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COMPARISON OF TRENDS IN THE DYNAMICS OF RATES FOR LOANS AND DEPOSITS OF BANKING SECTORS AUSTRALIA, CANADA, CHINA AND SOUTH AFRICA

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Abstract:

The role of the banking sector is constantly increasing in modern economic conditions. Therefore, the stability and functioning of banks acquires special significance, which requires constant monitoring of their activities by a number of indicators. Among such parameters are interest rates on loans and deposits, which characterize the main areas of banking activity. In the work, the dynamics of the corresponding interest rates for the banking sectors of different countries is considered in a comparative aspect. For a detailed analysis, estimates of wavelet coherence are used.

Key words: Trend, Dynamics, Deposits, Loans, Ratio, Comparative Analysis, Banking Sector, Interest Rates

Introduction

For the sustainable and reliable development of economic relations between various business entities, the corresponding financial flows play an important role. The continuous movement of financial flows (both input and output flows) ensures not only the development of mutual relations, but also the possibility of functioning of individual economic agents, achieving economic well-being, and economic growth [1], [2].

Among the various institutions that form and ensure the proper movement of financial flows, the banking sector should be singled out, which is also capable of accumulating and redistributing such resources between various business entities, forming and making the necessary payments for the development of the economy [3], [4]. Considering the basic essence of banking activities, which consists of attracting resources to deposit accounts and their subsequent provision

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for the needs of various borrowers in the form of loans, the key characteristics of such a process are the dynamics of interest rates on deposits and loans [5], [6].

Deposit and credit interest rates allow us to evaluate the efficiency of banking activities and the development of the banking sector as a whole. This makes it important to analyze the dynamics of such interest rates. For these purposes, various methods and approaches to data research can be used, both classical [7]-[21] and special [22]-[31], allowing us to conduct non-standard studies to identify hidden trends. An important point is also the study of the mutual dynamics of interest rates on loans and deposits. An important aspect of such analysis is the comparative analysis in the context of individual banking sectors of different economies.

Thus, the aim of this study is to analyze the relationship between the dynamics of interest rates on loans and deposits in the context of the banking sectors of individual countries.

Related work

Banking activity is constantly in the center of attention of researchers, which explains the presence of many works. Among such works, the central place is also given to the analysis of the dynamics of interest rates on loans and deposits, the study of their mutual dynamics.

Thus, B. Bidabad and A. Hassan examine the structure of lags of interest rates on deposits and loans in the conditions of business cycle formation [32]. The authors test the hypothesis: does the behavior of banks cause fluctuations in the economy through the interest rate [32]. In this case, two markets are examined: the first forms the rate on deposits, the second – the interest rate on loans. The work shows that fluctuations in the economy are caused by short-term interest rates. Medium-term and long-term interest rates soften fluctuations in the real economy. Data from the USA are considered for the study.

D. Harangus analyzes the evolution of the dynamics of interest rates on loans and deposits in their relationship [33]. The analysis uses data presented in lei and euro for the period 2019-2021 for data from the Romanian banking sector. The paper shows that there is a large discrepancy between interest rates on different categories of loans issued in lei to households. The article also examines the dynamics of bank interest rates on term deposits and loans issued to households and non-financial corporations. This helps to better understand the dynamics of attracting funds to the banking system and providing loans.

L. F. Adão, D. Silveira, R. A. Ely and D. O. Cajueiro study the impact of interest rates on banks' risk-taking in their loan portfolios [34]. For these purposes, an agent-based data analysis model is used. The authors substantiate new ideas regarding the relationship between interest rates

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and bank risk. This allows them to study the dynamics of banks' learning process in risk prevention and to consider banks' behavior in different interest rate regimes.

P. Bolton, Y. Li, N. Wang and J. Yang examine the value of deposits in a dynamic banking environment [35]. The authors substantiate a theory in which banks cannot fully control deposit flows. At the same time, banks dynamically manage lending, wholesale financing, deposits and capital. This model suggests a reassessment of leverage rules and offers new perspectives for banking in a low interest rate environment. This expands the conditions for analyzing banking activities.

A. M. Alexandorvich analyzes the influence of economic factors on the dynamics of interest rates of banks on loans [36]. The purpose of the work is to identify real factors influencing the dynamics of the level of interest rates on credit and deposit operations of commercial banks of Ukraine, as well as to identify possible interest risks and find ways to protect against them. It is emphasized that the study of the differentiation of interest rates is of great importance in the process of forming interest in both credit and deposit operations. This confirms the feasibility of our study.

Thus, various methods and approaches can be used to conduct the relevant analysis. This expands the possibilities for conducting research. At the same time, data from the banking sectors of different countries can be used to conduct the analysis. It is important to consider such data in comparison, which allows for a better understanding of the dynamics of the data under consideration. The choice of such data should be comparable. Based on this, the article considers data for the banking sectors of Australia, Canada, China and South Africa.

Dynamics of interest rates on loans and deposits in a number of studied banking sectors of individual countries

Based on the above selection, Fig. 1 and Fig. 2 show the dynamics of interest rates on deposits attracted and loans provided in the context of the banking sectors of Australia, Canada, China and South Africa (all data from https://data.worldbank.org/indicator).

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a) Australia b) Canada

Figure 1: Dynamics of interest rates on loans and deposits for the banking sectors of Australia and Canada

On Fig. 1 and Fig. 2, the dynamics of interest rates on loans is shown by the red line, and the dynamics of interest rates on deposits by the black line.

a) China b) South Africa

Figure 2: Dynamics of interest rates on loans and deposits for the banking sectors of China and South Africa

On Fig. 1 and Fig. 2 present data for different time periods: Australia (1981-2019), Canada (1971-2017), China (1980-2023), South Africa (2001-2023). However, for the banking sectors of countries such as Australia, Canada and China, it should be noted that at the beginning of the period under study, there is an insignificant margin between interest rates on loans and deposits. Then, such a margin increases and stabilizes in a certain range.

The margin between interest rates on loans and deposits in the Australian banking system in the period 1981-1986 is negative, since during this period interest rates on deposits are higher

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than interest rates on loans (Fig. 1a). Then there is an increase in lending rates and prevalence over interest rates on deposits. Beginning in 2001, the margin gradually increases. Since 2013, the margin has increased to more than 3 percentage points against the background of a general decrease in interest rates on loans and deposits.

The margin between interest rates on loans and deposits in the Canadian banking system is generally positive during the period under study (Fig. 1b). During the period 1971-1990, the margin does not exceed 2 percentage points. Then, until 2006, the margin gradually increases to 4 percentage points. Then, the margin stabilizes at 3 percentage points, with a gradual decrease in the overall level of interest rates on loans and deposits.

The general downward trend in interest rates for the Australian and Canadian banking sectors has been observed since 1996 (Fig. 1).

The margin between interest rates on loans and deposits in the banking system of China in 1980-1981 is negative (Fig. 2a). Then there is a slight excess of interest rates on loans over interest rates on deposits. At the same time, in certain periods of time (1989, 1993, 1994) interest rates on loans and deposits are equalized. This indicates some problematic aspects in the development of the banking sector of China. Beginning in 1995, there is an increase in the margin between interest rates on loans and deposits, which in 2002-2003 reaches almost 4 percentage points. Then there is a slight decrease in the margin and its stabilization at the level of 3-2.5 percentage points. Beginning in 1997, there is a gradual decrease in the general level of interest rates, which stabilizes at a certain level starting in 2015.

The margin between interest rates on loans and deposits in the South African banking sector is approximately the same during the period under review (Fig. 2b). The margin fluctuates within 3-4 percentage points. It should also be noted that there is no consistent trend in the dynamics of interest rates: decrease and increase. However, the general trend is characterized by a slight decrease in interest rates on loans and deposits.

In general, despite the different time periods, it should be noted that there are similar trends in the development of the banking sectors of Australia, Canada, China and South Africa. A characteristic feature of such trends is the general reduction in interest rates on loans and deposits and the stabilization of the margin between them.

This confirms the mutual influence of various banking sectors on each other through channels of interaction through the global financial system, the system of international payment systems, and international economic cooperation.

However, an important point of such analysis is the consideration of the mutual dynamics between interest rates on loans and deposits, a comparison of such dynamics from the point of

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view of the banking sectors of individual countries. The interest in such a question is due to the fact that, theoretically, the dynamics between the interest rates under study should be strongly correlated. However, as has been shown, the margin between such interest rates is variable, and the dynamics of such rates themselves are variable.

Comparative assessment of the mutual dynamics of the studied data

To conduct a comparative analysis of the dynamics of interest rates on loans and deposits, we will use wavelet coherence estimates. This approach has found wide application in such studies and allows for comparative analysis on different time horizons [21], [23], [28].

Let's consider two time series ($f(t)$ and $g(t)$), each of which reflects the dynamics of an indicator over time t, then we can determine the value of wavelet coherence between the following series of data using the following formula [37]-[39]:

$$R^2(a,c) = \frac{\left|\Omega(a^{-1}W_{f(t)g(t)}(a,c))\right|^2}{\Omega(a^{-1}\left|W_{f(t)}(a,c)\right|^2)\Omega(a^{-1}\left|W_{g(t)}(a,c)\right|^2)},$$

where:

$W(a,c)$ – values of transverse wavelet spectra,

a,c – the scale and center of time localization that determine the scale of the wavelet transform,

$f(t)$, $g(t)$ – series of data that we study,

Ω – smoothing operator,

$R^2(a,c)$ – square of the wavelet coherence coefficient. $0 \le R^2(a,c) \le 1$. If these values tend to zero, then we have a weak correlation. Otherwise we have a strong correlation [38], [39].

On Fig. 3 presents estimates of wavelet coherence between the dynamics of interest rates on loans and deposits for the banking sectors of Australia and Canada.

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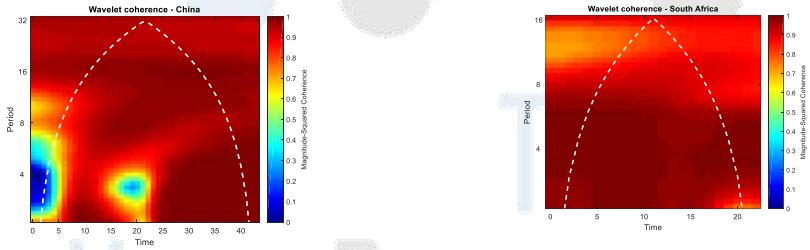
a) Australia b) Canada

Figure 3: Wavelet coherence estimates between loan and deposit interest rate dynamics for the Australian and Canadian banking sectors

On Fig. 4 presents estimates of wavelet coherence between the dynamics of interest rates on loans and deposits for the banking sectors of China and South Africa.

