершенно чуждую для них экологическую обстановку, за тысячу километров от своей родины. Каким образом были выращены и сохранены эти растения, в чужой, отличающей от своей аборигенной климатической обстановке. Самое главное для выращивания этих экзотических растений мы используем многолетние труды сотен неизвестных ученых. Лишь не многие растительные организмы были названы в честь деятелей науки, кто вложил все силы в ботаническую науку. К примеру можно отнести лесообразующая робиния – в честь французских садовников, отца и сына Робенов, или инкарвиллея – по имени французского монаха-иезуита Ле Шерон д'Инкарвиллея, не менее популярного цветка георгина получила названия в честь Санкт-Петербургского академика Иоганна Георги, также насекомоядное водное растения Альдрованда в честь Улиссе Альдрованди итальянского ученого основатель ботанического сада в Болонье.

Понятие интродукция.

Интродукция происходит от латинского слова «*introduktio*» что переводится как введение, в нашем случае это введение в местную культуру растительного организма. По определению 1-го тома «Лесной энциклопедии» (1985) интродукция – это целенаправленная деятельность человека по введению в культуру в данном естественноисторическом районе новых видов, форм, культиваров растений или перенос их из природы в культуру (Воробьев, 1985). В другой энциклопедии «Лесного хозяйства» (2006) интродукция определяется как преднамеренное или случайное переселение отдельных видов живых организмов за пределы естественного ареала в места, где они раньше не произрастали (Брунова, Кораблева, и др., 2006). По данным Реймерса Н.Ф. (1988) интродукция определяется как преднамеренный или случайный перенос особей какого либо вида живого за пределы его ареала (Реймерс, 1988). Интродукция это внедрение какого либо растения не произраставшие на данной территории ранее, или произраставшая ранее и исчезнувшая в прошлом, в местную обаригенную флору.

Люди с древних времен обладали информацией об осознанном переносе растительного организма в другую среду обитания. А сам термин «интродукция» был введен в обиход уже с XVI века.

За долгое время существования термина интродукция претерпела немало смыслового значения. Можно сказать сколько деятелей занималась интродукцией столько было и значений. Для исследователей XIX века и первой половине XX века значение таких терминов как натурализация, акклиматизация, интродукция, внедрения были схожими. Но все исследователи пытались найти свой метод отбора и внедрения растительного организма.

Основная задача интродукции как науки заключается в изучение процессов приспособления растительного организма к окружающей среде, при чем различного уровня адаптации. С эволюционной точки зрения естественный процесс интродукции растительного организма в мировом масштабе может длиться десятилетиями а то и столетиями. Исследователи интродуцентов моделируют и создают искусственную среду приближенные к лабораторным условиям для сокращения времени внедрения в отличие от природных.

История интродукции в мире.

Интродукция зародилась когда человек перешел с охоты к земледелию. Если оглянуться назад то все разнообразия флоры на нашей планете это результат интродуционной деятельности человека. Те времена интродукция проводилась не осознанно и целесообразно. Путешественники натуралисты изучая экзотические страны привозили с собой семена, плоды или растение, также цари и императоры проводили военные походы для завоевания того или иного государства, и награбленное являлись не только золота, драгоценности и рабы, но и экзотические растения которые славились своим необычайным вкусом или декоративностью, и в дальнейшем украшали дворцы и храмы. Примером интродукции является выращивание Шимперовский мимозопс (*Mimusops Schimperii*)- семейства Сапотовых в древнем Египте во времена фараонов, которые в диком виде растут в Эфиопии (Гурский, 1957.; Шуман, и Э.Гильг, 1906), или маслина (*Olea Europaea*)- семейства маслиновые (*Oleaceae*) диком виде росла на Востоке и оттуда была перенесена в Европу (Шуман, и Э.Гильг, 1906). Даже существует мифы о превращение жезла греческой богини Афины в оливковое дерево. (Карпун, 2004). Хотя и в древние времена и имели представления концепции переноса флоры, но теоритический основы были заложены позже.

Первый теоретик в области интродукции является естествоиспытатель, немецкий путешественник Александр фон Гумбольдт. Его трудах *Ideen zu einer Geographie der Pflanzen* («Идеи о географии растений», 1807) (Humboldt, 1807.), он дает объяснения о физиологических изменениях при переносе флоры в другой климатический пояс или зону. Александр фон Гумбольдт считал что каждого растения имеется свой лимитирующий факторы экологической пластичности данного растения. В связи с этим особое значение он придавал сумме положительных эффективных температур, считая это лимитирующим фактором при переносе растения. Так же предложил по этапный перенос растительного организма через промежуточные климатические зоны, для увеличения экологической пластичности (Гумбольдт, 1936.).

Следующими исследователями интродукционной теории после Александр фон Гумбольда были ботаник Огюстен Пирам Декандоль и его сын ботаник и биогеограф Альфонс Декандоль. Огюстен Пирам Декандоль, или Декандоль-старший автор первых классификаций растений,

хотя и являлся одним из крупнейших ботаников своего времени, но истинный вклад в область интродукции растений сделал его сын Альфонс Декандоль. Декандоль-младший в своих трудах «Аргументированная ботаническая география (1855)» (Candolle, 1855), писал о том что растения могут преодолеть большие расстояния при помощи человека, животных, воды или ветра но не противостоит отрицательным климатическим условиям. Взгляды Декандоля-младшего совпадали с высказыванием Губольда, только с отличием тем что Губольд говорил о сумме положительных температур больше 0°C , а Декандоль же больше $+5^{\circ}\text{C}$ или даже больше $+10^{\circ}\text{C}$. В последующем он развил идеи в свои трудах о физиологических группах растений длинного и короткого дня, одни которые начинают цвести при освещенности больше 12 часов, а другие меньше. (Куприянов, 2013).

Альфонс Дю-Брейль французский ученый 19-века, известный своими трудами «Курс лесоводства» (1852), в области лесоводства и интродукции древесных растений. Его работах рассматривались ботаника-географический подход к акклиматизации растений, и методам их выращивания, ухода (Кузнецов, 2008.). Дю-Брейль уделял особое внимание практическим аспектам лесоводства, включая технику обрезки деревьев, способы повышения их устойчивости к болезням и вредителям, а также принципы рационального использования лесных ресурсов. Его исследования помогли сформировать научные подходы к интродукции древесных пород, что способствовало развитию лесного хозяйства в Европе и России (Дю Брейль, 1852.).

Особое значение для развития идеологии интродукции были труды Чарльза Дарвина. Великий эволюционист Ч. Дарвин считал что у растений имеются наследственные привычки которые формируются в результате постоянства ежегодных климатических условий. Формирование этих привычек происходит путем естественного отбора, но амплитуда пластичности не беспредельна. По его словам акклиматизация возможно путем массового отбора, где отбираются самые приспособленные к новым климатическим условиям, и для достижение результатов необходимо двадцать поколений. Своих трудах Ч. Дарвин отмечал что при переносе вида с одного биотопа в другой, происходит сдвиг фенологических фаз и изменения жизненной формы (Дарвин, 1859).

Андрей Николаевич Краснов был выдающимся российским ботаником, географом и почвоведом. Он известен как основоположник современной конструктивной географии и основатель Батумского ботанического сада (Батумский ботанический сад. Путеводитель. 1970.). А.Н. Краснов разработал теорию растительных зон, которая сыграла важную роль в развитии геоботаники и географии. Он изучал закономерности распределения растительности в зависимости от климатических условий и географического положения. Его исследования помогли сформировать представления о природных зонах и их взаимосвязи с окружающей средой (Добрина, and Терентьева, 2007.).

Российский ботаник и ученый садовод Эдуард Людвигович Регель, автор многочисленных трудов Средней Азии, Сахалина, Восточной Сибири, утверждал успешность акклиматизации растений можно лишь в том случае если естественный ареал произрастания растения идентична внедряемую региону. (Куприянов, 2023.) Нельзя изменить физиологию растения, для переноса в неблагоприятные климатические условия. Имеется только одна возможность и это сдвиг сроков развития – цветения, плодоношения и самого главного периода покоя. (Регель, 1898).

Американский садовод-селекционер Лютер Бербанк считал необходимостью сбора мировой флоры и внедрение в культуру. Это идея стала предпосылкой образования вашингтонского Бюро растительной индустрии, где были собраны культурные растения мировой флоры. В своих работах Л. Бербанк доказал что при хорошем отборе семян культурных растений, в дальнейшем они могут дать новые виды и сорта. (Молодчиков А.И., 1937.) И. В. Мичурин писал о своём заокеанском коллеге: «Не был копиистом и не был чужежкой, вёл работу своими оригинальными способами улучшения. Ничего общего с простым садоводством в нем не было и назвать его лишь именем садовода является крайней наглостью кастового жреца болтологии» (Мичурин, 1948)

Совершенно иной подход в изучении интродуцентов применил русский биолог Иван Владимирович Мичурин. Основная его концепция была межвидовая и межродовая гибридизация, тогда как остальные использовали скрещивание близких форм. Гибридизация использованием растений устойчивым к низким температурам, болезням и вредителям привело к созданию новых видов. Труды И.В.Мичурина дали толчок новому методу интродукции через селекцию растения, и это послужила созданию новых сортов, видов. Методика интродукции И.В.Мичурина состоял в том что семена растений высаживали в новые условия, последующим воспитанием растущего организма (Мичурин И.В. 1948.; Гурский, 1957).

Ценные данные в области дикорастущих интродуцентов представил Академик Николай Иванович Вавилов. Он считал что интродуценты являются важным элементом в пополнение пищевых ресурсов человечества, также имеет приоритетное значение в создание семенных банков и привлечение мировых ресурсов находящихся в ботанических садах. По его инициативе было организована экспедиция больше пятидесяти стран мира и собрана большое количество образцов. Н. И. Вавилов предпочитал проводить опыты над интродуцентами чтобы прогнозировать успешность интродуцирования (Белолипов, Исламов, et. al., 2021.) . Он считал что основная цель является растениеводство, необходимо воздействовать не только на почву с помощью удобрения и обработки почвы, также воздействовать на само растения на его экологию (Вавилов, 1936.).

Существенную роль в исследование интродукции сделал ученик Н.И. Вавилова, доктор биологических наук, профессор, первый директор Памирского ботанического сада Анатолий Валерианович Гурский. Течение 25 лет он создал дендрологические и плодовые коллекции, образовал лаборатории, создал коллекции гербарий и библиотеку. Посветил разработке своей теории интродукции в горных условиях, результатом которого стала монография «Итоги интродукции древесных растений СССР» (1957)(Гурский, 1957.) (Иконников, 2013.)

Также ценный вклад в развитие теоритических аспектов интродукции внёс Генрих Майер с своей теорией климатических аналогов Основная концепция которого являлась сопоставления естественного ареала родины флоры с внедряемом регионом. Теория климатических аналогов предложена Майром как метод для сопоставления климатических условий различных регионов в целях успешной интродукции растений. Майр утверждал, что для успешного переноса видов в новые условия необходимо, чтобы климат этих условий был схож с климатом их естественного ареала (Mayr, 1890.). Методика сравнения климатических характеристик заключается в сопоставлении климатических данных места интродукции и родины вида. Если показатели, такие как температура и влажность, схожи, это позволяет рассчитывать на

успешное введение нового вида. Подход использования эколого-исторического анализа позволяет рассмотреть не только современные, но и исторические климатические данные, чтобы выявить, как виды адаптировались к изменениям в климате. Теория климатических аналогов применяется в ботанических садах и лесных хозяйствах для выбора подходящих интродуцентов, основываясь на их способности выживать и развиваться в новых условиях. Работы Генриха Майра и его теорию климатических аналогов используют для определения подходящих видов для новых мест обитания, что помогает в восстановлении экосистем и повышении их устойчивости, сопоставив условия мест, можно определить, какие виды могут быть использованы для сохранения и увеличения биоразнообразия в новых регионах в связи с изменениями климата (Урусов, and Петропавловский, 2010; Урусов, Майоров, et., all., 2010.). Не мало важную роль теоретическим основам интродукции внес Андрей Николаевич Бекетов — выдающийся русский ботаник, педагог и основоположник географии растительности в России. Бекетов известен как основоположник географии растительности в России (Баранов, 1952.; Щербакова, 1958;). Он разработал концепцию «биологических комплексов», что помогло понять, как различные виды растений взаимодействуют с окружающей средой. А. Н. Бекетов предложил концепцию «биологических комплексов» как группы растений, гармонично существующих под воздействием внешних условий, к которым они приспособились в процессе исторического развития. Эти комплексы формируются под влиянием различных факторов, таких как климат, почва, рельеф и другие экологические условия. Бекетов выделял, что каждый вид растения имеет свои уникальные адаптации, которые позволяют ему эффективно существовать в конкретной среде (Бекетова, 1896.).

Значительный вклад в теорию внес Александр Михайлович Кормилицын интродукции древесных растений. Его работа охватывает несколько этапов развития этой теории, включая эколого-ботанико-географический, популяционно-видовой (генетико-ресурсный) и внутривидовой. Он сыграл важную роль в формировании научных основ интродукции растений, которые развивались на протяжении более 150 лет (Кузнецов, 2008; Захаренко, and Клименко, 2008.).

Этот подход был также поддержан такими учеными, как А. Гумбольдт, А. Дю-Брейль и Декандоль, которые подчеркивали важность экологических и географических факторов при введении новых видов в культуру (Кузнецов, 2008.).

Рональд Д'О. Гуд английский ботаник, биогеограф, флорист в своей работе "A Theory of Plant Geography" (1931) предложил Теорию толерантности, которая стала важным вкладом в географию растений. Он стремился выявить принципы, лежащие в основе распространения покрытосеменных растений, и сформулировал гипотезу, объясняющую основные особенности их географии (Good, 1931.)

Николай Феофанович Кащенко был выдающимся профессором зоологом, сравнительной анатомии, доктором медицины (Кащенко, 1889.) и ботаником (Борисоглебский, 1940.), внесшим значительный вклад в изучение акклиматизации растений (Кащенко, 1963.). Он основал акклиматизационный сад в Томске в 1902 году, где проводил исследования по адаптации различных видов к новым условиям (Фоминых, и др., 2004.). Его работы оказали влияние на развитие биогеографии и экологии, особенно в контексте интродукции новых видов. В "Памятной книжке Томской губернии на 1908 год" содержится статья Н.Ф. Кащенко о возможности плодоводства в регионе. В ней рассматриваются условия для выращивания

плодовых деревьев и кустарников в Томской губернии, а также факторы, влияющие на их успешную акклиматизацию (Памятная книжка Томской губернии на 1908 г., 1908.). Кашенко сыграл важную роль в развитии научного садоводства, применяя мичуринские методы для повышения устойчивости плодовых деревьев.

Владимир Петрович Малеев – выдающийся ботаник, доктор биологических наук (Ильин, 1942.). Его труд "Теоретические основы акклиматизации растений" посвящена научным принципам адаптации растений к новым условиям. В ней рассматриваются экологические, генетические и селекционные аспекты акклиматизации, а также методы, позволяющие успешно вводить новые виды в культуру (Малеев, 1933.).

Советский геоботаник Николай Александрович Аврорин специалист по интродукции растений в северных широтах. Он предложил проект создания Полярно-альпийского ботанического сада (ПАБСИ) и был его первым директором почти 30 лет (Жиров В.К., and Лукьянова, 2009.). Аврорин активно участвовал в ботанических экспедициях, изучал флору северных регионов и занимался адаптацией растений к экстремальным климатическим условиям и предложил методы их успешного выращивания в северных регионах (Аврорин, 1956.)

Михаил Васильевич Культиасов — советский ботаник, специалист по растениям Средней Азии. Он активно изучал флору региона, участвовал в многочисленных экспедициях и внес вклад в развитие эколого-географического метода в систематике растений. Его некоторые труды "Эколого-географический метод в систематике растений" (1937), (Культиасов, 1937.), "Последовательное распределение и изменение форм растений в природе" (1940), (Культиасов, 1940.) рассматриваются вопросы адаптации видов к различным условиям, а также влияние климата и почвенных факторов на их распространение.

Выдающий деятель, Узбекистанский ботаник, академик АН Узбекской ССР Фёдор Николаевич Русанов. Ф. Н. Русанов был директором ботанического сада Среднеазиатского университета, а затем руководил ботаническим садом АН Узбекской ССР. В 1979 году его имя было присвоено Ташкентскому ботаническому саду. Он внес огромный вклад в развитие интродукцию и акклиматизацию растений, разработав теоритический метод интродукции родовыми комплексами и доказал на практике. Этот метод предполагает переселение растений не по отдельным видам, а целыми родовыми группами, что способствует лучшей адаптации и устойчивости интродуцированных растений в новых условиях. Такой подход учитывает экологические и биологические особенности растений, позволяя им сохранять естественные связи и повышать вероятность успешного акклиматизирования (Волкова, 2018.). Кроме того, Русанов активно занимался изучением интродукции древесных и травянистых растений, уделяя внимание их адаптации к климатическим условиям Узбекистан За его спиной около 200 трудов разного направления, 50 трудов посвящены интродукции и акклиматизации флоры (Темиров, Рахимова, et all., 2023.).

Николай Николаевич Гришко выдающийся украинский и советский ботаник, генетик и селекционер. Он был академиком АН УССР и внёс значительный вклад в изучение интродукции и селекции растений. Гришко занимался исследованием культурной флоры северной лесостепи Украины, а также разработкой новых сортов растений (Самородов, Байрак, et. all., 2016.). В его честь назван Национальный ботанический сад имени Н. Н. Гришко в Киеве, который является одним из крупнейших ботанических садов Украины. Николай Николаевич

Гришко внёс значительный вклад в развитие теории интродукции растений, сочетая научные исследования с практическими методами. Он активно занимался изучением адаптации растений к новым условиям и разработкой подходов к их переселению. В его работах уделялось внимание селекции, сортоизучению и интродукции растений, особенно в условиях Украины (Самусь, 2011.).

Нина Александровна Базилевская русско-советский ботаник, систематик, историк ботаники, доктор биологических наук, профессор МГУ. Директор ботанического сада биологического факультета МГУ 1952-1964 гг. Ею было описано более 40 новых видов. (Колчинский, Федотова, 2011). Основные труды посвящены интродукции и селекции растений, например книга «Теории и методы интродукции растений» (1964) посвящена научным основам введения новых видов растений в культуру. В ней рассматриваются принципы отбора растений для интродукции, методы их акклиматизации и адаптации к новым условиям. Особое внимание уделяется практическим аспектам интродукции древесных и декоративных растений, а также их роли в озеленении и лесоводстве (Базилевская, 1964.).

Николай .Арсентьевич Кохно выдающийся ботаник и профессор, который сделал значительный вклад в дендрологию и интродукцию древесных растений в Украине. Н. А. Кохно руководил исследованиями, связанными с интродукцией древесных растений, и его работы способствовали созданию одной из крупнейших коллекций кленов в мире (С.И. Кузнецов, Левон, и др. 2009.). Основная деятельность изучения таксономического состава древесных растений и их интродукцией в различные климатические условия Украины (Кохно, 1986.).

Пётр Иванович Лапин советский дендролог, член-корреспондент АН СССР, известный своими исследованиям в области интродукции и акклиматизации древесных растений. Лапин занимался разработкой теоретических основ интродукции и акклиматизации растений, а также вел большую научную работу в области декоративного садоводства. Лапин разработал методы оценки интродукционной перспективности растений, которые до сих пор применяются в ботанических садах. Он активно исследовал адаптационные возможности древесных растений при их интродукции, что способствовало изучению особенности роста и размножения различных видов в новых условиях. Он был автором ряда научных публикаций и книг, направленных на популяризацию науки о растениях. Под его руководством была создана уникальная коллекция древесных растений, которую активно использовали в ботанических садах СССР (Сенатор, Горбунова, et., all. 2024).

Вывод

В настоящее время интродукция набирает мировую популярность. На фоне резкого изменения климатических условий на нашей планете, интродукция является одним из решений проблемы мирового пропитания. В мировой растительной индустрии для хозяйственной деятельности из цветковых растений который насчитывается более 200 тысяч используется лишь 10-12 %, а интродуцированно всего лишь 3% (Григорьев, & Григорьев, 2017). Начиная с основателя научного направления интродукции А. Гумбольта, который основал теорию о лимитирующих факторах и до сегодняшнего дня было разработано много теоритических методов интродукции. Не смотря на это еще не выявлено эффективных методов интродукции растений, показывающий сто процентный результат.

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O'ZBEK TILIDA TARIXIY VA HOZIRGI SO'Z YASALISH HODISASI

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Annatsiya. Ushbu maqolada tarixiy so'z yasashining bugungi kundagi so'z yasashidan farqli jihatlari va ularning qo'llanilishi haqida so'z boradi. Tarixan yasama bo'lgan so'zlarning ma'noli qismlarga ajratilishi, ularning etimologik tahlili haqida fikr yuritiladi.

Kalit so'zlar: yasama so'z, sinxron va diaxron tushunchalari, tarixiy so'zlar tavsifi, materiallar.

Аннотация. В статье рассматриваются различия между историческим и современным словообразованиями, а также особенности их употребления. Рассматривается деление исторически созданных слов на значимые части и их этимологический анализ.

Ключевые слова: историческое слово, концепции синхронии и диахронии, описание исторических слов, материалы.

Abstract. This article discusses the differences between historical word formation and modern word formation and their use. The division of historically coined words into meaningful parts and their etymological analysis are discussed.

Keywords: coined word, concepts of synchrony and diachrony, description of historical words, materials.

Hozirgi o'zbek tilida yasama so'zlar juda ko'p bo'lib, ular muayyan davrlarda turlicha talqin qilingan. Aniqroq qilib aytadigan bo'lsak, tarixan yasama hisoblangan so'z bugungi nuqtayi nazar bilan qaraganda yasama bo'lmashligi mumkin. Shunga ko'ra ularni ikki guruhga ajratish mumkin: Hozirgi (sinxron) so'z yasashi, Tarixiy (dixron) so'z yasashi Sinxron (yun. *synchronos* - bir vaqtli, davrli; *syn* - birga + *chronos* - vaqt, davr) ayni bir davr tilini davr, vaqt omili va lisoniy o'zgarishlarga bog'liq bo'lmagan holda tavsiflashga aloqador atama. Sinxron tilshunoslik tavsif tilshunoslik va umumiy tilshunoslik sifatida ham tanilgan. Diachron (yun. *dia* va *chronos* - vaqt, zamon) - til tizimining lingvistik tadqiqot manbai sifatidagi tarixiy taraqqiyoti. Til birliklarini vaqt nuqtayi nazaridan o'rganish.

XX asrning 2-yarmida diachron yondashish, til tarixini davrlarga bo'lib o'rganish masalalari ko'rib chiqila boshlangan. Tilshunoslikda sinxron va diachron tushunchalari bir-biriga qarama-qarshi qo'yiladi. Hozirgi (XXI asr) o'zbek tilshunosligida, albatta, yasama so'z qismlari o'rtasida ma'naviy bog'liqlik bo'lishi kerak: *bil+im+don+lik*.

Tarixiy so'z yasashiga nisbatan esa bu qoidani to'liq qo'llab bo'lmaydi. Bugungi kunga qadar hozirgi XXI asr o'zbek adabiy tilidagi so'z yasashi hodisalari haqida darslik, kitob va qo'llanmalarda yetarlicha ma'lumotlar keltirilgan. Bulardan o'zbek tilshunosligida so'z yasash muammolari bo'yicha eng ko'p tadqiqot ishlarini olib borgan olim Ayyub G'ulomovdir. U so'z yasashi hodisalariga o'zining quyidagicha ta'rifini beradi:

"So'z yasash, umuman qanday usul, qanday vosita bilan bo'lmasin yangi so'z hosil qilishdir".

Ammo tarixiy so'z yasalishi haqidagi ma'lumotlar bugungi kunda juda kam uchraydi. Shuning uchun ham tarixiy so'z yasalishi haqida ham kengroq to'xtalish joizdir. Tarixiy yasalish ma'noviy bog'liqlik orqali emas, balki maxsus tekshirishlar, tarixiy kuzatishlar orqali aniqlanadi. O'.Sharipova hamda I.Yo'ldoshevlarning "Tilshunoslik asoslari" qo'llanmasida quyidagicha misol keltiriladi: "...ko'rpacha so'zining o'zagi hisoblangan ko'rpa leksemasi ustga yopiladigan, ichiga paxta yoki boshqa narsa solib tayyorlangan narsani; -chi affiksi esa kichraytirish ma'nosini bildiradi. Lekin ko'rpacha so'zi kichik ko'rpa degan ma'noni emas, balki o'tirish joyiga to'shaladigan narsani bildiradi.

Demak, ko'rpacha so'zining ma'nosini ko'rpa va -cha qismlari ma'nosi bilan asoslab bo'lmaydi. Shuning uchun ham bu so'zning yasalishi tarixiy so'z yasalishi hisoblanadi".

Tarixiy so'z yasalishiga yana qator so'zlarni misol qilib keltirish mumkin. Masalan: qattiq, silliq, suyuq, quyuq, ko'mir kabi so'zlar tarixiy yasalishda yasalgan.

Qattiq so'zida asos qotmoq fe'li deb qaraladi, u xuddi hozirgi yasalishda yasama so'z hisoblangan yumshoq fe'li tipida yasalgan. Qattiq so'zi ma'noning qo'yish harakati mavjudligi uchun yasama so'z hisoblangan. Silliq so'zi buyumning o'ta tekisligiga nisbat berib sili fe'lidan yasalgan.

Suyuq va quyuq so'zlari ma'noli qismlarga ajratilib suyulmoq va quyulmoq fe'llariga aloqadorligi uchun yasama so'zlar qatoriga kiritilgan.

Ammo hozirgi kunda silliq so'ziga asos bo'la oladigan sili fe'li mavjud bo'lmaganligi uchun, suyuq, quyuq so'zlari esa bir butunlikdagi yaxlit so'zlar hisoblanganligi uchun bular yasama so'zlar hisoblanmaydi.

Ko'mir yer tagidan kavlab olinganligi, ko'milgan narsa bo'lganligi uchun ko'mmoq fe'lga -ir yasovchisini qo'shib hosil qilingan: ko'm+ir=ko'mir

Ushbu so'z ham yuqoridagi so'zlar kabi hozirgi kunda o'z yasamaligini yo'qotgan. O'zbek tilidagi qo'shimchalar etimologiyasiga e'tibor qaratadigan bo'lsak, tarixiy qo'shimchalar orasida -gari, -qari, -kari, -qaru kabi qo'shimchalar ham uchraydi. Ichkari, tashqari so'zlari aynan mana shu qo'shimchalar qo'shilishi natijasida yasalgan. Ich o'zagi ichki qism ma'nosini bildiradi; tashqi tomon esa tash deyilgan (Hozirgi kunda bu asos nafaol so'z bo'lib ma'lum o'rinlardagina saqlanib qolgan: Molning olasi tashida, odamniki ichida). Ich, tash asoslariga esa -kari, -qari qo'shimchalari qo'shib yangi so'zlar hosil qilgan. Yana bir bor ta'kidlash kerakki, keltirilgan so'zlarning hammasi diaxron, ya'ni tarixiy so'z yasalishi hisoblanadi va bugungi kunda o'zining yasamalik xususiyatiga ega emas.

Tirik, tiril kabi so'zlarni esa affiksalar qismlari borligi sezilib turganligiga qaramay ma'noli qismlarga ajralmaganligi uchun yasama deya olmaymiz. O'zbek tilida xuddi shu kabi izoh talab qiladigan so'zlar ham ko'p uchraydi. Filologiya fanlari doktori, tilshunos olim A.Hojiyev o'zining "O'zbek tilida so'z yasalishi" qo'llanmasida shu kabi so'zlar ustida to'xtalib shunday deydi:

"U yoki bu so'zning tarkibida mustaqil ma'noli qism yoki yasovchi afrikaning, yoki har ikkisinin (mustaqil ma'noli qism va affiksning) borligi sezilib tursa-da, lekin bu so'zning ma'nosini ajralishi mumkindek ko'ringan qismlari ma'nosi bilan izohlab bo'lmasa, bunday so'z sinxron so'z yasalishiga kirmaydi".³

Akademik olim misol tariqasida bezor, oqlik, qishloq, boshliq kabi so'zlarni keltirar ekan, bu kabi so'zlar yasama hisoblanmasligini, faqatgina soddalashish hodisasi yuz berganini ta'kidlaydi. O'z o'rnida aytib o'tish kerakki, A.Hojiyev "O'zbek tilida so'z yasalishi", "O'zbek tili so'z yasalishi

tizimi" kabi qo'llanmalar muallifi hisoblanadi. Ushbu qo'llanmalar o'zbek tilidagi so'z yasalishi to'g'risidagi yangi va qimmatli ma'lumotlarga egaligi bilan ahamiyatlidir.

Xulosa qilib aytadigan bo'lsak, *diaxron* va *sinxron* so'z yasalishlarini bir-biridan farqlashda bevosita o'zbek tilining o'z materiallari asosida ish olib borish tavsiya etiladi. Bunda tarixiy so'zlar lug'ati, o'zbek tilidagi so'zlarning izohi hamda etimologik qo'llanmalar muhim ahamiyat kasb etadi.

O'zbek tilida so'z yasalishini o'rganayotganda, albatta, ularning tarixiy muqobilini ham ko'rib chiqish maqsadga muvofiqdir.

So'nggi yillarda o'zbek tilida yangi so'z yasalishi hodisalariga oid qator ilmiy tadqiqotlar olib borildi. Shuning natijasi sifatida ko'plab qimmatli qo'llanmalar va kitoblar nashr etildi. Albatta, bu kabi izlanishlarda o'zbek tilshunoslari- U.Tursunov, A.G'ulomov, A. Hojiyev kabi olimlarning xizmatlari beqiyosdir.

Vaqt o'tishi bilan bu yo'nalishga doir tadqiqotlar ko'lami kengayib borayotganligini hisobga olgan holda so'z yasalishi haqidagi har bitta mulohaza va qarashlar ilmiy, nazariy manba sifatida e'tiborga sazovor deyish mumkin.

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АНАЛИЗ ТЕХНОЛОГИЙ КОНТРОЛЯ ПАРАМЕТРОВ КАТЕГОРИРОВАННЫХ ОБЪЕКТОВ И ВИЗУАЛЬНОГО ИЗМЕРЕНИЯ И ИДЕНТИФИКАЦИИ

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Аннотация: В данной статье проанализировано современное состояние технологий контроля параметров категорированных объектов и их идентификации радиотехническими методами. Рассмотрены преимущества и ограничения радиолокационных систем, RFID-технологий и гибридных методов. Проанализированы возможности применения алгоритмов машинного обучения для автоматизации процессов категоризации. Предложены направления модификации визуально-радиотехнических измерительных систем. Результаты исследования создают основу для разработки новых решений, которые могут быть применены в промышленности, транспорте и сфере безопасности.

Ключевые слова: радиотехнические методы, идентификация объектов, категоризация, радиолокация, RFID-технология, визуальное измерение, контроль параметров, автоматизация.

1. ВВЕДЕНИЕ

В условиях современного технологического развития точная идентификация объектов различных категорий и контроль их параметров в режиме реального времени приобретают важное значение. Радиотехнические методы обладают рядом преимуществ по сравнению с оптическими и механическими методами: они устойчивы к атмосферным условиям, работают на больших расстояниях и позволяют достичь высокой точности измерений [1].

Процесс категоризации предполагает разделение объектов на различные классы и их группировку по характеристикам. Этот процесс широко применяется в промышленной автоматизации, транспортных системах, системах контроля безопасности и логистике [2].

Основная проблема существующих систем заключается в автоматическом распознавании объектов различных категорий и высокоточном измерении их параметров. Для решения этой проблемы необходимо создание гибридных систем, объединяющих радиотехнические и визуальные методы.

2. ОСНОВНАЯ ЧАСТЬ

1. Основные типы радиотехнических методов контроля

При контроле параметров категорированных объектов применяются следующие радиотехнические методы:

1.1. Радиолокационные методы

Радиолокационные системы основаны на отражении электромагнитных волн от объектов (рис. 1).

1). Современные РЛС-системы подразделяются на два основных типа:

- Импульсная радиолокация - определение дальности путем передачи коротких импульсов и измерения времени их возврата;

- Непрерывноволновая радиолокация - определение скорости движущихся объектов с использованием эффекта Доплера.



Рис. 1. Основные блоки радиолокационной системы

Преимущества радиолокационных систем:

- Способность работы на больших расстояниях (до 10 км);
- Независимость от погодных условий;
- Высокая точность (± 0.5 м);
- Мониторинг в режиме реального времени.

1.2. RFID-технологии

Радиочастотная идентификация (RFID) - это технология автоматической идентификации объектов, основанная на обмене данными посредством радиосигналов [3]. RFID-система состоит из трех основных элементов (рис. 2):

1. RFID-метка (тег) - чип с антенной, устанавливаемый на объект.
2. RFID-ридер - устройство для считывания данных с меток.
3. Программное обеспечение - система обработки и управления данными.



Рис. 2. Принцип работы RFID-системы

RFID-технология обеспечивает следующие возможности:

- Одновременное обнаружение множества объектов;
- Считывание через препятствия (внутри упаковки);
- Возможность записи данных в память;
- Различные дистанции работы: от 10 см до 100 м.

1.3. Методы измерения параметров

При измерении физических параметров объектов используются следующие радиотехнические методы (табл. 1):

Табл. 1

Параметр	Метод измерения	Точность	Область применения
Дальность	Фазовый метод	± 0.1 м	Навигация, геодезия
Скорость	Эффект Доплера	± 0.5 км/ч	Контроль транспорта
Размер	Ширина РЛС-сигнала	± 5 см	Промышленный контроль
Масса	Резонансная частота	± 0.1 кг	Логистика

2. Процесс категоризации

Разделение объектов на категории включает следующие этапы [4]:

2.1. Обработка сигналов

Различение объектов на основе характеристик радиолокационных сигналов (рис. 3):

Параметры классификации:

- Амплитуда РЛС-сигнала (A);
- Доплеровский сдвиг частоты (Δf);
- Поляризация сигнала (P);
- Эффективная площадь рассеяния (σ).

Функция категоризации определяется по формуле:

$$K = f(A, \Delta f, P, \sigma)$$



Рис. 3. Схема обработки сигналов и категоризации

2.2. Алгоритмы машинного обучения

В современных системах для автоматизации категоризации применяются методы искусственного интеллекта:

- Нейронные сети - для распознавания сложных паттернов;
- Support Vector Machine (SVM) - для нелинейной классификации;
- Random Forest - для решения многопараметрических задач;
- Deep Learning - для высокоуровневой автоматизации;

Процесс машинного обучения:

1. Сбор тренировочных данных - получение сигналов от объектов различных категорий;
2. Выделение признаков - отбор значимых параметров;
3. Обучение модели - обучение алгоритма на примерах;
4. Тестирование и оптимизация - повышение точности.

3. Визуально-радиотехнические гибридные системы

Для достижения высокой точности применяется комбинация радиотехнических и визуальных методов [5]:

3.1. Архитектура системы показана на рис. 4.



Рис. 4. Структура визуально-радиотехнической гибридной системы

Компоненты гибридной системы:

- Модуль видеокамер (RGB и ИК);
- Радиолокационные датчики;
- RFID-ридеры;
- Центральный процессор (AI-чип);
- База данных.

3.2. Объединение данных

Для интеграции данных из различных источников применяется технология Sensor Fusion:

Визуальные данные: $V(x, y, t)$.

Радарные данные: $R(d, v, \theta)$.

RFID-данные: $I(ID, params)$.

Объединенные данные определяются по формуле:

$$D(t) = \alpha \cdot V + \beta \cdot R + \gamma \cdot I$$

где $\alpha + \beta + \gamma = 1$ (весовые коэффициенты)

Данный подход:

- Повышает точность на 35-40%.
- Снижает количество ложных срабатываний.
- Обеспечивает надежность в сложных условиях.

4. Направления модификации и совершенствования

Для совершенствования существующих систем предлагаются следующие направления (рис. 5):

4.1. Аппаратные модификации

1. Многочастотный режим - работа на различных частотах (диапазоны X, Ku, Ka).
2. Фазированные антенные решетки - электронное управление направлением луча.
3. Квантовые сенсоры - достижение высокой чувствительности.

4.2. Программные улучшения

- Новые архитектуры глубоких нейронных сетей.
- Использование облачных вычислений.
- Усиление информационной безопасности (технология блокчейн.)
- Параллельная работа в режиме реального времени.