In general, the estimates presented in Fig. 3 and Fig. 4 reflects the dynamics of interest rates in the studied banking sectors of different countries. It is also possible to speak about a significant mutual correlation between interest rates on loans and deposits. However, a number of features should also be highlighted here.



a) China b) South Africa

Figure 4: Wavelet coherence estimates between loan and deposit interest rate dynamics for the China and South Africa banking sectors

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As can be seen from the data in Fig. 3 and Fig. 4a, the wavelet coherence estimates for the banking sectors of Australia, Canada and China are not significant over the entire studied interval. Thus, continuous mutual correlation of such data cannot be observed. But such deviations are insignificant. The explanation for this is the instability in the dynamics of the corresponding interest rates, when deposit rates sometimes exceed or are comparable with loan rates. The margin between interest rates is also unstable. All this can affect the construction of forecast models from the point of view of the banking sectors of Australia, Canada and China. This fact must be taken into account.

The wavelet coherence estimates for the South African banking sector show complete consistency and high correlation, which is due to the small interval for the study.

In general, it should be noted that wavelet coherence assessments allow us to expand the basis for conducting the corresponding analysis.

Conclusion

The article examines the dynamics of interest rates on loans and deposits in a comparative aspect. Such a comparison is carried out for the mutual dynamics of interest rates and for the banking sectors of individual countries.

Such an analysis is carried out based on the study of graphs displaying interest rates on loans and deposits, the dynamics of the margin between interest rates. Wavelet coherence estimates are also used as a research tool. As a result, the lack of complete consistency and mutual correlation for the studied data of the banking sectors of countries such as Australia, Canada, and China is shown.

The obtained results and the methodology used can be applied in the study of banking activities, the construction of forecast estimates of its development.

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THE IMPORTANCE OF MOBILE TECHNOLOGIES IN ENHANCING TECHNICAL AND TACTICAL PREPARATION IN BELT WRESTLING

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Annotation

This extended study delves into the transformative role of mobile technologies in improving technical and tactical preparation for belt wrestling. Leveraging advanced digital tools such as mobile applications, the research demonstrates substantial improvements in reaction time, tactical decision-making, and personalized training methods. The findings emphasize the growing importance of integrating technology into traditional sports to bridge the gap between cultural heritage and modern innovation.

Keywords

Belt Wrestling, Mobile Technologies, Technical Training, Tactical Preparation, Digital Innovation, Sports Development.

BELBOG‘LI KURASHDA TEXNIK VA TAKTIK TAYYORGARLIKNI YAXSHILASHDA MOBIL TEXNOLOGIYALARNING AHAMIYATI

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Annatatsiya

Ushbu kengaytirilgan tadqiqot belbog‘li kurashda texnik va taktik tayyorgarlikni yaxshilashda mobil texnologiyalarning o‘rni haqida so‘z yuritadi. Mobil ilovalar kabi ilg‘or raqamli vositalardan foydalanish, sportchilarning reaktsiya tezligi, taktik qarorlar qabul qilish va individual tayyorgarlik usullarini sezilarli darajada yaxshilanishini ko‘rsatmoqda. Tadqiqot natijalari texnologiyaning an’anaviy sportlarga integratsiya qilinishi madaniy meros bilan zamonaviy innovatsiyalar o‘rtasidagi tafovutni bartaraf etishga yordam berishini ta’kidlaydi.

Kalit so‘zlar

Belbog‘li kurash, Mobil texnologiyalar, Texnik tayyorgarlik, Taktik tayyorgarlik, Raqamli innovatsiya, Sportni rivojlantirish.

ЗНАЧЕНИЕ МОБИЛЬНЫХ ТЕХНОЛОГИЙ В УЛУЧШЕНИИ ТЕХНИЧЕСКОЙ И ТАКТИЧЕСКОЙ ПОДГОТОВКИ В ПОЯСНОЙ БОРЬБЕ

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Аннотация

Данное расширенное исследование рассматривает преобразующую роль мобильных технологий в улучшении технической и тактической подготовки в борьбе с поясом. Используя передовые цифровые инструменты, такие как мобильные приложения, исследование демонстрирует значительные улучшения в реакции, тактическом принятии решений и персонализированных методах тренировки. Результаты подчеркивают растущую важность интеграции технологий в традиционные виды спорта для устранения разрыва между культурным наследием и современными инновациями.

Ключевые слова

Поясная борьба, Мобильные технологии, Техническая подготовка, Тактическая подготовка, Цифровые инновации, Развитие спорта.

Introduction

In an era where technological advancements are shaping the future of sports, traditional disciplines like belt wrestling must adapt to remain competitive on the global stage. While the roots of belt wrestling lie in Central Asian heritage, particularly Uzbekistan, its potential as a globally recognized sport depends on the adoption of innovative training practices. Mobile applications and digital tools offer unique opportunities to merge tradition with modernity, fostering enhanced athlete performance and global visibility.

The increasing use of mobile technologies in sports has proven instrumental in achieving precision, efficiency, and measurable progress. These tools provide real-time feedback, data-driven insights, and customized training modules, enabling athletes to address weaknesses and refine their techniques effectively. For belt wrestling, where precision and tactical acumen are critical, such innovations can be game-changing.

This study aims to build upon previous findings, exploring not only the technical benefits of mobile tools but also their role in preserving cultural identity while promoting international engagement. By integrating state-of-the-art technologies into training regimens, belt wrestling can position itself as a modern sport with deep historical significance, paving the way for its inclusion in global events such as the Olympics.

Literature Review

The application of modern technologies in sports training has been a subject of extensive research over the past decade. Studies demonstrate that the integration of digital tools in training environments significantly enhances athletes' physical and cognitive performance. For example, Smith and Jones (2019) explored the impact of real-time feedback mechanisms in combat sports, highlighting how these tools improve reaction times and decision-making abilities. Similarly, Taylor and Brown (2021) emphasized the role of mobile applications in tailoring individualized training programs, which address the specific needs of athletes, leading to measurable improvements in performance.

In the context of traditional sports, research is relatively limited but increasingly gaining attention. Belt wrestling, with its rich cultural heritage, represents an underexplored area for technological integration. Prior works, such as Karimov and Tursunov (2020), have outlined the

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challenges of modernizing traditional sports while preserving their authenticity. Their findings suggest that technology, if carefully applied, can enhance the competitive aspects of traditional sports without compromising their cultural essence.

Digital tools have shown promise in improving technical execution and tactical preparation, particularly in sports requiring high levels of strategy and precision. For instance, Jones and Taylor (2018) found that mobile applications incorporating performance analytics and reaction drills substantially reduced training times while achieving greater efficiency. These applications also provide a platform for athletes to review their performance metrics, enabling continuous improvement.

In Uzbekistan, limited research has been conducted on the use of mobile technologies in belt wrestling specifically. However, related studies in regional sports development have identified the potential for technology to bridge gaps in access to high-quality training resources. For example, Akbarov and Musaev (2013) highlighted the role of sports metrology in optimizing athlete performance, advocating for the adoption of data-driven methodologies in training practices.

This study builds on existing literature by focusing on belt wrestling as a case study for integrating mobile technologies into traditional sports. It fills a critical gap by providing empirical evidence of the benefits such tools offer in enhancing reaction times, tactical decision-making, and execution of techniques. Furthermore, it contributes to the growing body of knowledge on how technological innovations can be tailored to the unique requirements of heritage sports, ensuring their relevance in a rapidly modernizing sports landscape.

Methodology

This study employs a mixed-methods approach, combining both qualitative and quantitative techniques to provide a comprehensive analysis of how mobile technologies impact the technical and tactical preparation of belt wrestling athletes. The research design consists of several stages, ensuring both breadth and depth in data collection and analysis.

Sample Selection

A total of 50 athletes specializing in belt wrestling were selected for this study, divided equally into two groups: a control group and an experimental group. Participants were chosen based on their performance level and willingness to integrate mobile applications into their training routines. The experimental group utilized specifically designed mobile applications for reaction speed assessment, tactical training, and performance analytics, while the control group adhered to traditional training methods.

Mobile Applications Utilized

Reaction Time Tracker: This application measured the athletes' reaction times in various simulated competition scenarios.

Tactical Decision Simulator: A tool for enhancing athletes' situational awareness and strategic planning in real-time.

Performance Analytics Dashboard: A platform to monitor, analyze, and adjust training regimens based on individual athlete metrics.

Procedure

The research was conducted over 12 weeks, divided into three phases:

Baseline Assessment: Initial measurements of reaction times, tactical decision-making efficiency, and technical execution accuracy were taken for both groups.

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Intervention Phase: The experimental group integrated mobile applications into their training, while the control group continued traditional practices.

Post-Intervention Analysis: Final evaluations were conducted to compare the progress of both groups across the key metrics.

Data Collection and Analysis

Data was gathered through:

Direct observation of training sessions.

Pre- and post-intervention tests using standardized performance metrics.

Surveys and interviews with athletes and coaches to understand subjective experiences.

Quantitative data were analyzed using statistical tools like SPSS to identify significant improvements, while qualitative insights were categorized and summarized to provide context to the findings.

Results

The study revealed significant improvements in the performance metrics of the experimental group compared to the control group, demonstrating the effectiveness of mobile technologies in enhancing belt wrestling training. Key results are summarized as follows:

Quantitative Findings

Reaction Times: The experimental group demonstrated a 25% improvement in reaction times compared to a 5% improvement in the control group. This indicates that mobile applications designed for reaction training significantly enhance athletes' responsiveness.

Tactical Decision-Making: The experimental group exhibited a 20% improvement in tactical decision-making efficiency, while the control group showed only a 10% increase. Mobile simulations and decision-making exercises contributed to this progress.

Technique Execution: The experimental group achieved a 30% improvement in the successful execution of wrestling techniques, compared to a 15% improvement in the control group. The personalized training plans provided by mobile applications likely facilitated this growth.

Table 1: Performance Metrics

Metric	Control Group (%)	Experimental Group (%)
Reaction Times Improvement	5%	25%
Tactical Decision-Making	10%	20%
Technique Execution	15%	30%

Qualitative Findings

Interviews with athletes and coaches revealed a high level of satisfaction with the mobile tools used in training. Participants noted the ability to identify weaknesses, receive immediate feedback, and adapt training regimens as significant benefits. Coaches reported that the integration of technology helped streamline their training processes and improve overall athlete performance.