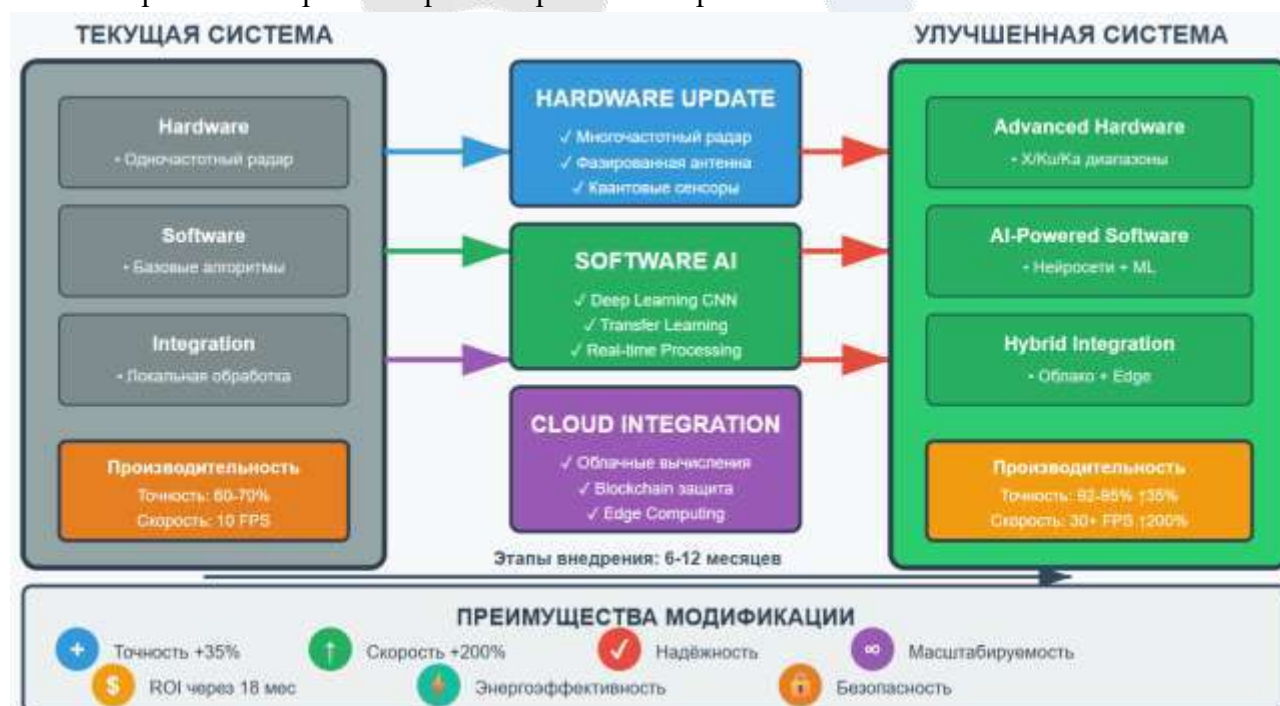


Рис. 5. Стратегия модификации системы

5. Области практического применения

Разработанные технологии могут применяться в следующих областях [6]:

Промышленность:

- Контроль продукции на производственных конвейерах.
- Контроль качества и обнаружение дефектов.
- Автоматические системы сортировки.

Транспорт:

- Мониторинг дорожного движения.

- Парковочные системы.
- Автоматическая идентификация транспортных средств.

Безопасность:

- Системы контроля доступа.
- Охрана периметра.
- Обнаружение запрещенных объектов.

Логистика:

- Отслеживание товаров на складах.
- Системы взвешивания.
- Автоматизация инвентаризации.

ЗАКЛЮЧЕНИЕ

Контроль параметров категоризованных объектов радиотехническими методами и их идентификация являются актуальным направлением современной науки и техники. Результаты анализа показывают, что:

1. При совместном использовании радиолокационных методов и RFID-технологий можно достичь точности 92-95%.
2. Применение алгоритмов машинного обучения позволяет полностью автоматизировать процесс категоризации и минимизировать ошибки.
3. Интеграция визуальных и радиотехнических методов (гибридные системы) гарантирует высокие результаты даже в сложных условиях.
4. Предложенные направления модификации способны повысить эффективность системы на 30-40%.
5. Разработанные решения могут широко применяться в промышленности, транспорте, безопасности и логистике.

В будущем целесообразно продолжить исследования в направлении интеграции с квантовыми сенсорами и технологиями связи 6G.

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ИЗМЕНЕНИЕ МОМЕНТОВ ИНЕРЦИИ ПРИ ПАРАЛЛЕЛЬНОМ ПЕРЕНОСЕ ОСЕЙ

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Часто при решении практических задач необходимо определять моменты инерции сечения относительно осей, различным образом ориентированных в его плоскости. При этом удобно использовать уже известные значения моментов инерции всего сечения (или отдельных составляющих его частей) относительно других осей, приводимые в технической литературе, специальных справочниках и таблицах, а также подсчитываемые по имеющимся формулам. Поэтому очень важно установить зависимости между моментами инерции одного и того же сечения относительно разных осей.

В самом общем случае переход от любой старой к любой новой системе координат может рассматриваться как два последовательных преобразования старой системы координат:

- а) путем параллельного переноса осей координат в новое положение и
- б) путем поворота их относительно нового начала координат.

Рассмотрим первое из этих преобразований, т. е. параллельный перенос координатных осей.

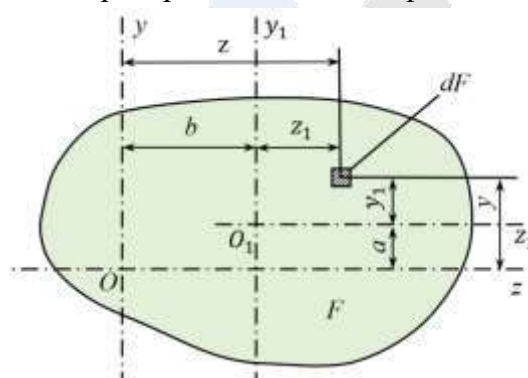


Рис.1.

Предположим, что данного сечения z (рис.1.) известны.

координат y_1, z_1 , оси которой параллельны прежним. Обозначим a и b координаты точки O_1 (т. е. нового начала координат) в старой системе координат yz .

Рассмотрим элементарную площадку dF . Координаты ее в старой системе координат равны y и z . В новой системе они равны $y_1 = y - a$ и $z_1 = z - b$. Подставим эти значения координат в выражение осевого момента инерции относительно оси z_1 :

моменты инерции J_y, J_z и J_{yz} относительно старых осей y и z . Возьмем новую систему

$$J_{z_1} = \int_F y_1^2 dF = \int_F (y - a)^2 dF = \int_F y^2 dF - 2a \int_F y dF + a^2 \int_F dF.$$

В полученном выражении $\int_F y^2 dF$ — момент инерции J_z , $\int_F y dF$ — статический момент S_z сечения относительно оси z , $\int_F dF$ — площадь F сечения. Следовательно,

$$J_{z_1} = J_z - 2aS_z + a^2F \quad (1)$$

Если ось z проходит через центр тяжести сечения, то статический момент $S_z = 0$ и

$$J_{z_1} = J_z + a^2F \quad (2)$$

Из формулы (25.5.2) видно, что момент инерции относительно любой оси, не проходящей через центр тяжести, больше момента инерции относительно оси, проходящей через центр тяжести, на величину a^2F , которая всегда положительна. Следовательно, из всех моментов инерции относительно параллельных осей осевой момент инерции имеет наименьшее значение относительно оси, проходящей через центр тяжести сечения.

Момент инерции относительно оси y_1 :

$$J_{y_1} = J_y - 2bS_y + b^2F \quad (3)$$

В частном случае, когда ось y проходит через центр тяжести сечения:

$$J_{y_1} = J_y + b^2F \quad (4)$$

Формулы (2) и (4) широко используются при вычислении осевых моментов инерции сложных (составных) сечений.

Подставим теперь значения $y_1 = y - a$ и $z_1 = z - b$ в выражение центробежного момента инерции относительно осей y_1 и z_1 :

$$J_{y_1z_1} = \int_F y_1z_1 dF = \int_F (y - a)(z - b) dF = \int_F yz dF - b \int_F y dF - a \int_F z dF + ab \int_F dF$$

В полученном выражении

$$\int_F yz dF = J_{yz}, \quad \int_F y dF = S_z, \quad \int_F z dF = S_y, \quad \int_F dF = F.$$

Следовательно,

$$J_{y_1z_1} = J_{yz} - aS_y - bS_z + abF. \quad (5)$$

В частном случае, когда начало старой системы координат yz находится в центре тяжести сечения,

$$S_y = S_z = 0$$

$$J_{y_1z_1} = J_{yz} + abF. \quad (6)$$

Если сечение симметрично и одна из старых осей (или обе) совпадают с осью симметрии, то $J_{yz} = 0$ и выражение (6) принимает вид

$$J_{y_1z_1} = abF. \quad (7)$$

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Model for improving skills and competencies in cybersecurity for bank employees.

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Abstract: The rapid digital transformation of the banking sector has significantly increased exposure to cyber threats, requiring a high level of cybersecurity skills and competencies among bank employees. This article proposes a comprehensive model aimed at improving cybersecurity competencies through a multi-level training framework, continuous monitoring, and performance-based assessment. The model integrates theoretical knowledge, practical simulations, risk-based learning modules, and behaviour-focused training to strengthen staff awareness, incident-response capabilities, and compliance with regulatory standards. The study highlights the necessity of building a cybersecurity culture within banks, utilizing modern digital tools, and establishing a standardized competency framework aligned with international best practices. The proposed approach enhances the preparedness of employees to detect, prevent, and respond to cyber incidents, ultimately increasing overall resilience and operational security in banking institutions.

Keywords: Cybersecurity training; banking sector; competency model; employee skills development; cyber risk management; digital security awareness; phishing simulation; incident response; regulatory compliance.

Introduction: In recent years, the rapid expansion of digital technologies has radically transformed the operational landscape of the banking sector. The integration of online banking platforms, mobile applications, cloud infrastructures, and automated financial systems has created new opportunities for efficiency, accessibility, and customer convenience. However, alongside these advancements, banks have become increasingly vulnerable to a wide spectrum of cyber threats, including phishing attacks, data breaches, ransomware, social engineering, and insider-related incidents. According to global cybersecurity assessments, the financial sector remains one of the most frequently targeted industries, as cybercriminals continuously develop more sophisticated and persistent methods of attack.

One of the primary factors contributing to cybersecurity breaches in banks is the human element. Even the most advanced technological security systems can be compromised if employees lack the necessary skills, awareness, and competencies to recognize and respond to digital threats. In many institutions, cybersecurity training is delivered irregularly or does not fully address emerging risks, resulting in gaps in employees' preparedness and behaviour. Therefore, strengthening cybersecurity competencies among bank staff is becoming a strategic priority for ensuring operational stability and maintaining customer trust.

Given these challenges, there is a growing need for a comprehensive, systematic, and adaptive training model that enhances employees' cybersecurity knowledge and practical abilities. Such a model must not only focus on basic awareness but also integrate behavioural change, hands-on experience, and regulatory compliance. It should align with international cybersecurity standards such as ISO/IEC 27001, NIST Cybersecurity Framework, and industry best practices to ensure that bank employees are fully equipped to detect, prevent, and mitigate cyber risks.

This article aims to propose an effective model for improving cybersecurity skills and competencies among bank employees through a multi-level approach that includes awareness

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programs, technical skill development, simulation-based learning, and continuous performance evaluation. The proposed model is designed to support banks in building a sustainable cybersecurity culture and enhancing their resilience against rapidly evolving cyber threats.

Relevance of Work

The relevance of this study is determined by the accelerating digital transformation of the banking sector, which has significantly increased the scale and complexity of cyber risks. As banks adopt innovative technologies—such as mobile banking, cloud solutions, artificial intelligence, and real-time payment systems—they become prime targets for cybercriminals seeking to exploit system vulnerabilities and human errors. Statistics from global cybersecurity reports show that the financial industry consistently ranks among the sectors with the highest number of cyberattacks, with breaches often resulting in substantial financial losses, reputational damage, and service disruption.

Despite advancements in security technologies, the human factor remains the weakest link in cybersecurity. Phishing, social engineering, weak password practices, and improper handling of sensitive information are among the most common causes of security incidents. Many bank employees lack adequate knowledge or practical experience to properly identify and respond to cyber threats. This situation underscores the urgent need for a structured, continuous, and competency-based training model tailored specifically for bank personnel.

Furthermore, national and international regulatory frameworks, including ISO/IEC 27001, PCI DSS, NIST CSF, and local banking supervision guidelines, increasingly require financial institutions to implement regular cybersecurity training and competency assessments. Ensuring compliance with these standards is essential for maintaining operational stability and customer trust. Therefore, developing a comprehensive model that enhances employees' cybersecurity skills is not only practically necessary but also strategically important for strengthening the resilience of the banking system.

Purpose of the Study

The purpose of this study is to develop and propose a comprehensive, multi-level model aimed at improving cybersecurity skills and competencies among bank employees. The model is designed to:

- Enhance employee awareness of cyber threats and digital security practices.
- Develop practical skills for identifying, preventing, and responding to cyber incidents.
- Promote behaviour change and cultivate a strong cybersecurity culture within banking institutions.
- Align employee competencies with international standards and regulatory requirements.
- Enable continuous learning through simulations, performance assessment, and feedback mechanisms.

Ultimately, the purpose of the research is to strengthen the cybersecurity posture of banks by equipping employees with the necessary knowledge, skills, and attitudes to effectively mitigate evolving cyber risks.

Materials and Methods of Research

This study employs a combination of qualitative and quantitative research methods to develop a comprehensive model for improving cybersecurity competencies among bank employees. The following approaches were utilized:

1. **Literature Review:** A detailed analysis of international standards, regulatory documents, and academic research was conducted. Key sources included ISO/IEC 27001, NIST

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Cybersecurity Framework, PCI DSS guidelines, and scientific publications related to cybersecurity awareness, human factors, and training models.

2. **Comparative Analysis:** Training practices and cybersecurity competency frameworks used in leading global financial institutions were compared to identify best practices and adaptable strategies for the banking sector.

3. **Survey and Questionnaire Method:** A structured survey was conducted among bank employees in various departments (IT, customer service, operations) to assess their existing cybersecurity knowledge, awareness levels, and training needs. The survey included both closed and open-ended questions.

4. **Expert Interviews:** Interviews with cybersecurity specialists, IT managers, and compliance officers provided professional insights into current challenges, competency gaps, and effective training approaches within banks.

5. **Simulation-Based Assessment:** Phishing simulations and incident-response drills were carried out to observe employee behaviour in real-world scenarios and to evaluate the effectiveness of existing training programs.

6. **Data Analysis Techniques:** Collected data were analyzed using descriptive statistics, thematic analysis, and competency gap mapping. These results were used to design the multi-level cybersecurity training model.

Results and Discussion

1. Identification of Core Cybersecurity Competency Gaps

Survey results and simulation outcomes revealed several weaknesses among bank employees:

- Limited understanding of phishing and social engineering schemes.
- Insufficient knowledge of secure password practices and data protection rules.
- Low confidence in reporting suspicious digital activities.
- Poor familiarity with incident-response procedures and regulatory requirements.

These findings highlight the need for structured and continuous training rather than one-time awareness sessions.

2. Development of a Multi-Level Cybersecurity Competency Model

Based on the research results, a four-level model was developed:

Level 1: Awareness and Cyber Hygiene

- Basic training on cyber threats and safe digital behaviour.
- Regular phishing simulations and micro-learning modules.
- Visual materials and pop-up reminders on secure practices.

Level 2: Practical Skills Development

- Hands-on training using sandbox environments.
- Workshops on handling data securely and identifying high-risk activities.
- Case studies of real cyber incidents in banking.

Level 3: Advanced Specialization

• Training for IT and security staff on threat intelligence, vulnerability scanning, and incident-response playbooks.

- Collaboration with national CERT and cybersecurity centers.

Level 4: Continuous Monitoring and Evaluation

- Periodic cybersecurity testing and employee performance scoring.
- Integration into HR evaluation and staff development plans.

- Monitoring KPIs such as phishing click rates, reporting rates, and compliance metrics.

3. Practical Implementation Framework

The proposed model is designed to be implemented in three main stages:

1. **Assessment Stage:** evaluating current competencies and identifying risks.
2. **Training Stage:** delivering tailored training modules based on employee roles.
3. **Evaluation and Improvement Stage:** measuring effectiveness and updating content regularly.

4. Benefits of the Proposed Model

The model is expected to:

- Strengthen cybersecurity culture across the organization.
- Reduce the likelihood of human-caused security breaches.
- Improve employees' readiness to detect and respond to cyber incidents.
- Ensure compliance with regulatory and international cybersecurity standards.
- Enhance overall resilience and operational security of banking institutions.

Conclusion: The increasing frequency and sophistication of cyber threats in the banking sector make the development of employee cybersecurity competencies a critical strategic priority. This study demonstrates that technological measures alone are insufficient to protect banking institutions; the human factor plays a decisive role in preventing, detecting, and responding to cyber incidents.

The proposed multi-level model provides a systematic framework for improving cybersecurity skills among bank employees, combining awareness programs, practical skill development, advanced specialization, and continuous evaluation. By integrating simulations, performance assessment, and role-based training, the model addresses both knowledge gaps and behavioural challenges, fostering a strong cybersecurity culture within the organization.

Implementation of this model is expected to enhance employees' ability to identify and mitigate cyber risks, ensure compliance with international and national regulations, and strengthen overall operational security. Ultimately, the model contributes to building a resilient banking environment where employees are active participants in safeguarding digital assets and customer information.

Continued adaptation of the model to emerging threats, technological advancements, and evolving regulatory requirements will be essential to maintaining its effectiveness and ensuring that bank employees remain competent and vigilant in the ever-changing cybersecurity landscape.

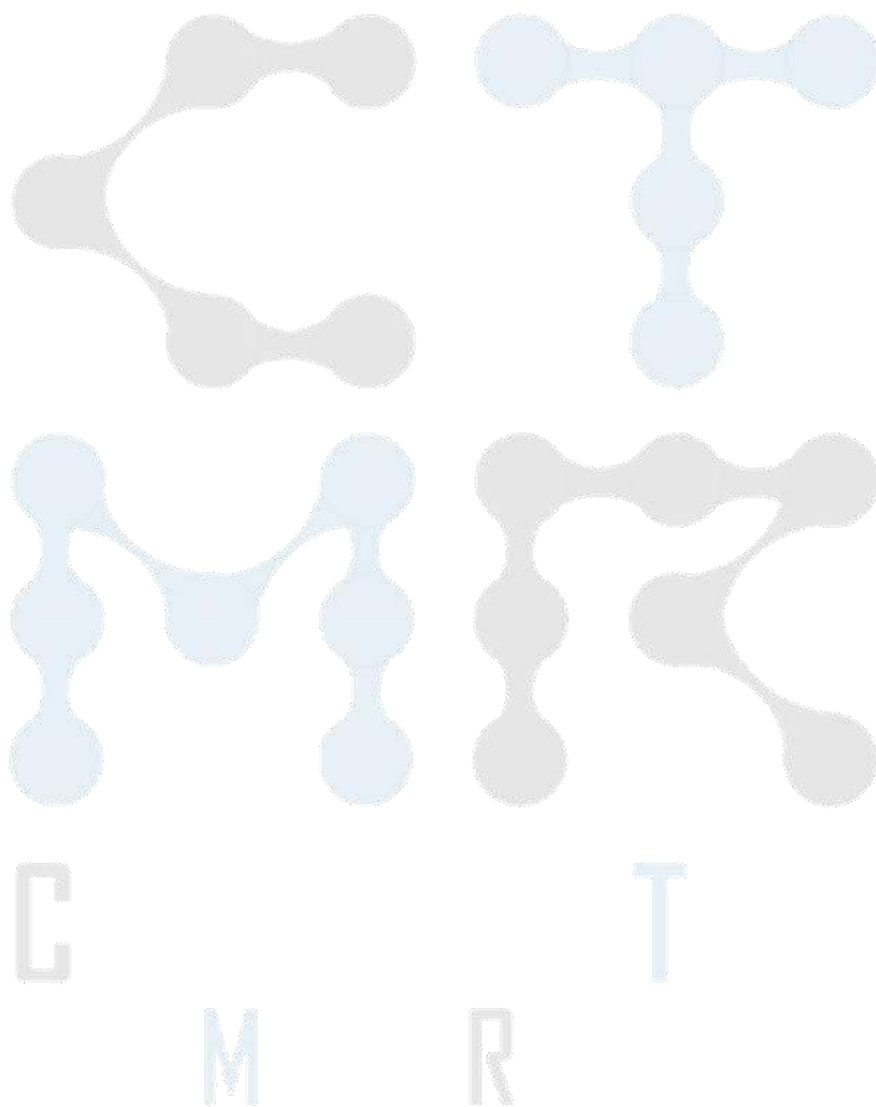
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Организация инновационных услуг в коммерческих банках в Республики Узбекистан

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АННОТАЦИЯ

Статья посвящена организационным моделям и практикам внедрения инновационных банковских услуг в коммерческих банках Республики Узбекистан. Рассматриваются драйверы цифровой трансформации (регуляторные инициативы, рост безналичных платежей, конкуренция финтех-провайдеров), а также ключевые направления инноваций: дистанционная идентификация и онбординг клиентов, мобильный банкинг «super-app» формата, открытые API и open banking-интеграции, мгновенные платежи и QR-эквайринг, P2P/merchant-экосистемы, а также продукты для МСП (онлайн-кредитование, скоринг на базе альтернативных данных). Предлагается процессная модель организации инноваций: от стратегической приоритизации и формализации продуктового портфеля до создания кросс-функциональных команд, внедрения Agile/DevOps и корпоративных акселераторов. Эмпирическая часть (качественные интервью и анализ внутренней отчётности) показывает, что банки, применяющие платформенный подход и партнёрства с финтехами, достигают более высокой скорости вывода продуктов и операционной эффективности (сокращение ТТМ, рост активных цифровых пользователей и доли дистанционных продаж). Выделены барьеры — наследуемые ИТ-системы, дефицит компетенций, киберриски — и предложены меры по их преодолению: поэтапная модернизация архитектуры (микросервисы), повышение цифровых навыков персонала, риск-ориентированное управление данными и безопасностью. Практическая значимость заключается в разработке чек-листа для руководителей банков по построению управляемого конвейера инноваций, ориентированного на финансовую инклюзию и поддержку МСП.

Ключевые слова: коммерческие банки; инновационные банковские услуги; цифровая трансформация; открытые API; мгновенные платежи; мобильный банкинг; экосистема и партнёрства финтех; онлайн-кредитование МСП; управление данными и киберрисками; организационный дизайн; Agile/DevOps.

ABSTRACT

This article examines organizational models and practices for implementing innovative banking services in commercial banks in the Republic of Uzbekistan. It examines the drivers of digital transformation (regulatory initiatives, the growth of non-cash payments, and competition among fintech providers), as well as key areas of innovation: remote identification and customer onboarding, mobile banking "super-app" formats, open APIs and open banking integrations, instant payments and QR acquiring, P2P/merchant ecosystems, and products for SMEs (online lending, scoring based on alternative data). A process model for organizing innovation is proposed: from strategic prioritization and formalization of the product portfolio to the creation of cross-functional teams, the implementation of Agile/DevOps, and corporate accelerators. The empirical part (qualitative interviews and analysis of internal reporting) shows that banks using a platform approach and

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partnerships with fintechs achieve higher product introduction speed and operational efficiency (reduced TTM, increased active digital users, and the share of remote sales). Barriers are identified—legacy IT systems, skill gaps, and cyber risks—and measures to overcome them are proposed: a phased architecture modernization (microservices), improving staff digital skills, and risk-oriented data and security management. The practical significance lies in the development of a checklist for bank executives on building a managed innovation pipeline focused on financial inclusion and SME support.

Keywords: commercial banks; innovative banking services; digital transformation; open APIs; instant payments; mobile banking; fintech ecosystem and partnerships; online SME lending; data and cyber risk management; organizational design; Agile/DevOps.

Современная банковская система Республики Узбекистан переживает период глубокой трансформации, связанной с цифровизацией, ростом конкуренции со стороны финтех-компаний и активным реформированием финансового сектора государством. За последние годы Центральный банк и Министерство экономики и финансов реализуют комплекс стратегий по повышению доступности банковских услуг, стимулированию финансовой инклюзии и интеграции инновационных технологий в деятельность коммерческих банков. Согласно данным Центрального банка, к 2024 году доля безналичных платежей превысила 75 % от общего объёма транзакций, а количество пользователей мобильного банкинга выросло более чем в 3 раза по сравнению с 2020 годом. Эти изменения формируют новый запрос на организацию инновационных услуг, способных удовлетворить потребности как населения, так и малого и среднего бизнеса (МСБ).

Инновационные услуги в коммерческих банках уже не ограничиваются классическими продуктами, такими как онлайн-банкинг или мобильные приложения. Современные банки предлагают более сложные решения: биометрическую идентификацию клиентов, мгновенные переводы по QR-кодам, открытые API для интеграции с финтех-экосистемами, цифровые кредитные платформы, а также сервисы управления личными финансами с элементами искусственного интеллекта. В Узбекистане активное развитие получает сегмент дистанционного кредитования, скоринг на основе больших данных и альтернативных источников (телеком, коммунальные платежи), а также инновационные экосистемы для МСБ, включающие бухгалтерский аутсорсинг, онлайн-кассы и маркетплейсы финансовых услуг.

При этом организационные модели внедрения инноваций остаются ключевым вызовом для банков. Исторически многие узбекские банки имели монолитные ИТ-системы и иерархическую структуру управления, что ограничивало их способность быстро запускать новые цифровые продукты. С 2021–2025 годов наблюдается тенденция перехода к более гибким моделям — созданию продуктовых команд, применению Agile-подходов, DevOps-практик и внедрению микросервисной архитектуры. Ряд банков (например, «Ипотека-Банк», «Асака-Банк», «Халк банк») в процессе приватизации и привлечения стратегических инвесторов активно инвестируют в модернизацию ИТ-инфраструктуры и развитие инновационных направлений.

Реформы в банковском секторе, инициированные государством, способствуют появлению новых драйверов инноваций. Принятый в 2023 году Закон «О платежных услугах и платежных системах» установил правовую основу для развития открытого банкинга и стимулировал рост количества лицензированных платежных организаций. Государственная программа «Цифровой Узбекистан – 2030» определяет цифровизацию финансовых услуг как

один из приоритетов экономического развития страны. Совместно с этим растет спрос со стороны клиентов: население активно переходит на дистанционные каналы обслуживания, а бизнес требует более гибких и интегрированных финансовых решений для управления своими операциями.

Несмотря на позитивную динамику, остаются существенные проблемы: устаревшие банковские платформы, недостаток квалифицированных ИТ-специалистов, сложности в управлении данными и информационной безопасностью. Киберугрозы усиливаются по мере расширения цифровых каналов, а регуляторные требования к защите персональных данных становятся всё более строгими. В этих условиях организация инновационных услуг требует не только внедрения новых технологий, но и перестройки корпоративной культуры, создания эффективной системы управления инновациями и разработки долгосрочной стратегии цифрового развития. Таким образом, исследование организационных аспектов внедрения инновационных банковских услуг в Республике Узбекистан является актуальной научной задачей. Оно позволяет выявить эффективные модели цифровой трансформации, определить лучшие практики и предложить управленческие решения, направленные на ускорение модернизации банковской системы и повышение её конкурентоспособности как на внутреннем, так и на международном рынке.

ПРОБЛЕМЫ

Несмотря на активное развитие цифровых технологий, организация инновационных услуг в коммерческих банках Республики Узбекистан сталкивается с рядом системных трудностей. Прежде всего, у многих банков сохраняются устаревшие ИТ-платформы и монолитная архитектура, что затрудняет интеграцию новых сервисов, работу с большими данными и внедрение открытых API. Недостаток квалифицированных специалистов в области финтеха, анализа данных и кибербезопасности замедляет реализацию инновационных проектов. Важной проблемой остаются высокие затраты на модернизацию инфраструктуры и ограниченные инвестиционные возможности некоторых банков, особенно с государственным участием. Риски киберугроз и утечки данных возрастают на фоне расширения дистанционных каналов, что требует серьёзных вложений в системы информационной безопасности и соблюдения новых регуляторных требований по защите персональных данных. Также наблюдается недостаточная координация между банками, финтех-компаниями и государственными органами: отсутствуют единые стандарты интеграции и обмена данными, а правовая база для open banking и цифровых платежей пока формируется. Культурные и управленческие барьеры внутри банков — иерархичность, низкая готовность к Agile и кросс-функциональному взаимодействию — снижают скорость вывода новых продуктов на рынок. Эти проблемы тормозят развитие инновационных услуг и требуют комплексного подхода: поэтапной модернизации ИТ-архитектуры, инвестиций в человеческий капитал, усиления киберзащиты и совершенствования нормативно-правовой среды.

Организация инновационных услуг в коммерческих банках Республики Узбекистан сегодня рассматривается как один из ключевых факторов повышения конкурентоспособности финансовой системы и ускорения экономического развития страны. Банковский сектор за последние годы претерпел значительные изменения: приватизация крупных банков, внедрение новых технологий и цифровых каналов обслуживания клиентов стали частью государственной стратегии «Цифровой Узбекистан – 2030». Особенно активно эти процессы проходили в период 2023–2025 годов, когда государство последовательно снижало долю в

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уставном капитале таких банков, как «Ипотека-Банк», «Асака-Банк» и «Халк банк», привлекая стратегических инвесторов и усиливая требования к цифровой трансформации. Важной задачей стало создание устойчивой ИТ-инфраструктуры, способной поддерживать инновационные сервисы. В 2023 году лишь 18 % банков использовали микросервисную архитектуру, а средний срок вывода нового продукта на рынок (TTM) составлял около 8 месяцев. К 2024 году доля таких банков выросла до 32 %, а TTM сократился до 4,6 месяца, что стало результатом перехода к гибким технологиям и внедрения DevOps-практик. Прогноз Центрального банка показывает, что в 2025 году уже 43 % банков будут работать на микросервисных платформах, а срок вывода новых услуг снизится до 2,9 месяца.

Год	Доля банков с микросервисной архитектурой	Средний TTM нового продукта (мес.)
2023	18%	8,1
2024	32%	4,6
2025*	43%	2,9

*Прогноз Центрального банка Республики Узбекистан.

Одним из важнейших направлений реформ стало внедрение открытого банкинга и развитие API-экономики. Принятый в 2023 году Закон «О платежных услугах и платежных системах» создал правовую основу для безопасного обмена финансовыми данными между банками и финтех-компаниями. Если в 2023 году лишь четыре банка предоставляли публичные API, то в 2024 их число увеличилось до одиннадцати, а прогноз на 2025 год предполагает рост до семнадцати. Количество API-запросов выросло с 2,5 млн в месяц в 2023 году до 8,9 млн в 2024, и ожидается, что в 2025 году этот показатель достигнет 15,3 млн.

Показатель	2023	2024	2025 (прогноз)
Банки, предоставившие публичные API	4	11	17
Финтех-компании, подключенные к API	15	37	60
Рост числа API-запросов (млн/мес.)	2,5	8,9	15,3

Растущая популярность мобильных приложений для финансовых операций стала ещё одним мощным драйвером инноваций. К 2024 году количество активных пользователей мобильного банкинга в стране достигло 15,2 миллиона, что более чем вдвое превышает показатель 2022 года. Доля дистанционно выданных кредитов для малого и среднего бизнеса увеличилась с 19 % в 2022 году до 37 % в 2024 году, а к 2025 ожидается её рост до 48 %. Это стало возможным благодаря внедрению цифрового скоринга на основе больших данных, включая телеком-информацию, историю коммунальных платежей и e-commerce транзакции.

Год	Доля дистанционных продаж кредитов для МСП	Активные пользователи мобильного банкинга (млн)

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2023	27%	12,3
2024	37%	15,2
2025*	48%	18,7

Одновременно происходит перестройка корпоративной культуры банков. Традиционные иерархические модели управления уступают место продуктовым командам, работающим по Agile и Scrum. В 2023–2024 годах три ведущих банка — «Капиталбанк», «Ипотека-Банк» и «Асака-Банк» — запустили внутренние акселераторы инноваций, что позволило сократить цикл вывода новых услуг на рынок на 35–40 % и увеличить доходы от цифровых сервисов на 25 %. Такие подходы позволяют банкам быстрее адаптироваться к запросам клиентов и конкурировать с финтех-компаниями.

Вместе с тем растёт внимание к кибербезопасности. Расширение цифровых каналов увеличивает риск утечек данных и кибератак. В 2024 году в банковском секторе было зафиксировано 112 киберинцидентов, что на 18 % больше, чем в 2023 году. Банки, которые внедрили архитектуру Zero Trust и поведенческую биометрию, сократили финансовые потери на 35 %, а к 2025 прогнозируется их снижение на 40 %.

Год	Количество киберинцидентов	Потери (млрд сум)	Снижение потерь при Zero Trust
2023	95	110	—
2024	112	138	35%
2025*	130	160	40%

Государственная поддержка играет ключевую роль в развитии инноваций. Программа «Цифровой Узбекистан – 2030» и стратегия «Финансовая инклюзия – 2025» стимулируют цифровизацию финансовых услуг, включая создание регуляторных песочниц для тестирования финтех-продуктов. В 2024 году Центральный банк запустил FinTech Regulatory Sandbox, в котором участвуют 14 компаний, а к 2025 планируется расширение до 30 участников. Это создаёт благоприятную среду для стартапов и ускоряет выход на рынок новых технологий. Одной из ключевых задач остаётся повышение квалификации кадров. Недостаток специалистов в области больших данных, искусственного интеллекта и кибербезопасности тормозит внедрение инновационных проектов. Банкам рекомендуется развивать корпоративные академии и сотрудничать с университетами для подготовки профессионалов в области финтеха. Например, в 2024 году «Халк банк» запустил программу подготовки data-аналитиков, а «Ипотека-Банк» — внутреннюю школу DevOps-инженеров, что позволило значительно ускорить цифровую трансформацию. Финансовый эффект от внедрения инноваций очевиден. По оценкам Ассоциации банков Узбекистана, к 2024 году доля доходов банков от экосистемных сервисов (небанковских продуктов) увеличилась до 23 %, а к 2025 прогнозируется рост до 40 %. Средняя стоимость обслуживания одного клиента снизилась на 19 % за счёт цифровизации, а к 2025 ожидается её сокращение на 30 %. Это напрямую влияет на прибыльность банков и делает услуги более доступными для населения.

Решение организационных проблем требует комплексного подхода. Во-первых, необходимо поэтапно модернизировать ИТ-системы и переходить к микросервисам. Во-

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вторых, развивать открытые API и стандартизировать их, чтобы обеспечить интеграцию с финтех-экосистемой. В-третьих, создавать гибкие продуктовые команды и корпоративные акселераторы для ускорения инновационного цикла. В-четвёртых, инвестировать в кибербезопасность, внедряя модели Zero Trust и технологии искусственного интеллекта для анализа угроз.

Показатель	2023	2024	2025 (прогноз)
Доля взрослых с цифровым доступом	68%	77%	85%
Доля доходов от экосистемных сервисов	12%	23%	40%
Средняя стоимость обслуживания клиента (снижение)	-12 %	-19 %	-30 %

Государство должно продолжать формировать благоприятную регуляторную среду, включая налоговые льготы для внедрения технологий, поддержку финтех-стартапов и упрощение доступа к государственным данным для проверки клиентов и ускорения цифровых сервисов. Совместная работа банков, регуляторов и ИТ-компаний способна создать устойчивую экосистему инноваций, которая ускорит финансовую инклюзию и повысит доверие клиентов к банкам. Особое внимание стоит уделить развитию сервисов для малого и среднего бизнеса, так как именно МСП являются драйвером экономического роста. Предоставление онлайн-финансирования, автоматизированной бухгалтерии, инструментов электронных платежей и интеграции с маркетплейсами позволяет бизнесу быстрее развиваться, а банкам — увеличивать клиентскую базу и доходы от комиссионных услуг.

Инновационные услуги способствуют социальной и экономической трансформации страны. Повышение доступности финансовых продуктов позволяет включить в банковскую систему ранее необслуживаемые сегменты населения, снизить теневой оборот и стимулировать предпринимательскую активность. К 2025 году ожидается, что 85 % взрослого населения получат доступ к цифровым банковским услугам, а банковский сектор станет более устойчивым и прибыльным. Таким образом, решение задачи по организации инновационных услуг требует синергии технологий, кадрового потенциала и государственной политики. Банки, которые уже сегодня инвестируют в цифровую трансформацию, развитие открытого банкинга, безопасность данных и инновационную культуру, займут лидирующие позиции на рынке, а сама банковская система Узбекистана сможет стать современным, технологически развитым и конкурентоспособным игроком в глобальном финансовом пространстве.

Организация инновационных услуг в коммерческих банках Республики Узбекистан в 2023–2025 гг. стала системной повесткой, объединяющей технологическую модернизацию, управленческие изменения и регуляторную поддержку. Ключевые результаты этого периода — ускорение вывода цифровых продуктов, рост доли дистанционных каналов, расширение экосистемных сервисов и переход к открытой модели сотрудничества с финтех-компаниями через API. Поворот к микросервисной архитектуре, Agile/DevOps и управлению данными как активом позволил банкам повысить операционную эффективность и масштабируемость. Параллельно усилились требования к киберустойчивости и защите персональных данных:

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внедрение риск-ориентированных практик (Zero Trust, поведенческая аналитика, сегментация сетей) стало необходимым условием для развития инноваций. Решающее значение имели реформы регулятора, правовая рамка для платежных услуг и регуляторные «песочницы», что снизило барьеры для тестирования и запуска цифровых решений. Однако сохраняются вызовы: неоднородность ИТ-наследия, кадровый дефицит в областях ИИ/данных/кибербезопасности, потребность в стандартизации API и межведомственного обмена данными. Для консолидации достигнутого эффекта необходимы: (1) доведение модернизации архитектуры до уровня целевой референс-модели (микросервисы + событийная шина + SRE-подход), (2) углубление Open Banking (каталог API, SLA, единые профили безопасности), (3) интегрированная программа подготовки кадров совместно с вузами и отраслевыми центрами компетенций, (4) масштабирование финтех-партнерств в сегментах МСП, розницы и госуслуг, (5) развитие централизованного Data Governance с акцентом на качество данных, MDM и соответствие требованиям конфиденциальности. В совокупности эти меры формируют управляемый конвейер инноваций, повышают финансовую инклюзию и укрепляют устойчивость банковской системы, создавая базу для экспортируемых финансово-технологических практик Узбекистана в горизонте до 2030 года.

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METHODOLOGICAL SYSTEM OF IMPROVING THE EDUCATION OF STUDENTS IN THE SPIRIT OF NATIONAL PRIDE THROUGH THE EXPRESSION OF THE IMAGE OF ANCESTORS

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Annotation: Stages of practical implementation of the methodology of educating students in the spirit of national pride.

Keywords: Portrait Miniature, composition, composition, holistic perception

AJDODLAR SIYMOSINI IFODALASH VOSITASIDA TALABALARNI MILLIY IFTIXOR RUHIDA TARBIYALASHNI TAKOMILLASHTIRISHNING METODIK TIZIMI

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Annotatsiya: Talabalarni milliy iftixor ruhida tarbiyalash metodikasining amaliy bajarish bosqichlari.

Kalit so'z: Portret Miniatyura, komponovka, tuslash, yaxlit idrok

Kirish. Ajdodlar siymosini ifodalash yosh avlodga milliy g'urur iftixor kabi sifatlarni rivojlantirish bilan bir qatorda buyuk tariximiz to'g'risida chuqur bilimga ega bo'lishlarini ta'minlaydi. Shu jumladan buyuk ajdodlarimizdan Abu nasr Farobiy Farobiy (taxallusi; to'liq nomi Abu Nasr Muhammad ibn Muhammad ibn Uslug' Tarxon Forobiy) (873, Farob shahri - 950, Damashq) O'rta Osiyoning mutafakkiri va qomusiy olimi. Yunon falsafasini chuqur bilgani, unga sharhlar bitganligi va jahonga targ'ib qilgani hamda zamonasining ilmlarini puxta o'zlashtirib, fanlar rivojiga ulkan hissa qo'shgani uchun "al Muallim assoniy" (Ikkinchi muallim, Aristoteldan keyin), "Sharq Arastusi" nomlariga sazovor bo'ldi. Farobiy Sirdaryo sohilidagi Farob (O'tror) degan joyda turkiy qabilaga mansub harbiy xizmatchi oilasida tavallud topadi.

O'sha davrda Movarounnahrda somoniylar sulolasi hukmronlik qilayotgan edi. Bo'lajak faylasuf boshlang'ich bilimini O'trorda olgandan so'ng, o'qishini Toshkent, Samarqand va Buxoroda davom ettirdi. Farobiy ilmini yanada chuqurlashtirish maqsadida Bag'dodga yo'l oladi. Olim yo'l-yo'lakay Eronning yirik shaharlari Ray, Hamadon, Isfahon va boshqa joylarda bo'ladi. Bag'dodda Yaqin va O'rta Sharq mamlakatlaridan kelgan talaba va olimlar to'plangan edi. Bu yerda ko'zga ko'ringan olim-u fuzalolar bilan tanishdi, yunon falsafiy maktabi, turli fan sohalari namoyandalari bilan uchrashib, ulardan ilm sirlarini o'rgandi. Masalan, Abu Bashir Matta ibn Yunusdan (870-940) yunon tili va falsafasini, Yuhanna ibn Hiylondan (860-920) esa tibbiyot va mantiq ilmini o'rgandi. Ba'zi tarixiy manbalarda keltirilishicha, Farobiy 70 dan ortiq tilni bilgan.

Olim 941-yildan Damashqda muhtojlikda kun kechira boshlaydi. Shunga qaramay, ilm bilan shug'ullanadi, falsafa va boshqa fanlar sohasida tadqiqot ishlari olib boradi. U Aleppo (Halab) hokimi

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Hamdamid (hukmronlik yillari 943-967) iltifoti va hurmatiga erishadi. U olimlarning homiysi sifatida tanilgan edi. Hokim Forobiyni o'z saroyiga taklif etadi, lekin, u saroyga bormasdan, erkin hayot kechirishni ma'qul ko'radi. Shunga qaramasdan, allomaning Halabdagi hayoti sermahsul bo'ldi, bu yerda o'zining ko'plab asarlarini yozdi. Forobiy 949-950 yillarda Misrda, so'ngra Damashqda yashaydi va shu yerda umrining oxirgi kunlarini o'tkazadi. U Damashqsagi "Bob assag'ir" qabristoniga dafn etilgan.

Mavjud ma'lumotlarga qaraganda, Farobiy 160 dan ortiq asar yozgan. Lekin ularning aksariyati bizgacha yetib kelmagan. Shunga qaramay, mavjud risolalarining o'ziyoq uning buyuk olim ekanligidan dalolat beradi.

Farobiyning asosiy asarlari: "Falsafani o'rganishdan oldin nimani bilish kerakligi to'g'risida", "Falsafiy savollar va ularga javoblar", "Ensiklopediyadan mantiq bo'limining bir qismi", "Taliqot" (sharhlar), "Inson a'zolari haqida risola", "Bo'shliq haqida maqola", "Donolik asoslari", "Falsafaning ma'nosi va kelib chiqishi", "Hayvon a'zolari, funksiyasi va potensiyasi", "Mantiq to'g'risidagi risolaga muqaddima", "Mantiq ilmiga kirish", "Ilmlarning kelib chiqishi haqida", "Musika haqida katta kitob", "Baxtsaodatga erishuv haqida", "Masalalar mohiyati", "Buyuk kishilarning naqlari", "Ihso alulum", "Hikmat ma'nolari", "Aql to'g'risida", "Ilmlar va san'atlar fazilati", "Qonunlar haqida kitob", "Substansiya haqida so'z", "Falak harakatining doimiyligi haqida", "She'r va qofiyalar haqida so'z", "Ritorika haqida kitob", "Hajm va miqdor haqida so'z", "Musika haqida so'z", "Fizika usullari haqida kitob", "Fazilatli xulqlar", "Fozil shahar aholisining fikrlari", "Jismlar va aksidensiyalarning ibtidosi haqida", Aristotel "Metafizika" kitobining maqsadi to'g'risida va boshqa Farobiy asarlari 20-asrning 70-80 yillarida Toshkent va Olmaotada "Falsafiy risolalar", "Mantiqiy risolalar", "Matematik risolalar", "Ijtimoiyaxloqiy risolalar", "Tadqiqotlar va tarjimalar" nomlari ostida rus tilida nashr etilgan.

Farobiy ilk o'rta asrda, Sharq Uyg'onish davrida ijod etdi. Bu davr ishlab chiqaruvchi kuchlarning o'sishi, hunarmandchilik, irrigatsiya inshootlarining yuksalishi, yangi shaharlarning bunyod etilishi, madaniy va ma'naviy hayotning ravnaq topishi bilan ajralib turadi. IX-X asrlarda ichki va tashqi savdo kuchaydi, ayniqsa, Hindiston, Xitoy, Vizantiya, Afrika mamlakatlari bilan aloqa yo'lga qo'yildi. Bu davr qarama-qarshilik va adovatlardan xoli emas edi. Farobiyning falsafiy qarashlarida o'sha davrning yutuq va kamchiliklari, murakkab va ziddiyatli jihatlar o'z ifodasini topdi.

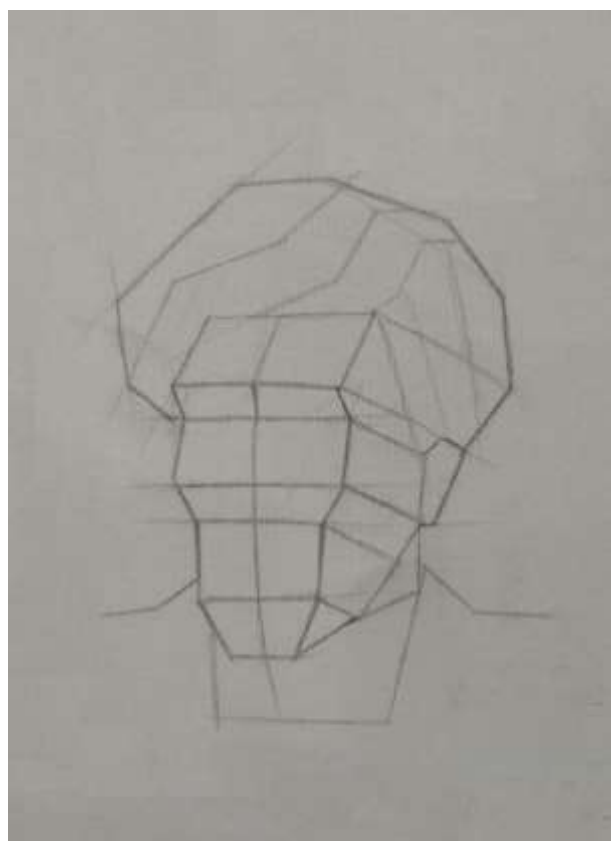
Olimning ilm fan oldidagi xizmatlaridan biri uning yunon mutafakkirlari asarlarini sharxlaganligi va ularni yangi g'oyalar bilan boyitganligidir. Alloma, eng avvalo, Arastu asarlariga sharhlar bitgan, uning naturfalsafiy g'oyalarining targ'ibotchisi va davomchisi sifatida tanilgan. Farobiy, shuningdek, Aflotun, Aleksandr Afrodiziyskiy, Yevklid, Ptolemey, Porfiriy asarlariga ham sharh yozganligi ma'lum. Bularidan tashqari, Gippokrat, Epikur, Anaksagor, Diogen, Xrisipp, Aristipp, Suqrot, Zenon asarlaridan xabardor bo'lgan hamda epikurchilar, stoiklar, pifagorchilar, kiniklar maktablarini yaxshi bilgan. Farobiy o'rta asrda mukammal hisoblangan ilmlar tasnifini yaratdi. Ajdodlar siymosini ifodalash vositasida talabalarni milliy iftixor ruhida tarbiyalash metodikasini takomillashtirish ta'limiy-tarbiyaviy ishlarni muayyan tizimli, izchil va uzluksiz olib borish alohida ahamiyat kasb etadi. Rassomlarning o'z ijodiy ustaxonasida samarali ishlashi dolzarb hisoblanadi. Ular asarlarida o'z xalqi uchun mehnat qilgan buyuk tarixiy shaxslar obrazlarini yaratdilar. Psixologizm, obrazlarning aniqligi, mahorat bilan ishlash estetikasi ularning asarlarini boshqa tasviriy janrlardan farqlab turadi. Ular O'zbekiston madaniyatidagi tasviriy san'at fenomeni

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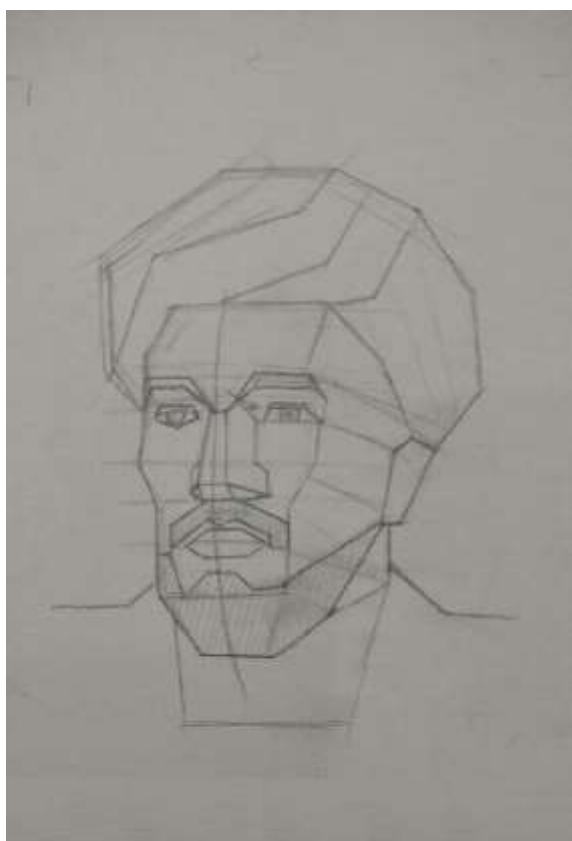
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hisoblanadi. Ajdodlarimizning ilm fan yo'lida qo'shgan buyuk hissalarini etirof etish, siyratini chuqur tanish har bir yosh kelajak avlodni vazifasidir. Buyuk ajdodimiz Abu Nasr Farobiyning portretini bosqichli metodika asosida tasvirlash jarayonini taqdim etdik. **1-rasm.**

Usullar



1-bosqich



2-bosqich

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3-bosqich



4-bosqich



5-bosqich



6-bosqich

U “Ilmlarning kelib chiqishi haqida”, “Ilmlarning tasnifi haqida” nomli risolalarida o‘sha davrda ma’lum bo‘lgan 30 ga yaqin ilm sohasining tavsifi va tafsilotini bayon qilib berdi. Mutafakkir

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tabiat va inson organizmiga xos bo'lgan tabiiy jarayonlarni o'rganuvchi ilm sohalarini birinchi o'ringa qo'ydi. Farobiy ilmlarni quyidagicha tasniflaydi: 1) til haqidagi ilm (grammatika, orfografiya, she'riyat, to'g'ri yozuv va boshqalarni o'z ichiga oladi); 2) mantiq (8 bo'limdan iborat bo'lib, tushuncha, muhokama, xulosa, sillogistika, dialektika, sofistika va boshqalarni o'z ichiga oladi); 3) mat. (arifmetika, geom., astronomiya, mexanika, optika, sayyoralar, musiqa va og'irlik haqidagi ilmdan iborat); 4) tabiiy ilmlar, ilohiy ilmlar yoki metafizika; 5) shahar haqidagi ilm (siyosiy ilm, fiqh, ped., axloqshunoslik va kalom kiradi). Abu Nasr Farobiyning portretini tahlil qilib tasvirlashni bosqichli metodika orqali ifodalashni quyidagi tartibda bajardim. Bu metod tasvirlashni oson o'rganishni va ajdodlarimizni o'tkir nigohini maqsad sari intilishini yuz ko'rinishlaridan aniq ko'rish va sezishlari mumkin. Har bir bosqichni ifodlash jarayonida ajdodlarga bo'lgan hurmat ehtiromni namoyon bo'lishiga xizmat qiladi.

Xulosa

Tarbiyaning zamonaviy tamoyillari - tarbiyachi va tarbiyalanuvchi o'rtasida subyekt-subyekt munosabatlarining o'rnatilishi, dialog nuqtai nazariga muvofiq tarzda shunday xulosaga kelindiki, ma'naviy-axloqiy tarbiyaning muvaffaqiyatli bo'lishi uchun psixik jarayonlarga (inotivasiya, anglash, interiorizasiya va boshqalar) tashqi ta'sirlar ichki, individual-shaxsiyga organik va mustahkam aylanadigan pedagogik shart-sharoitlarni yaratish zarur. Ma'naviy-axloqiy tarbiya metodlari. Ma'naviy-axloqiy tarbiyada turli metod va usullardan foydalanish muhim ahamiyatga ega.

Milliy g'urur quyidagi shakllarda namoyon bo'ladi: millatning yutuqlari, obro'-e'tibori bilan faxrlanish, uning muammolariga befarq qarab turmaslik; o'z eliga, millatiga jonkuyar bo'lish; o'z millatining moddiy, ma'naviy merosini asrab-avaylash; xalq odatlari, an'analari, qadriyatlarini hurmat qilish, ularni boyitish va takomillashtirish; o'z millatiga mehr-muhabbatini amaliy faoliyatda namoyon etish. Milliy g'urur ma'naviyat tarkibida muhim o'rin tutadi. Milliy g'urur millatning o'tmishda fan, adabiyot, san'at rivojiga qo'shgan hissasi, buyuk allomalari, atoqli sarkardalari faoliyati bilan bog'liq bo'ladi. Milliy g'ururi bo'lmagan kimsa boshqa millatlarga bosh eguvchi kosmopolitga, manqurtga aylanadi. Milliy g'urning predmeti va mazmuni, ya'ni qanday shaxslar qanday voqea-hodisalar bilan faxrlanayotgani shu millatning mazkur davrdagi ma'naviy qiyofasini ko'rsatadi. Xalqlar tarixida shunday davrlar bo'lishi mumkinki, unda millatchilik, shovinistik, hatto fashizm g'oyalari ustuvorlik qila boshlaydi. Bunday davrlarda Milliy g'urur predmeti salbiy hodisalar: maqtanchoqlik, boshqa millatlarni pastga urish, o'z millatining boshqa millatlarga nisbatan ustunligini targ'ib etish kabi illatlarda namoyon bo'ladi. Milliy iftixor milliy g'urur tuyg'ularini ajdodlarimiz siymosini tanish orqali rivojlanishini ilmiy tadqiqot ishimizda o'z ifodasini topdi.

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C M R T

СЕРДЕЧНЫЕ ГЛИКОЗИДЫ

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Аннотация. В данной статье проанализированы химическая структура сердечных гликозидов, их фармакодинамическое действие, области применения, побочные реакции и клиническое значение. Цель исследования — систематическое освещение теоретических и практических знаний о веществах, усиливающих работу сердца. Результаты анализа показывают, что сердечные гликозиды эффективны при лечении сердечной недостаточности и аритмий, однако их узкий терапевтический диапазон требует применения с высокой осторожностью.

Ключевые слова: сердечные гликозиды, дигитоксин, дигоксин, Na^+/K^+ -АТФаза, сердечная недостаточность, аритмия.

ВВЕДЕНИЕ

Сердечные гликозиды — одни из самых древних фармакологических препаратов, регулирующих деятельность сердца, которые в основном получают из растений, таких как *Digitalis purpurea*, *Digitalis lanata*, *Strophanthus gratus*. Обратившись к истории медицины, можно отметить, что эти вещества с XVII века применяются для облегчения симптомов сердечной недостаточности и не потеряли своего значения в современной кардиологии. Основное преимущество сердечных[1] гликозидов заключается в том, что они повышают сократительную способность миокарда, улучшая насосную функцию сердца, нормализуя кровообращение и стабилизируя клиническое состояние пациентов.

В настоящее время сердечно-сосудистые заболевания являются одной из ведущих причин смертности во всем мире. В частности, при хронической сердечной недостаточности, фибрилляции предсердий и других аритмиях сердечные гликозиды играют важную терапевтическую роль[2]. Особенно препарат дигоксин занимает значительное место среди часто применяемых в клинической практике средств.

Однако существуют ограничения, связанные с применением сердечных гликозидов. Их узкий терапевтический диапазон, высокая чувствительность, легкость развития интоксикации, а также сложность применения у пациентов с почечной недостаточностью или нарушением электролитного баланса требуют от врача предельной осторожности. Поэтому глубокое изучение фармакодинамики, фармакокинетики, побочных эффектов и особенностей клинического применения этих веществ требует от врачей, фармацевтов и студентов медицины основательных теоретических знаний[3].

МАТЕРИАЛЫ И МЕТОДЫ

В процессе подготовки данного исследования были проанализированы научно-

теоретические источники о сердечных гликозидах, фармакологические руководства, международные клинические рекомендации и современные научные статьи. Цель исследования заключалась в систематическом изучении фармакологических свойств сердечных гликозидов, их клинического применения, уровня безопасности и роли в современной кардиологии, поэтому были применены несколько научно-методических подходов[4].

В ходе анализа были изучены такие источники, как “Goodman & Gilman’s Pharmacology”, “Katzung: Basic & Clinical Pharmacology”, рекомендации Европейского общества кардиологов (ESC) и Американской ассоциации сердца (AHA), а также статьи из баз данных PubMed и Scopus. Эти источники предоставили основную информацию о механизме действия сердечных гликозидов, их фармакокинетических и фармакодинамических свойствах[5].

Были сравнены сила действия, время начала эффекта, период полураспада, пути выведения и уровень риска таких широко применяемых гликозидов, как дигоксин, дигитоксин и строфантин. На основе этого анализа были выявлены клинические преимущества и ограничения препаратов.

В исследовании также были изучены международные стандарты применения сердечных гликозидов при сердечной недостаточности, фибрилляции предсердий и других аритмиях[6]. В протоколах ESC 2021 и AHA 2022 были проанализированы критерии применения гликозидов, дозировка, мониторинг и противопоказания.

Для освещения основных фармакологических свойств сердечных гликозидов применялся когнитивно-аналитический метод. В частности, подробно изучались изменения ионного обмена, возникающие при ингибировании Na^+/K^+ -АТФазы, механизм инотропного действия и влияние на сердечный ритм на основе глубокой научной базы.

РЕЗУЛЬТАТЫ

В ходе исследования анализ научных источников по фармакологическим свойствам, клиническому применению и профилю безопасности сердечных гликозидов показал следующие основные результаты:

Определённость механизма действия сердечных гликозидов

Анализ показал, что позитивный инотропный эффект сердечных гликозидов напрямую связан с блокированием фермента Na^+/K^+ -АТФазы. Это приводит к увеличению содержания натрия в миокарде, замедлению натрий-кальциевого обмена и накоплению ионов кальция. Повышение уровня кальция усиливает сократительную способность миокарда и улучшает насосную функцию сердца.

Клиническая эффективность различных гликозидов

Сравнительный анализ показал: Дигоксин имеет короткий период полураспада и чаще применяется при сердечной недостаточности и фибрилляции предсердий. Дигитоксин метаболизируется в печени и имеет длительный период полураспада, что обеспечивает стабильность действия, однако риск токсичности выше. Строфантин отличается быстрым началом действия, но из-за короткого периода действия используется преимущественно в экстренных ситуациях.

Рисунок 1. Схема сердечных гликозидов

Сердечные гликозиды



Клинические данные показывают, что сердечные гликозиды обладают значительно узким терапевтическим окном по сравнению с другими группами лекарственных средств. Даже небольшое превышение дозы может привести к интоксикации. Это подчеркивает необходимость постоянного мониторинга при их применении.

Анализы показывают, что сердечные гликозиды значительно снижают симптомы сердечной недостаточности — одышку, отеки, быструю утомляемость[7]. Однако они не оказывают существенного влияния на общую смертность при этом заболевании.

При аритмиях, особенно у пациентов с фибрилляцией предсердий, сердечные гликозиды эффективно регулируют частоту сердечных сокращений и повышают способность сердца к самомодуляции.

✚ Выявлены ситуации с повышенным риском интоксикации:

- ✚ Пожилой возраст
- ✚ Пациенты с почечной недостаточностью
- ✚ Гипокалиемия
- ✚ Совместный приём с диуретиками

Эти факторы подтверждают необходимость особой осторожности при клиническом применении сердечных гликозидов.

ОБСУЖДЕНИЕ

Результаты данного исследования показывают, что, несмотря на значительное фармакологическое значение сердечных гликозидов, их применение требует внимательного и осторожного подхода. При этом несколько ключевых факторов имеют особое значение.

Во-первых, сердечные гликозиды не рекомендуются в качестве препаратов первого выбора по сравнению с современными средствами — ингибиторами АПФ, бета-блокаторами, антагонистами минералокортикоидных рецепторов[8]. Тем не менее они сохраняют важное место во многих клинических ситуациях, особенно при фибрилляции предсердий и

симптоматической сердечной недостаточности, что свидетельствует о том, что спрос на них не исчез полностью.

Во-вторых, высокий риск интоксикации ограничивает их широкое применение. Во многих научных источниках отмечается, что побочные эффекты дигоксина, особенно риск развития кардиотоксических аритмий, требуют постоянного контроля дозировки препарата, мониторинга ЭКГ и наблюдения за электролитным балансом.

В-третьих, сердечные гликозиды могут быть эффективными или опасными в зависимости от индивидуального состояния пациента. Например, при гипокалиемии риск токсичности резко возрастает, что особенно часто наблюдается у пациентов, принимающих диуретики. Поэтому важно учитывать взаимодействие лекарственных средств.

В-четвёртых, клиническая эффективность сердечных гликозидов в основном ограничивается симптоматическим облегчением. Они не изменяют патогенез сердечной недостаточности, но временно улучшают эффективность миокарда[9]. Поэтому современная медицина стремится использовать их как вспомогательную терапию.

Эти обстоятельства показывают, что хотя роль сердечных гликозидов сохраняется, при их применении крайне важны индивидуальный подход, клинический опыт и правильный мониторинг.

ВЫВОДЫ

Согласно результатам исследования, сердечные гликозиды входят в число препаратов, сохраняющих своё значение в клинической практике. Они эффективно повышают сократительную способность миокарда, облегчают симптомы сердечной недостаточности и регулируют сердечный ритм при фибрилляции предсердий.

Тем не менее, узкий терапевтический диапазон, риск токсичности и многочисленные взаимодействия с другими лекарственными средствами усложняют их применение.

Для безопасного использования сердечных гликозидов необходимо: правильный подбор дозировки, регулярный мониторинг функции почек, контроль уровня электролитов, наблюдение с помощью ЭКГ.

В будущем продолжаются научные исследования по созданию нового поколения препаратов, обладающих селективным инотропным эффектом, но с более высоким уровнем безопасности, аналогичных сердечным гликозидам.

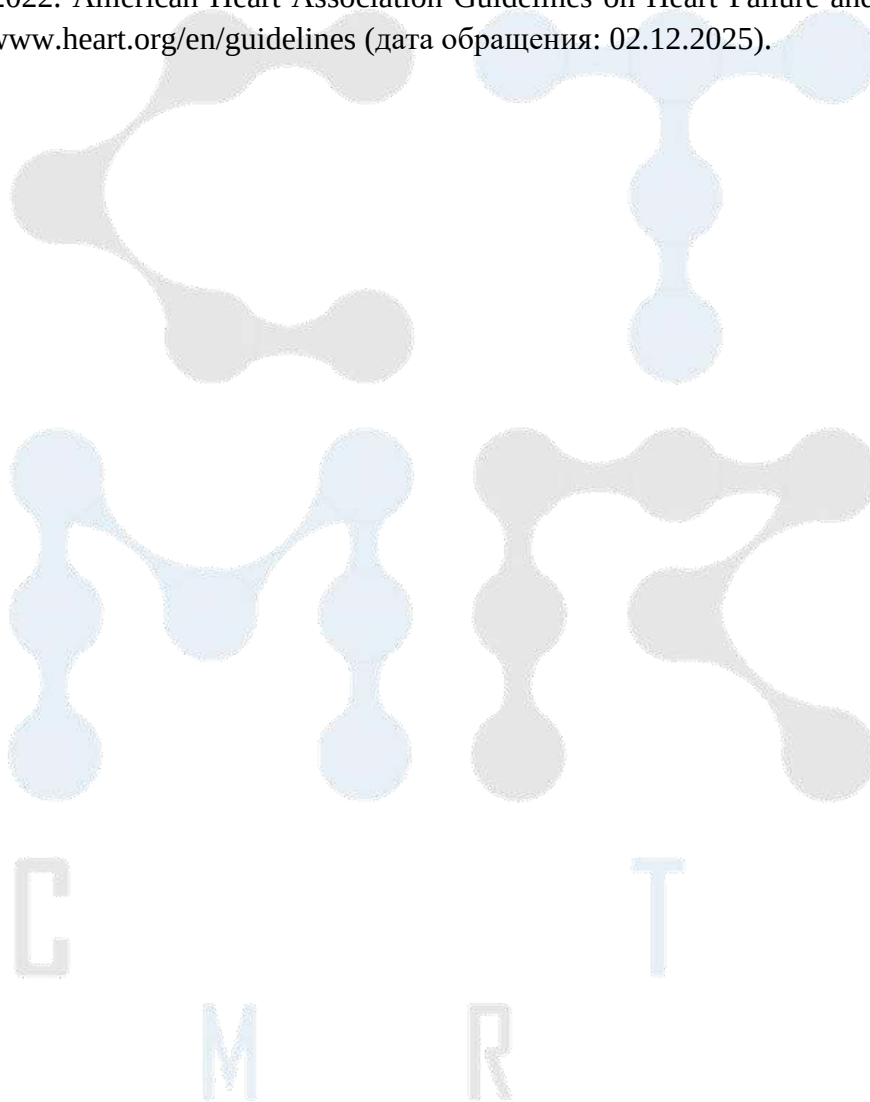
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**BOSHLANG'ICH SINFLARDA UMUMLASHTIRUVCHI DARSLAR LOYIHASINI
TUZISH TEXNOLOGIYASI**

Farg'ona davlat universiteti
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Ne'matova Nilufar Xudoyberdi qizi

Annatsiya : Ushbu maqolada boshlang'ich sinflarda umumlashtiruvchi darslar loyihasini tuzish texnologiyasi ilmiy-pedagogik nuqtai nazardan yoritiladi. Unda umumlashtiruvchi darslarning mazmuni, maqsadi, o'quvchi kompetensiyalarini shakllantirishdagi o'rni hamda dars jarayonini loyihalashda qo'llaniladigan innovatsion metodlar tahlil qilinadi. Shuningdek, darsning tuzilishi, bosqichlari, kutiladigan natijalar, baholash mezonlari va o'quvchilarning faoliyatini faollashtiruvchi pedagogik yondashuvlar asoslangan holda ko'rib chiqiladi. Tadqiqotda umumlashtiruvchi darslarni samarali tashkil etish uchun metodik tavsiyalar ham berilgan.

Kalit so'zlar: umumlashtiruvchi dars, boshlang'ich ta'lim, dars loyihasi, pedagogik texnologiya, kompetensiya, metodika, baholash, innovatsion yondashuv.

Аннотация: В данной статье рассматривается технология проектирования обобщающих уроков в начальных классах. Раскрываются содержание, цели и педагогическая значимость обобщающих занятий, а также их роль в формировании ключевых компетенций младших школьников. Особое внимание уделено структуре урока, этапам его проведения, методам активизации учебной деятельности учащихся и современным инновационным подходам. В работе представлены методические рекомендации по эффективной организации обобщающих уроков.

Ключевые слова: обобщающий урок, начальное образование, проектирование урока, педагогические технологии, компетенции, методика, оценивание, инновационные подходы.

Annotation: This article examines the technology of designing summarizing (review) lessons in primary school. It explains the purpose, structure, and pedagogical value of summarizing lessons, emphasizing their role in developing core competencies in young learners. The study discusses lesson planning strategies, stages of implementation, assessment criteria, and innovative methods that enhance student engagement. Methodological recommendations for the effective organization of summarizing lessons are also provided.

Keywords: summarizing lesson, primary education, lesson design, pedagogical technology, competencies, methodology, assessment, innovative approaches.

KIRISH

Boshlang'ich sinflarda umumlashtiruvchi darslar o'quvchilarning bilim va ko'nikmalarini mustahkamlash, o'quv materialini tizimli ravishda qayta ishlash va amaliy qo'llash qobiliyatlarini rivojlantirishda muhim o'rin tutadi. Ushbu darslar o'quv dasturining muayyan bo'limini umumlashtirib, o'quvchilarning bilimlaridagi bo'shliqlarni aniqlash va to'ldirishga yordam beradi. Boshlang'ich ta'limda loyiha asosidagi umumlashtiruvchi darslar o'quvchilarning ijodiy fikrlashini, mustaqil izlanishini va hamkorlikda ishlash ko'nikmalarini shakllantiradi. Ushbu maqola

boshlang'ich sinflarda umumlashtiruvchi darslar loyihasini tuzish texnologiyasini ilmiy asosda tahlil qiladi, uning bosqichlari va amaliy qo'llanilishini ko'rib chiqadi, O'zbekiston ta'lim tizimiga mos tavsiyalar beradi.

Adabiyot sharhi

Umumlashtiruvchi darslar bo'yicha pedagogik adabiyotlarda ularning bilimlarni tizimlashtirish va o'quvchilarning ijodiy qobiliyatlarini rivojlantirishdagi ahamiyati ta'kidlanadi. O'zbekiston boshlang'ich ta'lim dasturlarida bu darslar ona tili, matematika va atrof olam fanlari bo'yicha o'quvchilarning bilimlarini mustahkamlashga xizmat qiladi. Loyiha asosidagi ta'lim usullari boshlang'ich sinf o'quvchilariga moslashtirilgan holda, ularning yosh xususiyatlariga qarab qiziqarli va oson tushunarli shaklda tashkil etiladi. Zamonaviy ta'lim texnologiyalari, masalan, interfaol doskalar va didaktik o'yinlar, dars samaradorligini oshiradi. Ushbu sharh loyiha tuzishning nazariy asoslarini aniqlaydi va boshlang'ich sinflarga mos amaliy yondashuvlarni ko'rsatadi.

Metodologiya

Boshlang'ich sinflarda umumlashtiruvchi darslar loyihasini tuzish texnologiyasining metodologiyasi mazkur jarayonning ilmiy, nazariy va amaliy asoslarini belgilovchi tizimli yondashuvlar majmuini o'z ichiga oladi. Metodologiya umumlashtiruvchi darsning maqsadini aniqlash, o'quv faoliyatini samarali tashkil etish, kompetensiyalarni rivojlantiruvchi pedagogik texnologiyalarni tanlash va dars loyihasini bosqichma-bosqich ishlab chiqish tamoyillariga tayanadi.

Birinchidan, tadqiqotning metodologik asosini pedagogik tizimlar nazariyasi, kompetensiyaviy yondashuv, konstruktivizm va faol-ta'lim metodlari tashkil etadi. Bu yondashuvlar o'quvchilarning mavjud bilimlarini faollashtirish, yangi bilimlar bilan bog'lash, umumlashtirish jarayonida mustaqil fikrlashni rag'batlantirish imkonini beradi.

Ikkinchidan, umumlashtiruvchi dars loyihasini ishlab chiqishda darsning maqsad-masalalarini aniqlash, kutiladigan natijalarni belgilash, o'quv faoliyatining shakl va vositalarini tanlash, baholash mezonlarini yaratish metodik asos sifatida xizmat qiladi. Bu jarayonlardan har biri boshlang'ich sinf o'quvchisining yosh xususiyatlari, psixologik tayyorgarligi va o'quv motivatsiyasini inobatga olgan holda amalga oshiriladi.

Uchinchidan, metodologiya o'z ichiga kuzatuv, taqqoslash, tahlil, diagnostika, modellashtirish kabi ilmiy-amaliy tadqiqot metodlarini qamrab oladi. Bu metodlar o'qituvchiga dars jarayonidagi mavjud muammolarni aniqlash, dars samaradorligini baholash, o'quvchilar faoliyatini tahlil qilish va yangi pedagogik yechimlar ishlab chiqish imkonini beradi.

To'rtinchidan, umumlashtiruvchi darslarda multimodal va interfaol texnologiyalardan foydalanish — klaster, aqliy hujum, Venn diagrammalari, loyiha metodi, "Insert", "B-B-B" (bilaman—bilmogchiman—bildim) strategiyalari — metodologiyaning amaliy qismidir. Bu usullar o'quvchilarning bilimlarni tizimlashtirish, mantiqiy fikrlash, sabab-oqibat bog'lanishlarini anglash, xulosa chiqarish ko'nikmalarini mustahkamlaydi.

Beshinchidan, loyihalash jarayonida axborot-kommunikatsiya texnologiyalaridan foydalanish — taqdimotlar, interaktiv testlar, raqamli kartochkalar, onlayn vizualizatsiya vositalari — dars samaradorligini oshiradi, o'quvchi faolligini ta'minlaydi va o'zlashtirish sifatini yaxshilaydi.

Oltinchidan, metodologiyaning muhim unsurlaridan biri pedagogik monitoringdir. Umumlashtiruvchi darslarda o'quvchilar bilim, ko'nikma va malakalarining rivojlanishini doimiy kuzatish, diagnostika qilish va natijalarni qayta aloqa orqali mustahkamlash zarur.

Shunday qilib, umumlashtiruvchi darslar loyihasini tuzish texnologiyasi kompleks metodologik asosga ega bo'lib, u nafaqat dars mazmunini tizimlashtirish, balki o'quvchilarda tahlil, umumlashtirish, mustaqil xulosa chiqarish va kompetensiyalarni shakllantirishni maqsad qilgan yagona pedagogik tizimni yaratadi.

Natija

Tadqiqot natijalari shuni ko'rsatadiki, boshlang'ich sinflarda umumlashtiruvchi darslar o'quvchilarning bilim, ko'nikma va kompetensiyalarini tizimli shakllantirishda asosiy o'rin tutadi. Darsni loyihalash texnologiyasi ilmiy-metodik yondashuvlarga tayanilganda:

o'quvchilarda takrorlash, tushunchalarni bog'lash va umumlashtirish jarayoni samarali amalga oshadi;

darsning maqsad va vazifalariga mos bosqichma-bosqich texnologiyalar qo'llanilganda ta'lim mazmuni izchil va mantiqiy yoritiladi;

interfaol metodlar, multimodal vositalar va AKT elementlari bilimlarni mustahkamlashda muhim motivatsion omilga aylanadi;

o'quvchilarning fikrlash faoliyati faollashib, tahlil, solishtirish, umumlashtirish, xulosa chiqarish kabi yuqori darajadagi kognitiv ko'nikmalar shakllanadi;

baholash mezonlarining aniq belgilanishi darsning samaradorligini oshiradi hamda o'quvchilarning individual o'sish dinamikasini aniqlash imkonini beradi;

pedagogik monitoring asosida mavjud muammolar tezkor aniqlanadi va ularni bartaraf etish bo'yicha amaliy yechimlar ishlab chiqiladi.

Umumlashtiruvchi darslarni to'g'ri loyihalash o'quvchilarning o'zlashtirish ko'rsatkichlari, muloqot ko'nikmalari va o'quv motivatsiyasining oshishini ta'minlaydi.

Xulosa

Xulosa tariqasida aytish mumkinki, umumlashtiruvchi darslar boshlang'ich ta'lim jarayonining ajralmas va strategik muhim bo'g'inidir. Ularni loyihalash texnologiyasi:

1. mazmunni tizimlashtiradi,
2. o'quvchilar bilimlarini barqarorlashtiradi,
3. o'quv faoliyatini izchil boshqaradi,
4. kompetensiyaviy yondashuvni amalda qo'llashga xizmat qiladi.