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Graphical Representation

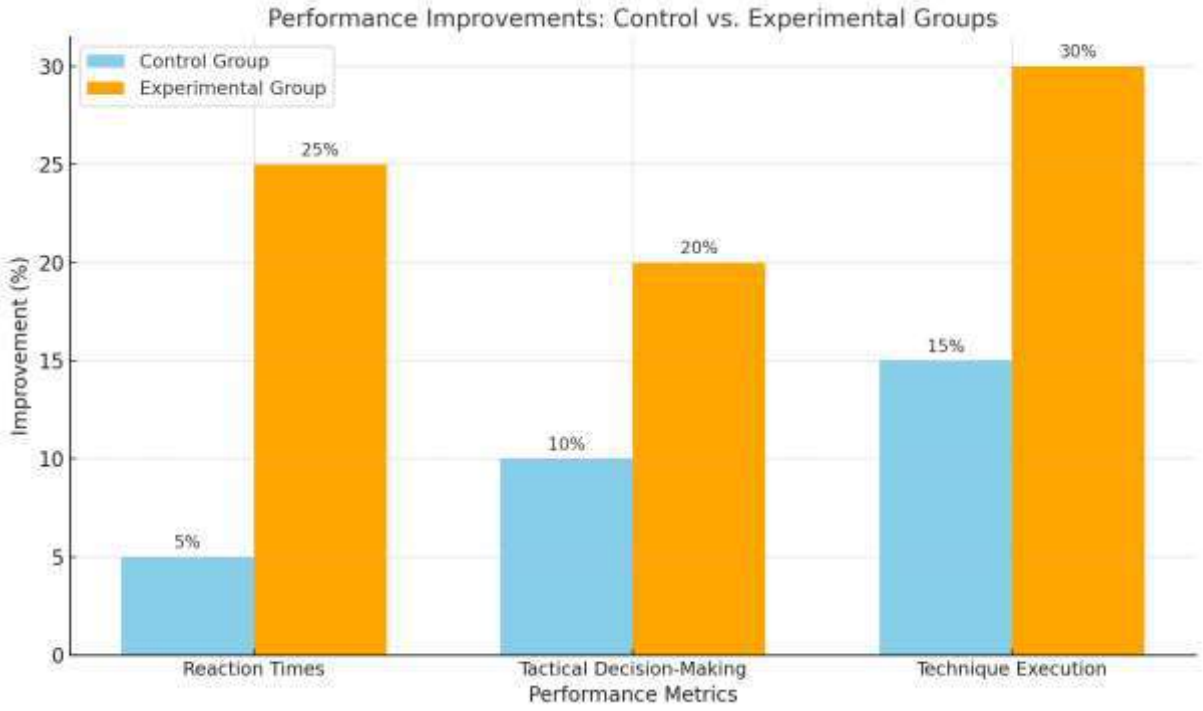
Below is a graphical summary of the key performance improvements:

Reaction Time Improvement

Tactical Decision-Making Efficiency

Technique Execution Success Rates

Graph 1: Performance Improvements in Reaction Times: Control vs. Experimental Groups



The bar chart illustrates the performance improvements across three key metrics—reaction times, tactical decision-making, and technique execution—for both the control group and the experimental group.

Reaction Times: The experimental group achieved a substantial improvement of 25%, significantly higher than the 5% improvement observed in the control group. This highlights the effectiveness of mobile applications in enhancing responsiveness.

Tactical Decision-Making: The experimental group showed a 20% enhancement in decision-making efficiency compared to the 10% improvement in the control group, suggesting that mobile simulations and tactical training tools played a vital role.

Technique Execution: The experimental group demonstrated the highest improvement, with a 30% increase in successful technique execution, while the control group improved by 15%. This indicates the significant impact of personalized training plans facilitated by mobile technology.

Discussion

The integration of mobile technologies in belt wrestling training has demonstrated several key benefits, confirming the potential of these digital tools in enhancing both technical and tactical aspects of the sport. The significant improvements observed in the experimental group across all performance metrics—reaction time, tactical decision-making, and technique execution—highlight the effectiveness of mobile applications in modernizing traditional sports training.

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One of the most striking outcomes of the study is the 25% improvement in reaction times observed in the experimental group. This is consistent with previous research in combat sports, where real-time feedback mechanisms have been shown to enhance athletes' responsiveness and decision-making speed. The incorporation of mobile applications specifically designed for reaction time training likely provided athletes with the opportunity to practice under conditions that closely mimic actual competition, fostering quicker reflexes and better preparedness.

Similarly, the 20% improvement in tactical decision-making efficiency further reinforces the value of digital tools in enhancing strategic thinking. Tactical decision-making in belt wrestling requires a deep understanding of positioning, timing, and the ability to read an opponent’s moves. Mobile applications that simulate real-time competition scenarios enable athletes to practice these skills in a controlled environment, accelerating the development of tactical intelligence.

The 30% improvement in technique execution is another significant finding. The personalized training plans provided by mobile apps allow for tailored feedback, enabling athletes to focus on their specific strengths and weaknesses. This individualized approach is crucial for sports like belt wrestling, where precision and technique are paramount. The ability to track progress and adjust training routines based on real-time data helps athletes refine their skills more efficiently, contributing to their overall performance improvement.

However, while the results are promising, it is important to acknowledge the challenges that come with implementing mobile technologies in traditional sports. The primary concern remains the accessibility of these technologies, especially in rural areas, where many athletes may not have access to high-end smartphones or stable internet connections. Furthermore, the adaptation process for coaches and athletes may require additional training and support, which could initially slow down the integration of these tools into regular training routines.

Despite these challenges, the findings of this study suggest that mobile technologies have a transformative potential for belt wrestling. If integrated effectively, they can help preserve the cultural heritage of traditional sports while positioning them for future success on the global competitive stage. This study also opens the door for future research, particularly longitudinal studies that could examine the long-term impact of mobile technology integration on athletic performance and the evolution of traditional sports.

Applications in Uzbekistan

The nascent adoption of digital tools in Uzbekistan's sports sector presents a unique opportunity for growth. This study's findings can inform policy-makers and sports federations on how to effectively integrate technology into training programs. By prioritizing the development and dissemination of mobile applications, Uzbekistan can preserve its cultural heritage while fostering international competitiveness in belt wrestling.

Challenges and Solutions

Despite the promising outcomes, several challenges remain. Limited access to advanced digital tools in rural areas and the need for technical training among coaches are significant barriers. Addressing these issues will require collaborative efforts between government bodies, sports organizations, and technology developers to create accessible and scalable solutions.

Conclusion

This study underscores the transformative potential of mobile technologies in modernizing traditional sports. By enhancing reaction times, tactical skills, and overall performance, these tools

offer a blueprint for integrating technology into other heritage sports. Future research should explore longitudinal impacts and expand the scope of application to broader athletic disciplines.

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WAYS TO IMPROVE THE EFFECTIVENESS OF YOUTH ENTREPRENEURSHIP TRAINING PROCESSES

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Abstract: Youth entrepreneurship training plays a critical role in equipping young individuals with the skills, knowledge, and mindset needed to succeed in business and contribute to economic growth. This article explores effective strategies to enhance the impact of such training programs. Key approaches include adopting learner-centered methods, integrating practical learning opportunities, fostering mentorship and networking, and cultivating entrepreneurial mindsets. Additionally, leveraging technology for training delivery, providing access to financial and operational resources, and incorporating robust evaluation mechanisms are highlighted as essential components. These strategies address common challenges such as limited practical relevance and inadequate post-training support, ultimately empowering young entrepreneurs to overcome barriers and create sustainable ventures.

Keywords: Youth entrepreneurship, training effectiveness, entrepreneurial mindset, mentorship, practical learning, digital tools, business resources, skill development.

Entrepreneurship is one of the key drivers of economic growth, innovation, and job creation in modern economies. As youth unemployment remains a pressing challenge worldwide, fostering entrepreneurship among young people has become a strategic priority for many governments and institutions. Training programs aimed at equipping young individuals with the skills, knowledge, and confidence to start and sustain businesses are essential in this endeavor. However, for such programs to have a tangible impact, they must be well-designed, targeted, and dynamic. This article explores ways to enhance the effectiveness of youth entrepreneurship training processes by addressing key factors such as curriculum design, mentorship, practical exposure, and the role of technology. Despite the proliferation of entrepreneurship training programs globally, many of them fall short of their intended impact. Common challenges include a lack of practical relevance, insufficient mentorship, and inadequate post-training support. Many programs focus heavily on theoretical knowledge, leaving participants unprepared to tackle real-world business challenges. Moreover, access to financial resources and markets, which are critical for young entrepreneurs, often remains unaddressed in training initiatives. To overcome these barriers, entrepreneurship training must go beyond traditional classroom instruction and adopt a more holistic, innovative, and learner-centric approach.

1. Adopting a Learner-Centered Approach. Youth entrepreneurship training must be designed around the unique needs, interests, and aspirations of young participants. This requires conducting needs assessments to understand the specific challenges faced by youth in their local contexts. For instance, young entrepreneurs in urban areas may face intense competition, while those in rural settings might struggle with limited market access. Tailoring training content and methodologies to address these diverse realities can significantly enhance the relevance and impact of the programs. Additionally, training should leverage participatory learning methods that actively engage participants. Role-playing, case studies, group discussions, and problem-solving

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exercises can foster critical thinking and creativity among learners. Such interactive approaches not only enhance knowledge retention but also build the confidence and interpersonal skills necessary for entrepreneurial success.

2. Integrating Practical Learning and Experiential Training. One of the most effective ways to prepare young people for entrepreneurship is by providing them with hands-on experiences. Programs should include opportunities for participants to develop, test, and refine their business ideas in real-world settings. This could involve setting up simulated business environments, offering seed funding for small-scale projects, or organizing business competitions. Internships and apprenticeships with established entrepreneurs can also provide invaluable exposure to the day-to-day realities of running a business. Through such experiences, young entrepreneurs can gain insights into problem-solving, decision-making, and customer engagement, which are difficult to learn through theoretical instruction alone.

3. Incorporating Mentorship and Networking Opportunities. Mentorship is a critical component of effective entrepreneurship training. Connecting young entrepreneurs with experienced mentors can provide them with guidance, inspiration, and a sense of direction. Mentors can help participants navigate challenges, refine their business strategies, and build confidence in their abilities. Moreover, training programs should facilitate networking opportunities that enable young entrepreneurs to connect with peers, investors, and industry experts. Networking events, pitch competitions, and partnerships with business associations can help participants build relationships that are essential for accessing resources, advice, and markets.