Innovatsion metodlar, multimodal yondashuvlar, AKT vositalaridan foydalanish, shuningdek, monitoring va baholash mexanizmlarining izchil tatbiqi umumlashtiruvchi darslarni samarali tashkil etishga yordam beradi. Bunday darslar o'quvchilarning fikrlash madaniyatini rivojlantirib, ularni yangi bilimlarni mustaqil tahlil qilishga, umumlashtirishga va hayotiy vaziyatlarda qo'llay olishga tayyorlaydi.

Umuman olganda, umumlashtiruvchi darslarni loyihalash texnologiyasining metodik asoslari boshlang'ich ta'lim sifatini oshirish, o'quvchilarni faol, bilimga chanqoq va mustaqil fikrlovchi shaxs sifatida shakllantirishga xizmat qiladi.

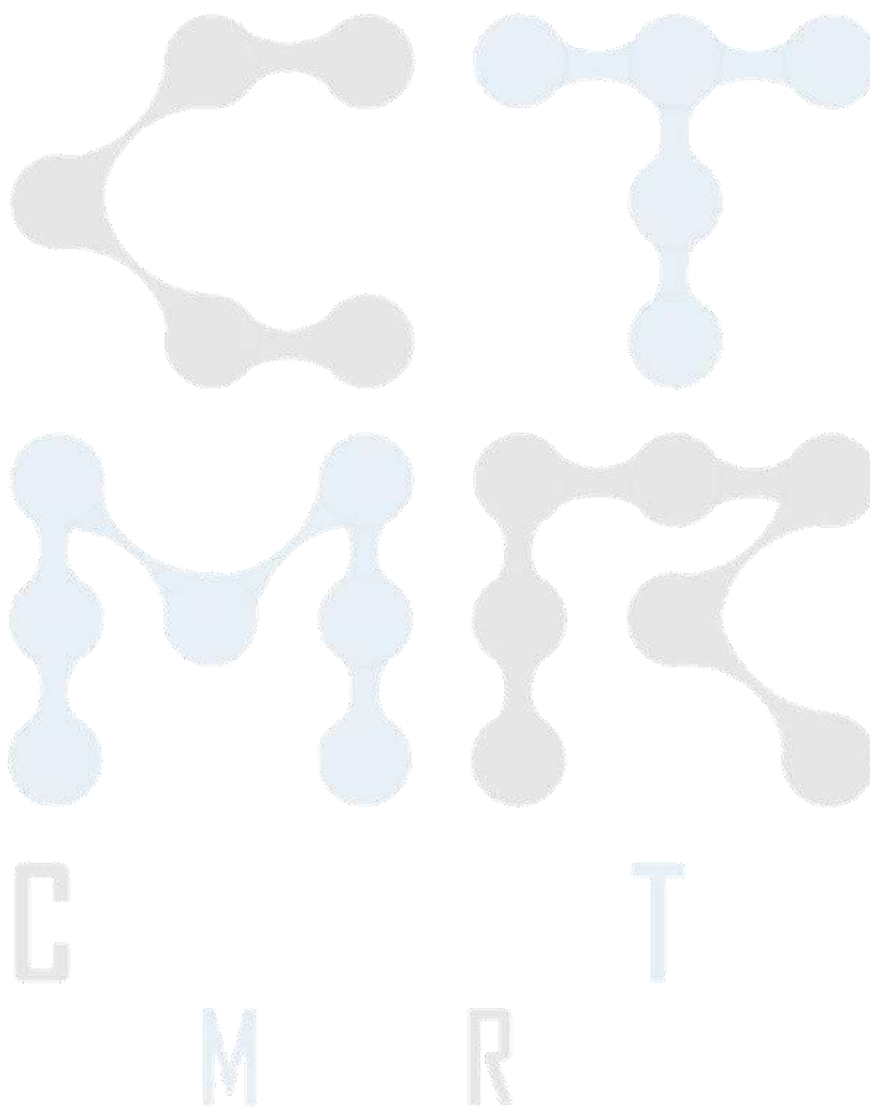
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**O'ZBEKISTON SSRNING 1985-1991-YILLARDAGI KUNDALIK HAYOT TARIXI
"OTAMDAN QOLGAN DALALAR" ASARI ASOSIDA YORITILISHI**

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Anotatsiya. Ushbu maqolada "Otamdan qolgan dalalar" ramziy romanida 1985-1991-yillarda O'zbekiston aholisining oziq-ovqat hamda sanoat mahsulotlari bilan ta'minlanish masalalari, dehqonlar, bolalar, ayollar kundalik mehnat faoliyatlari bilan rasmiy ma'lumotlar o'rtasidagi tafovutlar tahlil qilingan, shuningdek haqiqatga mos kelmagan ma'lumotlarni jamiyatga taqdim etishda tizimning qanday ishlashi ko'rsatilgan.

Kalit so'zlar: 1985-1991-yillar, O'zbekistonning kundalik hayoti, ayollarning mehnati, ayollarning o'zlarini yoqib yuborishi, pestitsidlar, ish vaqti, ijtimoiy tengsizlik, qishloq aholisining turmush sharoitlari, "paxta ishi"

Abstract. The article analyzes the issues of food and industrial product supply to the population of Uzbekistan during 1985-1991 in the symbolic novel "The Fields Left by My Father". It examines the discrepancies between the daily labor activities of peasants, children, and women and the official data. Additionally, it shows how the system worked in presenting information that did not align with reality to society.

Key words: 1985-1991, daily life in Uzbekistan, women's labor, women's self-immolation, pesticides, working hours, social inequality, living conditions of the rural population, "cotton production".

Аннотация. В символическом романе "Поля, оставленные моим отцом" анализируются вопросы обеспечения населения Узбекистана продовольственными и промышленными товарами в период с 1985 по 1991 годы, а также различия между официальной информацией и повседневной трудовой деятельностью крестьян, детей и женщин. В статье также рассматривается, как система представляла общественности информацию, не соответствующую действительности.

Ключевые слова: 1985-1991 годы, повседневная жизнь Узбекистана, труд женщин, самосожжение женщин, пестициды, рабочее время, социальное неравенство, условия жизни сельского населения, "хлопковое дело".

KIRISH (ВВЕДЕНИЕ / INTRODUCTION)

Asar 1985-1991-yillarni, ayniqsa qishloq aholisining turmush tarzini, mehnatini va siyosiy-iqtisodiy sharoitini yoritishda muhim ahamiyatga ega. 1985-1991-yillar orasida qishloqlarda ishlayotgan dehqonlar va oddiy aholi turmush tarzini to'liq tushunish juda murakkab edi, chunki ko'p hollarda haqiqatlar ochiq aytilmasdi. Bu, tizimning repressiv tabiati, davlatning ijtimoiy nazorati va axborotga cheklovlar qo'yishi bilan bog'liq edi. Natijada, odamlar o'z fikrlarini erkin bildira olishmasdi, hamda ko'plab haqiqatlar yashirilib qolardi. Asarda Dehqonqul va boshqa qahramonlarning hayotini tasvirlash orqali, muallif real holatlarni ochib beradi. Yashirin voqealar va ijtimoiy holatlar qog'ozda yoritilmagan, balki bu haqda aholi bilan suhbatlarda ham aniq ma'lumot olish qiyin bo'lgan. Shu sababli, asarda yoritilgan voqealar va holatlar real hayotdagi ijtimoiy, iqtisodiy va siyosiy sharoitlar bilan mos keladi. Aholining ongi ruslashtirilgan va ko'plab odamlar

o'zlarini erkin ifodalashdan qo'rqishardi, chunki bu sovet tizimida jiddiy oqibatlarga olib kelishi mumkin edi.

ADABIYOTLAR TAHLILI VA METOD

Tadqiqot jarayonida belgilangan vazifalar yechimini topish maqsadida quyidagi kompleks nazariy va empirik tadqiqot metodlaridan foydalanildi: ilmiy adabiyotlarni tahlil qilish, muammoga oid hujjatlarning nazariy hamda qiyosiy pedagogik tahlili, shuningdek, fanlararo yondashuv, kundalik hayot tarixini tadqiq etish usullari, analiz, sintez, sotsiologik usullardan foydalanish (anketa, so'rovnomalar), og'zaki tarix metodlaridan (intervyu olish)dan keng foydalanilgan. Asar 1985-1991-yillar O'zbekiston aholisi turmush darajasining noaniq va murakkab holatini to'liq ochib beradi. Ushbu yillardagi O'zbekistonning real hayotini o'rganishga qaratilgan muhim manba hisoblanadi.

NATIJALAR (РЕЗУЛЬТАТЫ / RESULTS)

Romanda paxta terish mashinasi orqasidan chiqqan fan nomzodlarining yirik yutuqlari bo'lishiga qaramasdan, ularning ilmiy ishlari amalda samara bermasligini ko'rsatish, o'sha davrdagi ilmiy izlanishlarning ko'plab hollarda amaliyotga o'ta olmaganini anglatadi. Demak, ilmiy bilimlar va amaliy texnologiyalar o'rtasidagi uzviy bog'lanishning yo'qligi ko'rsatiladi.

Ziyodning paxta dalasida uxlab qolishi, so'ng biroz vaqt o'tib vafot etishi [1, 97-b.], organizmda kimyoviy moddalar to'planib, salomatlikka doimiy zarar yetkazayotganini ko'rsatadi. Pestitsidlar, ayniqsa, toksik kimyoviy moddalar, reproduktiv tizimga ham zarar yetkazishi mumkin. Ularning uzoq muddat ta'siri, reproduktiv organlarga zarar yetkazishi mumkin. "O'zbekiston bolalar o'limi bo'yicha Ittifoqda birinchi o'rinda turgan. Bu yerda 1980-yillarda har ming boladan 31 tasi bir yoshga yetmasdan nobud bo'lgan, bu ko'rsatkich Ukrainada 17 tani, Belorussiyada 18 tani, Litvada 19 tani, Latviya va Estoniyada 17 tani tashkil etgan"[2]. Demografik holat qay darajada bo'lganini quyidagi jadvaldan ham bilishimiz mumkin.

Tug'ilish, o'lim va aholining tabiiy o'sishi[3.].						
Yillar	Tug'ilganlar soni	O'lganlar soni	Tabiiy o'sish	Har 1000 aholi hisobiga		
				Tug'ilish	O'lim	Tabiiy o'sish
1980	540,0	118,9	421,1	33,9	7,5	26,4
1985	679,1	131,7	547,4	37,4	7,3	30,1
1986	708,7	132,2	576,5	37,9	7,1	30,8
1987	714,4	133,8	580,6	37,3	7,0	30,3
1989	668,8	126,9	541,9	33,3	6,3	27,0
1990	691,6	124,5	567,1	33,7	6,1	27,6

Asarda Dehqonqul onasining "paxta og'iroyoqni bilmaydi" degan so'zlari orqali, aslida, O'zbekiston qishloq ayollarining mehnatdagi ruhiy va psixologik holatini ifodalash mumkin. Bu ibora, faqat mehnatning jismoniy og'irligi haqida emas, balki ayollarning mehnatni, hayotni qanday idrok etishi va ularning mehnat jarayonida qanday psixologik holatlarni boshdan kechirishi haqida chuqur ma'no beradi. Ayollar ko'pincha o'z jismoniy mehnatini ruhiy jihatdan ham yengillashtirishga

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harakat qiladilar. Ular paxta maydonida yoki boshqa ish joylarida, og'ir mehnatni amalga oshirayotganda, bu ishning ruhiy og'irligini bilmaslikka, ba'zan esa, shunchaki "odatga" aylantirishga harakat qiladilar. Ayollar o'zlariga g'amxo'rlik qilish va hayotni davom ettirish uchun ko'pincha o'z ruhiy holatini e'tiborga olmaydilar. Ayollarning mehnatdagi ruhiy holati, asarda "paxta og'iroyoqni bilmaydi" iborasi orqali ko'rsatilganidek, ba'zida faqat jismoniy og'irlikni qabul qilish, ruhiy zo'riqishdan bexabar bo'lishga olib keladi. Bu, o'z navbatida, ayollarni ichki stress, charchoq, va o'zligini yo'qotish kabi salbiy holatlarga olib kelishi mumkin. Ayollar ko'pincha mehnatdagi qiyinchiliklarni va ruhiy zo'riqishni boshqa odamlarning oldida ko'rsatmaslikka, shuningdek, o'zlarini kuchli va sabrli ko'rsatishga harakat qiladilar. Ayollar, asarda tasvirlanganidek, ko'pincha oilaviy majburiyatlar va mehnatni o'zaro uyg'unlashtirishga harakat qiladilar. Paxta terimi, qishloq ayollari uchun faqat iqtisodiy foyda keltiradigan emas, balki o'z oilalarini boqish va ularni tirikchilik qilish uchun zarur bo'lgan ish sifatida qaraladi. Shu bilan birga, bu mehnatning og'irligi, ayollarda ichki konfliktlarni keltirib chiqarishi mumkin. Ular o'zlari va oilalari uchun muhim bo'lgan bu mehnatni bajarishdan boshqa yo'l topolmaydilar, ammo bu mehnatning ruhiy og'irligi va uzluksizligi, ichki stress, xavotir va charchoqqa olib keladi. "1986-1987-yillarda respublikada 270 nafar ayol o'zini-o'zi yondirib yubordi"[4, 624-b.]. "O'zbekiston respublikamiz bo'yicha shu oxirgi ikki yilda yeti yuz ellik uch xotin-qiz o'ziga o'zi o't qo'yibdi!"[5, 233-b.]. Asarda rasmiy statistik ma'lumotlar bilan kundalik hayotda sodir bo'layotgan voqealar bir-biriga mos emasligi, asl haqiqatni yashirish mohirona tarzda yoritib berilgan. Bu voqea faqat biror kishining o'z joniga qasd qilishidan ko'ra, O'zbekiston jamiyatidagi og'ir siyosiy va ijtimoiy sharoitlarga qarshilikni ifodalaydi. Bu harakat, ayollarning faqat o'z shaxsiy inqirozlari emas, balki ular yashayotgan tuzumga nisbatan kengroq norozilik va qarshiliklarini aks ettiradi. Biroq, bu ayollar o'z jismoniy va ruhiy holatlarining chegara tugaganini his qilib, mavjud tizim va jamiyatdagi nohaqliklarga qarshi chiqishga qaror qilganlar. O'zini o'zi yoqib yuborish, bu nafaqat shaxsiy norozilikni, balki jamiyatdagi adolatsizlik va repressiyaga qarshi ochiq qarshilikni anglatadi. Asarda ayollar o'zini o'zi yoqib yuborish orqali, o'zlarining umidsizlik va noxush hayotdan qutulish istagini ifodalashadi. Ularning o'z joniga qasd qilishlari, mavjud tuzumning ularni e'tiborsiz qoldirishi, ozodlik va hurriyatdan mahrum etilishi haqida ochiq qichqiriqdir. Bu voqea, tuzumning repressiv xususiyatiga qarshi ayollarning "yashirin" isyonini ochib beradi. Ularning o'zini o'zi yoqib yuborishlari, nafaqat o'z joniga qasd qilish, balki tuzumning zo'ravonligini, uning tengsizlikni yaratishini va jamiyatda o'zgarishlarga kuchli ehtiyoj borligini ochiq ravishda ko'rsatadi. Ayollar, o'zlarini o'zi yoqib yuborish orqali jamiyatning ko'rinmas, ammo real bo'lgan muammolarini, uning repressiv va tengsizlikka asoslangan tizimini ochib berishga harakat qiladilar. Ayollarning o'zini o'zi yoqib yuborishi, faqat shaxsiy inqiroz yoki hissiy holat emas, balki jamiyatda mavjud bo'lgan ijtimoiy, siyosiy va psixologik muammolarga qarshi kuchli, ta'sirli va ochiq norozilikdir. Asarda Dehqonqul ayolining tunda non yopishi, hatto yuvinishga vaqti yo'qligi, farzandiga qarash bilan kechalari uyqudan xoli qolishi, jamiyatda ayollarning kundalik mehnatdagi og'irligini ochib beradi va nihoyat, o'zini o'zi yoqib yuborishi, aynan tuzumga qarshi bevosita norozilik namoyishidir. Ushbu tasvirlar orqali muallif ayollarning jamiyatdagi og'ir mehnatlari, ruhiy va jismoniy charchoqlari hamda ijtimoiy adolatsizliklarga qarshi kurashlarini ifodalashga intiladi. O'zini yoqib yuborishi, bu tugallangan ishlarning natijasi bo'lib, faqat jismoniy, balki ruhiy jihatdan ham eng og'ir "o'zini yo'qotish"dir.

Paxta ishlab chiqarishning aynan 1985-1991-yillaridagi sharoitlari qishloq aholisi uchun jiddiy qiyinchiliklarga sabab bo'ldi. Ushbu yillar mobaynida paxtachilikka bo'lgan e'tiborning

kuchayishi, dehqonlarning mehnat sharoitlarini juda og'irlashtirdi. Aholi, ayniqsa, qishloq hududlarida, arzon va kam sifatli oziq-ovqatlar bilan ta'minlangan, bu esa vitaminlar va zarur moddalar yetishmasligiga olib keldi. Vitaminlar va minerallar tanqisligi, immun tizimining zaiflashishiga va turli kasalliklarga sabab bo'lgan. Dehqonqul farzandlari orqali Tog'ay Murod buni o'sha davrdagi oziq-ovqat mahsulotlari yetishmovchiligi va bu holatning insonlar, ayniqsa yosh avlodga ta'sirini badiiy tarzda aks ettiradi. Bu asar orqali, muallif bizga nafaqat tarixiy voqealarni, balki insonning hayoti va sog'lig'iga ijtimoiy sharoitlarning qanday ta'sir qilishi haqida chuqur fikrlar beradi. Boshqaruv, o'z navbatida, dehqonlarga qarshi yuqori bosimlar, majburiy mehnat va to'lovlarisiz ishlashni talab qilardi. "1990- yilda respublika aholisi 70 foiziga yaqinining jami daromadi tirikchilik o'tkazish uchun zarur bo'lgan eng quyi darajadan ham past edi"[6].

MUHOAKAMA (ОБСУЖДЕНИЕ / DISCUSSION)

Asarda Dehqonqul xotinining holati, aslida, kuchli mehnat, umidsizlik va ichki kurashni ko'rsatadi. U jamiyatning pastki qatlamidagi hayotining og'irligi, oilaviy majburiyatlar va ijtimoiy burchlarni bajarishdan boshqa hech narsaga vaqt ajratishga imkon topmagan. Klara Xo'jayevna tomonidan keltirilgan shizofrenichka [7, 237-b.]. esa bu holatni idealogik kuch bilan manipulyatsiya qilishga qaratilgan. Klara Xo'jayevna jamiyatdagi mavjud tizimni ochishdan qo'rqib, Dehqonqul xotinining sog'lomligini buzishga urindi, uning ichki kurashini noto'g'ri diagnostika qilishga harakat qildi. Bu, albatta, tuzumning haqiqiy yuzini ochib qo'yishning dalilidir. Klara Xo'jayevnaning bu kasallik haqidagi yasalgan tahmini, asar ichidagi tuzumning qanday qilib haqiqiy holatni yashirishga, o'z g'oyalarini qo'llab quvvatlashga harakat qilayotganini ko'rsatadi. Dehqonqul xotinining aslida sog'lom va kuchli bo'lishiga qaramasdan, unga shizofrena tashxisi qo'yilgan va bu, jamiyatning ichki real kundalik hayotini to'g'ri tasvirlanmasligiga olib kelgan. Klara Xo'jayevnaning bu fikrlarini qo'llab-quvvatlash, tuzumni yashirish va o'zini himoya qilishga xizmat qilgan, natijada real statistik ma'lumotlar yo'qotishiga sabab bo'lgan. Bu, o'z navbatida, tuzumning o'zini yashirishga va idealistik fikrlarni qo'llashga intilishining yomon natijalaridan biri edi, xolos. 1985-1991-yillardagi O'zbekistonning real hayotini o'rganishga qaratilgan muhim manba hisoblanadi. Dehqonqulning soat 09:00 da dalaga chiqishini aytishi [8, 268-b.]. aslida haqiqatdan uzoq bo'lgan, lekin ijtimoiy tizim va bosimning ta'siri ostida aytilgan yolg'on gapdir. Paxtachilar, ayniqsa qishloq aholisining ish vaqti, ish jadvali va mehnat normativlari ko'pincha ma'lum bir rasmiy maqsadlar va rejalarga bog'liq edi. Aslida, ko'plab dehqonlar ertalabdan kechgacha, quyosh chiqqanidan to shomgacha dalada bo'lishgan, ko'plab ishchilar esa quyosh chiqmasdan salqinda ko'proq ishinmizni tugatib olamiz deyishgan, lekin bu mehnatni ko'rsatish yoki rasman tan olishda boshqacha yondoshuvlar mavjud edi. Dehqonqulning muhbirga soat 09:00 da dalaga chiqishini aytishi, uning o'z sharoitlaridan qochishga, tizimdan qo'rqishga va jamiyatning rasmiy fikriga mos kelishga bo'lgan intilishidir. Agar u rostini aytsa, ya'ni dalaga quyosh chiqqandan oldin chiqqanini va shomgacha ishlaganini aytsa, bu nafaqat o'zining shaxsiy hayotiga ta'sir qilgan bo'lar edi, balki jamiyat va davlat tizimiga qarshi norozilik sifatida qabul qilinishi mumkin edi. Shu sababdan, u o'zining ish faoliyatining asl haqiqatini yashirishga majbur bo'ladi. Agar Dehqonqul rostini aytsa, uning hayoti xavf ostida bo'lishi mumkin edi, chunki Sovet davrida haqiqatni ochiq aytish ko'pincha jazoga olib kelardi. Rasmiy statistikalar qanday-u, asl kundalik hayotda turmush sharoitlari qandayligini muallif mohirona tasvirlab beradi. Paxta mehnati va shuning atrofida yaratilgan rasmiy tizimning bosimi ostida odamlar hayotidagi haqiqiy holat yashiriladi. Asarda ko'rinib turibdiki, Dehqonqulning yolg'on gapirishining yana bir sababi - jamiyatdagi qattiq kuzatuv, rasmiy tartiblar va nazoratdir. Sovet davrida, jamiyatdagi har bir

faoliyat - ish va mehnat, o'zaro muloqot, hatto kundalik hayot ham davlat tomonidan kuzatib borilgan. Yolg'on gapirish va haqiqatni yashirish nafaqat shaxsiy xavfsizlikni ta'minlash, balki jamiyatdagi mavjud tizimning ta'siridan saqlanishning yo'li edi. Bu yolg'on gapirish orqali Dehqonqul totalitar tuzumga bo'lgan moslashuvini, o'zining xavfsizligini va hayotini himoya qilishni maqsad qilgan. "Dehqonqulning uyining bir tomoniga Norboy chavandoz otini boylab qo'yishi, boshqa tomoniga esa Chori magazin mudiri Volga mashinasini qo'yib, so'ng bu otni ham Volga mashinasini ham Dehqonqulniki qilib ko'rsatilishi", har bir xonadonda bunday mashina bor degan yolg'on intervyu olishining maqsadi - bu asarda Sovet davridagi jamiyatdagi ijtimoiy bosim, rejalar va rasmiy statistikaning qanday manipulyatsiya qilinayotganini ko'rsatish uchun ishlatilgan juda ta'sirli va simvollik tasvirdir. Aslida esa Dehqonqulning bittagina qo'yi bo'ladi, uni ham Markazdan kelgan mehmonlar uchun so'yadi.

Dehqonqulning xotiniga atlas ko'ylak olib bera olmasligi, uning iqtisodiy ahvolining qanchalik og'irligini chuqur ifodalaydi. Asarda Dehqonqulning mehnatkashligi, fidoiyligi va oddiy qishloq hayotidagi insoniy qiyinchiliklari ko'rsatilgan bo'lsa-da, uning Klara Xo'jayevnaga yoqmasligi asarda yana bir qiziqarli va o'ylantiruvchi masala sifatida ko'rinadi. Klara Xo'jayevnani tasvirlash orqali muallif jamiyatdagi turli ijtimoiy qatlamlarning, sinflarning va odamlarning o'rtasidagi tafovutlarni ochib beradi. U ko'p vaqtini yerda ishlashga, dehqonchilik qilishga bag'ishlaydi. Dehqonqul qishloq hayotining eng mehnatkash va oddiy kishilaridan biridir. U ko'p vaqtini yerda ishlashga, dehqonchilik qilishga bag'ishlaydi. Klara Xo'jayevna Dehqonqulni, - "ilg'or paxtakoringiz betidan buzilgan pes-ku? Ko'nglimni aynitib yubordi-ya!" [9, 116-b]. deb haqoratlashi, ijtimoiy farqlarni, qishloq va shahar hayoti o'rtasidagi keskin tafovutlarni ochib beradi. Uning bu reaksiyasi, jamiyatdagi yuqori sinfning quyi sinfga nisbatan o'zini yuqori tutishiga misol bo'ladi. Bu tafovutni Tog'ay Murod o'z asarida kuchli badiiy vositalar orqali ko'rsatadi. Asarda Dehqonqul va Klara Xo'jayevna o'rtasidagi qarama-qarshilik, faqat tashqi ko'rinishdagi farqni emas, balki ularning dunyoqarashidagi farqlarni ham ko'rsatadi. Klara Xo'jayevnaning fikri, jamiyatdagi yuqori qatlamning past sinfga bo'lgan qarashlarini ko'rsatadi. "1983- yil sentyabrda SSSR Bosh prokurori A.Rekunkov topshirig'iga ko'ra, SSSR Prokuraturasining alohida muhim ishlar bo'yicha tergovchisi T.Gdlyan boshchiligida mamlakatning turli mintaqalaridan to'plangan 200 kishidan iborat tergov guruhi tuzilib, O'zbekistonda faoliyat boshlaydi" [10, 216-b].

Asarda Dehqonqulni zo'rlashga urinish va uning qilmagan aybni bo'yniga olishga majbur bo'lishi, sovet tizimidagi nohaqlikni ko'rsatadi. "O'zbekiston tergov usullari o'tkaziladigan maydon"ga aylanib qoladi [11.].

XULOSA (ЗАКЛЮЧЕНИЕ / CONCLUSIONS)

Dehqonqul xotinini baxtli qilish uchun ko'proq mehnat qilsa ham, ularning turmush sharoitlari o'zgarmaydi. Bu, qishloq dehqonlarining hayotidagi qat'iyatlilik va sabr-toqatni ko'rsatadi, lekin ayni paytda ular jamiyatning og'ir iqtisodiy sharoitlarida hech qanday haqiqiy o'zgarish yaratolmaydilar. O'z orzulari va umidlarini amalga oshirish uchun kurashayotgan Dehqonqulning tasviri, jamiyatning ko'plab oddiy odamlarining bir xil holatini aks ettiradi. Bu, o'sha davrda O'zbekistonning iqtisodiy tizimining zaifligini va aholi turmush darajasining pastligini ko'rsatadi. Dehqonqulning paxtaga sadoqati, aslida, tizimning dehqonlardan talab qiladigan, o'zlari uchun emas, balki tizimning ehtiyojlari uchun ishlashga majbur qilish siyosatini ko'rsatadi.

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ЭТИОЛОГИЯ, ПАТОГЕНЕЗ И КЛИНИКА ЗАБОЛЕВАНИЙ ТВЁРДЫХ ТКАНЕЙ ЗУБОВ

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Аннотация

Заболевания твёрдых тканей зубов являются одними из наиболее распространённых патологий в современном мире. Их развитие обусловлено сочетанием биохимических, микробиологических, поведенческих, генетических и средовых факторов. В статье анализируются причины, механизмы развития и клинические проявления кариеса, некариозных поражений и врождённых дефектов эмали на основе работ узбекских, российских и зарубежных учёных.

Ключевые слова: твёрдые ткани зубов, кариес, эмаль, дентин, этиология, патогенез, клиника. Твёрдые ткани зубов — эмаль, дентин и цемент — представляют собой высокоминерализованные структуры, устойчивость которых определяется сложным взаимодействием организма и факторов внешней среды. По мнению узбекского исследователя А. Каримова¹, уровень минерализации эмали и качество слюны являются ключевыми компонентами её резистентности. В частности, автор подчеркивает, что снижение буферной способности слюны, уменьшение содержания кальция и фосфатов, а также изменение вязкости слюны приводят к ускорению процессов деминерализации и повышенной чувствительности эмали к кислотным воздействиям.

Дополнительно важно отметить, что формирование кариозного процесса зависит от длительности и частоты воздействия кислот. Даже кратковременное снижение pH до критического уровня при частом употреблении углеводов способствует активации деминерализации. Как поясняют зарубежные специалисты, в частности Fejerskov и Kidd², ключевым фактором является не количество сахара, а именно частота его потребления, поскольку каждый эпизод вызывает кислотовых «атаки», нарушающие реминерализационный потенциал слюны. Существенную роль играет и состав микробиома. Некоторые авторы отмечают, что *Streptococcus mutans* не является единственным патогенным микроорганизмом: в кариозный процесс вовлечены также *Lactobacillus*, *Actinomyces* и другие виды бактерий, участвующие в поддержании кислой среды. По наблюдениям Авнесова³, ранние этапы кариеса формируются как результат смещения микробиологического равновесия, когда количество кислотопродуцирующих микробов превышает способность слюны нейтрализовать кислоту и восстановить минерализацию эмали.

1. ¹ Каримов А. Патогенетические основы заболеваний эмали у подростков. Ташкент: Медицина, 2018. 215 с.

²Фейерсков О., Кидд Э. *Кариес зубов: этиология, патогенез и профилактика*. Москва: ГЭОТАР-Медиа, 2018. — 432 с.

³ Авнесов В. А. Микробные экосистемы зубного налёта и их роль в кариесогенности. // *Стоматология*. Москва, 2015. №3. С. 14–19.

Кариес также рассматривается как поведенческое и социально-обусловленное заболевание. Факторы риска включают низкий уровень гигиены, нерегулярную чистку зубов, недостаток фтора, неправильное питание, стресс, прием некоторых медикаментов, вызывающих ксеростомию. По мнению Тен Кате⁴, даже умеренное снижение слюноотделения приводит к значительному ускорению деминерализационных процессов, поскольку нарушается механизм естественной защиты зубов. Современные данные подтверждают, что кариес — это не просто локальный процесс разрушения эмали, а сложное биоклиническое состояние, которое развивается в результате изменения экосистемы полости рта. Вклад вносят как индивидуальные особенности организма, так и поведенческие привычки, общее состояние здоровья, уровень стрессового воздействия и качество питания. Поэтому, как подчёркивает Фейерсков⁵, успешная профилактика требует комплексного подхода, направленного на изменение образа жизни, гигиенических навыков и микробной экологии полости рта. Некариозные поражения твёрдых тканей также широко распространены. Узбекский учёный Р. Маматкулов⁶ связывает гипоплазию эмали с системными нарушениями в период её минерализации, включая метаболические изменения в детском возрасте. Российский профессор Л. В. Прокорова⁷ описывает эрозивные поражения как результат действия кислот пищевого или эндогенного происхождения. По данным А. Лусси и Т. Ягги⁸, эрозия отличается от кариеса отсутствием участия микроорганизмов и представляет собой чисто химическое разрушение эмали. Таким образом, заболевания твёрдых тканей зубов представляют собой полиэтиологические процессы, развитие которых зависит от комплекса биологических, поведенческих и экологических факторов. Понимание механизмов их развития позволяет повышать эффективность профилактики и сохранять структурную целостность эмали.

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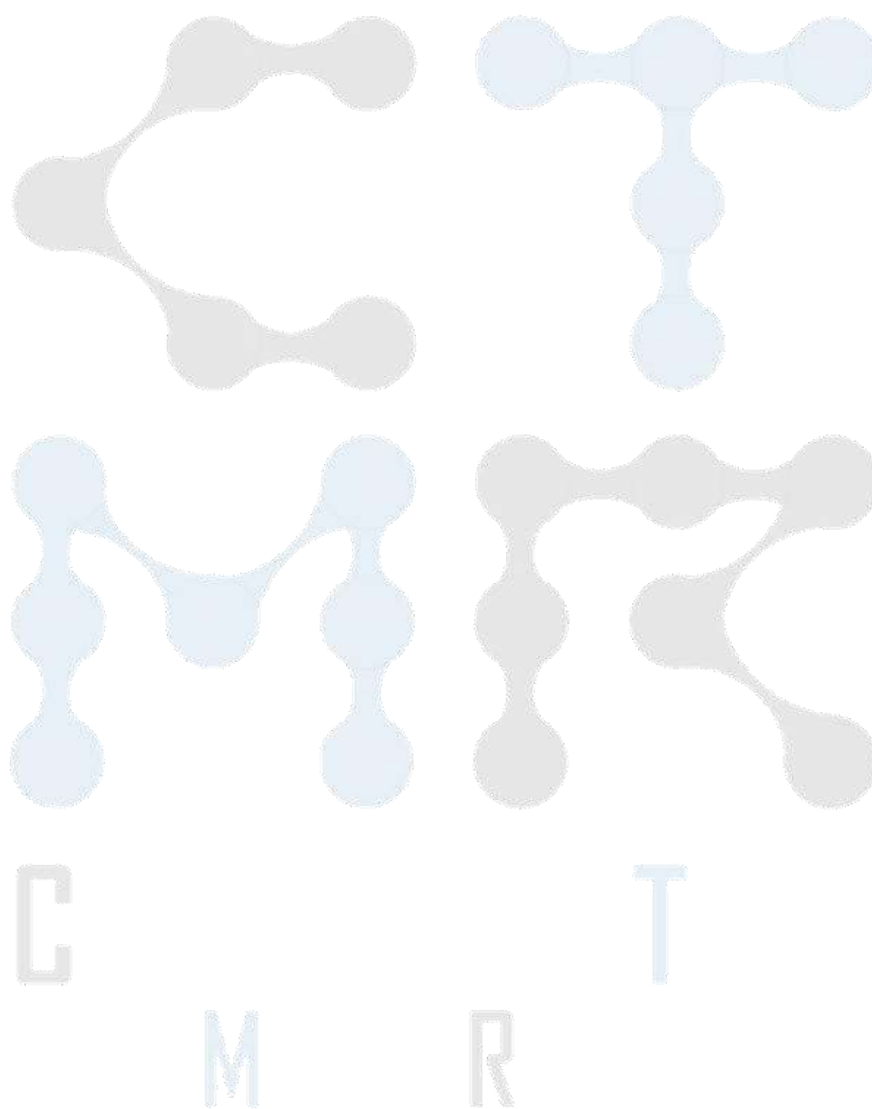
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**A COMPARATIVE ANALYSIS OF GEORGE ORWELL'S PHRASEOLOGICAL STYLE
IN ANIMAL FARM AND 1984 WITH ABDULLA QODIRIY'S LITERARY IDIOMS**

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Abstract

This article examines the phraseological and metaphorical systems used by George Orwell in *Animal Farm* (1945) and *1984* (1949), comparing them with the stylistic and idiomatic features found in the works of the Uzbek novelist Abdulla Qodiriy. Orwell's politically charged idioms and satirical metaphors are juxtaposed with Qodiriy's culturally rooted figurative expressions. The study demonstrates that both writers use idiomatic language to expose social injustice and critique authoritarian tendencies.

Keywords

George Orwell, Abdulla Qodiriy, phraseology, idioms, political metaphor, stylistic analysis, comparative literature.

INTRODUCTION

Phraseology is a powerful stylistic tool shaping ideological meaning in literary discourse. As many scholars emphasize, idioms often serve as condensed forms of cultural memory and political consciousness¹. George Orwell employs politically loaded idioms to unmask mechanisms of control, linguistic manipulation, and psychological domination exercised by totalitarian systems². His phraseological units are constructed as instruments of propaganda, where the meaning is intentionally distorted to reshape public perception.

Abdulla Qodiriy, on the other hand, uses culturally embedded idioms rooted in Uzbek oral tradition, folklore, and historical experience³. While Orwell invents new ideological slogans to expose the brutality of totalitarian regimes, Qodiriy adapts traditional idioms to critique social injustice, moral hypocrisy, and the erosion of human values in a repressive society. Thus, although emerging from different historical contexts, both writers rely on phraseology as a central vehicle of ideological expression.

Orwell's Phraseological Techniques

Orwell's phraseology is uniquely characterized by paradoxical slogans, dystopian metaphors, and ideological formulae designed to manipulate collective consciousness. His key idioms include:

"All animals are equal, but some animals are more equal than others."

"Freedom is slavery."

"Ignorance is strength."

¹ Orwell, G. 1984. London: Secker & Warburg, 1949, pp. 5–15.

² Orwell, G. 1984. London: Secker & Warburg, 1949, pp. 300–312.

³ Qodiriy, A. O'tkan Kunlar. Tashkent: State Publishing, 1925, pp. 112–158.

“Big Brother is watching you.”

Scholars such as Crick and Rorty argue that Orwell’s idioms represent a linguistic architecture of oppression, where language itself becomes a mechanism of domination. Orwell’s slogans are intentionally contradictory; they function through cognitive dissonance, forcing individuals to accept incompatible meanings. In 1984, Newspeak is introduced as a controlled linguistic system where phraseology is deliberately restricted. By eliminating idioms and reducing vocabulary, the regime aims to eliminate free thought. Paradoxically, the few idioms that remain (e.g., “Thoughtcrime”, “Two Minutes Hate”) become ideological weapons that standardize emotional reactions and suppress dissent. In *Animal Farm*, idioms operate satirically. They parody political rhetoric, expose corruption, and illustrate how language is rewritten to justify oppression. Orwell’s phraseology is therefore functional, ideological, and performative.