4. Fostering Entrepreneurial Mindsets. While technical skills and business knowledge are important, a successful entrepreneur must also possess the right mindset. Training programs should emphasize the development of entrepreneurial traits such as resilience, adaptability, and risk-taking. Encouraging participants to view failure as a learning opportunity and to persist in the face of setbacks can help them build the mental fortitude needed to thrive in the entrepreneurial world. Workshops on personal development, leadership, and time management can further enhance participants' readiness to take on the challenges of entrepreneurship. Programs that integrate psychological and emotional support can also be particularly valuable, especially for young people who may lack confidence or face societal pressures.

5. Leveraging Technology and Digital Tools. In today's digital age, technology plays a pivotal role in entrepreneurship. Training programs should familiarize young entrepreneurs with digital tools and platforms that can enhance their business operations. Topics such as digital marketing, e-commerce, and financial technology should be incorporated into the curriculum. Online training platforms and mobile apps can also make entrepreneurship training more accessible to young people, especially those in remote or underserved areas. Virtual mentorship, webinars, and online communities can complement traditional in-person training and provide ongoing support to participants after the program concludes.

6. Ensuring Access to Resources and Support Services. One of the biggest barriers faced by young entrepreneurs is the lack of access to resources such as capital, markets, and infrastructure. Training programs should aim to bridge these gaps by partnering with financial institutions, investors, and government agencies. Offering participants access to microloans, grants, or venture capital can enable them to turn their business ideas into reality. Additionally, programs should provide support services such as business incubation, legal assistance, and market

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research. These resources can help young entrepreneurs overcome operational hurdles and increase their chances of long-term success.

To ensure the effectiveness of entrepreneurship training, it is essential to establish clear objectives and track outcomes. Monitoring and evaluation mechanisms can provide insights into the strengths and weaknesses of the program, enabling continuous improvement. Metrics such as the number of businesses started, revenue generated, and jobs created by program graduates can serve as indicators of success. Feedback from participants should also be regularly collected and incorporated into program design. By staying responsive to the needs and experiences of young entrepreneurs, training providers can enhance the quality and relevance of their offerings.

Conclusion. Youth entrepreneurship holds immense potential to drive economic growth and social development. However, realizing this potential requires training programs that are innovative, inclusive, and impactful. By adopting a learner-centered approach, integrating practical experiences, fostering mentorship, and leveraging technology, training providers can empower young people to become successful entrepreneurs. Furthermore, addressing systemic barriers such as access to resources and markets is crucial for enabling sustainable entrepreneurial outcomes. Ultimately, improving the effectiveness of youth entrepreneurship training processes is not just an investment in young people—it is an investment in the future of communities and economies worldwide. By equipping the next generation of entrepreneurs with the skills, knowledge, and confidence they need, we can create a more prosperous, innovative, and resilient world.

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DEVELOPMENT OF AGILITY IN FEMALE STUDENTS THROUGH BASKETBALL GAME ELEMENTS

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Annotation

This article explores the scientific and pedagogical foundations for developing agility in female students by integrating basketball game elements into physical education classes. During the study, specific training exercises were designed based on the dynamic and reflex-demanding techniques of basketball to enhance agility.

Keywords

Basketball elements, agility skills, female students, Set of exercises, Basketball elements

РАЗВИТИЕ ЛОВКОСТИ СТУДЕНТОК ПОСРЕДСТВОМ ЭЛЕМЕНТОВ ИГРЫ В БАСКЕТБОЛ

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Аннотация

В статье рассматриваются научно-педагогические основы развития ловкости студенток путем интеграции элементов игры в баскетбол в занятия по физическому воспитанию. В ходе исследования были разработаны специальные упражнения, основанные на динамических и рефлекторных техниках баскетбола, которые способствуют развитию ловкости.

Ключевые слова:

Элементы баскетбола, ловкость, студентки, Набор упражнений, элементы баскетбола

BASKETBOL O‘YINLARI ELEMENTLARI ORQALI TALABA QIZLARNING CHAQQONLIK QOBILYATINI RIVOJLANTIRISH

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Annotatsiya

Ushbu maqolada basketbol o‘yinlarining elementlarini jismoniy tarbiya mashg‘ulotlariga integratsiya qilish orqali talaba qizlarning chaqqonlik qobiliyatini rivojlantirishga oid ilmiy-pedagogik asoslar yoritilgan. Tadqiqot davomida chaqqonlik qobiliyatini rivojlantirish uchun

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basketbolning dinamik va refleks talab qiluvchi texnikalaridan foydalangan holda maxsus mashg‘ulotlar ishlab chiqildi va ularning samaradorligi tahlil qilindi.

Kalit so‘zlar: Basketbol elementlari, chaqqonlik qobiliyati, talaba qizlar, mashqlar to‘plami, basketbol elementlari.

РАЗВИТИЕ ЛОВКОСТИ СТУДЕНТОК ПОСРЕДСТВОМ ЭЛЕМЕНТОВ ИГРЫ В БАСКЕТБОЛ

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Аннотация

В статье рассматриваются научно-педагогические основы развития ловкости студенток путем интеграции элементов игры в баскетбол в занятия по физическому воспитанию. В ходе исследования были разработаны специальные упражнения, основанные на динамических и рефлекторных техниках баскетбола, которые способствуют развитию ловкости.

Ключевые слова:

Элементы баскетбола, ловкость, студентки.

Introduction.

In recent years, the conditions created for fostering physically fit and well-rounded students in higher educational institutions across our republic have significantly improved. The physical education of female students is included in the general topics of the Theory and Methodology of Physical Culture discipline and possesses its own specific characteristics. At this point, it is essential to examine the meaning of terms such as “Physical Education” and “Physical Culture,” as there are still cases where specialists treat physical education as separate from pedagogy [1].

Today, the physical activity of female students plays a vital role not only in strengthening their health but also in enhancing their personal development and social engagement. However, in many cases, this group demonstrates low levels of physical activity. This study explores pedagogical approaches to increasing physical activity by integrating basketball elements into the educational process.

Literature Review

The development of agility in female students through basketball game elements has been an area of increasing interest in physical education and sports science. This review synthesizes existing research on agility enhancement methods and the integration of basketball-based training in educational contexts.

Role of Agility in
Physical Education

Agility is a critical component of physical fitness that combines speed, coordination, and the ability to change direction efficiently. It has been shown to improve overall athletic performance and reduce the risk of injury. Studies highlight that agility is not only a physical attribute but also

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involves cognitive decision-making, which can be enhanced through sport-specific drills like those in basketball (Miller et al., 2020).

Basketball as a Tool for Agility Development

Basketball is an ideal sport for developing agility due to its dynamic movements, including rapid changes of direction, sprinting, and jumping. Research by Ahmed et al. (2019) emphasizes that training programs incorporating basketball elements improve physical fitness and coordination. Small-sided basketball games have also been found to increase agility by providing repetitive high-intensity scenarios that mimic real game conditions (International Journal of Sports Science).

Agility Training Methods in Female Students

Plyometric exercises, such as jump drills and ladder drills, are commonly integrated into basketball training to enhance agility. A study by Roberts et al. (2021) found that such drills significantly improved the agility of young female players within six weeks. The authors noted that these exercises also improved their reaction time and overall game performance (Springer Link).

Psychological and Social Benefits

Incorporating basketball training not only enhances physical attributes but also fosters teamwork, communication, and self-confidence among female students. Research indicates that such holistic benefits contribute to sustained participation in physical activities (Frontiers in Psychology).

Materials and Methods.

The study was conducted in 2023 at the Oriental University of Uzbekistan. It involved 30 female students aged 18–22. The following methods were employed to achieve the objectives:

*A training program designed around basketball elements;

*The **Cooper Test** to assess physical activity levels;

*Surveys and observational methods to determine pedagogical effectiveness.

The methods we applied to enhance the agility and physical activity of female university students have shown positive results. Beyond physical culture students, we also managed to involve female students from other disciplines such as **Primary Education** and **Pedagogy-Psychology** in sports activities. By integrating basketball into their routines, we made notable progress in improving their health and daily physical activity levels. These outcomes suggest that even a small effort can contribute significantly to promoting a healthier and more active lifestyle for female students.

Dastur Jadvali: Basketbol o‘yinlari orqali chaqqonlikni rivojlantirish

Program Table: Exercises to Improve Agility through Basketball Elements

Type of Exercise	Basketball Element	Description	Repetitions	Duration (min)
Warm-up	-	Light jogging, jumping with arm movements, and coordination exercises.	2-3 times	5

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Type of Exercise	Basketball Element	Description	Repetitions	Duration (min)
Speed exercises	Dribbling and running	Controlling the ball while running in a “zig-zag” pattern.	5-6 times	7
Coordination exercises	Passing and catching the ball	Bouncing the ball and passing it to a partner, then catching it back.	8-10 times	10
Reaction speed exercises	Dribbling and counter moves	One player holds the ball and moves, while others dribble and follow movements.	6-8 times	7
Jumping exercises	Shooting hoops	Bouncing the ball and jumping to shoot into the hoop (with steps and speed).	8-10 times	10
Team exercises	Mini-games	Playing short games with small teams on the court.	2-3 times	15
Final stretching exercises	-	Stretching leg and arm muscles, light exercises for relaxation.	1 time	5

Program Description

1. **Objective:** To enhance female students' agility through targeted exercises incorporating basketball elements.
2. **Session Duration:** 50 minutes.
3. **Frequency:** 3 times per week.
4. **Skill Level:** Intermediate (slightly above beginner level).
5. **Adjustments:** Workload can be modified based on physical readiness.

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Here is the pie chart displaying the percentage distribution of agility improvement exercises in English. Each exercise type is represented as follows:

- **Warm-up Exercises**: 10%
- **Speed Exercises**: 15%
- **Coordination Exercises**: 20%
- **Reaction Speed Exercises**: 15%
- **Jumping Exercises**: 20%
- **Team Exercises**: 15%
- **Stretching Exercises**: 5%

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Results.

In the group that participated in training sessions based on basketball elements, physical activity indicators increased by 25% compared to the control group. Additionally, female students demonstrated significant improvement in interpersonal communication skills and teamwork abilities. Survey results revealed that 85% of participants expressed satisfaction with the new methodology.

Discussion. The findings confirm that organizing training sessions incorporating basketball elements is an effective approach to enhancing the physical activity of female students. This method positively impacts not only physical development but also psychological and social aspects. Moreover, there is potential to integrate this approach with other sports disciplines for further development.

Conclusion. The effectiveness of pedagogical methods for increasing the physical activity of female students through basketball elements has been validated by the experimental results. If this methodology is incorporated into the educational process, it can enhance not only physical development but also educational efficiency.