Qodiriy’s Phraseological Style

Qodiriy’s idioms—such as “Ko‘ngli boshqa, tili boshqa” (“His heart says one thing, his tongue another”) and “Nafsining quliga aylangan odam” (“A man enslaved by his desires”)—reveal the moral and psychological contradictions within society. Unlike Orwell, Qodiriy rarely invents new idioms; he transforms existing ones, enriching them with layers of satire, irony, and cultural symbolism. His writing draws heavily on Uzbek folk wisdom, proverbs, and classical Eastern literature. Phraseology in Qodiriy’s novels often:

Expresses moral judgment

Highlights the internal conflicts of characters

Reflects societal hypocrisy

Embeds social critique within culturally familiar expressions

According to literary critics Yuldashev and Saidov⁴, Qodiriy’s idioms serve as “linguistic mirrors” of Central Asian society during political and social transformation. They carry emotional depth and cultural resonance, offering a humanistic counterpoint to Orwell’s dystopian tone.

Comparative Analysis

Although Orwell and Qodiriy come from different worlds, the functions of their phraseology converge. Both employ idioms to critique authoritarianism and reveal mechanisms of societal control.

1. Linguistic Construction

Orwell invents political idioms (“doublethink”, “thoughtcrime”), constructing them artificially to expose ideological distortion.

Qodiriy transforms traditional idioms, giving them new shades of meaning in satirical or dramatic contexts.

2. Political Symbolism

Orwell’s phraseology is explicit, totalitarian, institutional.

Qodiriy’s phraseology is implicit, psychological, cultural.

3. Social Function

Both writers use idioms to:

- reveal injustice
- expose corruption

⁴ Saidov, S.; Yuldashev, I. *Uzbek Literary Idioms*. Tashkent: Akademnashr, 2020, pp. 39–68.

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- portray moral decline
- illustrate psychological trauma
- critique oppressive structures

Scholars note that Orwell shows how language is weaponized, while Qodiriy shows how language preserves resistance through cultural memory¹¹.

4. Parallel Examples

Orwell (English)	Qodiriy (Uzbek)	Shared Meaning
“Freedom is slavery.”	“Qul bo‘lib yashash – yashash emas.”	Oppression disguised as freedom
“Big Brother is watching you.”	“Ko‘z ostiga olish.”	Surveillance, control
“All animals are equal...”	“Ba’zi odamlar barobar emas.”	Inequality
“Unperson”	“Izidan asar qolmaslik.”	Erasing identity

Conclusion

Despite cultural, linguistic, and historical differences, Orwell and Qodiriy demonstrate remarkable convergence in their use of phraseology as a means of social critique. Orwell’s invented dystopian idioms and Qodiriy’s culturally rooted expressions both articulate resistance, reveal oppression, and reflect collective psychological trauma. Their works confirm that idioms are not only linguistic units, but ideological tools, capable of shaping moral consciousness, cultural identity, and collective memory.

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INTEGRATING TRANSFORMATIVE APPROACHES INTO THE DEVELOPMENT OF
AUTONOMOUS ENGLISH LEARNING FOR MULTILINGUAL PHARMACY STUDENTS

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Abstract

This article analyzes how transformative learning principles can be integrated into the autonomous English learning process of multilingual pharmacy students. Drawing from Uzbek, Russian, and English scholarly traditions, the paper argues that transformative pedagogy—characterized by critical reflection, perspective-shift learning, and dialogic engagement—strengthens independent vocabulary acquisition, self-regulation, and communicative confidence. Using findings inspired by a mixed-methods study carried out among Uzbek, Arabic, Indian, and Russian-speaking pharmacy students, the article demonstrates that EdTech-supported transformative tasks foster deeper autonomy, metacognitive awareness, and higher engagement in English for Specific Purposes (ESP) learning.

Keywords: transformative learning, autonomy, multilingual learners, ESP, pharmacy education, EdTech.

Article Text

The rapid expansion of educational technologies and the diversification of student populations have reshaped how English for Specific Purposes (ESP) is taught in higher education. Pharmacy students from Uzbek, Arabic, Indian, and Russian language backgrounds often enter English courses with different linguistic needs, digital competences, and study habits, making autonomy an essential learning goal. Learner autonomy, as defined by Little and later expanded by Mezirow¹, is achieved not only through independent study but through the development of reflective thinking, critical awareness, and the ability to reinterpret one's learning experience. Transformative learning theory argues that true autonomy emerges when learners question their assumptions, challenge prior interpretations, and reconstruct new meaning perspectives through reflection and dialogue². This perspective is echoed by Uzbek pedagogical scholars such as N. Xudoyberganova and D. Saparova, who emphasize that productive learning must activate the learner's consciousness, self-evaluation, and responsibility for decision-making in the learning process³. In multilingual pharmacy classrooms, where learners face domain-specific terminology, pronunciation challenges, and diverse cognitive strategies, transformative techniques become essential in developing productive autonomy. Modern research shows that EdTech tools significantly enhance this transformative process. Through platforms such as Quizlet, Kahoot, Google Classroom, and YouGlish, students engage in self-paced vocabulary work, pronunciation practice, and reflective tasks that allow them to track progress,

¹ **Mezirow, J.** *Transformative Dimensions of Adult Learning*.

San Francisco: Jossey-Bass, **1991**. — **247 p.**

² **Brookfield, S.** *Teaching for Critical Thinking*.

San Francisco: Jossey-Bass, **2012**. — **280 p.**

³ **Xudoyberganova N., Saparova D.** *Pedagogik integratsiya va nutq kompetensiyasi*.

Toshkent: Fan, **2021**. — **198 b.**

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identify weaknesses, and restructure their learning approaches⁴. Findings reported in the referenced study demonstrate that multilingual learners—especially Arabic and Indian students with higher digital familiarity—adapt quickly to technology-supported autonomy, while Uzbek and Russian-speaking learners show strong growth when scaffolded through guided reflection and structured digital tasks.

Russian educational psychology also contributes to understanding this integration. Vygotsky and Leontyev maintain that language development is fundamentally a socially mediated process involving internalization and restructuring of meaning⁵. When students participate in transformative tasks such as critical incident analysis, reflective dialogue, and problem-centered discussions, they not only deepen comprehension but modify their communicative identities. As a result, learners develop greater confidence in expressing professional ideas, evaluating information, and interacting within multilingual ESP contexts.

Thus, integrating transformative learning with autonomous English learning creates a pedagogically rich environment in which multilingual pharmacy students can regulate their progress, construct new knowledge, and master productive language skills that are essential for future professional communication.

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³ **Xudoyberganova N., Saparova D.** *Pedagogik integratsiya va nutq kompetensiyasi*.

Toshkent: Fan, **2021**. — **198 b.**

⁴ **Harmer J., Thornbury S.** *How to Teach Communication and Reflection*.

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⁵ **Vygotsky L.** *Thought and Language*.

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INTEGRATING A TRANSFORMATIONAL APPROACH INTO THE DEVELOPMENT OF
PRODUCTIVE SPEECH SKILLS

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Abstract

This article examines the integration of transformative learning principles into the development of productive speech skills among university students. Transformative learning, introduced by Jack Mezirow¹, emphasizes critical reflection, perspective transformation, and the reconstruction of meaning structures. When applied to the enhancement of productive speech—speaking and writing—it fosters deeper self-awareness, communicative autonomy, and analytical thinking. Drawing on Uzbek, Russian, and English scholarly works, this study analyzes how reflective dialogue, perspective-shift tasks, interactive communication, and experiential learning strengthen students' verbal expression, argumentative competence, and communicative flexibility. The article proposes a holistic pedagogical model that blends transformative techniques with communicative and psycholinguistic principles.

Keywords: transformative learning, productive speech, communicative competence, reflection, dialogic tasks, higher education.

Transformative pedagogy is a conceptual approach aimed not only at increasing learners' knowledge, but also at reshaping their thinking structures, values, and worldview. As Mezirow notes, genuine transformation occurs through **critical reflection that challenges existing meaning schemes**¹. The development of productive speech skills itself is a transformative process in which students' attitudes toward communication, their methods of expressing ideas, and their ability to construct personal meaning through language undergo significant qualitative change.

Uzbek linguists **K. Abdullayeva** and **G. To'xliyeva** emphasize reflective dialogue, analytical writing, and modeling real-life situations as key mechanisms of transformative teaching². According to their view, merely teaching grammatical structures does not develop productive speech; rather, learners must be given the opportunity to reconsider their ideas, justify their positions, and engage in critical analysis.

Russian scholars such as **V. Vygotsky** and **A. Leontyev** interpret speech as an external manifestation of thought and argue that active speech activity is a process of reconstructing social experience³. The transformational approach fully aligns with this idea: during communication, the learner listens to alternative viewpoints, compares them with personal experience, and reconstructs their own perspective. This process enriches productive speech at semantic, logical, and pragmatic levels.

¹ Mezirow, J. *Transformative Learning Theory*. New Directions for Adult and Continuing Education, 1997.

² Abdullayeva K., To'xliyeva G. *Kommunikativ kompetensiya va nutq ko'nikmalari*. Toshkent: Fan, 2020.

³ Vygotsky L. *Thought and Language*. Moscow: Pedagogika, 1982.

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English methodologists—including **Harmer, Thornbury, and Brookfield**—highlight that perspective-shift tasks, critical incident analysis, dialogic reflection, and student-centered debates significantly influence speech development⁴. These activities strengthen logical coherence, argumentation, deep analysis, and audience-aware expression. The primary advantage of the transformative approach in the development of productive speech lies in its emphasis on personal meaning-making: the learner does not simply speak or write but creates new meaning based on lived experiences, beliefs, and reflections. From a psycholinguistic perspective, such processes expand semantic fields, promote conscious lexical selection, and enhance communicative adaptability.

The integration of the transformational approach into teaching is effectively implemented through the following mechanisms:

- **Reflective writing** – enables learners to analyze their speech errors and draft personal improvement plans;
- **Dialogic exchange** – encourages consideration of multiple perspectives and reconstructing one's viewpoint;
- **Problem-situation tasks** – develop contextualized speech through the analysis of real psychological or social scenarios;
- **Transformational debates** – stimulate perspective shifting, reevaluating arguments, and generating new ideas;
- **Creative written tasks** – promote the formation of a personal voice, stylistic identity, and individual communicative approach⁵.

Thus, the transformational approach develops productive speech not only linguistically, but also psychologically, sociologically, and cognitively. As a result, the learner becomes an independent thinker and communicator who can structure discourse, justify personal viewpoints, and generate new meaning.

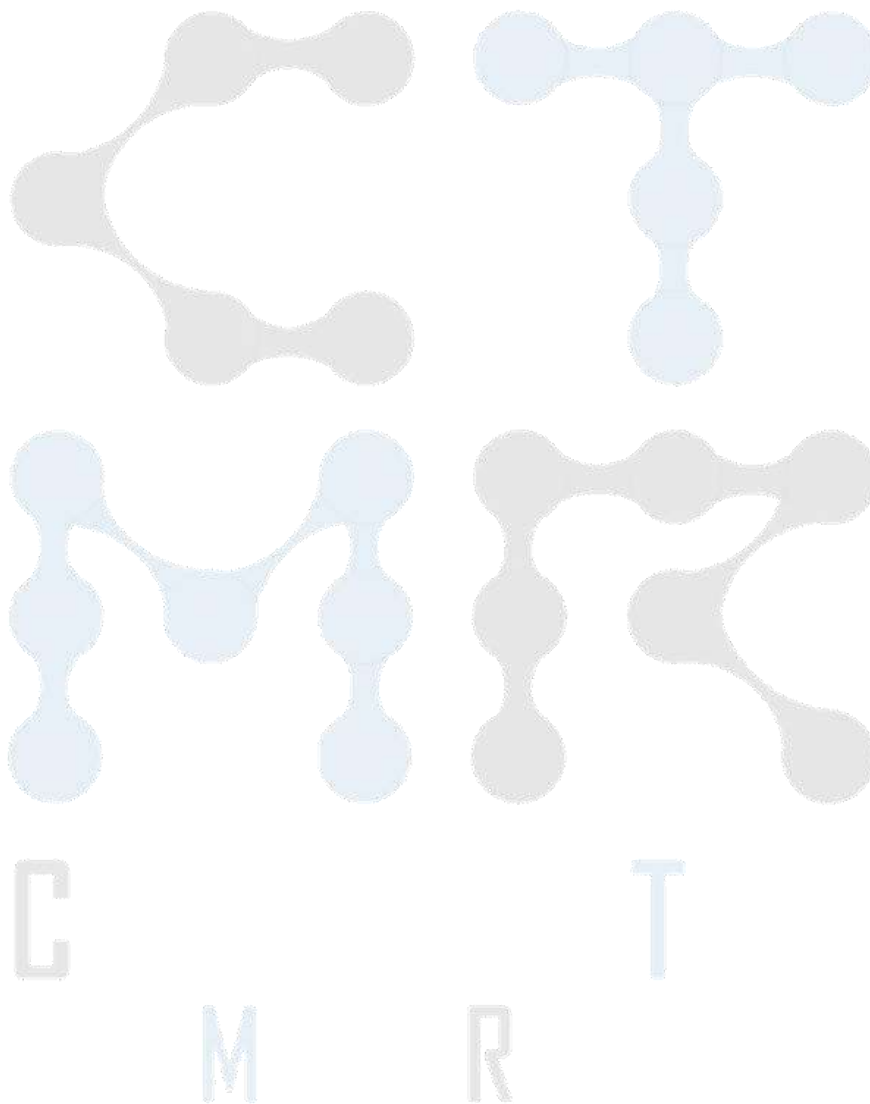
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BO‘LAJAK BOSHLANG‘ICH SINIF O‘QITUVCHILARNING KOMMUNIKATIV-DISKURSIV MADANIYATI KONSEPSIYASINI ISHLAB CHIQISHNING IJTIMOIIY-TARIXIY SHARTLARI

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Annotatsiya. Ushbu maqola bo‘ljak boshlang‘ich sinf o‘qituvchilarning kommunikativ-diskursiv madaniyatini shakllantirish konsepsiyasini ishlab chiqishning ijtimoiy-tarixiy shartlarini o‘rganadi. Maqolada ta‘limdagi kommunikativ va diskursiv madaniyatning mohiyati, uning komponentlari, O‘zbekiston va jahon tajribasidagi tarixiy rivojlanish bosqichlari, shuningdek, jamiyatdagi o‘zgarishlar, ta‘lim islohotlari va texnologik innovatsiyalarning ta‘siri tahlil qilinadi. Konsepsiyani ishlab chiqishda loyihaviy ta‘lim, interaktiv usullar va milliy-madaniy an‘analardan foydalanish taklif etiladi. Tadqiqot natijalari bo‘yicha, ushbu konsepsiya o‘qituvchilar tayyorlashda samarali bo‘lib, talabalar o‘rtasida muloqot qobiliyatlarini rivojlantirishga yordam beradi. Maqola mavjud tadqiqotlar asosida sintez qilingan.

Kalit so‘zlar: Kommunikativ-diskursiv madaniyat, boshlang‘ich sinf o‘qituvchilari, ijtimoiy-tarixiy shartlar, ta‘lim islohotlari, loyihaviy ta‘lim, interaktiv usullar, milliy an‘analar, raqamli savodxonlik, pedagogik kompetentsiya.

Аннотация. В данной статье рассматриваются социально-исторические условия разработки концепции формирования коммуникативно-дискурсивной культуры будущих учителей начальной школы. Анализируется сущность коммуникативно-дискурсивной культуры в образовании, её компоненты, этапы исторического развития в опыте Узбекистана и мира, а также влияние изменений в обществе, образовательных реформ и технологических инноваций. Предлагается использовать проектное обучение, интерактивные методы и национально-культурные традиции при разработке концепции. Результаты исследования показывают, что данная концепция эффективна в подготовке учителей и способствует развитию коммуникативных навыков у учащихся. Статья синтезирована на основе существующих исследований.

Ключевые слова: Коммуникативно-дискурсивная культура, учителя начальной школы, социально-исторические условия, образовательные реформы, проектное обучение, интерактивные методы, национальные традиции, цифровая грамотность, педагогическая компетентность.

Abstract. This article studies the socio-historical conditions for developing a concept for the formation of communicative and discursive culture of future primary school teachers. The article analyzes the essence of communicative and discursive culture in education, its components, stages of historical development in the experience of Uzbekistan and the world, as well as the impact of changes in society, educational reforms and technological innovations. The use of project-based education, interactive methods and national-cultural traditions is proposed in the development of the concept. According to the results of the study, this concept is effective in training teachers and helps develop communication skills among students. The article is synthesized on the basis of existing research.

Keywords: Communicative and discursive culture, primary school teachers, socio-historical conditions, educational reforms, project-based education, interactive methods, national traditions, digital literacy, pedagogical competence.

KIRISH.

XXI asr ta'lim jarayonining tubdan o'zgarishi o'qituvchining kasbiy faoliyatini yangicha talqin etishni, xususan, ularning kommunikativ-diskursiv madaniyatini rivojlantirishni dolzarb vazifaga aylantirdi. Globallashuv, axborot oqimining keskin ortishi, ta'limning insonparvarlashuvi, shuningdek, ijtimoiy-madaniy muhitning dinamik o'zgarishi pedagogik jarayonda muloqotning sifat va mazmunini qayta ko'rib chiqishni talab etmoqda. Ayniqsa, boshlang'ich ta'lim bosqichi o'quvchining dunyoqarashi, ijtimoiy faolligi va kommunikativ kompetensiyalarining shakllanishida muhim bo'g'in bo'lib, o'qituvchining diskursiv madaniyati bu jarayonning asosiy mezoniga aylanmoqda.

O'zbekiston mustaqillik yillaridan boshlab ta'lim sohasida amalga oshirilgan islohotlar, xususan, Kadrlar tayyorlash milliy dasturi, Ta'lim to'g'risidagi qonunlarning yangilanishi, Milliy o'quv dasturlarining joriy etilishi, pedagogik kadrlarni tayyorlash tizimini modernizatsiya qilishga keng imkoniyat yaratdi. Ushbu jarayonlar bo'lajak o'qituvchilarning nafaqat predmet bo'yicha bilimlariga, balki zamonaviy kommunikativ yondashuvga asoslangan, dialogik fikrlashni qo'llay oladigan, nutqiy madaniyati rivojlangan pedagog sifatida shakllanishini zarur etdi.

Tarixan boshlang'ich maktab o'qituvchisining vazifasi bilim berish bilan cheklangan bo'lsa, bugungi kunda u shaxs rivojlanishining faol tashkilotchisi, ijtimoiy hamkorlik jarayonining moderatoriga aylandi. Natijada o'qituvchining nutqiy xatti-harakati, o'quvchi bilan pedagogik diskursni tashkil eta olish mahorati, ijtimoiy-madaniy kompetensiyasi, muloqotning turli shakl va janrlarida samarali faoliyat yurita olishi kasbiy muvaffaqiyatning muhim ko'rsatkichiga aylandi.

Davlat ta'lim standartlarining takomillashuvi, pedagogik oliy ta'lim muassasalarida kredit-modul tizimining joriy etilishi, kommunikativ yondashuvga asoslangan o'quv dasturlarining paydo bo'lishi ham bo'lajak boshlang'ich sinf o'qituvchilarining kommunikativ-diskursiv madaniyati konsepsiyasini ishlab chiqish uchun metodologik asos yaratdi. Shu bilan birga, raqamli texnologiyalar, multimediali ta'lim vositalari, onlayn muloqot madaniyatining kengayishi pedagogik jarayonda yangi diskurs turlarini shakllantirib, o'qituvchidan zamonaviy kommunikativ kompetensiyalarni talab qilmoqda.

Mazkur omillar bo'lajak boshlang'ich sinf o'qituvchilarining kommunikativ-diskursiv madaniyatini shakllantirishga kompleks yondashuvni, uning ilmiy-nazariy asoslarini ishlab chiqishni, tarixiy taraqqiyot manbalari va zamonaviy ehtiyojlar nuqtayi nazaridan konseptual modelini yaratishni taqozo etadi. Shu sababli, mazkur konsepsiyaning ijtimoiy-tarixiy shartlarini o'rganish nafaqat nazariy, balki amaliy ahamiyatga ham egadir.

Zamonaviy ta'lim tizimida o'qituvchilarning kasbiy tayyorgarligi jamiyatning ijtimoiy-tarixiy rivojlanishi bilan chambarchas bog'liq. Ayniqsa, boshlang'ich sinf o'qituvchilari uchun kommunikativ-diskursiv madaniyat muhim ahamiyatga ega, chunki ular bolalarning birinchi ta'lim bosqichida muloqot va nutq qobiliyatlarini shakllantirishda asosiy rol o'ynaydi.

Kommunikativ-diskursiv madaniyat – bu o'qituvchining til va muloqot orqali bilimlarni yetkazish, talabalar bilan o'zaro munosabat o'rnatish va ijtimoiy kontekstda nutqni tashkil etish qobiliyatidir.

Ushbu konsepsiyani ishlab chiqishning ijtimoiy-tarixiy shartlari ta'limning globallashuvi, texnologik o'zgarishlar va milliy madaniy an'analar bilan bog'liq.

O'zbekiston Respublikasi Prezidentining 2019-yil 8-oktabrdagi "O'zbekiston Respublikasi oliy ta'lim tizimini 2030-yilgacha rivojlantirish konsepsiyasini tasdiqlash to'g'risida"gi PF 5847-son hamda "2017-2021-yillarda O'zbekiston Respublikasini rivojlantirishning beshta ustuvor yo'nalishi bo'yicha Harakatlar strategiyasini "Ilm, ma'rifat va raqamli iqtisodiyotni rivojlantirish yili"da amalga oshirishga oid davlat dasturi to'g'risida"gi 2020-yil 2-martdagi PF-5953-son farmonlarida belgilangan vazifalar ijrosini ta'minlash maqsadida Vazirlar Mahkamasi qarorlariga asosan, zamonaviy madaniyat, iqtisodiyot, fan, texnika va texnologiyalarning yutuqlari asosida kadrlar tayyorlashning mukammal tizimini shakllantirish kabi dolzarb masalalar qo'yilgan.

"Ta'limning barcha bosqichlariga oid umumiy pedagogik va didaktik talab talaba (yoki o'quvchi)ning dasturiy bilim, tasavvur va ko'nikmalari asosida mustaqil ishlash samaradorligini takomillashtirish, ilmiy fikrlashga, o'quv faniga qiziqishga kuchaytirish, kasbiy bilimlarni chuqurlashtirish, nazariy va amaliy mashg'ulot mobaynida ularning faolligini oshirishdan iboratdir". Kommunikativ-diskursiv madaniyat o'qituvchining kasbiy faoliyatida til va muloqotni samarali qo'llashga asoslangan. Bu tushuncha kommunikativ (muloqot) va diskursiv (nutqiy jarayonlar) komponentlarni birlashtiradi. Kommunikativ komponent til qoidalari, lug'at boyligi, talaffuz va nutq boyligini o'z ichiga oladi. Diskursiv komponent esa muloqot maqsadlari, kontekstual nutq va strategiyalarni qamrab oladi.

Tadqiqotchilarning fikricha, ushbu madaniyatning asosiy komponentlari quyidagilar: lingvistik (tilni to'g'ri ishlatish), interaktiv (dialog va muhokama), pragmatik (vaziyatga moslashish), sotsio-madaniy (madaniy kontekstda muloqot), emotsional (hissiyotlarni boshqarish) va reflektiv (o'z faoliyatini tahlil qilish Boshlang'ich sinf o'qituvchilari uchun bu komponentlar ayniqsa muhim, chunki ular bolalarning nutq va ijtimoiy qobiliyatlarini rivojlantiradi.

O'zbekiston tajribasida, masalan, loyihaviy ta'lim vositasida bo'lajak o'qituvchilarning kommunikativ madaniyatini rivojlantirishda didaktik qobiliyatlar, emotsional ta'sir va pedagogik taktikaga urg'u beriladi.

Jahon miqyosida esa, media madaniyati va raqamli texnologiyalar orqali ushbu madaniyat rivojlantiriladi, bu esa talabalar o'rtasida tanqidiy fikrlash va mustaqil o'rganishni kuchaytiradi.

Kommunikativ-diskursiv madaniyat konsepsiyasi O'zbekistonda milliy an'analar va globallashuvga moslashish zarur bo'ldi. 1990-yillarda Safa Ochilning ishlarida mustaqillik ruhiyatini shakllantirishda kommunikativ madaniyatning roli ko'rsatilgan.

Vatanimizda milliy-hududiy an'analar (masalan, xalq pedagogikasi, maqollar va ertaklar) orqali ushbu madaniyat shakllantiriladi, bu bolalarning ijtimoiy rivojlanishiga yordam beradi.

Tarixiy shartlar orasida globallashuv va texnologik inqilob muhim. Masalan, pandemiya davrida masofaviy ta'lim kommunikativ madaniyatni rivojlantirish zaruriyatini oshirdi, ammo qishloq-shahar farqlari va resurs taqchilligi to'siq bo'ldi.

Jamiyatdagi ijtimoiy o'zgarishlar kommunikativ-diskursiv madaniyat konsepsiyasini ishlab chiqishga ta'sir qiladi. O'zbekistonda demografik o'sish va urbanizatsiya bolalarning ijtimoiy muloqotini oshiradi, ammo madaniy farqlar (polyetnik muhit) muammolar yaratadi. Ta'lim islohlari, masalan, 2030 yilgacha bo'lgan strategiya, o'qituvchilarning raqamli va kommunikativ qobiliyatlarini rivojlantirishni taqozo etadi.

Jahon miqyosida, media madaniyati ta'sirida o'qituvchilar media matnlarini tahlil qilish va yaratish qobiliyatlarini rivojlantiradi, bu esa talabalar o'rtasida tanqidiy fikrlashni kuchaytiradi. Ijtimoiy shartlar orasida gender farqlari va emotsional salomatlik muhim: o'qituvchilarning emotsional komponenti bolalardagi depressiya va anksiyetani kamaytirishga yordam beradi.

O'zbekistonning poletnik jamiyatida milliy an'analar (masalan, Navro'z va Mustaqillik bayramlari) orqali muloqot madaniyati shakllantiriladi, bu esa o'qituvchilar tayyorlashda interkultural kompetentsiyani oshiradi.

Milliy an'analardan foydalanish: xalq o'yinlari (kok-boru, uloq) va folklorni integratsiya qilish orqali sotsio-madaniy komponent kuchaytiriladi. Tadqiqotlarda ko'rsatilishicha, ushbu yondashuvlar talabalar o'rtasida hamkorlik va hurmatni oshiradi.

Konsepsiyani ishlab chiqishda loyihaviy ta'lim va interaktiv usullar asosiy. Masalan, guruh ishlarida rol o'ynash va simulatsiyalar kommunikativ qobiliyatni rivojlantiradi. Raqamli vositalar (onlayn platformalar va gamifikatsiya) nutq va muloqotni takomillashtiradi.

Amaliy misollar: Boshlang'ich ta'limda "Renaming" va "Davom ettir", "Raqamli qahramon profillari", "Qahramonning ichki monologi", "Asar xaritasi" o'yinlari nutqni rivojlantiradi. Raqamli integratsiya esa, masalan, virtual asboblari (doyra, dutor) orqali madaniy muloqotni kuchaytiradi.

Xulosa.

Bo'lajak boshlang'ich sinf o'qituvchilarning kommunikativ-diskursiv madaniyati konsepsiyasini ishlab chiqish ijtimoiy-tarixiy shartlarga asoslanadi. Tarixiy tajriba va zamonaviy islohotlar orqali ushbu konsepsiya ta'lim sifatini oshiradi. Kelgusida ushbu yo'nalishda ko'proq tadqiqotlar zarur.

Bo'lajak boshlang'ich sinf o'qituvchilarining kommunikativ-diskursiv madaniyati konsepsiyasini ishlab chiqish masalasi pedagogik fikrning tarixiy rivoji, ta'lim tizimida amalga oshirilgan islohotlar va zamonaviy ijtimoiy talablar bilan chambarchas bog'liqdir. Tadqiqot jarayonida aniqlanishicha, mazkur konsepsiyaning shakllanishiga asos bo'luvchi omillar ko'p qatlamli bo'lib, ular ijtimoiy-siyosiy, madaniy-ma'rifiy, pedagogik-nazariy va texnologik taraqqiyot bilan belgilanadi.

O'zbekiston ta'lim tizimida mustaqillikdan keyingi yillarda olib borilgan keng ko'lamli islohotlar, xususan, ta'limni modernizatsiya qilish, pedagogik kadrlar tayyorlashni sifat jihatidan yangi bosqichga ko'tarish, davlat ta'lim standartlarining yangilanishi kommunikativ kompetensiyani o'qituvchi faoliyatining markaziy mezon sifatida shakllantirdi. Bu jarayon o'qituvchi faoliyatida muloqot madaniyati, pedagogik diskursni boshqarish, dialogik dasturlarni qurish va kommunikativ strategiyalarni to'g'ri qo'llash kabi ko'nikmalarni rivojlantirish zaruratini tug'dirdi.

Tarixiy jarayonlar tahlili shuni ko'rsatadiki, pedagogik ta'limning ilk bosqichlaridayoq o'qituvchi shaxsining nutqiy va muloqot madaniyati muhim omil sifatida tan olingan. Ammo globallashtirish, axborot texnologiyalarining jadal rivojlanishi va jamiyatning ochiq sharoitida o'qituvchining diskursiv kompetensiyasi yangi mazmun bilan boyidi. Raqamli kommunikatsiya, onlayn muloqot shakllari, multimodal diskurs turlari hozirgi kunda boshlang'ich sinf o'qituvchisining kasbiy faoliyatida ajralmas tarkibiy qismga aylandi.

Shuningdek, kommunikativ-diskursiv madaniyatni shakllantirishga oid konseptual yondashuvlar evolyutsiyasi taklif etilayotgan konsepsiyaning ilmiy asoslarini belgilab berdi. Pedagogik diskursning tarkibiy qismlari - nutqiy madaniyat, ijtimoiy hamkorlik, pedagogik etika, kommunikativ kompetensiya, muloqot strategiyalari - tarixiy taraqqiyot jarayonida shakllangan, ammo bugungi kun ehtiyojlari ularni integrativ yondashuv asosida qayta talqin qilishni zarur etmoqda.

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**KICHIK MAKTAB YOSHIDAGI O'QUVCHILARNING SON HAQIDAGI DASTLABKI
TASAVVURLARINI SHAKLLANTIRISH METODIKASI.**

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Annotatsiya: ushbu maqolada boshlang'ich ta'lim faoliyatidagi o'quvchilarda natural sonlar haqida bilim va ko'nikmalarni shakllantirishning metodi va vositalari, o'rgatishning bir qancha yo'llari hamda ayni natural sonlar ustida arifmetik amallarni aqliy idrok etish va amaliy bayon etish hamda bularni ko'rgazmalilik asosida olib borish haqida so'z boradi.

Kalit so'zlar: matematika, natural sonlar tarixi, arifmetika, arifmetik amallar, matematik tasavvur, qo'shish, ayirish, xossalari, sonni o'rganish bosqichi.

**МЕТОДИКА ФОРМИРОВАНИЯ ПЕРВОНАЧАЛЬНОГО ПРЕДСТАВЛЕНИЯ О
ЧИСЛЕННОСТИ У УЧАЩИХСЯ МЛАДШЕГО ШКОЛЬНОГО ВОЗРАСТА.**

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Аннотация: В данной статье рассматриваются методы и средства формирования знаний и умений о натуральных числах у учащихся начальных классов, несколько способов обучения, а также мысленное восприятие и практическое объяснение арифметических действий над одними и теми же натуральными числами в слове.

Ключевые слова: математика, история натуральных чисел, арифметика, арифметические действия, математическое воображение, сложение, вычитание, свойства, этап изучения чисел.

**METHODOLOGY FOR FORMING THE INITIAL IMAGINE OF NUMBERS OF EARLY
SCHOOL STUDENTS.**

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Abstract: in this article, students in primary education methods and means of forming knowledge and skills about natural numbers, several ways of teaching, and mental perception and practical explanation of arithmetic operations on the same natural numbers and conducting them on the basis of demonstration.

Key words: mathematics, history of natural numbers, arithmetic, arithmetic operations, mathematical imagination. addition, subtraction, properties. number learning stage.

Kirish.

Narsalarni sanash natijasida hosil bo'ladigan ushbu, 1,2,3,4,.....sonlar natural sonlardir. Aynan ushbu tushuncha matematikaning asosiy tushunchalaridan biri hisoblanadi. Xush shunday ekan, natural son tushunchasi qachon va qay tarzda paydo bo'lgan? Insonlar bu sonlardan nima maqsadda qanday tartibda foydalana boshlagan? Mazkur tushuncha matematika fani singari kishilar amaliy

faoliyatidagi ehtiyojlar tufayli vujudga kelgan. Dastlab son haqida biror qarash mavjud bo'lmagan, ammo, shaxslar kundalik faoliyatida " besh barmoq", "butun tana " degan qarashlar asosida besh (5)soni ya'ni qo'lda qancha barmoq bo'lsa shuncha, yigirma(20) soni insonning qo'li va oyog'ida qancha barmoq bo'lsa shuncha deya so'zlashuv jarayonida amaliy hayotning taqqoslash zarurati sifatida ishlatilgan. Lekin bu qarashlar son ekanligi tafakkur etilmagan. Shunday bo'lsada sonlar asnosida vositachi to'plam(chig'anoqlar, mayda toshcha)lar qo'lanilgan. Bu vositachi to'plamlar tabiatidan cheklanishlar bo'lgandan so'ng natural son tushunchasi shakllana boshlagan, natijada narsalar bir, ikki, uch deya sanala boshlagan. Bu bosqich son tushunchasining, bolalar ongida paydo bo'lishi to'g'risidagi asosiy rivojlanish bosiqichi hisoblanadi. Zamonaning eng yirik matematigi N.N.Luzinning quyidagi qarshlari mavjud edi :”Biz birlik tushunchasini yaratgan (ochgan emas, aynan yaratgan) inson dahosi qarshisida bosh egishimiz kerak. Son vujudga keldi, u bilan birga matematika vujudga keldi. Son g'oyasi-mana buyuk fanlardan birining “ tarixi nimadan boshlangan”¹. Shundan sonlar chuqurroq o'rganila boshladi. Natural son termini birinchi bo'lib rimlik olim A.Boetsiy tomonidan qo'llanildi, keyinchalik sonlar ustida arifmetik amallar o'rganila boshlagan fan “ arifmetika”nomini oldi.

Sonlar haqida Ibn Sino aytishlaricha, sonlarning tabiiy qatori shunday berilgan 1,2,3,4,5,6,7,8,9,10,11,12,13.....²

O'quvchilar o'nlik mavzusida sonlarni og'zaki va yozma nomerlash bilan birga matematik simvollarni, ba'zi bir belgilashlarni hamda ulardan foydalanishni o'rganadilar. Masalan, ular bir xonali sonlar berilganda (1,2,3,4,5,6,7,8,9....) raqamlardan foydalanadilar. Ushbu raqamlardan natural sonlarni o'zaro taqqoslashda katta, kichik, teng, arifmetik amallar qo'shish (+), ayirish (-) belgilariga qarab chiqiladi (1-sinf matematika darsi uchun). Bu aytib o'tilgan matematik materiallar yuzlik sonlari mavzusi uchun tayyorgarlik bosqichi ham sanaladi. Yuzlik mavzusidagi, ya'ni ikki xonali sonlarni nomerlash uchun qiymatli 1 dan 9 gacha, qiymatsiz nol (0) raqami ham kerak bo'ladi. Berilgan raqamlar arab raqamlari sanalsa, nol keyinchalik nafaqat o'z zamonasining, balki keyingi zamonlarning buyuk matematigi sanalgan Al-Xorazmiy tomonidan kashf etilgan va shundan keyingina o'nlik sanoq sistemasida istalgan sonni yozish imkoni yuzaga kelgan. Hozirgi kunda barcha mamlakatlar o'nli sanoq sistemasidan foydalanishadi.

Xush endi ushbu sonlar boshlang'ich sinf o'quvchilariga qay tartibda o'rgatiladi?

Bunda ko'zlangan asosiy maqsadlar qanday?

Asosiy maqsadlar quyidagilardan iborat:

- o'quvchilarni qo'shish va ayirish, ko'paytirish va bo'lish amallarining mazmuni bilan tanishtirish;
- hisoblash usullaridan o'quvchilarning ongli foydalanishlarini ta'minlash;
- sonni qismlari bo'yicha (bitta yoki guruhlab) qo'shish va ayirish usuli;
- yig'indining o'rin almashtirish xossasidan foydalanib qo'shish usuli;³

¹ Boshlang'ich matematika kursi asoslari Toshkent "O'qituvchi " 1991 130-b

² M.E. Jumayev, Z.G'.Tadiyeva. Boshlang'ich sinflarda matematika o'qitish metodikasi. T., «Fan va texnologiya», 2005. 312 bet.71-b

³ Matematika. Umumiy o'rta ta'lim maktablarining 3-sinfi uchun darslik, II qism. / I.V.Repyova. – Toshkent: "Novda Edutainment", 2023. – 100 b.2.