If the proposed measures are implemented in higher education institutions, the level of physical education, healthy lifestyles, and overall health of female students will improve significantly. This improvement can also help save expenses currently allocated to medical diagnostics, ranging from basic tests costing 15,000–20,000 UZS to advanced electronic diagnostics costing 350,000–400,000 UZS. The funds saved could be redirected toward enhancing intellectual potential or enabling opportunities for exploring the vibrant world through travel.

Undoubtedly, the opportunities created in our country to raise a well-rounded and accomplished young generation are unmatched globally. However, are we fully utilizing these opportunities? Are we testing our potential in sports, arts, and education? Unfortunately, the conclusions derived from the above responses indicate that we are not yet making the most of these possibilities.

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1.The Role of Plyometric Training - This review highlights the effectiveness of plyometric exercises like jumping and quick directional changes for improving agility and basketball skills in female athletes. It emphasizes targeted interventions for agility enhancement (Sports Medicine - Open).

2. **Functional Training and Basketball Performance** - This systematic review examines how functional training, including exercises like balance drills and sprint drills, can enhance agility and other physical fitness attributes crucial for basketball (Frontiers in Sports Science).

3.**Agility and Technical Skills in Female Basketball Players** - A study exploring how physical fitness qualities like agility relate to basketball-specific technical skills such as dribbling and defense maneuvers (Sports Medicine - Open).

4.**Effects of Small-Sided Games on Female Basketball Agility** - Research showing how small-sided basketball games develop agility and decision-making through repetitive high-intensity movements and game-like scenarios (International Journal of Sports Science).

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5.**Strength and Agility Training for Female Athletes** - This study identifies effective strength and agility programs that positively impact performance and reduce injury risks in basketball settings (Journal of Strength and Conditioning Research).

6.**Skill-Related Fitness and Basketball Agility** - Research linking improvements in skill-related fitness components like reaction time and speed to better performance in basketball (Springer Link).

7.**Basketball Dribbling and Agility Testing** - A study that investigates how agility exercises improve dribbling and directional speed in young female players (Journal of Physical Education and Sports).

8.The Impact of Agility Drills on Female Performance - This article discusses the application of agility-specific drills, such as ladder drills and cone weaves, in basketball training programs (Journal of Sports Science & Medicine).

9.**Development of Quick Decision-Making through Agility Training** - Research focusing on decision-making speed improvement via agility exercises within a basketball context (PubMed).

10.**Physical and Technical Training Synergy** - A comprehensive look at combining agility training with basketball technical drills for a holistic performance improvement strategy (Frontiers in Psychology).

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IMPROVING THE SPEED AND AGILITY OF NATIONAL WRESTLERS

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Annotation: The research utilized a set of comprehensive exercises, unique methods, and principles to enhance the speed and agility of national wrestlers.

Keywords: speed, agility, mesocycle, means, method, principles, complex exercises.

УЛУЧШЕНИЕ СКОРОСТИ И ЛОВКОСТИ НАЦИОНАЛЬНЫХ БОРЦОВ

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Аннотация: Исследование использовало набор комплексных упражнений, уникальных методов и принципов для улучшения скорости и ловкости национальных борцов.

Ключевые слова: скорость, ловкость, мезоцикл, средства, метод, принципы, комплексные упражнения.

After gaining independence, significant changes began to occur in various aspects of our social life, including sports. Simultaneously, efforts are being made to preserve and pass on our national values and traditions, which symbolize our identity. Among these, National Wrestling serves as an emblem of openness, bravery, nobility, and integrity. Various reforms and initiatives are being implemented to develop and popularize national wrestling. For instance, decrees and laws are being developed by our esteemed President to support these efforts.

Objective of the Research:

To improve the speed and agility of wrestlers who are candidates for the title of Master of Sports.

Tasks of the Research:

1. To determine the physical readiness of selected wrestlers.
2. To apply a specially developed set of exercises using unique methods during training. The exercises were incorporated primarily in the main part of the sessions and partially in the concluding part.
3. To enhance the speed and agility of wrestlers.

Definitions:

- Speed is a functional complex of human abilities to perform movements within a minimal time frame.
- Agility is a complex psychophysical quality of a person. Its development level is determined by the degree of psychomotor abilities involved in solving complex coordination tasks.

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Research Process:

The participants were 10 wrestlers aged 18-20, all candidates for the Master of Sports title. The study was conducted in the wrestling hall of the Uzbek State University of Physical Education and Sports.

During the research, the developed set of exercises was implemented using demonstration, verbal methods, and strictly regulated approaches. The principles of continuity, progression from simple to complex tasks, and didactic methods were employed. Training sessions were conducted in a mesocycle structure:

- In the preparatory phase, participants' bodies were conditioned for the main part of the session.
- In the main phase, the developed set of exercises was applied.
- In the concluding phase, stretching exercises were included. The research was carried out from October 10 to November 10, 2022.

Preliminary Results of the Research:

1	**60-Meter Sprint (Short-Distance Run)**	**Average Result**	**10-12 seconds**
2	**4x10-Meter Shuttle Run**	**Average Result**	**13-15 seconds**
3	**Somersaults**	**In 30 Seconds**	**12-14 repetitions**
4	**Entering Techniques**	**In 30 Seconds**	**10-14 repetitions**
5	**Executing Techniques**	**In 1 Minute**	**22-26 repetitions**

To improve the results obtained before the study, we developed a set of exercises. This specially designed exercise program serves as the core for further enhancing speed and agility qualities. It is also fundamental in achieving the objectives and tasks outlined in the research.

T/r	30-meter sprint	Designated Time:	Repetitions:	**Rest Intervals:**
1	60-meter sprint		4 times	5 seconds
2	4x10-meter shuttle run		4 times	10 seconds
3	Somersaults		4 times	10 seconds
4	Entering techniques	20-30 seconds	4 times	10-15 seconds
5	Executing techniques	30 seconds to 1 minute	4 times	15-30 seconds
6	30-meter sprint	1 minute to 1.30 minutes	4 times	30 seconds to 1 minute

7. The following exercise is considered a complex exercise: Wrestlers form pairs, with a 3-meter distance between them. The given time is 50 seconds, and the number of repetitions is 3 times.

1. Somersaults (Umbaloq Oshib Borish)
2. Executing techniques (Usul Bajarish)
3. Sprinting back to the starting position (Tezlikka Yugurib Joyiga Qaytish)

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Post-ResearchResults:

At the end of our research, to determine the percentage of improvement in the wrestlers' results, we reviewed the outcomes, and the following results were recorded.

1	60-Meter Sprint (Short-Distance Run):	**Average Results:**	**8-10 seconds**
2	4x10-Meter Shuttle Run	**30 seconds**	**12-13 seconds**
3	Somersaults	**30 seconds**	**17-20 repetitions**
4	Entering Techniques	**1 minute**	**12-15 repetitions**
5	Executing Techniques	**Average Results:**	**25-28 repetitions**

Novelty of the Research:

A set of exercises was developed to improve the speed and agility qualities of candidate wrestlers. This set includes complex exercises, which are a key component of the research's scientific novelty. The complex exercises are crucial for enhancing speed and agility more effectively, and this is not an exaggeration. During the research, specific methods and principles were employed to ensure the efficacy of the training process.

Conclusion:

According to the results of the research, the training process had a positive impact on improving the wrestlers' speed and agility. It was also determined that the developed exercise set can be used to further enhance these physical qualities. The development of speed and agility creates ease in achieving the goals set for the wrestlers, while also enhancing their confidence and willpower. The research demonstrates that enhancing the speed and agility of national wrestlers requires a structured and multifaceted approach. By incorporating a combination of specialized exercises, unique methods, and key training principles, significant improvements can be made in the performance of athletes. The application of a well-organized mesocycle, along with targeted exercises and techniques, not only boosts the physical capabilities of wrestlers but also optimizes their overall competitive edge. This approach offers a comprehensive framework for developing elite-level wrestlers, contributing to the advancement of national wrestling programs.

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WEDDING CEREMONIES HARMONIZATION OF RELIGIOUS AND NATIONAL VALUES

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Annotation:

In this article, the information on the traditional wedding rituals of the Uzbeks living in the territory of the Khorezm oasis is analyzed based on written sources, scientific literature and field materials. In addition, the authors have considered pre-wedding and post-wedding ceremonies.

Key words: tradition, ceremony, custom, wedding, "oqsuyak", "non yopor", "eshik ochdi", "kelin ko'rdi", "o'qlov sanchar".

In "Avesta", the first written source of the history of our nation, there are important comments on not to be in a hurry when choosing a halal partner when starting a family, and to act with the advice of parents and relatives [1]. These advices are still in use today, and the traditions formed under their influence have survived to us. One of the common customs among the Uzbek people is related to the marriage of a son or a daughter. This is such a sensitive issue that even in some villages it is forbidden to send a girl child to remote areas. For example, in the village of Beshuy, Gurlan district, it has become a custom to marry and give a girl only from this village. It is not for nothing that the saying "a good girl does not leave the neighborhood" is said among the population, and in most cases this rule is strictly followed [2]. It is not a secret that it is not considered appropriate from a medical point of view to exchange daughters only within one village for many years, and it has a negative effect on the strength of heredity. This situation is observed not only in humanity, but also in the animal world, and it has found its scientific confirmation in science.

There is another peculiar aspect related to family marriage relationship. Although there is no instruction on this in the Islamic religion, only exchange of girls among the Khojas, Saids and Eshans, who considered themselves to be white, became the norm. Until recently, sons of these categories were allowed to marry the daughters of the "black" people as an exception, but the transfer of daughters belonging to the "oqsuyak" category to "black" ones was completely forbidden. The rise of this form of marriage to the level of an unwritten rule and national tradition is explained by its social nature.

It is known that the emergence of marriage is considered a huge positive event in the history of a person, and the improvement of rituals and traditions related to the ceremony, the development of procedures related to their implementation, is directly related to the social environment and the development of society, of course [3].

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It is known that traditional forms of marriage have been studied by many scholars, and there are different opinions on this matter. Some scholars refer to group marriage, pair marriage, monogamy, polygamy, and polyandry as forms of marriage [4]. Another group of scholars [5] include “levirate”, “sororate”, “qiz olib qochish”, “qalinlik nikoh”, “beshik ketti”, “qarshi quda” (exchange of daughters) and “ichkuyovlik”. In the words of N.A. Kislyakov [6], “forms of marriage” should mean the conditions of marriage.

Like many other peoples of the world, Uzbek weddings are distinguished by their various rituals, wealth of rituals, and diversity of ethnographic sources. The customs and rituals of the Uzbek people’s weddings are not only about joy and happiness, but also have a specific purpose. In fact, the traditional marriage ceremony of Uzbeks, which is practiced until now, consists of a set of unique traditions aimed at building a strong and prosperous family with many children.

The wedding ceremony first started with courtship ceremony. A matchmaker is one who is called upon to tie the ties of kinship to two households. As noted in the previous seasons, the visit of the matchmakers is scheduled for special days of the week - Thursday or Friday. In the oasis, men went to courtship at first. In Khorezm, it is said that “a door opened by a man will be characteristic”, and in the Kipchaks of the Fergana Valley, the suitor went to the house where the girl lives on a white or red horse. The suitors never used a black horse to accomplish this noble goal. Because it was believed that riding a black horse will cause the work not to be completed [7]. The suitors visit the girl’s house three or four times. Usually, the mother of the young man brought a table with various sweets to the house of the bride-to-be. On the third visit, if the girl agrees, the patir is lit and the white cloth brought by her mother is taken by the girl’s mother, and this custom is considered a sign of consent. After that, rituals such as “o’g’ri patir", “eshik ochar” and “ulli (big) patir” were performed, and preparations for the wedding ceremony began in both households.

In Khorezm Uzbeks, the groomsmen, consisting of the boy’s mother, older and younger relatives, carry a white table with 9 oiled patirs to the girl’s house. If there is a slight inclination, two women from the girl’s relatives come to see the guy’s house for a long confession. This product was called “Uy ko’rdi” among the population. On the day before the wedding, “non yopar” ceremony is held with the participation of neighboring women. Bread is distributed to the young man’s relatives and relatives from afar. There is also a custom of those who have tasted the bread throwing money on the platform near the oven. After the wedding, after the end of the prayer, the women who share the bread are given gifts as a “gift from the wedding”.

It is known that in the marriage and family relations of our ancestors, the traces of ancient religious traditions and historical traditions related to the Zoroastrian faith are preserved even in the current information age.

In Zoroastrianism, marriage and family relations are given serious attention. In particular, in “Avesta” special attention is paid to the family as the main link of society. Therefore, the issue of starting a family was up to the parents, and they chose suitable future brides and grooms with the advice of the community. Boys were considered adults at 17 and girls at 15 and had the right to marry. It is forbidden to build a family with people of other religions, and it is also forbidden to marry two or more women [19].

If a man was able to leave offspring, but did not marry, he was branded with an iron heated in a fire or forced to wear a heavy iron chain belt around his waist. Similarly, if a girl who has

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reached the age of puberty was unmarried, she was put in a sack and beaten 25 times. After all, in Zoroastrianism, it was considered that such young men and women are not fulfilling their duty by opposing the increase of human offspring [8].

"Avesta" describes in detail the reasons and conditions for maintaining family integrity, marriage procedures, marital obligations, and annulment of marriage.

According to Uzbek traditions, it has become a tradition to perform marriage ceremonies from the beginning to the end with the advice and guidance of family, relatives, neighborhood and village elders [9]. In this regard, the "maslahat oshi" events held before every wedding ceremony can be a vivid example of this [22].

According to custom in Uzbek families, after the eldest son gets married, he is allowed to live in a separate house in order for him to taste the bitterness of life, walk independently from the paths of life and gain experience.

Marriage ceremonies and customs have their own characteristics among the inhabitants of different districts of Khorezm. The traditional marriage ceremony consists of a set of pictures and customs of a colorful nature in terms of origin and historical period, and has reached the present day as the customs of the islamic religion. However, there are many traditions that have been practiced in weddings and are still being practiced today.

The concepts of "kuyov sovg'asi" and "sut haqi" which are widespread among the Uzbek people, are still present in the family rituals of Khorezm Uzbeks. According to the conclusion of psychologists, it will take 15 years for a newly arrived bride to get used to home conditions. During this period, the oldest man from the groom's relatives advised the bride as "burunduq", that is, second father, and the groom's mother was "burunduq mother" or mother-in-law - second mother [11]. However, these terms, the antiquity of which is clearly visible, can be found only among the Uzbeks of Northern Khorezm.

Chimildiq is considered one of the wedding ceremonies, and it can be said that the pictures and rituals performed by the bride and groom are a world in itself. In short, in this process, the bride and groom "oyoq bosdi", "soch siypatar", "oyna ko'rsatar" , "qo'l qisar", "o'qlov sanchar", "bet siypatar", "chakib urdi" and "taxga tashlash" it is possible to observe the execution of drawings. Each of these has its own meaning and history of origin related to antiquity.

Among them, we will analyze the "oyoq bosdi" and "o'qlov sanchar" udums. According to the meaning of the term "oyoq bosdi", it is widely believed that the first person from the bride and groom to step on the feet of their spouse will have a higher position in the family. It is known that the Uzbek family was always headed by a man. But, despite this, among the brides of today, there are those who openly strive to step on the groom's feet first and thus gain the upper hand in the family. At this point, it is impossible not to recognize how instructive the wisdom of the ancient Greek philosopher is: "A wise woman submits to her husband and leads him" [21]. Also, "o'qlov sanchar" is performed so that the bride and groom will have sustenance in the oasis.

Among the rituals related to marriage, a custom found only in Hazorasp district attracted our attention. This custom is to turn the cart in which the bride is sitting or the cow that gave birth around the car when the bride is brought to the groom's house. In this case, the groom's friend turned the cow by its rope, and the groom drove it behind. According to informants, the proverb "sigir-buloq" is widely popular in Khorezm, according to which the cow is considered a symbol of abundance, prosperity and good luck [11].

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Currently, this ritual is not performed due to the concern that the bride will arrive in an expensive car and the cow will damage the car with its horn. Instead, it is becoming a tradition to hold two “cho’rak” (kulchas) in the hands of the groom and his friend, and spin them around the car where the bride is sitting [11]. In this, of course, it can be considered that bread is a symbol of sustenance, like a cow.

At weddings in the Khorezm oasis, jid, sugar, and coins are scattered over the chimildiq [12]. This tradition is preserved in modern life. According to the information of the informants, this ceremony is performed with the noble intention that the future young family “serfarzand bo’lsin”, “may become a state”[13]. In the villages of Hazorasp district, this custom is called “sochuv”, and in the mountainous districts of Samarkand region, a similar custom is called “chachala”. In the generally accepted Uzbek culture, this udum is called “sochqi”.

In addition, on the day of the wedding, following the custom of bringing a “lamp” to the groom’s house with the bride, this lamp was placed on the head of the bride and groom and was lit for three days. The most interesting thing is that this fire had to be lit by the girl’s father. The father lit this lamp with the intention that the light of the family would not go out and that his marriage would last forever. The historical roots of this tradition go back to the belief that our ancestors worshiped fire as a source of heat and light, and its protection from evil spirits [14]. In its place, it should be noted that the bride enters the new house in a basket filled with rice and wheat. Such rituals are performed with the intention of one thing, namely, that the bride and groom’s sustenance should be complete, and the table should be full of wheat, rice, milk and yogurt [15].

In addition, “ko’shayana”, “ko’shagana” (go’shanga) is drawn to the bride’s house. The “ko’shayana” covered over the bride’s head is held in the middle of the room. For “ko’shayana”, special nails are hammered into the wall in advance, and in some places a white scarf is tied on one side of it and a red scarf on the other side. This means that it is intended that the new family should first have a good boy and then a girl [16].

In some places, they tie the cord of the ko’shayana to the boy. Grandmothers say that the person who ties the string of the ko’shayana will be happy [17], and sometimes this work is done by mothers who have seen a lot. The bride and her closest friends and relatives sit behind the ko’shayana. However, during field research, another interesting custom was encountered in Hazorasp district. That is, the bride goes behind the ko’shayana and stands up, then the groom’s mother comes in and begs, “Take away my son”, “Take away my riches”, “Take away my chest”, “Sit down, my child, please” the bride sits last.

A similar custom is called “tiztayoq” in the oasis of Zarafshan, and it is performed by the father. This custom, which is of ancient origin, is mixed with Islamic dowry. Another interesting situation recorded by the informant in this place is that after the godfathers come and sit down, they are given bread, salt and cow’s milk before tea. This custom is performed with the aim that the path and life of the incoming bride will be as white as milk, and that the bride and groom will mix like milk and cream. After that, “sut fotihasi” is recited [11].

According to the information given by Elshunos scientist G.P.Snesarev, dressing of the bride was entrusted to an enlightened woman with children and a reputation. After dressing the bride, he takes off the headscarf (manglaycha in Khorezm) that he has tied on his forehead, wraps it around the bride's head and wishes, “When your son is born, you will wrap me in a headscarf”[18].

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In the course of field research, it became known that there is another custom in the village of Mukhamon, Hazorasp district. According to him, a five-seven-year-old boy takes the veil from the bride's head with a half-meter long stick, turns it around the house, and brings it again. Then the boy was encouraged by the bride's sister-in-law for this work. This ceremony is called "yuz ochdi" [11]. Informants explain this situation by the fact that a white scarf is a symbol of purity. After that, the bride was able to walk without covering her face in front of her new family members.

In addition, in Hazorasp, after "kelin salom", an elderly mother fills her skirt with apples and puts it on the bride's skirt. The bride spills the apple on the floor. A fight begins between the women to retrieve the spilled apples. Women fighting for apples perform this act with ceremonial enthusiasm [11]. This ancient custom refers to the fact that the bride's hand will be open and blessed, and she herself will be the head of the family and the head of state.

After the wedding, a white tablecloth brought from the bride's house was laid, and the bride took a large piece of breast meat, which was placed between the bread on the new table, cooked in soup, and served it first to the groom, and then to the two attendants next to him with her own hands. It was during these paintings that the agility of the bride was tested. Because, while the meat was being prepared, the grooms tried to bite the bride's finger. Young people were not left out of the grooms in exile. Tea bags for the groom and his friends were also given here, and a table with meat was also given to the groom.

However, this ceremony, which is almost the same in all regions of Khorezm, has acquired a special meaning and form in Mukhamon village of Hazorasp district. In this village, the bride cuts the meat on the new bread into large pieces and stuffs it into the groom's mouth. The pieces of meat left by the groom are called "kuyov sarqiti", and the women participating in the ceremony give them to themselves and their children, make intentions, and argue about them [22].In addition to good intentions, according to informants, a person who eats this meat will not have headaches, toothaches, and grief [20]. This last conclusion is undoubtedly a relatively modern interpretation of an ancient virtue that was added later.

Based on the historical evidence mentioned above, this paragraph can be concluded with the following conclusions.

The roots of the customs of marriage ceremonies of the people of Khorezm oasis go back to the traditions of our ancient ancestors. Marriage has long been considered sacred and understood as the only means of serving the continuity of future generations.