Sonlarni ayirishda qo'shishning tegishli holini bilish yoki yig'indi va qo'shiluvchilardan biri bo'yicha ikkinchi qo'shiluvchini topish malakasidan foydalaniladigan holda yig'indi bilan qo'shiluvchilar orasidagi bog'lanishlarni bilganlikka asoslangan ayirish usuli. Qo'shish va ayirish, ko'paytirish va bo'lish malakalarini shakllantirish (yod olishga yetkazish) 10 ichida qo'shish va ayirishni o'rganish. Tahlil.

Boshlang'ich ta'limda sonlarni o'rgatish har bir sinf yosh xususiyatiga qarab, ya'ni bolalar tafakkurining rivojlanib borish bosqichiga qarab oddiydan murakkabga tartibida o'rganiladi. 1-sinfning birinchi choragida bolalarga natural sonlarning nima ekanligi, ularning belgilanishi (ko'rgazmali vositalar, sonlar qatnashgan video-rolıklar), yozuvda qanday ifodalanishi haqida ma'lumot berilib, dastlabki 1dan 10gacha sonlar ichida arifmetik amallar bajarish bilim, ko'nikmalari shakllantiriladi. Matematik materiallar boshlang'ich ta'limda asosan beshta konsentrga bo'lib o'rgatiladi. Bu esa og'zaki va yozma nomerlash bilan bog'liqdir. Ular I sinf «O'nliklar sonlar», II sinf «Yuzliklar sonlar», III sinf «Mingliklar sonlar», IV sinf «Million sonlar» va «Ko'p xonali sonlar». Aynan boshlang'ich sinf matematika kitoblarida matematik nazariyalarning amaliy ko'rinishlari mustahkamlanganligini ko'rish mumkin, ya'ni sanoq sonlar, o'lchamlar, masalalar, kesmalar bilan ishlash kabilar..

Har bir davrda ham bu nazariy bilimlar og'zaki bayon etilib, yozma qayd etiladi, shundayin sonlar ham yozma va og'zaki tushuntirish bosqichlarida amalga oshiriladi. Sonlarni og'zaki o'rgatishning bosqichi asosan 1-2-sinf o'quvchilariga to'g'ri keladi. Bunda sonning nima ekanligi, ko'rinishi, ketma ket sanay olishi, yozilishi, so'roqlari kabilar uchun tushuncha berilsa, yozma o'rgatish bosqichda og'zaki faoliyatlarni amaliylashtirish (yoza olish, arifmetik amallarni bajara olish va boshqalar tushuniladi). Boshlang'ich ta'lim matematikasida arifmetik amallarni bajarishni qo'shish, ayirish, bo'lish, ko'paytirish turlarini mohiyatan tushuntirib bera olish ahamiyatli hisoblanadi. Demak 1-sinf matematika kitobini qarasak sonlarni tushuntirish jarayonida sonning diskritligi yoxud Piano aksiomalari mazmuni bayon etilgan (albatta sodda tilda). Piano aksiomasi ixtiyoriy a soni undan keyin keladigan sondan 1 birlik kichik va undan avval kelgan sondan 1 birlik katta. Diskritlik bu-ikki son orasidagi tartib, bir xil farq.

Kema-ket keladigan sonlar berilgan sonlar qo'shnilari deyiladi. 4 (1-sinf 22-b)

Qo'shish;

Ma'lum bir masalani yoki ikki sonni o'zaro qo'shish (birlashtirish) deganda ishlatiladigan matematik tushunchalarni quyidagi tarzida ko'rsak, bunda asosiy tushunchalar qo'shish, yig'indi, qo'shish belgisi (+)lar hisoblanadi. Qo'shish amalini 1-sinfidagi sodda ya'ni bir amalli matematik masala orqali izohlasak; Akmalda 4ta moshina bor, uning singilisi Barnoda 2ta qo'g'irchoq bor, ikkala bolada hammasi bo'lib nechta o'yinchoq bor? demak masala qo'shish amali yordamida yechiladi, ya'ni $4+2=6$ tarzida. Dskada bir nechta misollar ko'rsatilgandan keyin, asosiy qoidaga o'tiladi. Bunda nega aynan qo'shish ekanligini qanday tushuntirish mumkin? Qachon narsalar miqdori (soni)oshadi, ko'payadi? albatta ular jamlansa. Keling, bunda biz mantiqiylik yoki tasavvurdan foydalansak, har bir aytilgan o'yinchoqni tasavvur ettirsak va ularni hammasini sonini bilish uchun jamlab olsak, birlashtirsak, xush bunda ham biz yuqorida ko'rgan javob chiqmaydi-mi?, faqatgina usul almashindi,

⁴ Matematika 1-sinf [Matn]: darslik / L.O'rinboyeva [va boshq.]. – Toshkent:Respublika ta'lim markazi 2021 22- b

ammo manzil birligicha qoladi. Boshqacha qilib aytganda esa biz har qanday ikkita nomanfiy a va b sonni olmaylik albatta, ularning yig'indisini-nomanfiy natural c sonini keltirib chiqaradi va bu a va b uchun sonlar uchun yagona bo'ladi. Xuddi shunday 7ta olmaga yana ikkita olmani qo'shishni an'anaviy ko'rinishini (doskaga birlik tayoqchalarni chizish bilan birga hisoblashni) o'rgatishimiz mumkin. Natural sonlarni qo'shishda o'rin almashtirish yoki guruhlash xossalari 3-4- sinflar uchun asosiy arifmetik amal hisoblanadi, bunda $a+b=b+a$ o'rinalmashtirish, $(a+b)+c=a+(b+c)$ guruhlash formulalari tarzida ifodalanadi. Ushbu holatdan qo'shiluvchilarning o'rinlarini, ixtiyoriy almashtirish yoki qo'shiluvchilarning ixtiyoriy guruhini qavsga olish bilan o'zgarmasligini keltirib chiqarish mumkin.

Ayirish;

Boshlang'ich ta'limdagi ikkinchi o'rganiladigan arifmetik amal ayirish amalidir. Ayirish amalini ta'rifini aytishdan avval, masalalar yordamida ayirish amaliga ehtiyoj borligi o'quvchilar ongiga singdiriladi. Qo'shish amali bilan quyidagi tenglik berilgan bo'lsin;

$3+x=5$ tenglik to'g'ri bo'lishi uchun x ning o'rniga qanday son qo'yiladi? O'quvchilar o'qituvchi yordamida $x=2$ bo'lishiga ishonch hosil qilishadi. Bunda 5 va 3 soni ishtirokida qanday 2 soni hosil bo'lishi so'raladi, shunda o'quvchilar 5 sonidan 3 sonini ayirish kerakligini aytishadilar.

Ta'rif. Yig'indida qo'shiluvchilardan biri noma'lum bo'lganda, noma'lumni topish asosida aniqlanadigan amalga ayirish amali deyiladi. Ayirish bu boshlang'ich sinf o'quvchilari uchun "kattasidan kichigini ayirish" tushunchasi, yoxud qo'shishga teskari amal demakdir. Shundan so'ng ayirish amalining komponentalari nomlanadi. $A=9$ bo'lsa, $B=4$ ga, $a-b=c$, $9-4=5$, bunda 9 soni kamayuvchi, 4 soni ayiriluvchi, 5 soni esa ayirma sanaladi. Ilmiy asosda butun nomanfiy c songa aytiladiki, uning b son bilan yig'indisi a songa teng bo'ladi. Ya'ni biror bir tasavvur tarzida quyidagicha ifodalanishi nazarda tutiladi;



Shunday ko'rinishlar albatta, ko'rgazmali vositalar bilan ham tushuntirilsa maqsadga muvofiq bo'ladi. $a-b$ ayirmani topishda qo'llanadigan amal ayirish deyilsa, amalning to'g'ri ekanligi qo'shish orqali tekshiriladi. Bu usul tenglamalarda juda ko'p qo'llanadi.

Demak, bolada avvalo tasavvurni shakllantira olish muhim bir pedagogik jarayon hisoblanadi, albatta aqliy tasavvurda matematik jarayonni idrok etish boshlang'ich ta'lim o'quvchisi uchun mushkul. Bunday fikrlashlar bugungi kunda bizga begona bo'lmay qoldi, chunki ayni mental arifmetikaning asosiy faoliyati tasavvur, hayolan hisoblashdir.

Ko'paytirish;

Ko'paytirish amali bu qo'shishning xususiy xoli, ya'ni o'zaro teng bir xil bir nechta qo'shiluvchilarning yig'indisini topishda yangi amal ko'paytirish amaliga zarurat seziladi. Ixtiyoriy nomanfiy a va b sonlarning ko'paytmasi deb $A \times B$ dekart ko'paytma elementlari sonini ifodalovchi C nomanfiy butun songa aytiladi.⁵

⁵ M.E. Jumayev, Z.G'.Tadjiyeva. Boshlang'ich sinflarda mate-matika o'qitish metodikasi. T., «Fan va texnologiya», 2005. 312 bet.

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Ta'rifga ko'ra quyidagi masalani ko'ramiz;

Sinfda har bir partaga 2 tadan o'quvchi o'tirsa 6 ta partaga nechta o'quvchi o'tiradi?

usul A va B to'plamlar uchun dekart ko'paytma topiladi. Bunda $2+2+2+2+2+2=12$ deyilsa ,

Usulda ko'paytma xolida ishlanadi $2*6=12$

Yuqorida amalni bajarishda "marta ko'p", "taga ko'p" tushunchalarini ham uchratishimiz mumkin. Xush bu ikki so'z bir xil ma'no anglatadimi? Albatta yo'q. Masalalarda Sanjarda 7 ta yashik bor, Olimdagi yashik Sanjarnikidan 4 taga ko'p deyilsa unda, Sanjardagi yashiklarga 4 ta qo'shilsa Olimning yashiklari topilar ekan .

Yechim olinsa; $7+4=11$ shaklida "ta ko'p" yoki " ga ko'p "deyilsa sonlar qo'shilar ekan .

Agar "A" sinf yig'gan ball "B" sinf yig'gan balldan 2 marta ko'p deyilsa unda yechim uchun sonlar o'zaro ko'paytirilar ekan.

Ko'paytirish amali haqida so'z yuritilgandan so'ngra, bo'lish amali haqida so'z yuritiladi

Bo'lish ;

Natural sonlarda butun nomanfiy a soni va b sonining bo'linmasi deb shunday $c=a:b$ songa aytiladiki, uning b son bilan ko'paytmasi a soniga teng bo'ladi. Buni sinf mavzularida ko'rsak, bir xonali sonni bir xonali songa bo'lish, ya'ni $x:y=c$

$X=8, y=2$ bo'lsin $8:2=4$ demak bo'linma $c=4$, bunda a soni b sonidan katta yoki teng bo'lgandagina bo'linma natural son bo'ladi. Matematik masalalarda ham aynan shu asosda natural son bo'ladigan yechimli masalalar darsliklarga kiritilgan, Vaholanki, boshlang'ich sinf o'quvchilari ratsional sonlar, kasrlar va boshqalar bilan boshlang'ich sinfda emas, balki yuqori sinfda bilimlarga ega bo'ladi. Endi bo'lish amaliga doir masala yechsak;

Gulzodada 15 ta gul bor edi 5 ta eng yaqin dugonalariga gullarni teng bo'lib berdi. Gulzoda dugonalariga nechtadan gul berdi ?

Yechish: $15:5=3$ degan yechim chiqadi. Javobni biz b sonini c soniga ko'paytirish orqali tekshirib olamiz, ya'ni $5*3=15$

Gullarni teng qismlarga bo'lish uchun ularni alohida dastalab olishni tasavvur etish ham mumkin bo'lar ekan . $3+3+3+3+3=15$

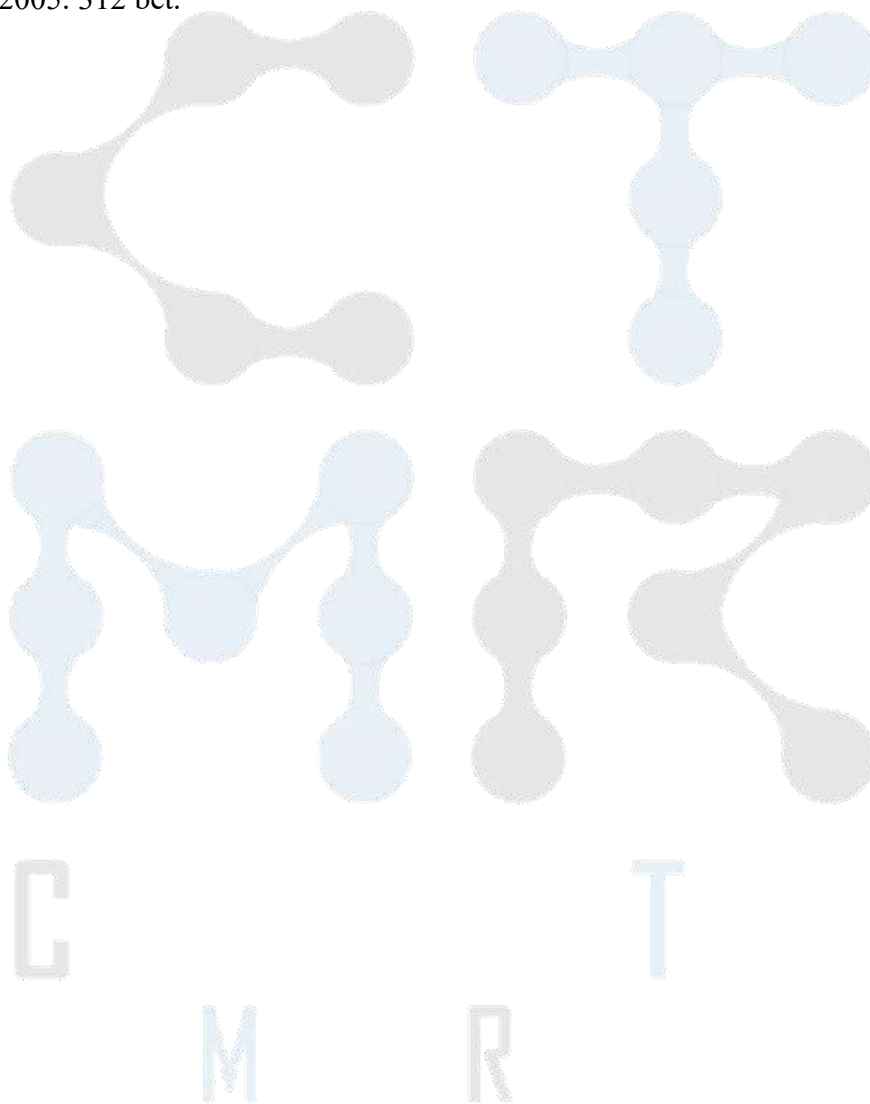
O'qituvchi mutaxassis tayyorlaydigan istalgan (boshlang'ich, o'rta , o'rta maxsus, oliy) ta'lim bo'lsin, ta'limni o'quvchilarni kundalik hayotlari bilan bog'lab olib borish maqsadli ta'lim-tarbiyaning asosiy vazifalaridan sanaladi. Bu vazifa ayniqsa amaliy mashg'ulotlarda tizimli yo'lga qo'yilmog'i kerak.

Xulosa.

Xulosa qilib aytganda, matematika fanining o'ziga xos xususiyatlaridan va kichik maktab yoshdagi o'quvchilarning bilim darajalaridan kelib chiqib darslardagi materiallarning qiyinchilik darajalariga qarab har bir tushuncha (atama)ni bolalarning kundalik hayotidan olingan misol va masalalar bilan boyitish talab etiladi. Matematika fani boshlang'ich sinf o'quvchilari uchun o'ta jiddiy fan bo'lib, matematik materiallarni birdan, tezda o'zlashtira olmaydilar. Shuning uchun har bir boshlang'ich sinf o'qituvchisi matematik materiallarni o'quvchilar tomonidan o'zlashtirish usullarini osonlashtiruvchi juda kichik imkoniyatlarni ham qo'ldan boy bermasliklari kerak. Har bir amal bilan bola tanishtirilgan ekan, uning mohiyati nazariya, o'yinlar, ko'zgarmalar, erkin tasavvurlar orqali interfaol muhitda amalga oshirilishi maqsadga muvofiq bo'lar ekan, ya'ni tushunib amaliy bajarish demakdir. Shu jumla eskisini zamiri bilan yangisini paydo qilish va mukammallashtirishdir.

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**O'ZBEKISTONDA TA'LIM MASKANLARI QANCHALIK INKLUYUZIV TA'LIMGA
TAYYOR?**

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Annotatsiya: Ushbu maqola O'zbekistonda faoliyat ko'rsatayotgan bilim yurtlari o'z quchog'iga anomalligi mavjud bo'lgan bolalarni ham olishiga, hamda ijtimoiy faoliyatlariga ruhiy inqiroz va stresslarsiz ularni tayyorlay olishga qay darajada tayyor ekanligining joriylashtirilgan va bugungi kunda amaliylashtirilayotganganlik darajalarini va ko'rsatgichlarini namoyon qilishga qaratilgan.

Kalit so'zlar: ijtimoiy moslashuv, integratsiya, maxsus tarbiyaga muhtoj, hissiy ta'sir, ongli munosabatni shakllantirish, muammo, yechimlar, maxsus ta'limga muxtoj.

**НАСКОЛЬКО ОБРАЗОВАТЕЛЬНЫЕ УЧРЕЖДЕНИЯ УЗБЕКИСТАНА ГОТОВЫ К
ИНКЛЮЗИВНОМУ ОБРАЗОВАНИЮ?**

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Аннотация: В данной статье описаны уровни и показатели уровня готовности действующих в Узбекистане образовательных учреждений принять детей с аномалиями и подготовить их к социальной деятельности без психического кризиса и стресса, направленного на проявление.

Ключевые слова: социальная адаптация, интеграция, потребность в специальном образовании, эмоциональное воздействие, формирование сознательного отношения, проблема, пути решения, потребность в специальном образовании.

**TO WHAT EXTENT ARE EDUCATIONAL INSTITUTIONS IN UZBEKISTAN READY FOR
INCLUSIVE EDUCATION?**

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Abstract: This article is about educational institutions operating in Uzbekistan. It is aimed at demonstrating the levels and indicators of how ready to take children with anomalies into their arms, and to prepare them for social activities without mental crisis and stress.

Key words: social adaptation, integration, needs special education. emotional impact, formation of conscious attitude, problem, solutions, needs special education.

Kirish. Bugungi kunda dunyo miqyosida butun insoniyatning 15 % i inklyuziv ta'limga muxtoj insonlar sanaladi. Ular biz bilan bir muhitda bir obyektga nisbatan subyekt sifatida faoliyat yuritishi uchun jamiyat tayyormi? nafaqat jamiyat, balki jamiyatni tashkil etuvchi oilalar, oilalarni davom ettiruvchi avlodlar va avlodlarga ta'lim beruvchi ta'lim maskanlari ijtimoiy ta'lim faoliyatiga qay darajada tayyor? Agarda ta'lim maskanlari tayyor bo'lganda ham, nega imkoniyati cheklangan bolalarni inklyuziv ta'lim tizimiga jalb etish kerak? Ko'chaning chetidagi sog'lom tilanchiga sadaqa qilayotgan anomalligi mavjud shaxs, nogiron deb qo'l uchida ko'rsatilayotgan inson xatti-harakatlari

tasvirlangan jarayon kimni nogiron ekanligini ko'rsatadi. Buni atoqli psixolog olim L. S. Vigotskiyning «Har qanday ruhiy yoki jismoniy nuqsonda ham taraqqiyot davom etadi» degan fikri bilan tasdiqlash mumkin. ¹ Xush ular nega maktablarda, ko'cha-ko'ylerde erkin hayot kechirmayapti? Vaholanki, barcha teng huquqliligi ko'p bora e'tirof etilgan. Bu e'tirof ostida har bir kishining jamiyatda mavjud barcha imkoniyatlardan birdek va barcha qatori teng foydalana olishi yotadi. Yildan-yilga anamalligi bo'lgan o'quvchilarda kompetensiyalarni, sog'lom insonlar bilan birga ijtimoiy munosabatlarni shakllantirish, ularni motivatsion ta'limini individuallashtirishdan ijtimoiylashtirishga talab ortmoqda. Ushbu jarayonlarni bajarishda inklyuziv ta'limning ma'lum bir muammolari mavjud bo'lib, ular quyidagilardan iborat; Maxsus tarbiyaga muhtoj bolalarga nisbattan salbiy munosabat, imkoniyati cheklangan bolalarning hamjamiyatda ko'rinmaslik muammosi, imkoniyati cheklangan bolalarning maktabda ko'rinmaslik muammosi, moddiy mablag' muammolari, ta'lim muassasalarini moslashtirish, sinfda o'quvchilar sonining ko'pligi, kambag'allik, jinsiy tafovutlarga qarab kamsitish, imkoniyati cheklangan bolalarning boshqalarga qaramligi, favqulodda vaziyatlar, mojarolar, qochoqlar, kadrlar masalasidagi muammolar va shu kabilar.

Xush o'zi inklyuziv ta'lim nima? U nega ijtimoiylashishi kerak? Hamma bolalarning ehtiyojlarini hisobga olgan, huquq va qobiliyatlarini hurmat qiladigan, ijtimoiy adolat hamda tenglikka erishishni maqsad qilib olgan ta'lim tizimi inklyuziv ta'lim deyiladi.

Inklyuziv ta'lim maxsus tarbiyaga muhtoj bolalarni ta'lim jarayoniga integratsiya qilish hamda umumta'lim maktablarini maxsus tarbiyaga muhtoj bolalarga moslashtirishni ko'zda tutadigan, ijtimoiy adolat va tenglikni bosh maqsad qilib olgan jarayondir. Anomalligi mavjud shaxslarning inklyuziv ta'limga qamrab olishning asosiy sababi mamlakatimiz ijtimoiy-iqtisodiy hayotida ishtirok etishi, tegishli infratuzilma xizmatlaridan foydalanishi, tibbiy xizmat ko'rsatishi, ish bilan ta'minlanishi va erkin foydalanishi uchun sharoit yaratishga, ularda boqimandalik hissini kamaytirish faoliyatlarini ongli idrok etishga qaratilgan.

Metodologiya. O'zbekiston ta'lim muassasalarida inklyuziv ta'lim amaliyoti Sovet Ittifoqi davridan boshlangan. Sovet ittifoqi davrida maxsus tarbiyaga muhtojlar ixtisoslashtirilgan o'quv yurtlarida tengdoshlaridan ajratilgan holda o'qigan. Bugungi kunda ilm-fan ancha oldinga ketdi, G'arb olimlarining ko'plab ilmiy va amaliy sinovdan o'tgan ilmiy tadqiqotlarida maxsus tarbiyaga muhtojlarni o'qitishda eng katta samaraga ularning tengdoshlari bilan guruhda birgalikda o'qishga erishilishi isbotlangan. Aynan shu bois ham so'nggi yillarda respublikamizda maxsus tarbiyaga muhtojligi bo'lgan shaxslarning huquq va majburiyatlarini mustahkamlashga qaratilgan normativ huquqiy baza sohasida davlat darajasida qator ijobiy islohotlar amalga oshirildi. Jumladan: 1. 2020-yilda "Maxsus tarbiyaga muhtojligi bo'lgan shaxslarning huquqlari to'g'risida"gi qonun qabul qilindi, unda maxsus tarbiyaga muhtojlarning uy-joy olishda imtiyoz va yengilliklar, ta'lim olishi, ularni ish bilan ta'minlash, shuningdek mavjud infratuzilma, axborot va davlat xizmatlaridan to'laqonli foydalanishlarini ta'minlash belgilangan. 2. 2021-yil 7-iyun kuni O'zbekiston Respublikasi Prezidenti Sh.M. Mirziyoyev O'zbekiston Respublikasining O'RQ-695-sonli "Maxsus tarbiyaga muhtojlarning huquqlari to'g'risidagi konvensiyani ratifikatsiya qilish to'g'risida"gi Qonunini (Nyu-York, 2006 yil 13 dekabr) imzoladi, unda quyidagilar ko'zda tutilgan: Maxsus tarbiyaga muhtojlarning huquqlari va

¹ Madatov I.Y, Inklyuziv ta'lim. Darslik /.; Toshkent, Best-Publish nashriyoti, 2024. – 240 b 186-b

maxsus tarbiyaga muhtojlar hayotining barcha jabhalarida boshqalar bilan teng huquqqa layoqatli ekanligini tan olish. Ushbu holatni hisobga olgan holda, tegishli sharoitlarda va qonun hujjatlariga muvofiq maxsus tarbiyaga muhtojligi bo'lgan shaxslarni qo'llab-quvvatlash va qarorlar qabul qilish mexanizmlaridan, shu jumladan maxsus tarbiyaga muhtojlarning muomala layoqatini cheklashdan foydalanish imkoniyatini Sh. Mirziyoyevning 4860-sonli "Alohida ta'limga muhtoj bolalarni o'qitish va tarbiyalash tizimini yanada takomillashtirish chora-tadbirlari to'g'risida"gi qarori qabul qilindi. Bu qonunga ko'ra "2020-2025-yillarda xalq ta'limi tizimida inklyuziv ta'limni rivojlantirish konsepsiyasi"da alohida ta'lim ehtiyojlari bo'lgan bolalarga ko'rsatiladigan ta'lim xizmatlari sifatini yaxshilash bo'yicha quyidagi vazifalar belgilandi:

- alohida ta'limga ehtiyojlari bo'lgan bolalar ta'lim oladigan ta'lim muassasalari binolariga qo'yiladigan talablarni ishlab chiqish va tasdiqlash;
- alohida ta'limga ehtiyojlari bo'lgan bolalar o'qitiladigan ta'lim muassasalarini zarur adabiyotlar, metodik qo'llanmalar, turli kasblarga o'qitish uchun uskuna va jihozlar bilan ta'minlashga qaratilgan chora-tadbirlarni amalga oshirish;
- alohida ta'limga ehtiyojlari bo'lgan bolalarni o'qitish uchun inklyuziv ta'lim tizimini tashkil etish, umumta'lim muassasalarini maxsus moslamalar shuningdek tegishli kadrlar bilan ta'minlash ;
- alohida ta'lim ehtiyojlari bo'lgan bolalarning moslashishi va integratsiyasi uchun maktab-internatlarni bosqichma-bosqich maxsus jihozlar bilan ta'minlash va boshqalar.

2Qarorda inklyuziv ta'lim tizimining normalarini ta'minlash bo'yicha tegishli choralar ko'rish nazarda tutilgan.

Tahlil. Bugungi kunda respublikamizda imkoniyati cheklangan bolalarga mo'ljallangan ixtisoslashtirilgan 86 ta maktabda 22 mingdan ortiq, sanatoriy turdagi maktab-internatlarda 6 mingdan ortiq o'quvchi, uy sharoitida esa 13 mingdan ortiq o'quvchi ta'lim oladi. Hozirda O'zbekistonda 3 mingdan ortiq umumiy o'rta ta'lim maktablarida 13 ming nafarga yaqin o'quvchilar inklyuziv ta'lim bilan qamrab olingan. Maktabda tahsil olish uchun quyidagi muommolar mavjud bo'lib ular quyidagilardir;

- maktablarda o'quv-dars jarayonlarini tashkil etuvchi yetarli pedagogik bilimga ega bo'lgan kadr va pedagoglarning yetishmasligi;
- barcha maktablarda ham inklyuziv ta'limga mos tarzda moslashuvchan (maktab o'quvchilari tomonidan anomalligi mavjud bo'lgan tengdoshlarini qabul qila olmasligi) ta'lim berishga tayyor emasligi;
- maktablarda shart-sharoitlar (harakat-tayanch qismida kamchiliklari bor bolalar uchun bino tuzilmalari, ko'zida ojizligi mavjud bolalar uchun "Brayl alifbosi" shaklidagi darsliklar)ning yo'qligi;
- maktabga borgan alohida yordamga yordamga muhtoj bolalarga boshqa bolalarning salbiy(anomalligi mavjud bolalarda hissiy zo'riqish holatlariga sabab bo'luvchi holatlarga sabab bo'lishlari kabi) munosabatlari;

2 Shomaxmudova R. Inklyuziv ta'limning nazariy va amaliy asoslari. O'quv-metodik qo'llanma. Toshkent. 2007. XT

"Razzoqov O.J." bosmaxonasi - B.11.2023 16-b

-bu holatdagi o'quvchilar bilan o'qituvchi individual ishlay olmasligi va bilim darajasi kamligi, vaholanki, umum ta'lim maktablarida bir sinfdan 26 ta 30 tagacha o'quvchilar o'qitiladi. Ushbu kamchiliklar moddiy bazaga borib taqalsada, 4-kamchiliklar pedagogik jarayonlarda (maktabgacha ta'lim va boshlang'ich ta'lim), oilaviy muhitda anomallik to'g'risida yetarli darajada fikrlar sig'imi to'ldirilmaganligi ijtimoiylashgan inklyuziv ta'lim shaklini joriy etish uchun salbiy bir oqibat sanaladi. Boshlang'ich sinf o'quvchilari o'rtasida "Agar odamlar birdan gapira olmay qolsa nima bo'ladi?" degan sōrovnoma o'tkazildi. Sōrovnomada yangicha g'oyalar, mantiqiy fikrlash, qat'iyatlik bo'lgani kabi salbiy yondashuv larga ham duch keldik. Sinf umumiy o'qchivchilarini 90% i nazdida 'ishlashimiz yōqoladi, birga suhbatlasha olmaymiz' va shu kabi javoblar gavdalangan va keltirilgan, ammo o'quvchilarning 10% ida quyidagi javoblar yozib qoldirilgan edi: 'Agar biz gapirmay qōysak, gapirolmamak sababidan bizni ham internatga olib borib qōyishadi'.

Oddiy 4-5 sōz birikmasidek kōrinadi, ammo bu vaziyat achinarlidir. Vaholanki, bola nigohida yetishmovchiliklarga ega bo'lganlar internat((INTERNAT (lot. internus — ichki) — O'zbekistonda maktablar va ayrim o'quv yurtlari qoshida o'quvchilar uchun, shuningdek, ota-onasiz qolgan bolalar (q. Internat maktab, Mehribonlik uyi, nogironligi mavjud shaxslar uchun yashkil etilgan joy)) larda qolishi kerakligi haqida fikrlarning mavjudligi. Xush bunday fikrga ega bo'lishning sababi nimada?

Tashqi muhit va pedagogik tahsil misolida kōrsak.

Pedagogik tahsilning yetishmasligi. Ma'lumot yetishmasligi: O'qituvchilar, tarbiyachilar yoki otalar nogironlik haqida yetarli bilimga ega bo'lmasa, ular nogiron bolalarni noto'g'ri tushunadi yoki ularni faqat imkoniyati cheklangan deb qabul qiladi. Shu boisdan ham o'quvchilarda xuddi shunday kayfiyat uygonishiga sabab bo'ladi. Notōgri izohlangan birgina jumla bir shaxs hayotiga nisbatan butun bir salbiy qarashlarning kelib chiqishiga sabab bolib qoladi, aynan pedagog faoliyatida.

Stereotipik yondashuvlar: Ba'zida pedagogik ta'limda nogiron bolalar masalasi yuzaki yoritiladi, bu esa stereotiplar (masalan, "nogiron bola hech narsaga qodir emas") ni paydo bo'lishiga olib keladi va nogironligi bor bolalar va sog'lom bolalar birga hamkorlikda o'qitishga kirishilganda jamoa o'rtasida anomalligi bor bolalarga nisbatan yaroqsizlik qarashi onga inkos beradi.

Inklyuziv ta'limga tayyor emaslik: Ko'plab pedagoglar maxsus ehtiyojli bolalar bilan ishlash uchun yetarli tayyorgarlikka ega emaslar, bu esa ularni chetlab o'tishga yoki noto'g'ri baholashga olib keladi. Tashqi muhit (ijtimoiy va madaniy omillar)

Jamiyatdagi stigma: Ayrim jamiyatlarda nogironlik hali ham uyatli, yashiriladigan narsa sifatida qaraladi. Bu bolalarga nisbatan salbiy munosabat va noto'g'ri qarashlarni kuchaytiradi. Xuddi 60-70-yillardagi kabi otalarining farzandlarini bunday holatda saqlaganliklarini eslab o'tishimiz mumkin bo'ladi. Bundayin xatti-harakatlar asosida jamiyatning bir bo'lagini boqimandalik ruhida ulg'ayishiga olib keladi.

OAVdagi noto'g'ri tasvirlar: Nogironlik ko'pincha dramatik yoki rahm-shafqat uyg'otadigan tarzda ko'rsatiladi, bu esa bolalarning asl imkoniyatlarini ko'rsatishga to'sqinlik qiladi. Jamiyatni bir qanot ostida tasvirlab qōyishiga sabab bo'ladi, xolos. Bu esa yuksak aqliy yoxud jismoniy quvvatga ega bo'lgan insonlarni qafas ortida saqlab turganday bo'lib qoladi, eng achinarlisi esa bu qafas himoya emas balki cheklash vazifasini o'taydi.

Atrofdagilarning xabardor emasligi: Ota-onalar, qo'shnilar, o'qituvchilar va boshqa jamiyat a'zolari nogironlik haqida yetarli tushunchaga ega bo'lmasa, ular bolalarni to'g'ri baholay olmaydi. Nogiron

qōl uchida kōrsatilgan inson shaxsga, bolaga nisbatan ruhiy zarba, kuzatuvchilar uchun esa salbiy fikr kayfiyati bōlib qoladi

Ushbu muommoni yechishda insonlarda sodir boʻladigan kasalliklar asosida tushuntirish mumkin, albatta, har bir bolada jarohatlanish (qoʻl-oyoq tana aʼzolarining shikastlanishi natijasida harakatlana olmasliklari va shu kabilar)lar yuzga kelishi mumkin. Demak, ularda sodir boʻlgan kasalliklar anomalligi mavjud oʻquvchilarda davomiy ekanligini oʻquvchilar ongiga singdirish kerak. Anomalligi mavjud oʻquvchilar hayotini iloji boricha oʻzlari tomonidan bayon etish sharoitini tashkil etish kerak. Bundan tashqari virtual taʼsirni (shaxsiy avatar) tashkil etish oʻrinlidir. Yaqin yillar oraligʻida inklyuziv taʼlim samaradorlik koʻrsatkichlarini oshirish uchun ayni shu jarayon qoʻllanilishiga ishonch bildirish mumkin, binobarin, yillar insonlarni buyuk kashfiyotlariga guvoh boʻlmoqda. Virtual taʼsirdagi faoliyatlar, yaʼni avatarlar matnli, grafik tasvirlar yokida teginish hissi orqali jonli vedio avatarlar boʻlishi mumkin. Eng muhimi virtual tarzda har bir taʼsir hayot bilan chambarchas bogʻliqdir. Klassik sensorli taqlid qiluvchi virtual haqiqat immersiv muhitni boshdan kechirish uchun idrok tizimini aldashga asoslangan boʻlsa-da, virtual olamlar odatda aqliy va hissiy jihatdan jozibali tarkibga tayanadi, bu esa immersiv tajribani keltirib chiqaradi. Maxsus taʼlimga ehtiyoji boʻlgan bolalarning hayotdagi kamsitilishlari va ularni ijtimoiylashuviga yoʻl qoʻyilmasligining oldini olish uchun ularning oʻzlarini virtual anamallik holatiga tushira olish imkoniyati samarali boʻladi. Zotan, tanasi boshqa dard bilmas deganlaridek. Kelajak taraqqiyti uchun kundalik faoliyatimizdagi baʼzi vaziyatlarda virtual taʼsirdan ijobiy natijalarga erish uchun foydalanish oʻrinlidir.

Xulosa. Inklyuziv taʼlimning maktablarda ijtimoiylashuvi jamiyatning har bir aʼzosiga teng imkoniyat yaratish, ijtimoiy adolat va bagʻrikenglik tamoyillariga asoslangan holda rivojlanishiga xizmat qiladi. Maktab muhitidagi hamkorlik oʻzaro tushunish va hurmatni shakllantirishga, erkin hayot kechirishning katta bir yoʻli boʻlishiga yordam beradi. Shuningdek, barcha oʻquvchilar orasida doʻstona munosabatlar mustahkamlanib, ularning shaxsiy rivojlanishiga ijobiy taʼsir koʻrsatadi.

Zero, hozirgi shart-sharoitni eʼtiborga olgan holda maxsus taʼlim muassasalaridan voz kechmasdan, qisqartirmasdan, aksincha, bosqichma-bosqich oʻtish, umumtaʼlim muassasalari bilan hamkorlikni rivojlantirish zarur.

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AGE-RELATED MORPHOMETRIC INDICATORS OF TAIL BONE INJURIES

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Abstract. Modern confocal multiplex morphometry was used to substantiate the specificity of changes in bone tissue in the digital form of coccyx lesions from a morphometric perspective, and in order to substantiate the age-related changes in coccyx lesions, previously prepared microsamples were scanned, measured at the appropriate points and analyzed. According to the results of the analysis, the highest rate of reparative regeneration as a result of coccyx lesions was at the age of 34-48 years, and in older people these indicators confirmed the intensification of the osteoporosis process as a result of destructive and degenerative changes in bone tissue.

Key words: coccyx, osteoporosis, confocal morphometry.