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THE CURRENT STATE OF SPORTS AND WELLNESS MOUNTAIN TOURISM IN UZBEKISTAN AND MEASURES FOR ITS MASS DEVELOPMENT

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Annotation: This paper explores the current state of mountain tourism in Uzbekistan, emphasizing its role in promoting public health and economic development. It identifies key strengths, challenges, and strategic measures for sustainable growth. Statistical insights, expert analyses, and actionable recommendations aim to position Uzbekistan as a global mountain tourism hub.

Keywords: Mountain tourism, Uzbekistan, sustainable development, public health, sports tourism, infrastructure, digital transformation.

ГОРНЫЙ ТУРИЗМ, УЗБЕКИСТАН, УСТОЙЧИВОЕ РАЗВИТИЕ, ОБЩЕСТВЕННОЕ ЗДОРОВЬЕ, СПОРТИВНЫЙ ТУРИЗМ, ИНФРАСТРУКТУРА, ЦИФРОВАЯ ТРАНСФОРМАЦИЯ.

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Аннотация: В данной статье рассматривается современное состояние горного туризма в Узбекистане с акцентом на его роль в улучшении здоровья населения и экономического развития. Выявлены основные преимущества, проблемы и стратегические меры для устойчивого роста. Статистические данные, экспертный анализ и практические рекомендации направлены на позиционирование Узбекистана как глобального центра горного туризма.

Ключевые слова: Горный туризм, Узбекистан, устойчивое развитие, общественное здоровье, спортивный туризм, инфраструктура, цифровая трансформация.

O‘ZBEKISTONDA SPORT-SOG‘LOMLASHTIRISH TOG‘ TURIZMINING ZAMONAVIY HOLATI VA TOG‘ TURIZMINI OMMAVIY RIVOJLANTIRISH CHORA TADBIRLARI

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Annotatsiya: Ushbu maqolada O‘zbekistondagi tog‘ turizmining zamonaviy holati, uning jamoatchilik salomatligi va iqtisodiy rivojlanishdagi roli yoritilgan. Asosiy afzalliklar, muammolar va barqaror o‘sish uchun strategik chora-tadbirlar aniqlangan. Statistik ma’lumotlar, ekspert tahlillari va amaliy tavsiyalar O‘zbekistonni jahon tog‘ turizmi markazi sifatida ilgari surishga qaratilgan.

Kalit so‘zlar: Tog‘ turizmi, O‘zbekiston, barqaror rivojlanish, jamoatchilik salomatligi, sport turizmi, infratuzilma, raqamli transformatsiya.

1 Introduction

Tourism has always been a vital aspect of economic, cultural, and social development. In recent years, mountain tourism has emerged as a popular segment, blending recreational activities with health and wellness benefits. Uzbekistan, with its diverse topography and picturesque mountain ranges such as Chimgan, Nurata, and Gissar, offers unique opportunities for promoting sports and health-oriented mountain tourism.

This article explores the current state of mountain tourism in Uzbekistan, emphasizing its potential as a tool for promoting public health and fostering economic growth. Furthermore, the study proposes strategies to make mountain tourism more accessible and sustainable, integrating modern technologies and infrastructure improvements.

Research Objectives

To analyze the current infrastructure and tourist flows in Uzbekistan's mountain regions.

To identify challenges and barriers hindering the development of mountain tourism.

To propose actionable measures for the mass promotion of sports and recreational mountain tourism.

2. Research Methodology

2.1. Data Collection

This study employs a combination of qualitative and quantitative methods:

Statistical Analysis: National tourism statistics from the last five years.

Expert Interviews: Insights from tourism and sports development specialists.

Tourist Surveys: Feedback on infrastructure, services, and overall experiences.

2.2. Analytical Tools

GIS Mapping: To identify and visualize potential hotspots for tourism development.

Comparative Analysis: Benchmarking Uzbekistan's mountain tourism against leading global destinations.

2.3. Data Sources

Reports from Uzbekistan's State Committee for Tourism Development.

Publications in scientific journals on sustainable tourism.

Field observations from major mountain areas like Chimgan and Beldeq.

Key Findings from Preliminary Analysis

Tourist Influx Trends: A steady annual increase in mountain tourism activities, particularly in regions near Tashkent.

Infrastructure Gaps: Limited transport accessibility and underdeveloped recreational facilities in many areas.

Environmental Concerns: Growing tourism poses risks to fragile ecosystems, necessitating sustainable practices.

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3. Current State of Mountain Tourism in Uzbekistan

Uzbekistan's mountainous regions possess immense potential for developing sports and wellness tourism, with unique landscapes, diverse flora and fauna, and historical significance. However, the current state reveals a mix of strengths and challenges.

3.1. Key Destinations

Chimgan Mountains: Known for skiing, trekking, and paragliding, this region attracts the majority of mountain tourists due to its proximity to Tashkent.

Nurata Range: Offers cultural and ecological tourism opportunities, including visits to sacred sites and nature reserves.

Zaamin National Park: A hotspot for eco-tourism and health-oriented activities like hiking and camping.

3.2. Infrastructure and Accessibility

Despite its rich potential, the development of tourism infrastructure remains uneven:

Transport: Limited road networks in remote areas hinder accessibility.

Facilities: A lack of standardized accommodations and modern recreational amenities.

Digital Integration: Minimal utilization of mobile applications or online platforms for tourists.

3.3. Economic and Social Impact

Employment: Tourism contributes significantly to job creation in local communities.

Health Benefits: Increased interest in health tourism due to its stress-relieving and physical fitness advantages.

3.4. Challenges

Environmental degradation from unregulated tourist activities.

Seasonal limitations affecting year-round tourist inflow.

Limited international marketing and visibility.

4. Measures for Promoting Mass Mountain Tourism

4.1. Infrastructure Development

Building sustainable transport links, such as eco-friendly cable cars.

Establishing state-of-the-art recreational and lodging facilities.

4.2. Digital Transformation

Developing mobile apps for navigation, safety, and trip planning.

Implementing virtual reality (VR) tours to promote destinations globally.

4.3. Environmental Sustainability

Enforcing regulations to protect fragile ecosystems.

Launching eco-tourism campaigns to raise awareness.

4.4. Marketing and International Collaboration

Hosting international sports and cultural festivals in mountain regions.

Partnering with global tourism platforms for broader visibility.

5. Analysis and Results

5.1. Annual Tourist Inflows

Uzbekistan's mountain tourism sector has demonstrated steady growth, with the number of visitors increasing from approximately 500,000 in 2018 to nearly 750,000 in 2023. This growth is attributed to the government’s initiatives and the private sector's involvement in adventure and wellness tourism.

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Graph: Annual tourist inflows into Uzbekistan's mountain regions (2018–2023).

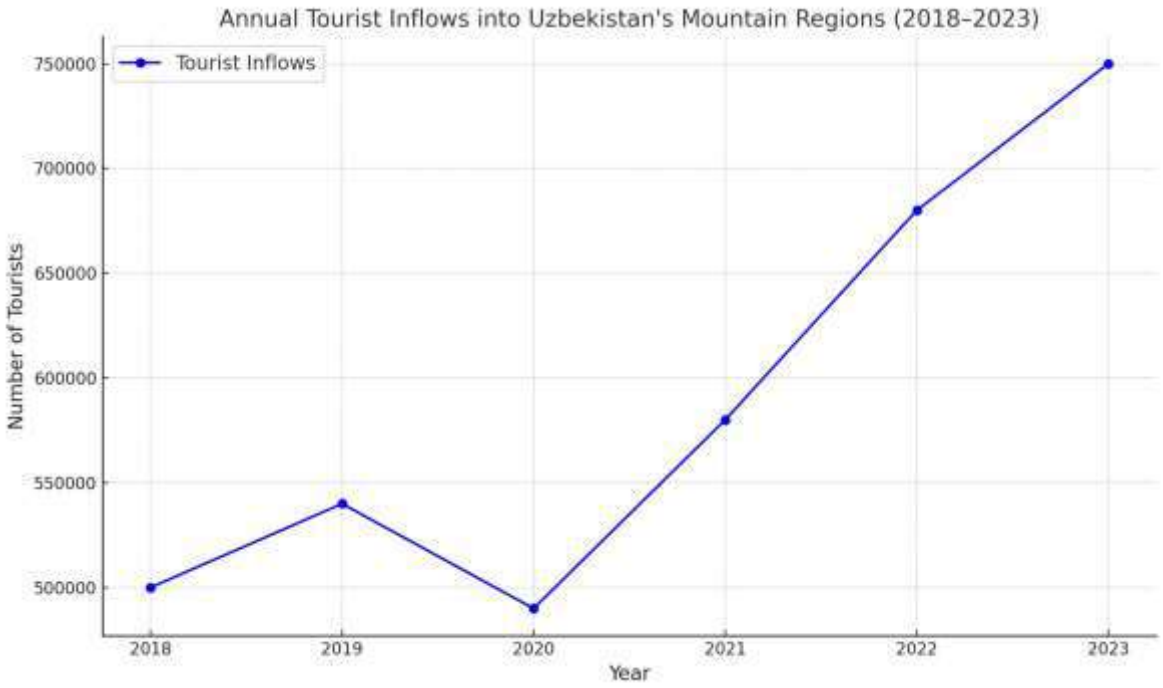

Table: Key Features of Mountain Tourism in Uzbekistan, Kyrgyzstan, and Kazakhstan

Country	Main Activities	Annual Tourist Inflow (2023)	Revenue (in $M)
Uzbekistan	Hiking, skiing, paragliding	750,000	12
Kyrgyzstan	Trekking, cultural tours	1,200,000	18
Kazakhstan	Hiking, mountaineering, skiing	1,100,000	15

5.2. Economic Impact

The economic contribution of mountain tourism in 2023 amounted to $12 million, with domestic tourism accounting for 60% of revenue. Employment opportunities in the sector have risen by 15%, benefiting local communities.

5.3. Tourist Feedback Analysis

Surveys indicate:

80% of tourists rate Uzbekistan's mountains as highly scenic.

65% express dissatisfaction with accessibility and accommodations.

50% demand more digital tools like mobile apps for enhanced travel convenience.

6. Conclusion and Recommendations

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Key Findings

Uzbekistan's mountain tourism is on a growth trajectory but requires strategic investments to realize its full potential. The main challenges include limited infrastructure, inadequate digital integration, and seasonal tourist inflows.

Strategic Recommendations

Sustainable Infrastructure Development:

Construct eco-friendly transport systems and lodging facilities.

Enhance access to remote mountain areas.