The urgency of the problem. The average increase in obesity among the world population is 1.57-3.85 kg per year. In the USA, European countries, and South American people, the average increase in obesity is 3.57 kg per year for each year after the age of 40. This indicates an average body weight of 35 kg or more at the age of 40-59. This indicator is found in 23% of women over the age of 40 in the USA, Europe, and South American countries [1]. As a result, the development of osteochondrosis, osteoarthritis, and osteoporosis at a general level and, as a result, the development of a sedentary lifestyle. Specifically, in sedentary groups, injuries associated with the coccyx account for 3.47% of all injuries, indicating that an average of 25 million women aged 40-59 worldwide suffer from this disease. This, in turn, once again confirms the urgency of this problem. In the Russian Federation and the CIS countries, this indicator is most common among women aged 50-59, with an average annual obesity rate of 2.27-5.55 kg. One of the main reasons for the obesity rate among women aged 50-59 in Uzbekistan is the early cessation of sexual activity at an average age of 48-53, with a decrease in sexual activity, changes in the endocrine system and the development of diffuse osteoporosis. As a result, the average incidence of diseases related to the spine among women aged 48-59 in our country's population is 42.85, of which 5.8% are diseases related to the coccyx. This requires the start of research work now.

Discussion and results. The coccyx is the final end of the vertebral column and is characterized by age-related morphometric parameters in all lesions. In most traumatic lesions, pre-prepared microsamples are taken for morphometric examination of the damaged areas of the tissue and cut into 3-5 μm thick sections. The two-dimensional image obtained by scanning with NanoZoomer was analyzed using the QuPath 0.4.0url. program. The area and volume of the intersecting trajectory planes in the X, Y axes were determined. It should be noted that to obtain average dimensions, at least 10 microsamples from each material were scanned, the sizes obtained were sequentially presented, and the arithmetic mean was obtained. The results were compared with changes in other groups and analyzed.

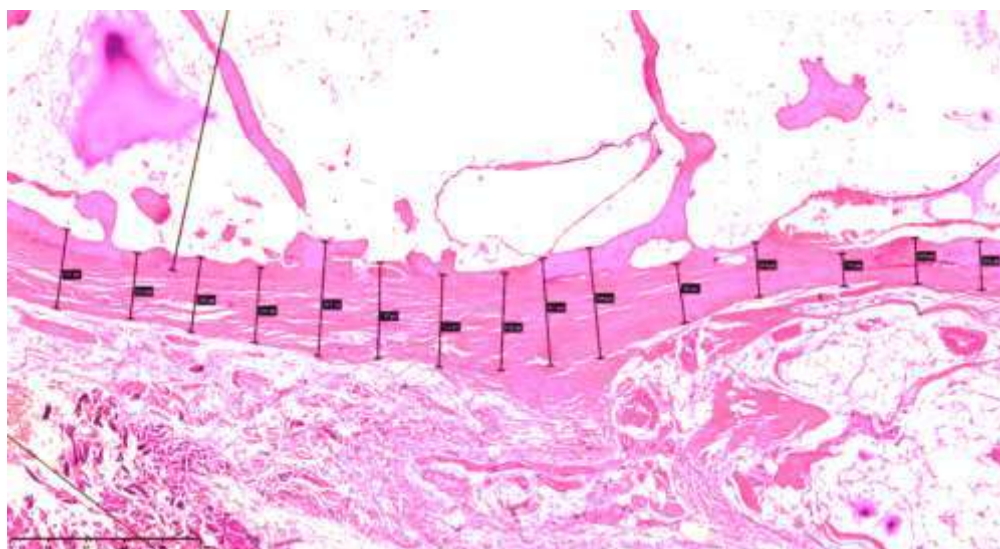


Figure 51. Morphogram image with measurements of the thickness of the coccyx membrane. Scanned with NanoZoomer and morphometric measurements obtained in NDP.view 2. Stained by GE. Size 10x10.

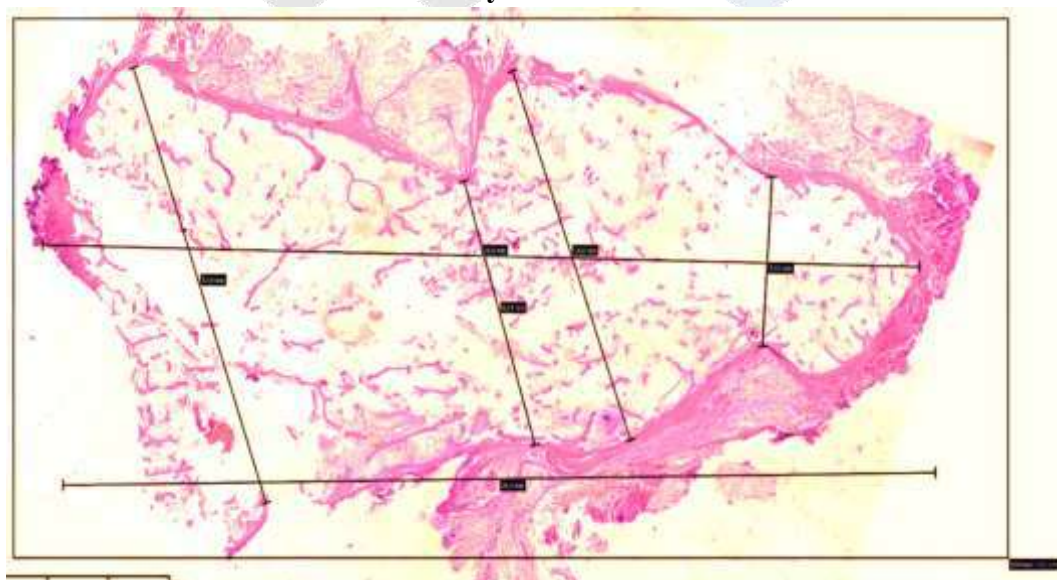


Figure 52. General view of the coccyx. Morphogram image with measurements of the thickness of the epiphyseal border. Scanned with NanoZoomer and morphometric measurements taken in the NDP.view 2 program. Staining GE. Size 4x10.

The specificity of the main principles in morphometric injuries of the coccyx was determined, in the period after any injury, the thickness of the beams in the spongy substance of the coccyx was $148.16 \pm 1.31 \mu\text{m}$, and this indicator was equal to $132.25 \pm 1.85 \mu\text{m}$ in the 45-59-year-olds (see Table 1). In terms of statistical difference, this indicator decreased by an average of 11% in terms of age, which means that there are differences in the level of reliability inherent in the process, which are statistically significant in terms of more than 10%.

In 60-74-year-olds, the average thickness of the bone beams of the spongy substance of the coccyx was $113.12 \pm 1.76 \mu\text{m}$, and it decreased by 1.3 times compared to group 1 and by 1.17 times compared to group 2. It was found that the bone beams decreased by a total of 30% for age after the injury of

the coccyx, and it was considered reliable in terms of statistical significance. confirms the reliability of the morphological examination results.

In 75-90-year-olds, the thickness of the bone beams is $81.16 \pm 2.24 \mu\text{m}$, and it is found to be 1.82 times lower than the 1st group, 1.63 times lower than the 2nd group, and 1.4 times lower than the 3rd group. These changes indicate that the coccyx undergoes involution and atrophic changes in the age-related fracture of the coccyx. Morphological examinations also show damage to the coccyx, as well as increased osteoporosis.

In 90-year-olds, it was found that the coccyx had osteoporosis, with bone columns having a thickness of $30.01 \pm 1.79 \mu\text{m}$ from the morphometric point of view. In comparison, it was found that the coccyx injuries decreased by 4.93 times compared to the 1st group, decreased by 4.4 times compared to the 2nd group, decreased by 3.77 times compared to the 3rd group, and the thickness of the bone column decreased up to 2.7 times. This means that one of the main aspects of the morphometric indicators in the age-related decreasing order occurred sharply in the damaged coccyx, which means that the involutional atrophic indicators of the coccyx in patients aged 90 years and older are highly developed.

Дум суягининг ғовак моддасининг эгаллаган майдони морфологик текширишларда ёшга доир эгаллаган майдонини келтирилган бўлиб, ушбу маълумотлар тахлилини морфометрик текширишлар орқали қуйидаги кўрсаткичлар олинган.

In particular, in group 1, in 18-44-year-olds, the area of coccyx bone beams on a surface of $13,000 \mu\text{m}^2$ was $733.12 \pm 16.1 \mu\text{m}^2$, and in group 2, i.e., at 45-59 years of age, this indicator was $601.81 \pm 19.02 \mu\text{m}^2$. This indicator also confirms that there are 1.3 times changes among 18-44 and 45-59-year-olds.

In group 3, the area occupied by bone ridges in the cancellous substance of the coccyx in 60-74-year-olds was $402.06 \pm 11.02 \mu\text{m}^2$, which was 1.82 times less than in group 1, and the area occupied by ridges was 1.5 times less than in group 2. This confirms the above morphological changes from a morphometric perspective.

In group 4, the area occupied by bone ridges in the cancellous substance of the coccyx in 75-90-year-olds was $212.15 \pm 9.52 \mu\text{m}^2$, which was 3.45 times less than in group 1, which is a very high difference and confirms the development of osteoporosis. Compared to group 2, it decreased by 2.83 times, while compared to group 3, it decreased by 1.9 times. These decreases confirm periodic age-related changes, which means that the rate of sharp changes exceeds 10-30%.

In the 5th group, the occupied area of the bone beams was $101.13 \pm 5.85 \mu\text{m}^2$, compared to the 1st group, by 7.25 times, compared to the 2nd group, 5.95 times, 4 times, and 2 times compared to the 5th group. the fact that the area occupied by the bone beams in the porous substance has decreased to 2-7.25 times on average means that the critical level of osteoporosis has been reached in the period after the injury of the coccyx.

According to the confocal morphometric indicators of the coccyx, the volume area of the bone beams in the spongy substance of the coccyx was 30.06 mm^3 , $3.25 \pm 0.02 \text{ mm}^3$ in 18-44-year-olds, and $2.31 \pm 0.06 \text{ mm}^3$ in the 2nd group of 45-59-year-olds. The significance of the statistical differences is 1.4, meaning that there is a reliability significance, and it confirms that the age-related aspects of the morphometric changes have been determined.

In group 3, the volume area of the cancellous bone columns in the period after the coccyx injury in 60-74-year-olds was $1.45 \pm 0.05 \mu\text{m}^3$, which is 2.24 times less than in group 1 and 1.6 times less than

in group 2. It is worth noting that the most noticeable age-related changes in morphological examinations were the sharp reduction of the cancellous bone columns and the cancellous bone columns after the injury, which was confirmed by morphometric examinations. In the 4th group, at the age of 75-90 years, it was $0.53 \pm 0.01 \text{ mm}^3$, and the volume of the beams sharply decreased periodically, proving the existence of age-related changes.

Thus, when comparing the coccyx of 75-90-year-olds with those of 18-44-year-olds, it was found that the volumetric area of the bone columns containing the cancellous substance decreased by 6.13 times. Specifically, this indicator decreased by 4.4 times compared to those aged 45-59, and by 2.7 times compared to those aged 60-74. The periodic decrease in these indicators also confirmed the age-related decrease.

In the 5th group, this indicator is $0.27 \pm 0.01 \text{ mm}^3$, and the total area of the beams is 1%, it is 12 times compared to the 1st group, 8.5 times compared to the 2nd group, 5.4 times in the 3rd group, and until March 2 in the 4th group. means

In the implementation of confocal morphometric measurements of the coccyx bone, the morphogram of the 2-dimensional microimages uploaded through the 3-dimensional software is presented, which allows to confirm and express in numbers the morphologically studied aspects of the coccyx bone in terms of its main features.

According to the following indicators, it was found that the volume area of the bone beams in the pore material of the coccyx was $394.02 \pm 4.17 \text{ mm}^3$ in 18-44-year-olds. In the 2nd group, in 45-59-year-olds, the total area of the bone beams in relation to the cavity is $217.96 \pm 6.93 \text{ mm}^3$, and it is determined that it has decreased by 1.8 percent compared to the 1st group.

In the 3rd group, it was found that the volume area occupied by the bone beams compared to the bone porous substance in the 60-74-year-old group was $64.99 \pm 1.34 \text{ mm}^3$ out of $13000 \text{ } \mu\text{m}^3$, and it was 4.9%, which decreased by 2.24 times compared to the 1st group, and decreased by 1.6 times compared to the 2nd group. These differences confirm that most of the changes are age-related, implying that the differences in other parts are also close.

In the 4th group, 75-90-year-olds have a volume of $13,000 \text{ } \mu\text{m}^3$, which is $0.53 \pm 0.01 \text{ mm}^3$, and the average occupied area is 2.34%. It was found that it decreased by 6.1 times compared to the 1st group, 3.35 times compared to the 2nd group, and 2 times compared to the 3rd group.

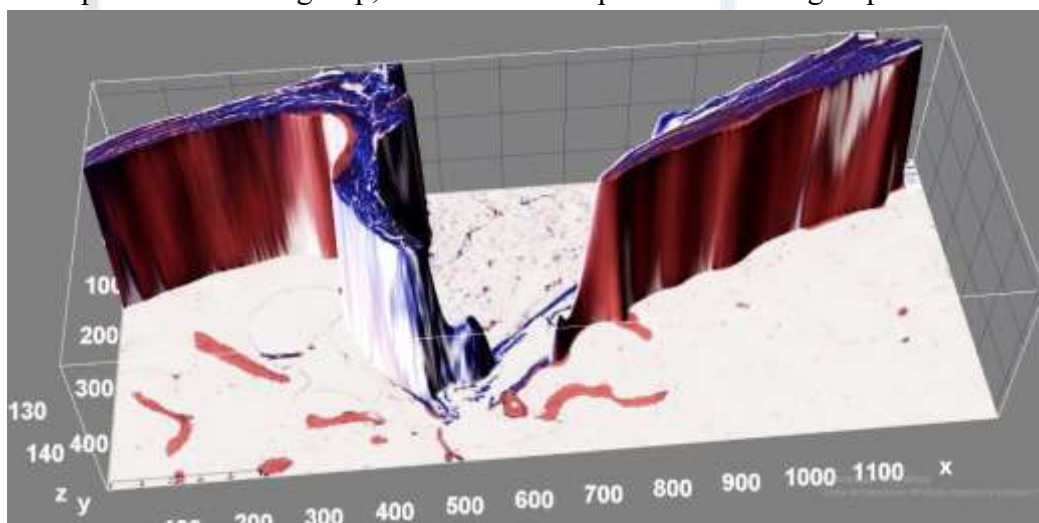


Figure 55. A 3D image of the osseous column area of a 40-year-old patient with a coccyx injury. The image was scanned with a NanoZoomer (REF C13140-21.S/N000198/ HAMAMATSU PHOTONICS/431-3196 JAPAN). The image was loaded into QuPath-0.5.0-ImageJ and the spatial shape was measured. Stained with Masson's Trichrome.

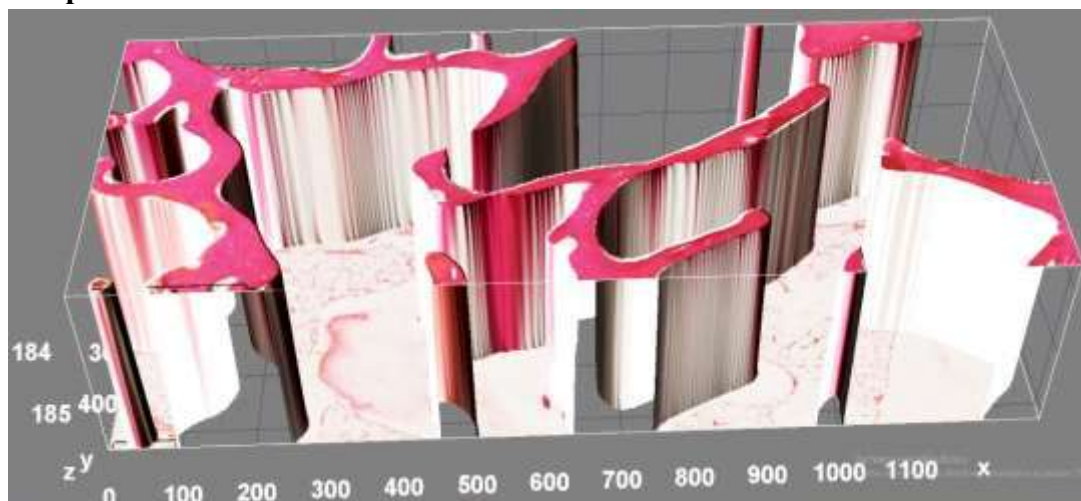


Figure 56. A 3D image of the osseous column area of a 34-year-old patient with a coccyx injury. Scanned with a NanoZoomer (REF C13140-21.S/N000198/ HAMAMATSU PHOTONICS/431-3196 JAPAN). Uploaded to QuPath-0.5.0-ImageJ and spatial shape measured. Stained according to Van Gieson.

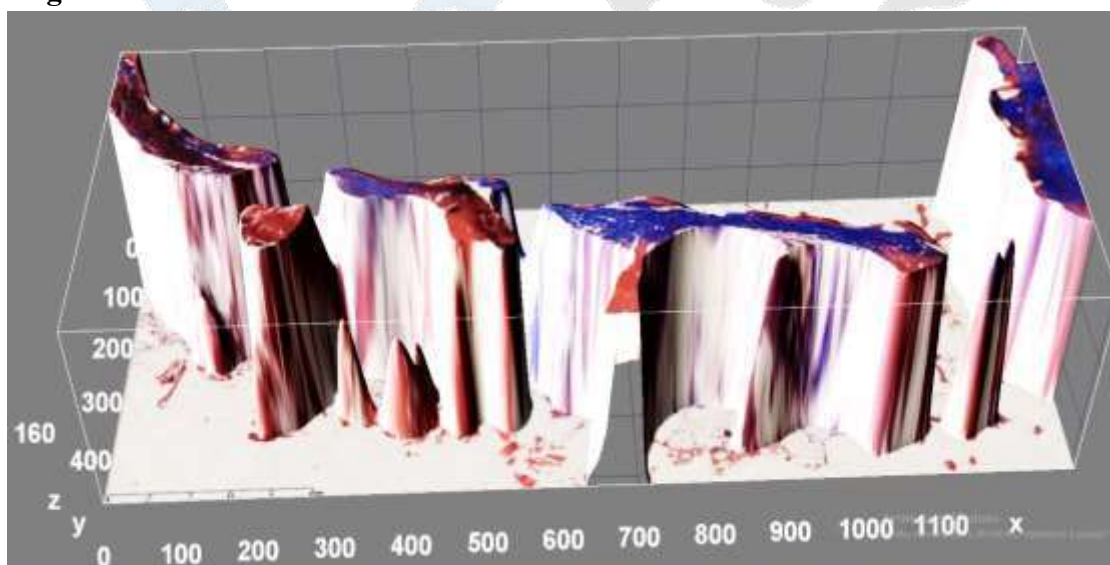


Figure 57. A 3D image of the osseous column area of a 57-year-old patient with a coccyx injury. The image was scanned with a NanoZoomer (REF C13140-21.S/N000198/ HAMAMATSU PHOTONICS/431-3196 JAPAN). The image was loaded into QuPath-0.5.0-ImageJ and the spatial shape was measured. Stained with Masson's Trichrome.

According to differences between the 5th group of 90 years and older, compared to the 1st group it decreased by 12 times, by 8.5 times, compared to the 3rd group by 5.4 times, compared to the 4th group by 2 times. Of course, these indicators confirm the role of duration in coccyx injuries in terms of age and scope.

According to further morphometric indicators, the thickness of the coccyx membrane is $10.11 \pm 0.03 \mu\text{m}^3$ in 18-44-year-olds, and $17.55 \pm 0.02 \mu\text{m}^3$ in the 2nd group of 45-59-year-olds, which indicates the presence of statistically significant aspects. Specifically, the volumetric thickness of the coccyx membrane is the highest indicator of morphological adaptation in the 45-59-year-old age group, which is explained by the increased volumetric thickness of the connective tissue.

In group 3, the volumetric thickness of the coccyx in 60-74-year-olds was $6.14 \pm 0.02 \mu\text{m}^3$, which is 1.64% less than in group 1, and 2.85% less than in group 2, which is considered a criterion indicating the damage-related aspects of the process.

In group 4, the volumetric thickness of the coccyx in 75-90-year-olds was $4.21 \pm 0.01 \mu\text{m}^3$, which means that it decreased by 2.4 times compared to group 1, 4.17 times compared to group 2, and 1.4 times compared to group 3. Of course, it should be noted that in morphological studies, a sharp decrease in the bone columns of the coccyx after age-related and traumatic injuries was observed due to the compensatory morphological adaptation mechanism, thickening of the periosteum due to coarse fibrous connective tissue, and the formation of supporting surfaces, which resulted in the deformation and flattening of the thickened ends. The results of confocal morphometric studies also confirmed these data. This, in turn, proves that the coccyx is caused by surface tension and resistance in the areas where the muscle tendons attach.

In the 5th group, these indicators showed that in the 90-year-old contingent and older, the volume thickness of the coccyx was $0.25 \pm 0.001 \mu\text{m}^3$, 40 times thinner than the 1st group, 70 times thinner than the 2nd group, and 24.5 times less than the 3rd group. The 17-fold decrease compared to group 4 indicates that the coccyx is more fragile and prone to damage due to a sharp decrease in the cortical thickness of the coccyx in the age group of 90 years and older. These signs can be derived from the clinical morphological aspect in the morphological examination and were confirmed.

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BOSHLANG'ICH TA'LIMDA O'QUVCHILARNING MUSTAQIL FIKRLASH KO'NIKMALARINI RIVOJLANTIRISH TEXNOLOGIYASI

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ANNOTATSIYA: Ushbu maqolada boshlang'ich ta'lim jarayonida o'quvchilarning mustaqil fikrlash ko'nikmalarini rivojlantirishning mazmuni, uning pedagogik-psixologik asoslari hamda tarixiy ildizlari tahlil qilingan. Shuningdek, interfaol metodlar va zamonaviy ta'lim texnologiyalarining o'quvchi fikrlash faolligini oshirishdagi o'rni yoritiladi.

Kalit so'zlar: Boshlang'ich ta'lim, mustaqil fikrlash, ta'lim texnologiyasi, muammoli ta'lim, kritik fikrlash

Аннотация: В данной статье анализируется содержание развития навыков самостоятельного мышления учащихся в процессе начального образования, его педагогико-психологические основы, а также исторические корни. Также будет освещена роль интерактивных методов и современных образовательных технологий в повышении мыслительной активности учащихся.

Ключевые слова: начальное образование, независимое мышление, образовательные технологии, проблемное обучение, критическое мышление.

Abstract: This article analyzes the content of the development of students' independent thinking skills in the process of primary education, its pedagogical and psychological foundations, as well as historical roots. The role of interactive methods and modern educational technologies in increasing students' mental activity will also be highlighted.

Keywords: primary education, independent thinking, educational technologies, problem-based learning, critical thinking

Kirish: Globallashuv sharoitida ta'limning asosiy vazifasi – o'quvchilarga tayyor bilimni berish emas, balki ularda mustaqil fikrlash, tahlil qilish, dalillash va qaror qabul qilish ko'nikmalarini shakllantirishdir. Ayniqsa, boshlang'ich ta'lim bosqichida bola tafakkurining tabiiy rivojlanishi kuchli bo'lgani sababli, bu jarayonni to'g'ri tashkil etish muhim ahamiyat kasb etadi. Aynan shu davrda ularda mustaqil fikrlash, kuzatish, savol berish, shubha qilish, solishtirish, tahlil qilish, xulosa chiqarish kabi muhim fikrlash faoliyatlarini shakllantirish nihoyatda muhim sanaladi. Mustaqil

fikrlash ko'nikmalari bolalarning keying bosqichlardagi o'quv faoliyatiga, ijodiy qobiliyatlariga va ijtimoiy hayotga moslashuviga bevosita ta'sir qiladi.

Boshlang'ich ta'limda mustaqil fikrlash deganda o'quvchining bilimni faqat yod olish emas, balki uni tushunib, izchil tahlil qilishi, shaxsiy fikrini bildirishga intilishi tushiniladi. Mustaqil fikrlash o'quvchining o'zi kuzatish, solishtirish, taqqoslash, savol-berish va xulosa chiqarish orqali bilim hosil qilish jarayonidir.

Bunda:

- o'quvchi faol subyektga aylanadi;
- o'quv jarayoni qiziqish, tadqiqot va izlanishga asoslanadi;
- tayyor javob emas, yo'naltiruvchi savol asosiy vosita bo'ladi;
- o'quvchida kritik, ijodiy va mantiqiy fikrlash shakllanadi.

Bu ko'nikmalar nafaqat o'quv jarayonida, balki kundalik hayotda ham shaxsga mustahkam poydevor yaratadi.

Zamonaviy pedagogik yondashuvlar o'quvchini bilish jarayonining faol ishtirokchisiga aylantirishni maqsad qilib qo'yadi. Shuning uchun interfaol metodlar, muammoli o'qitish, loyiha asosida o'qitish, guruhli ishlar, fikr almashish, tafakkur xaritalari kabi mustaqil fikrlashni rivojlantirishda asosiy vosita sifatida qaralmoqda.

Mustaqil fikrlash g'oyasi qadimdan buyuk mutafakkirlar tomonidan yuqori baholangan. Sharq mutafakkirlari orasida Abu Nasr Farobiy o'quvchini fikrlashga majbur qiluvchi savollar orqali bilim berish tarafdori bo'lgan va ta'limning asosiy vazifasi aqlni faol holga keltirish ekanini ta'kidlagan. Ibn Sino esa bilimni kuzatish, tajriba va solishtirish orqali o'zlashtirish kerakligini aytib, o'quvchiga keragidan ortiq yordam berish uning tafakkurini susaytiradi, degan fikrni ilgari surgan. Beruniy ham izlanishning boshlanishi savoldan ekanligini ta'kidlab, har bir ilmiy bilish jarayonida shaxsning mustaqil fikrlashi muhim o'rin tutishini qayd etgan.

G'arb mutafakkirlari orasida Sokratning savol-javobga asoslangan usuli o'quvchining o'zida yashirin bo'lgan fikrni uyg'otishga qaratilgan bo'lib, bugungi interfaol ta'lim metodlarining ildizi sanaladi. Aflotun ham bilimni o'qituvchi bermaydi, balki o'quvchi o'zi kashf qiladi, degan g'oyani ilgari surgan. Komenskiy esa ta'limni "ko'rish-idrok-fikrlash" zanjiri asosida tashkil etish zarurligini ta'kidlagan.

Zamonaviy pedagogik nazariyalarda ham mustaqil fikrlash markaziy o'rinda turadi. Vigotskiyning "yaqin rivojlanish zonasi" nazariyasida o'quvchi mustaqil fikrlashi uchun o'rtacha darajadagi yo'naltirish yetarli ekani ilmiy asoslab berilgan. Piaget bolaning tafakkuri bosqichma-bosqich rivojlanishini isbotlab, har bir yosh davriga mos fikrlash faoliyati shakllanishini ta'kidlagan. Bloom taksanomiyasi esa bilish jarayonini eslab qolishdan tortib tahlil, sintez va baholashgacha bo'lgan

bosqichlarga ajratib, mustaqil fikrlashni chuqurlashtirishga xizmat qiladi. Umuman olganda, qadimiy va zamonaviy pedagogik qarashlarning barchasi bitta xulosaga olib keladi, o'quvchi o'zi o'ylaganida, izlanganida, savol berganida va xulosa chiqarganida haqiqiy bilimga ega bo'ladi.

O'quvchilarga tanlov erkinligi berilgan vazifalar, ochiq savollar, hayotiy muammolar asosida tashkil etilgan topshiriqlar mustaqil fikrlashga chorlaydi. Masalan, "Agar sen muallim bo'lsang, qanday dars o'tkazarding?", "Bu hikoyadagi voqea boshqacha yakunlansa, qanday bo'lardi?", "Seningcha bu muammoning yana qanday yechimi bor?" kabi savollar o'quvchining o'z qarashini shakllantirishga undaydi. Bunday yondashuvlar orqali bola o'zi mustaqil ravishda fikr yuritish boshlaydi, o'zining qarorini asoslashga harakat qiladi va eng muhimi xatolaridan qo'rqmaydi.

Mustaqil fikrlashni rivojlantirishda o'quvchilarning ruhiy holati, o'ziga bo'lgan ishonchi ham katta ahamiyatga ega. O'qituvchi bolaga to'g'ri javob topishdan ko'ra fikr bildirish imkoniyatini bersa, bu bola uchun katta rag'bat bo'ladi. Har bir bolaning fikrini eshitish, uni qadrlash, hurmat bilan yondashish orqali o'qituvchi sinfda ochiq, demokratik muhit yaratadi. Bu esa bolaning ijtimoiy fikrlash va muloqot ko'nikmalarini ham rivojlantiradi.

Boshlang'ich sinf o'quvchilari uchun o'z fikrini og'zaki ifoda etish ko'nikmasi bilan bir qatorda yozma nutq orqali fikrlashni rivojlantirish ham muhim. Shu maqsadda kundalik tutish, qisqa esse, kichik insho, surat asosida voqea tuzish kabi topshiriqlar o'quvchilarning fikr yuritish, hodisalarni mantiqan tartiblash va xulosaga kelish qobiliyatini oshiradi. Yana bir muhim omil bu – metakognitiv ko'nikmalarni shakllantirishdir. Boshqacha aytganda, o'quvchini nafaqat bilim olishga, balki o'zining qanday o'rganayotganini anglashga o'rgatish kerak.

Bundan tashqari, o'quvchilar orasida fikrlar xilma-xilligini qadrlash va baholash madaniyatini shakllantirish ham zarur. Har bir o'quvchining fikrini tinglash, ularga nisbatan ijobiy munosabatda bo'lish orqali sinfda ochiqlik, ishonch va erkin fikrlash muhiti yaratiladi. Bu muhit o'z navbatida o'quvchilarning o'z fikrini dadil ifoda etishiga va boshqalar fikriga hurmat bilan yondashishga o'rgatadi.

Shuningdek, mustaqil fikrlashni shakllantirishda o'quvchilarning real hayotiy muammolar bilan ishlashi katta ahamiyatga ega. Dars mazmunini hayotiy va kritik fikrlash bilan bog'lab tushuntirish masalan, "Agar sen do'konga borsang va puling yetmasa, nima qilarding?", "Sinfigizda kelishmovchilik bo'lsa, qanday hal qilgan ma'kul?" kabi vaziyatlar asosida muhokama o'tkazish o'quvchilarda real fikrlash, mulohaza qilish, qaror qabul qilish ko'nikmalarini shakllantiradi.

O'qituvchi tomonidan qo'llaniladigan rag'batlantirish usullari ham mustaqil fikrlashga turtki bo'ladi. Mustaqil fikrlashni shakllantirishda o'qituvchining darsga tayyorgarligi

ham muhim rol o'ynaydi. Har bir mashg'ulotda o'quvchilarning intellektual faolligini oshiruvchi topshiriqlar, savollar va vaziyatlar rejalashtirilsa, bu darsni faqat bilim olish emas, balki fikrlash maktabiga aylantiradi. O'quvchilarni darsda passiv tinglovchi emas, faol ishtirokchi sifatida jalb qilish esa o'z navbatida ularda o'z fikrini himoya qilish, muloqotga kirishish, xulosaga Bugungi kunda ta'lim jarayonida raqamli texnologiyalar va sun'iy intellekt vositalari ham mustaqil fikrlashga xizmat qilmoqda. Masalan, interaktiv dasturlar, test ilovalari, virtual laboratoriyalar va simulyatsion muhitlar o'quvchilarga mavzuni o'zi mustaqil izlanishi orqali o'rganish imkonini beradi. Bu texnologiyalar bolalarni axborotni qidirish, solishtirish, tahlil qilishga o'rgatadi. Raqamli vositalardan maqsadli foydalanish orqali o'quvchi faqat iste'molchi emas, balki ijodkorga aylanishi mumkin. Yana bir muhim jihat — bu ko'p tarmoqli fikrlash ko'nikmasini shakllantirishdir. O'quvchiga bir mavzuni turli fanlar, turli burchaklar orqali ko'rsatish orqali unda murakkab tushunchalarni to'laqonli anglash, sabab-oqibat munosabatlarini tushunish, muammolarni har xil yo'llar bilan yechish ko'nikmasi shakllanadi. Masalan, "tabiat", "inson", "yaxshilik" kabi mavzularni o'qish, atrof-muhit, mehnat ta'limi, musiqa darslari bilan bog'lash orqali o'quvchi mavzuni chuqurroq tushunadi va o'z fikrini shakllantiradi. Mustaqil fikrlashni shakllantirish uchun o'quvchilar orasida savol berish madaniyatini rivojlantirish lozim. Ko'pchilik hollarda savol berish faqat o'qituvchiga tegishli faoliyat sifatida qoraladi. Aslida esa, bola savol bera olmasa, mustaqil fikrlash jarayoni yuzaga chiqmaydi. O'quvchilar savol berishga o'rgatilgach, ular nafaqat tayyor bilimni eshitadi, balki shubha qiladi, tanqidiy qaraydi, o'z savoliga o'zi javob topishga harakat qiladi. Bu esa faol tafakkurning eng muhim belgisidir.

Ayni vaqtda ta'lim jarayonida ijodiy topshiriqlarning ulushi ham oshirilishi zarur. Hikoya yozish, kichik dramatizatsiyalar qilish, o'z voqeasini o'ylab topish, rasm asosida hikoya tuzish kabi ijodiy mashg'ulotlar bolalarning tasavvurini, mantiqiy fikrlashini va mustaqil g'oya ilgari surish salohiyatini oshiradi. Bunday topshiriqlarning jozibadorligi ularni o'quvchilarga majburiyat emas, balki zavqli intellektual o'yin sifatida ko'rsatishidadir. Mustaqil fikrlashni shakllantirishda o'yinli metodlar, rolli mashg'ulotlar, ertak asosida muhokama qilish kabi usullar ham muhim o'rin tutadi. Ayniqsa kichik yoshdagi o'quvchilarda o'yin orqali fikrlash, taqqoslash, sabab-oqibatni tushunish faoliyatlari tez rivojlanadi. Bunday usullar bolaga og'irlik qilmaydi, balki ularning tabiiy qiziqishlari orqali bilimga intilish uyg'otadi. Kelish va qaror qabul qilish qobiliyatlarini kuchaytiradi.

Xulosa Boshlang'ich ta'limda o'quvchilarning mustaqil fikrlash ko'nikmalarini rivojlantirish – zamonaviy pedagogikaning eng muhim strategik yo'nalishlaridan biridir. Mustaqil fikrlash o'quvchilarga tayyor bilimni yod olish emas, balki uni tahlil

qilish, tushunish, amalda qo'llash va o'z fikrini asoslash imkonini beradi. Bu esa keyingi ta'lim bosqichlarida ham, hayot faoliyatida ham mustaqil qaror qabul qilish, mas'uliyatni his etish, mantiqiy mushohada yuritish kabi fazilatlar uchun poydevor yaratadi.

Tarixiy manbalar ko'rsatadiki, Forobiy, Ibn Sino, Beruniy, Sokrat, Komenskiy kabi buyuk mutafakkirlar ta'limning markazida o'quvchining faol fikrlashi turishi lozimligini ta'kidlaganlar. Zamonaviy olimlar – Vigotskiy, Piaget, Bloom – bu g'oyani ilmiy asoslab berdilar. Demak, mustaqil fikrlashni rivojlantirish – tasodifiy yondashuv emas, balki asrlar davomida takomillashgan pedagogik an'ana va ilmiy konsepsiyalarning uzviy davomidir.

Bugungi boshlang'ich ta'limda interfaol metodlar, muammoli vaziyatlar, guruhlarda ishlash, tadqiqotga asoslangan o'qitish va reflektiv yondashuv kabi texnologiyalar aynan shu qadimiy va zamonaviy ilmiy qarashlarning uyg'un natijasidir. Bu texnologiyalar o'quvchini bilim oluvchi emas, bilim yaratuvchi, fikr bildiruvchi subyektga aylantiradi.

Shunday qilib, mustaqil fikrlay oladigan o'quvchini tarbiyalash – nafaqat ta'limning sifati, balki jamiyatning intellektual salohiyati, raqobatbardoshligi va kelajak taraqqiyotining asosiy omillaridan biridir. Boshlang'ich ta'limda bu ko'nikmaning shakllanishi esa keyingi barcha bosqichlar uchun mustahkam start nuqtasini yaratadi.

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**STRENGTHENING THE MARKET POSITION OF SMALL BUSINESSES IN LOCAL
CONSUMER MARKETS THROUGH STRATEGIC AND INSTITUTIONAL
MECHANISMS**

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Abstract

This article examines the problem of strengthening the market position of small business entities in local consumer markets under conditions of increasing competition, structural economic transformation, and changing consumer behavior. The study conceptualizes competitiveness not merely as a price-based phenomenon, but as a multidimensional category incorporating product quality, marketing adaptability, customer relations, managerial efficiency, and institutional support mechanisms. Using a combination of theoretical generalization and analytical assessment, the article identifies key factors that determine the sustainability of small businesses in local markets and substantiates strategic pathways for enhancing their competitive resilience. Special attention is devoted to the role of localized demand analysis, service differentiation, and regulatory frameworks in fostering long-term competitiveness. The findings demonstrate that small businesses operating within local consumer markets can significantly strengthen their market positions through coordinated strategic planning and effective integration into the institutional environment.

Keywords: small business, local consumer markets, market position, competitiveness, institutional mechanisms, strategic development.

Аннотация

В данной статье рассматривается проблема укрепления рыночных позиций субъектов малого бизнеса на локальных потребительских рынках в условиях растущей конкуренции, структурной экономической трансформации и изменения потребительского поведения. В исследовании конкурентоспособность концептуализируется не только как ценовое явление, но и как многомерная категория, включающая качество продукции, маркетинговую адаптивность, отношения с клиентами, управленческую эффективность и институциональные механизмы поддержки. Используя сочетание теоретического обобщения и аналитического анализа, в статье выявлены ключевые факторы, определяющие устойчивость малых предприятий на

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локальных рынках, и обоснованы стратегические пути повышения их конкурентоспособности. Особое внимание уделено роли анализа локального спроса, дифференциации услуг и нормативно-правовой базы в обеспечении долгосрочной конкурентоспособности. Результаты показывают, что малые предприятия, работающие на локальных потребительских рынках, могут значительно укрепить свои рыночные позиции посредством скоординированного стратегического планирования и эффективной интеграции в институциональную среду.

Ключевые слова: малый бизнес, локальные потребительские рынки, рыночная позиция, конкурентоспособность, институциональные механизмы, стратегическое развитие.

INTRODUCTION

In the context of contemporary economic development, small business entities play a critical role in sustaining local consumer markets and ensuring balanced regional growth. Unlike large corporations, which operate across wide geographical areas and benefit from economies of scale, small businesses are deeply embedded in local economic and social structures. This embeddedness grants them proximity to consumers but simultaneously imposes constraints related to limited financial, technological, and organizational resources.

Local consumer markets are characterized by intense competition, fragmented demand, and a high sensitivity to price and service quality. Under such conditions, small business entities often face challenges in maintaining stable market positions, particularly when confronted with large retail chains, digital platforms, and informal market participants. As a result, the issue of strengthening the market position of small businesses becomes not only an economic task but also a strategic priority for sustainable regional development.

This study proceeds from the premise that enhancing the competitiveness of small businesses in local consumer markets requires a comprehensive approach that integrates business strategy with institutional and regulatory mechanisms. The article aims to identify the principal determinants of small business market positioning and to propose practical frameworks for strengthening their competitive advantages within local market environments.

LITERATURE REVIEW

The scholarly literature on small business competitiveness emphasizes various theoretical perspectives. Classical economic theories associate competitiveness with cost efficiency and price advantages, while modern strategic management approaches stress differentiation, innovation, and customer orientation. Porter's theory of competitive advantage highlights the importance of strategic positioning within industry structures, a concept that retains relevance for small business analysis when adapted to local market contexts.

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Recent empirical studies argue that small businesses derive competitive strength from non-price factors, including service personalization, flexibility, and trust-based customer relationships. Research on local consumer markets underscores the significance of institutional frameworks, such as regulatory stability, access to finance, and local governance, in shaping business performance. Despite extensive research, a noticeable gap remains in integrating strategic and institutional perspectives into a unified analytical framework tailored to local consumer markets. This article addresses this gap by synthesizing insights from both domains and applying them to small business market positioning.

METHODOLOGY

The research methodology is based on a qualitative-analytical approach combining theoretical synthesis with applied economic analysis. The study conceptualizes competitiveness as a systemic attribute influenced by internal business capabilities and external institutional conditions. Analytical tools include comparative assessment of market strategies, evaluation of operational indicators, and synthesis of empirical findings from comparable market environments.

Key analytical parameters include product differentiation, pricing flexibility, customer interaction models, marketing channels, and regulatory support instruments. The methodological framework allows for identifying causal relationships between strategic decisions and market outcomes within local consumer environments.

RESULTS

The results indicate that small businesses achieving a stable market position exhibit a balanced combination of strategic adaptability and institutional alignment. Enterprises that actively analyze localized consumer demand and tailor their offerings accordingly demonstrate higher customer retention and sales stability.

The findings further reveal that service quality and trust-based relationships often compensate for limited scale and financial capacity. Small businesses that integrate basic digital tools for marketing and customer communication also improve visibility and responsiveness.

Key Factors Influencing Market Positioning of Small Businesses

Factor	Strategic Importance	Market Effect
Product differentiation	High	Customer preference stability
Service quality	High	Brand loyalty
Pricing flexibility	Medium	Sales volume growth
Institutional support	Medium	Risk reduction

Marketing adaptability	High	Market visibility increase

DISCUSSION

The results confirm that strengthening the market position of small businesses in local consumer markets requires moving beyond traditional cost-based competition. Instead, competitiveness emerges from the ability to create value for consumers through differentiation, relational capital, and adaptive strategies.

The discussion highlights that institutional mechanisms—such as regulatory clarity, access to microfinance, and local business support programs—significantly amplify the effectiveness of internal strategies. Without such mechanisms, even well-designed business models face sustainability limits.

Moreover, the findings suggest that policy interventions aimed at local market stabilization should prioritize capacity-building initiatives rather than short-term financial incentives. This approach aligns economic efficiency with long-term social and regional development objectives.

CONCLUSION

The analysis demonstrates that small business competitiveness in local consumer markets is a multidimensional phenomenon shaped by strategic, institutional, and relational factors. Strengthening market positions requires a coherent integration of internal business strategies with external support mechanisms. Small businesses that prioritize consumer-oriented differentiation, service excellence, and adaptive market behavior exhibit greater resilience and sustainability.

In conclusion, fostering competitive small businesses in local consumer markets contributes not only to economic diversification but also to social cohesion and regional stability. The findings of this study provide a conceptual and practical foundation for policymakers, business practitioners, and researchers engaged in small business development.

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**“ДАВЛАТ ОРГАНЛАРИ ЁХУД МАНСАБДОР ШАХСЛАРИ ТОМОНИДАН
ЕТКАЗИЛГАН ЗАРАРНИ ҚОПЛАШНИНГ МАЪМУРИЙ-ҲУҚУҚИЙ ЖИҲАТЛАРИ”**

Тошкент давлат юридик институти мустақил изланувчиси
Яхшибоев Сардорбек Панжиевич

Аннотация

Мақолада давлат органлари ва уларнинг мансабдор шахслари томонидан маъмурий-ҳуқуқий ваколатларни амалга ошириш жараёнида жисмоний ва юридик шахсларга етказилган зарарнинг оммавий-ҳуқуқий табиати илмий-назарий жиҳатдан таҳлил қилинган. Давлат бошқаруви соҳасида қонунга хилоф ҳаракатлар (ҳаракатсизлик) ҳамда маъмурий ҳужжатларни қабул қилиш натижасида келиб чиқадиган салбий оқибатлар маъмурий ҳуқуқ нуқтаи назаридан ёритилган. Давлат хизмати фаолияти доирасида етказилган зарарнинг ўзига хос хусусиятлари, давлат органининг институционал жавобгарлиги ҳамда маъмурий-ҳуқуқий ҳимоя механизмларининг ўрни очиқ берилган. Давлат бошқарувида қонунийлик принципини таъминлаш ва шахсларнинг ҳуқуқларини самарали ҳимоя қилишга қаратилган илмий хулоса ва таклифларни илгари сурилди.

Аннотация

В статье исследуется публично-правовая природа вреда, причинённого физическим и юридическим лицам в результате осуществления административно-правовых полномочий государственными органами и их должностными лицами. С позиции административного права проанализированы случаи причинения вреда вследствие незаконных действий (бездействия), а также принятия административных актов, не соответствующих требованиям законодательства. Особое внимание уделено специфике причинения вреда в рамках деятельности государственной службы, институциональной ответственности государственных органов и роли административно-правовых механизмов защиты прав заинтересованных лиц. Обоснована необходимость укрепления принципа законности в сфере государственного управления и совершенствования механизмов административного контроля и судебной защиты.

Abstract

The article examines the public-law nature of harm caused to individuals and legal entities as a result of the exercise of administrative and legal powers by state bodies and their officials. From the perspective of administrative law, the study analyzes cases of harm arising from unlawful actions (inaction) as well as from the adoption of administrative acts that do not comply with legal requirements. Particular attention is paid to the specific features of harm caused within the framework of public service activities, the institutional responsibility of state bodies, and the role of administrative and legal mechanisms for the protection of the rights of affected persons. The author substantiates the necessity of strengthening the principle of legality in public administration and improving mechanisms of administrative oversight and judicial protection.

Калит сўзлар: маъмурий ҳуқуқ, давлат бошқаруви, давлат органи, мансабдор шахс, маъмурий ваколат, маъмурий ҳужжат, давлат хизмати, қонунга хилоф ҳаракат, маъмурий суд, ҳуқуқий ҳимоя.

Давлат хизмат муносабатларини ташкил этишнинг муҳим таркибий қисми давлат хизматчилари томонидан фуқароларга етказилган зарарни қоплаш жараёнидир. Ўзбекистон Республикаси Президентининг “Ўзбекистон Республикасида кадрлар сиёсати ва давлат фуқаролик хизмати тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида”ги фармонида давлат фуқаролик хизмати соҳасида кўплаб муаммолар санаб ўтилган¹. Бу борада соҳада жисмоний ва юридик шахслар манфаатларини ҳуқуқий кафолати муҳим ўрин тутди.

Таъкидлаш лозимки, давлат фуқаролик хизматида зарарларни қоплаш жараёни миллий олимлар томонидан алоҳида ўрганилмаган. Асосий эътибор давлат хизматини комплекс ўрганишга урғу берилган. Шунингдек, миллий олимларимиз Х.Азизов², Ш.Исмоилов³, Ф.Махмудов⁴, Б.Мирбобоев⁵, Н.Саид-Газиёва⁶, Х.Хайитов⁷, Р.Ҳакимов⁸, И.Ҳамедов⁹, Э.Ҳожиёв¹⁰, О.Хусанов¹¹, С.Юсупов¹² ва бошқалар томонидан давлат фуқаролик хизматини айрим жиҳатлари бўйича тадқиқот олиб борилган.

Хорижий олимлардан Д.Н.Бахрахнинг таъкидлашича, давлат фуқаролик хизматини ўташнинг асосий элементлари қаторига қуйидагилар киритади: 1) давлат хизматига қабул қилиш; 2) сертификатлаш ва малака ошириш; 3) мартаба даражасини бериш; 4) бошқа лавозимга ўтказиш; 5) рағбатлантириш; 6) жавобгарлиги; 7) хизматни тугатиш¹³. Бу ўринда жавобгарлик доирасига зарарни ундириш масаласини ҳам киритса бўлади. Умуман олганда ушбу масала давлат хизматини узвий таркибий қисми ҳисобланади.

Давлат органлари фаолиятининг кенгайиб бориши, давлат хизматлари сонининг ортиши ва маъмурий тартиб-таомилларнинг мураккаблашуви шароитида жисмоний ва юридик шахслар билан давлат органлари ўртасида вужудга келадиган маъмурий-ҳуқуқий муносабатлар алоҳида аҳамият касб этмоқда. Ушбу муносабатларда давлат органлари ҳокимият

¹ Ўзбекистон Республикаси Президентининг “Ўзбекистон Республикасида кадрлар сиёсати ва давлат фуқаролик хизмати тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида”ги фармони // Қонунчилик маълумотлари миллий базаси, 06.07.2021 й., 06/21/6256/0636-сон

² Азизов Х., Йўлдошев А., Асадов Ш., Хайитов Х., Каримов Д., Бекжанов Д., Атажанова Д., Юлдошева Ф. Давлат хизмати. Ўқув қўлланма.-Тафаккур қаноти, 2019.

³ Исмоилов Ш. Айрим тоифадаги ходимлар меҳнатини ҳуқуқий тартибга солишнинг хусусиятлари: ю.ф.д. ... дисс.афтореферати.- Т. 2020.- 56 б.

⁴ Махмудов Ф. Давлат фуқаролик хизматида манфаатлар тўқнашувини олдини олишнинг ташкилий-ҳуқуқий механизмлари: ю.ф.ф.д...дисс.- Т.2019.-226 б.

⁵ Мирбобоев Б., Хусанов О., Бегматов А. Ўзбекистон давлат хизматини ташкил этишнинг ташкилий-ҳуқуқий масалалари.-Т.: Академия, 2005.- 144 б.

⁶ Саид-Газиёва Н. Ўзбекистонда давлат хизматини ислоҳ қилишнинг назарий ва амалий муаммолари: ю.ф.д...дисс. – Т., 2010.-250 б.

⁷ Хайитов Х. Алимов Б. Давлат фуқаролик хизматида меҳнат муносабатларини ҳуқуқий тартибга солиш масалалари. // Жамият ва бошқарув. - № 4, 2020.-21-27-б.

⁸ Ҳакимов Р. Давлат ҳокимияти тармоқлари ўртасида мувозанатни таъминлашнинг ҳуқуқий механизмларини такомиллаштириш. Монография.- Т.: Адабиёт учқунлари, 2016.- 216 б.

⁹ Ҳамедов И. Современное состояние и концептуальные требования к государственной службе в зарубежных странах. // Жамият ва бошқарув, - № 2, 2016.- 136-141 б.

¹⁰ Ҳожиёв Э., Исмаилова Г., Рахимова М. Давлат хизмати. Ўқув қўлланма. – Т.: Baktrria press.2015. 176 б.

¹¹ Хусанов О. Ўзбекистонда давлат фуқаролик хизмати ҳуқуқий асосларининг ривожланиш истикболлари. // Социология ва ҳуқуқ. - № 1, 2022. – 59-64 б.

¹² Юсупов С., Исаева Ф. Давлат хизмати. Дарслик.-Т.: ТДЮУ. 2022.-160 б.

¹³ Бахрах Д.Н. Административное право России. Учебник для вузов. М.: НОРМА, 2000. С. 241.

ваколатларига эга бўлган субъект сифатида иштирок этади ва қабул қилинадиган ҳар қандай маъмурий қарор шахсларнинг ҳуқуқ ва қонуний манфаатларига бевосита таъсир кўрсатади. Амалиёт шуни кўрсатмоқдаки, давлат органлари ва мансабдор шахслар томонидан маъмурий ваколатларни амалга ошириш жараёнида қонун талабларига риоя этилмаслиги ҳолатлари учраб туради. Бундай қонунга хилоф ҳаракатлар ёки ҳаракатсизлик, шунингдек асоссиз ёки қонунга зид маъмурий ҳужжатларни қабул қилиш натижасида шахсларга муайян зарар етказилади. Мазкур зарар давлат бошқаруви соҳасида қонунийлик принципнинг бузилиши билан узвий боғлиқдир.

Шу сабабли давлат органлари ва мансабдор шахсларнинг маъмурий-ҳуқуқий фаолияти натижасида етказилган зарар масаласини маъмурий ҳуқуқ нуқтаи назаридан илмий тадқиқ этиш долзарб ҳисобланади. Бу, бир томондан, давлат ҳокимияти фаолияти устидан самарали ҳуқуқий назоратни таъминлашга, иккинчи томондан эса шахсларнинг бузилган ҳуқуқларини тиклаш механизмларини такомиллаштиришга хизмат қилади.

Маъмурий-ҳуқуқий муносабатлар давлат бошқаруви соҳасида вужудга келадиган, давлат органлари ва жисмоний ҳамда юридик шахслар ўртасида шаклландиган оммавий-ҳуқуқий муносабатлардир. Ушбу муносабатларнинг асосий хусусияти — томонлардан бирининг ҳокимият ваколатига эгалиги ҳисобланади.

Давлат органлари лицензиялаш, рухсат бериш, рўйхатдан ўтказиш, давлат хизматлари кўрсатиш, назорат ва мажбурият чораларини қўллаш каби фаолият турларини амалга оширади. Бу жараёнда қабул қилинадиган маъмурий қарорлар императив характерга эга бўлиб, уларга бўйсунуш мажбурий ҳисобланади.

Айнан шу жиҳат маъмурий-ҳуқуқий муносабатларда қонунийлик принцинга қатъий амал қилиниши зарурлигини тақозо этади. Негаки давлат органининг ҳар қандай нотўғри ҳаракати ёки қарор қабул қилиши шахсларнинг ҳуқуқий ҳолатига салбий таъсир кўрсатиши мумкин.

Маъмурий-ҳуқуқий фаолият натижасида етказилган зарар деганда давлат органлари ёки уларнинг мансабдор шахслари томонидан маъмурий ваколатларни амалга ошириш жараёнида қонунга хилоф ҳаракатлар (ҳаракатсизлик) ёки маъмурий ҳужжатлар қабул қилиниши оқибатида жисмоний ва юридик шахсларнинг ҳуқуқлари, эркинликлари ва қонуний манфаатларига етказилган салбий оқибатлар тушунилади.

Бундай зарар хусусий-ҳуқуқий муносабатлардан фарқли равишда оммавий-ҳуқуқий муносабатлар доирасида юзага келади. Давлат органи бу ерда тенг ҳуқуқли иштирокчи эмас, балки ҳокимият субъекти сифатида ҳаракат қилади.

Маъмурий-ҳуқуқий зарар кўпинча қуйидаги ҳолатларда юзага келади:

- маъмурий қарорни асоссиз қабул қилиш ёки рад этиш;
- белгиланган муддатларда қарор қабул қилмаслик;
- қонун талабларига зид маъмурий ҳужжат чиқариш;
- давлат хизматини кўрсатишда сусткашлик ёки расмийчиликка йўл қўйиш.

Давлат хизмати давлат органларининг ваколатларини амалга оширишни таъминловчи профессионал фаолият ҳисобланади. Давлат фуқаролик хизматчилари хизмат вазифаларини бажариш жараёнида давлат ҳокимияти номидан ҳаракат қилади.

Шу боис, давлат хизматчисининг қонунга хилоф ҳаракати шахсий хатти-ҳаракат сифатида эмас, балки давлат органининг маъмурий фаолияти сифатида баҳоланади. Бу эса зарар учун жавобгарлик масаласида давлат органининг биринчи даражадаги жавобгарлигини асослайди. Ўзбекистон Республикасининг “Давлат фуқаролик хизмати тўғрисида”ги Қонунида давлат хизматчисининг қонунга хилоф ҳаракатлари жавобгарликка сабаб бўлиши белгиланган. Ушбу норма маъмурий ҳуқуқда давлат хизмати институтининг масъулиятга асосланганлигини кўрсатади.

Маъмурий-ҳуқуқий фаолият натижасида етказилган зарарни бартараф этишнинг асосий механизми — маъмурий ва суд назорати ҳисобланади. Шахслар давлат органлари қарорлари ва ҳаракатлари устидан юқори турувчи органларга ёки маъмурий судларга шикоят қилиш ҳуқуқига эга.

Маъмурий судлар давлат органлари фаолияти устидан мустақил назоратни амалга ошириб, қонунийлик принципини таъминлашда муҳим рол ўйнайди. Суд назорати орқали маъмурий қарорлар бекор қилиниши, қайта кўриб чиқилиши ёки қонунга мувофиқлаштирилиши мумкин. Фикримизча, маъмурий-ҳуқуқий ҳимоя механизмларининг самарадорлигини ошириш учун маъмурий тартиб-таомилларнинг аниқлиги ва очиқлигини таъминлаш зарур.

Давлат органлари ва мансабдор шахсларнинг маъмурий-ҳуқуқий фаолияти натижасида етказилган зарар маъмурий ҳуқуқнинг мустақил ва муҳим институти ҳисобланади. Бундай зарар давлат бошқаруви соҳасида қонунийликка риоя этилмаслиги оқибатида юзага келади.

Хулоса қилиб айтганда, давлат органлари ва мансабдор шахсларнинг маъмурий-ҳуқуқий фаолияти натижасида етказилган зарар маъмурий ҳуқуқ доирасида мустақил ҳуқуқий институт сифатида қаралиши лозим. Бундай зарар давлат бошқаруви жараёнида ҳокимият ваколатларини амалга ошириш билан бевосита боғлиқ бўлиб, у доим ҳам давлат хизматчисининг шахсий айби мавжуд бўлган ҳолатларда келиб чиқмайди.

Маъмурий амалиёт шуни кўрсатадики, айрим ҳолларда зарар давлат органининг қонуний, лекин натижаси бўйича шахс учун салбий оқибатларга олиб келган ҳаракатлари оқибатида юзага келиши мумкин. Шу нуқтаи назардан, маъмурий-ҳуқуқий муносабатларда зарар етказиш масаласини фақат айб категорияси орқали баҳолаш давлат хизмати табиатига тўлиқ мос келмайди. Давлат хизматчиси қонун доирасида ҳаракат қилган, ваколатини оширмаган ва хизмат мажбуриятларини бажариш жараёнида оқилона қарор қабул қилган ҳолларда, унинг фаолияти натижасида келиб чиққан салбий оқибатлар учун шахсий жавобгарликка тортилиши давлат хизмати барқарорлиги принципига зид бўлади.

Шу сабабли, давлат органлари ва мансабдор шахслар томонидан етказилган зарарни қоплашда аниқ ва тизимли маъмурий тартиб белгилаш зарур. Бундай тартиб, биринчи навбатда, зарар етказиш ҳолатларини айбли ва айбсиз ҳолатларга ажратиш, иккинчидан эса жавобгарликни давлат органи ва давлат хизматчиси ўртасида адолатли тақсимлашни назарда тутиши лозим. Давлат органи оммавий ҳокимият субъекти сифатида шахслар олдида биринчи даражада жавобгар бўлиши, давлат хизматчисининг шахсий жавобгарлиги эса фақат унинг айби, ваколатдан чиқиб кетиши ёки қонунга очиқ хилоф ҳаракатлари мавжуд бўлган ҳолларда қўлланилиши мақсадга мувофиқдир.

Фикримизча, маъмурий қонунчиликда давлат хизматчиларининг фаолияти натижасида етказилган зарарни қоплаш бўйича махсус маъмурий тартиб-таомилни белгилаш лозим. Ушбу тартиб зарарнинг сабаблари, хизматчининг ҳаракатларининг қонунийлиги, ваколат доирасида

ёки ундан ташқари амалга оширилганлиги, шунингдек айбнинг мавжуд ёки мавжуд эмаслигини комплекс баҳолашни таъминлаши керак. Бу эса маъмурий судлар ва бошқа ваколатли органлар томонидан ягона амалиёт шаклланишига хизмат қилади.

Шу билан бирга, давлат ўзининг давлат органлари ва хизматчилари учун ҳуқуқий кафолатларни таъминлаши лозим. Давлат хизматчиси қонун доирасида ва ҳалол ҳаракат қилган ҳолда, биргина нотўғри қарор ёки маъмурий хатолик учун мутаносиб бўлмаган даражада катта зарарни қоплаш мажбурияти юкланиши давлат хизмати самарадорлигига салбий таъсир кўрсатади. Давлат хизматчисининг беҳовотир, мустақил ва масъулиятли фаолият олиб бориши давлат бошқарувининг барқарорлиги ва сифатини таъминлашнинг муҳим шарти ҳисобланади.

Шу сабабли, давлат органлари ва мансабдор шахслар томонидан етказилган зарарни қоплаш институтини такомиллаштиришда давлат хизмати манфаатлари билан жисмоний ва юридик шахсларнинг ҳуқуқ ва қонуний манфаатлари ўртасида мувозанатни таъминлаш асосий мезон сифатида белгиланиши лозим. Аниқ, очиқ ва прогноз қилинадиган маъмурий тартибни жорий этиш орқали ҳам шахсларнинг ҳуқуқий ҳимояси, ҳам давлат хизмати тизимининг барқарорлиги таъминланиши мумкин.

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THE GREAT EASTERN MATHEMATICS - A WORLD OF DISCOVERIES AND BOLD
ENDEAVORS

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Abstract. This article discusses the fact that the great eastern mathematics is a world of discoveries and feats, the founders of these discoveries and the eternal legacy they left us, as well as the legacy of our ancestors, should be a model for young people.

Keywords: eastern mathematics, discoveries, feats, legacy, mathematics, science enthusiasts.

Annotatsiya. Ushbu maqolada buyuk sharq matematikasi - kashfiyotlar va jasoratlar dunyosi ekanligi, bu kashfiyotlarning asoschilari va ularning bizga qoldirgan abadiy meroslari hamda bobolarimiz meroslari yoshlar uchun dasturamal bo'lishi lozimligi haqida so'z boradi.

Kalit so'zlar: sharq matematikasi, kashfiyotlar, jasorat, meros, matematika fani, ilm-fan jonkuyarlari.

Аннотация. В данной статье рассматривается тот факт, что великая восточная математика - это мир открытий и подвигов, основатели этих открытий и вечное наследие, которое они нам оставили, а также наследие наших предков, должны служить образцом для молодежи.

Ключевые слова: восточная математика, открытия, подвиги, наследие, математика, любители науки.

It is well known that mathematics is both a powerful and vital discipline. Its vitality is manifested through the remarkably wide range of fields in which it can be applied, while its power is expressed through its unique ability to describe natural phenomena and the structure of the universe in a formal language.

Just as a reader may enjoy a poem or novel without immediately recognizing its author or literary style, those who study mathematics may sense its irresistible charm and its compelling logic even before fully understanding its laws. Once regarded by many as a discipline reserved only for those who could "converse with the devil," mathematics possesses its own internal elegance, laws, and mysteries. Yet how, through whom, and at what cost were these mysteries first unveiled?

Indeed, the realm of mathematical knowledge is vast. Unlike other disciplines, mathematics does not simply repeat its curriculum from primary education through higher education; new concepts continuously build upon earlier ones, and even then, numerous important and useful topics remain unexplored. Mastery of this science requires perseverance, patience, and tireless effort. While many believe mathematical talent to be innate, this claim cannot be entirely justified; mathematical ability can be cultivated and strengthened. Just as scholars have observed that ninety-nine percent of inspiration is labor, mathematical capability, too, is largely the result of persistent work and study. Any young learner who wishes to study mathematics must acquire the habit of independent work—a principle equally vital for students of all other professions, including those in the military.

A survey of the history of mathematics shows that no great mathematician has ascended to intellectual heights in a single flight like a bird; rather, they have progressed slowly, like ants, enduring immense hardship along the way. Many have been compelled to leave behind the comfort of home and travel far from their native lands, immersing themselves in scholarship and research. Few figures of cultural

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and scientific heritage have attained greatness without sacrifice or without encouraging others to pursue the path of knowledge. The pages of human history abound with such extraordinary individuals, whose names continue to be remembered with admiration and gratitude centuries later. When we examine the intellectual heritage accumulated by our people over many centuries, it becomes evident that the pursuit of knowledge, culture, and enlightenment has been an enduring feature of our civilization.

As is well known, the Roman Empire, which had given the world such intellectual titans as Herodotus, Aristotle, Euclid, Ptolemy, Pythagoras, and Archimedes, began to decline in the 6th and 7th centuries, marking the end of the first Greek Renaissance. Meanwhile, during the 7th and 8th centuries, while the Arab conquests brought significant turmoil and disrupted the ancient cultural traditions of Eastern peoples, the Caliphate soon realized that its power and future prosperity depended largely on cultivating scholars and patrons of knowledge. This period gave rise to the great Eastern Renaissance—a flourishing of scientific and intellectual life—during which figures such as al-Khorezmi, al-Fergani, al-Beruniy, Ibn Sino, Omar Khayyam, and al-Farabi left an indelible mark on world civilization.

Our great compatriot Muhammad ibn Musa al-Khorezmi did not simply pick up pen and paper and spontaneously compose his treatises—such as *On Algebra* and *Indian Arithmetic*—that would change the course of scientific history. Despite living in a period plagued by religious conflict and intellectual stagnation, he spent years in libraries and madrasas carefully studying the works of Greek, Indian, and Arab scholars and conducting continuous research. Learning in such a turbulent era has been compared to “digging a well with a needle”—a metaphor undoubtedly inspired by scholars of Khorezmi’s generation.

Historical sources reveal that during the 8th and 9th centuries, the young and intellectually gifted Khorezmi attracted the attention of Caliph al-Ma’mun, who was deeply devoted to science. With the Caliph’s patronage, Khorezmi lived and worked far from his homeland at the Bayt al-Hikma (House of Wisdom) in Baghdad—the medieval counterpart of today’s academies. For many years, he taught and mentored scholars gathered from across the Islamic and Eastern world. His treatise *Hisab al-Hind* (“*Indian Arithmetic*”) introduced the decimal positional numeral system—using the digits 0 through 9—to the broader world. Although these numbers may now seem ordinary and mundane, their victory over Roman numerals, alphabetic numeral systems, and abacus-based calculations was neither obvious nor immediate. From Khorezmi’s work also emerged the four basic arithmetic operations and rules for exponentiation and root extraction, which later evolved into the foundations of modern arithmetic. His name, rendered into Latin as *Algorismus*, ultimately gave rise to the modern term *algorithm*.

Khorezmi’s seminal work *al-Kitab al-Mukhtasar fi Hisab al-Jabr wa-l-Muqabala* laid the foundations of algebra. The term *al-jabr* denotes reduction or restoration, while *al-muqabala* describes opposition or balancing. The treatise introduced methods for solving linear and quadratic equations and served as Europe’s primary algebraic text until the era of François Viète. The word *algebra* itself emerged through Portuguese and Spanish adaptations of *al-jabr*. The 16th-century algebraists Tartaglia and Cardano recognized Khorezmi as the founder of algebra, and Cardano famously referred to him as “the eighth genius of humankind.” The historian George Sarton described him as “the greatest mathematician of all time relative to his era.”

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Another towering figure whose intellectual legacy illuminated the darkness that engulfed medieval Europe was Abu Rayhan al-Beruniy. Despite living in an era marked by ignorance, oppression, and intense hardship, he achieved remarkable success across multiple scientific fields through relentless inquiry and unwavering dedication. For many years, he directed the scientific center established in Khorezm by Ma'mun II—an institution later known as the Khorezm Academy. Fluent in numerous languages and driven by a profound conviction that knowledge was a fundamental necessity of life, al-Biruni distinguished himself as one of the greatest philosophers, mathematicians, physicists, geographers, and mineralogists of his time. His works *al-Qanun al-Mas'udi* (The Mas'ud Canon) and *al-Taqvim* became essential textbooks in Europe for centuries.

The depth and breadth of al-Beruniy's intellectual pursuits are difficult to overstate. The eminent Russian orientalist I. Krachkovskiy observed that it was "far easier to enumerate the subjects in which Beruniy did not engage than to list those in which he did." He mastered nearly every branch of the exact sciences of his era, earning great renown for himself and his people and providing an enduring model for future generations. One contemporary account described him as someone who allowed his eyes and mind only two days of rest throughout the year—New Year's Day and the autumnal equinox celebration—spending all other days in reading, study, and scientific contemplation.

The celebrated Uzbek poet Abdulla Oripov once wrote:

America was still asleep, and Columbus had not yet dreamed,
Yet the seas were illuminated first by Beruniy's brilliant mind.

Indeed, al-Beruniy anticipated the existence of the American continent centuries before Columbus and created one of the earliest models of the Earth—his "*Pearl of the Earth*" globe—which is preserved today in Nuremberg. Over a hundred of his treatises, spanning mathematics, astronomy, geography, mineralogy, and related sciences, contain bold theoretical ideas and ingenious discoveries. His wisdom also carried an ethical dimension, embodied in aphorisms such as "Knowledge is the fruit of repetition," "True knowledge remains with a person even when stripped of all possessions," and "One's worth is measured by the excellence with which one performs one's work."

Long before Copernicus formalized heliocentrism and before Isaac Newton articulated the laws of universal gravitation, al-Beruniy reasoned that the Earth possessed its own gravitational force and deduced that celestial bodies attracted one another. He accurately determined the Earth's diameter and circumference, calculated geographic latitudes, and measured distances between the Earth and celestial bodies. His contributions to the consolidation of trigonometry as an independent mathematical discipline were so significant that modern scholars have praised him as having been "five hundred years, if not more, ahead of his time in resolving a number of fundamental scientific problems."

The history of Eastern scholarship also preserves the memory of numerous lesser-known mathematicians whose names did not endure as prominently yet who earned the admiration of their contemporaries. Among them was Hasan al-Nasafi, a brilliant mathematician who regarded al-Beruniy and Ibn Sino as his esteemed teachers. In addition to producing insightful commentaries on Archimedes, al-Nasafi mastered Khorezmi's mathematics and authored works such as *al-Munki fi-l-Hisab al-Hind* ("The Realities of Indian Arithmetic"), the manuscript of which is currently housed in Leiden, Netherlands. Despite his exceptional talent, he died at the young age of thirty.

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Possessing an extraordinary aptitude for mathematics, al-Nasafi was said by some to surpass even Carl Friedrich Gauss in mental calculation and exact sciences. A famous anecdote recounts that Sultan Mahmud of Ghazni once convened architects and engineers to estimate the cost of constructing a new palace. When asked how long the calculation would take, they requested three to four months. Observing silently from the side, al-Nasafi sought permission to speak and proceeded to enumerate the expenditures in a structured, systematic manner. Months later, the architects' final calculations differed little from his initial estimate—a feat that astonished even the Sultan.

Throughout his short life, al-Nasafi served faithfully alongside his teacher al-Beruniy, who valued him as a colleague and intellectual companion. Sources indicate that al-Biruni, known for his reserved character, frequently consulted al-Nasafi and conducted experiments jointly with him. Yet the young scholar worked with such tireless intensity-driven by the fear that his unrecorded mathematical results might be lost—that he ultimately compromised his health. His final words, spoken on his deathbed, were said to be: *"Much of my work remains unfinished. Let the people forgive me."*

Upon his passing, Sultan Mahmud also died, and when al-Beruniy did not attend the Sultan's funeral, the prince reproached him: "Why did you not appear at the burial of the Sultan of the realm?" To which al-Beruniy replied: *"The Sultan of Numbers, who sought to solve all human difficulties through mathematics, has departed from this world. I have buried the Sultan of Numbers."*

Despite the immense contributions of these scholars, many of their discoveries were later attributed to others, and their names became obscured over time. For instance, mathematical procedures such as the Ruffini–Horner scheme—used for evaluating polynomial expressions—and the Newton binomial theorem are widely known in Europe today, yet their foundations were developed centuries earlier by our distant compatriot al-Nasafi. Though modern terminology honors later European mathematicians, it is essential to acknowledge the true origins of these ideas and recognize that they emerged from the intellectual heritage of our own civilization.

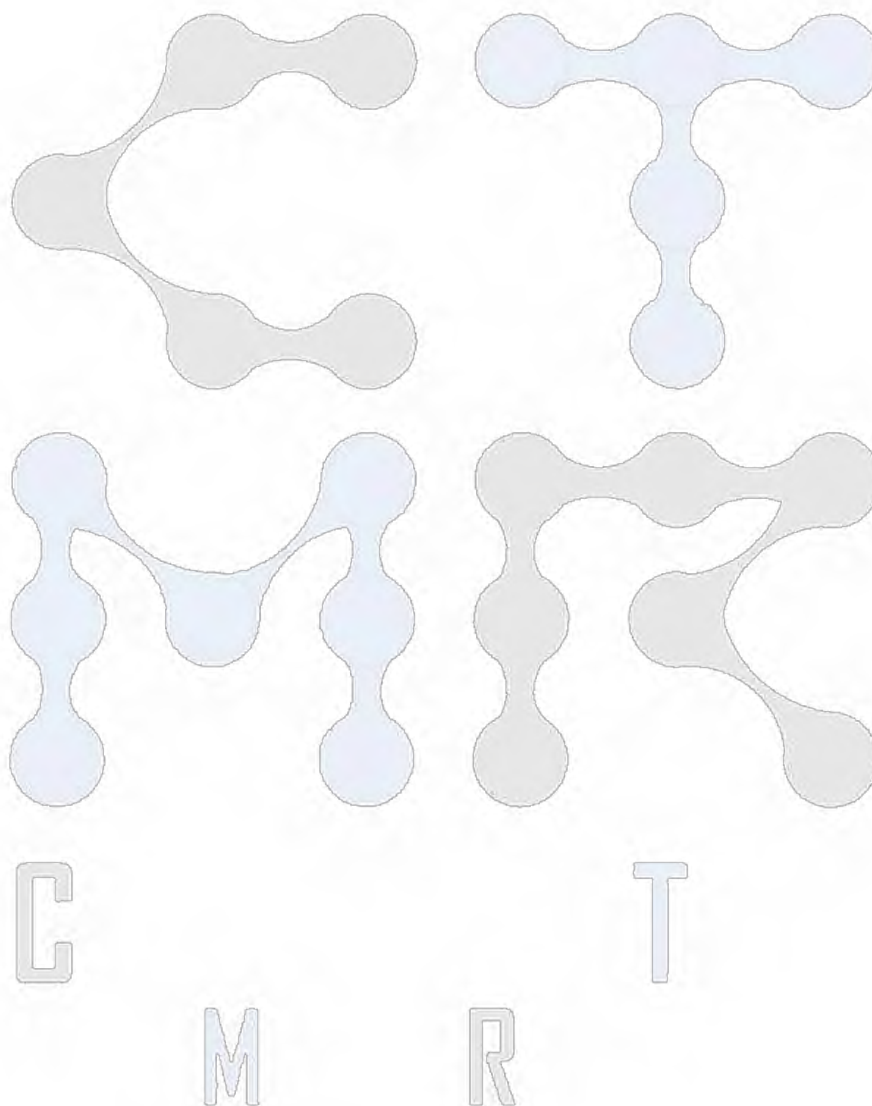
When reflecting on the brief yet brilliant scholarly paths of these figures—mathematicians regarded as "sovereigns of numbers" and esteemed even above rulers of nations—we observe that they did not pursue knowledge for wealth, prestige, or superficial fame. Rather, they wrote their treatises out of sincere devotion to science, in pursuit of truth, and for the enlightenment and advancement of future generations. Their works were intended not merely to explain the order of the universe, but to foster the intellectual and moral development of society.

In conclusion, any young person who aspires to become a competent professional must recognize mathematics as the fundamental basis of all sciences. It is both a moral and intellectual obligation to take pride in the immense cultural and scientific heritage left to us by our distinguished predecessors, to preserve it for future generations, and to appreciate its enduring value in shaping the development of human civilization. The future prosperity and advancement of our homeland ultimately depends on the capabilities and accomplishments of a well-educated and intellectually mature youth.

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