Technological Integration:

Develop tourism-focused mobile applications offering safety tips, maps, and virtual guides.

Introduce an online platform for booking and reviews.

Global Branding and Marketing:

Collaborate with international travel agencies and online platforms.

Host global mountain sports events and festivals to increase visibility.

Policy and Regulation:

Establish strict environmental protection laws.

Offer tax incentives to investors in mountain tourism projects.

Quyida jadvalni bevosita tayyorlangan holatda keltiraman. Keyin adabiyotlar ro'yxatini maqola talablari bo'yicha taqdim etaman.

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ECONOMIC AND LEGAL ASPECTS OF THE STUDY OF ENVIRONMENTAL PROBLEMS IN THE REPUBLIC OF UZBEKISTAN

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Abstract: This article explores the economic and legal dimensions of addressing environmental challenges in the Republic of Uzbekistan. With issues such as water scarcity, land degradation, pollution, and the Aral Sea crisis reaching critical levels, Uzbekistan must balance its economic development with environmental sustainability. The study examines current policies, legislative frameworks, and economic mechanisms designed to mitigate ecological harm, highlighting successes and challenges. Emphasis is placed on the integration of economic incentives and legal enforcement as a unified strategy for sustainable environmental governance. The article underscores the importance of international cooperation, institutional capacity building, and public awareness in tackling these pressing issues, offering insights into how Uzbekistan can align its environmental goals with global best practices for a sustainable future.

Keywords: Aral Sea, economic incentives, legal frameworks, sustainable development, water management, pollution, renewable energy, international cooperation.

Environmental problems represent a growing concern worldwide, and the Republic of Uzbekistan is no exception. As a nation situated at the heart of Central Asia, Uzbekistan faces unique environmental challenges stemming from its geographic location, historical development, and socio-economic structure. Issues such as water scarcity, land degradation, desertification, and pollution have reached critical levels, exacerbating the socio-economic challenges already present in the region. Addressing these issues demands a multi-faceted approach, where economic and legal perspectives play crucial roles in fostering sustainable development. This article explores the economic and legal dimensions of environmental challenges in Uzbekistan, with a particular focus on policy initiatives, legislative frameworks, and the role of economic mechanisms in mitigating ecological harm. The interconnected nature of these two aspects is crucial in shaping a comprehensive strategy for environmental protection. Legal frameworks establish the necessary regulatory foundation for environmental governance, while economic mechanisms incentivize compliance and support green development. Together, they form the backbone of sustainable environmental management, ensuring that the interests of both nature and society are balanced.

Uzbekistan's environmental challenges are deeply intertwined with its historical and economic development. The Aral Sea crisis is one of the most poignant examples, symbolizing the environmental cost of rapid industrialization and unregulated natural resource exploitation. The diversion of water from the Amu Darya and Syr Darya rivers during the Soviet era led to a catastrophic decline in the Aral Sea, transforming it into a stark example of human-induced environmental degradation. This, in turn, has had severe repercussions for public health,

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biodiversity, and economic livelihoods in the region. Other pressing issues include air and soil pollution, particularly in urban and industrial areas. The excessive use of chemical fertilizers and pesticides in agriculture has degraded soil quality, while emissions from industries and transportation contribute to air pollution, impacting public health. Uzbekistan also faces significant water management challenges, exacerbated by its predominantly arid climate and increasing competition for transboundary water resources. These challenges highlight the need for robust policy measures and legal mechanisms to mitigate and adapt to environmental threats.

From an economic perspective, the degradation of natural resources and ecosystems poses a significant cost to Uzbekistan's economy. Unsustainable practices in agriculture, energy, and industry not only lead to the depletion of valuable resources but also undermine long-term economic growth. For instance, inefficient water usage in agriculture, which accounts for more than 90% of the country's water consumption, reduces the availability of this vital resource for other sectors, such as industry and household use. Moreover, environmental degradation increases public expenditure on health care, disaster recovery, and infrastructure repair, straining already limited public resources. To address these challenges, Uzbekistan has initiated several economic mechanisms aimed at promoting environmental sustainability. These include the introduction of green technologies, the development of renewable energy sources, and financial incentives for eco-friendly businesses. The country has also sought to attract international investment and cooperation in areas such as solar and wind energy, which align with its broader economic diversification goals. However, the success of these initiatives depends largely on the establishment of supportive legal and institutional frameworks.

The legal aspect of environmental management in Uzbekistan has undergone significant reform in recent years. The government has recognized the importance of aligning its environmental legislation with international standards and has ratified various global agreements, such as the Paris Agreement on climate change. The adoption of the Environmental Protection Law and the establishment of the State Committee for Ecology and Environmental Protection represent important steps in strengthening the regulatory framework. These legal instruments aim to regulate activities that impact the environment, promote the sustainable use of natural resources, and hold polluters accountable. However, challenges remain in the implementation and enforcement of these laws. Limited institutional capacity, inadequate funding, and weak coordination among stakeholders often hinder the effectiveness of environmental regulations. Enhancing the legal framework requires not only drafting comprehensive policies but also ensuring their enforcement through transparent and accountable institutions. The interplay between economic and legal aspects is critical to addressing Uzbekistan's environmental challenges. Economic tools such as taxes on pollution, subsidies for renewable energy, and penalties for non-compliance must be integrated with robust legal frameworks to achieve meaningful outcomes. Public awareness and participation are equally important, as they ensure that environmental policies and laws reflect the needs and priorities of the population.

The Current State of Environmental Issues in Uzbekistan. Uzbekistan's environmental challenges are deeply rooted in its historical development and geographic conditions. The legacy of Soviet-era policies continues to shape the country's ecological landscape, where industrial expansion and agricultural intensification were prioritized over environmental sustainability. The most emblematic example of this is the Aral Sea disaster, which remains one of the world's most severe environmental crises. Once the fourth-largest inland body of water, the Aral Sea has shrunk

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dramatically due to the diversion of its tributaries, the Amu Darya and Syr Darya, for irrigation projects. The resulting ecological and socio-economic consequences include desertification, loss of biodiversity, health issues caused by airborne salts, and diminished livelihoods for communities dependent on the sea. Beyond the Aral Sea, Uzbekistan faces pressing challenges such as land degradation, water scarcity, air pollution, and waste management issues. Approximately 70% of the country's territory is classified as arid or semi-arid, making it highly vulnerable to desertification and soil erosion. Unsustainable agricultural practices, such as excessive irrigation and overuse of chemical fertilizers, exacerbate these problems, reducing soil fertility and threatening food security. Water scarcity is another critical issue, as Uzbekistan is a downstream nation in the Amu Darya and Syr Darya river basins. The increasing demand for water, combined with climate change and upstream usage by neighboring countries, has led to periodic water shortages that affect both agricultural production and access to clean drinking water. In urban areas, industrial emissions, vehicle exhaust, and improper waste disposal contribute to significant air and soil pollution. Cities like Tashkent, Samarkand, and Navoi face growing environmental pressures due to urbanization and industrial growth. The lack of efficient waste management systems further aggravates pollution levels, with solid waste often disposed of in unregulated landfills, leading to groundwater contamination and health risks for local communities.

Economic Perspectives on Environmental Challenges. From an economic standpoint, environmental degradation imposes a significant burden on Uzbekistan's development. The depletion of natural resources, loss of arable land, and increased health expenditures due to pollution are just some of the ways in which environmental issues directly impact the economy. For example, inefficient water use in agriculture, which consumes over 90% of the country’s water resources, not only threatens food production but also limits water availability for industrial and domestic purposes. This inefficiency is particularly problematic given the country’s reliance on agriculture, which accounts for about 30% of employment and a substantial portion of GDP. The energy sector is another critical area where economic and environmental priorities intersect. Uzbekistan’s economy has historically been reliant on fossil fuels, particularly natural gas, for energy production. While this has supported industrial growth, it has also contributed to greenhouse gas emissions and environmental pollution. Recognizing the need for a more sustainable approach, the government has made efforts to diversify its energy mix by investing in renewable energy sources, such as solar and wind power. These initiatives not only reduce environmental harm but also align with global trends toward green energy, which can attract foreign investment and create new economic opportunities. Market-based mechanisms such as environmental taxes, subsidies for green technologies, and penalties for polluters have also been introduced to encourage sustainable practices. For instance, the government has implemented water tariffs aimed at reducing wastage and promoting efficient water use. Similarly, subsidies for renewable energy projects and eco-friendly businesses aim to shift the economy toward a greener model. However, the effectiveness of these measures depends on their proper implementation and the ability of local institutions to monitor and enforce compliance.

Legal Frameworks for Environmental Protection. The legal framework governing environmental protection in Uzbekistan has evolved significantly in recent years. The country’s Constitution explicitly recognizes the right of citizens to a healthy environment and the responsibility of the state to protect natural resources. Building on this foundation, the government has enacted various laws and regulations to address specific environmental issues. The Law on

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Environmental Protection, for instance, provides a comprehensive framework for environmental governance, outlining the responsibilities of different stakeholders and establishing standards for pollution control, resource use, and environmental monitoring. In addition to domestic legislation, Uzbekistan has ratified several international agreements aimed at promoting environmental sustainability. These include the Paris Agreement on climate change, the Convention to Combat Desertification, and the Convention on Biological Diversity. By aligning its policies with international standards, Uzbekistan seeks to integrate global best practices into its environmental management strategies. Despite these advancements, challenges remain in the implementation and enforcement of environmental laws. Limited institutional capacity, insufficient funding, and weak coordination among government agencies often undermine the effectiveness of legal frameworks. For example, while laws exist to regulate industrial emissions and waste disposal, enforcement mechanisms are often inadequate, allowing violations to go unchecked. Strengthening the capacity of regulatory bodies, improving transparency, and fostering public participation are essential steps in overcoming these challenges.

The Interplay Between Economics and Law. The intersection of economic and legal aspects is central to addressing Uzbekistan's environmental challenges. Economic tools such as taxes, subsidies, and financial incentives can only achieve their intended goals if supported by a robust legal framework that ensures compliance and accountability. Similarly, legal regulations must be designed with economic realities in mind, providing businesses and individuals with clear incentives to adopt sustainable practices. One example of this interplay is the use of water management policies in Uzbekistan. Legal regulations establish water usage quotas and quality standards, while economic instruments such as tariffs encourage efficient use. However, the success of these policies depends on effective monitoring and enforcement, as well as public awareness and cooperation. Another area where economic and legal considerations converge is renewable energy development. Laws providing tax breaks and other incentives for renewable energy projects create a favorable environment for investment, while economic mechanisms such as feed-in tariffs ensure that these projects remain financially viable. By integrating economic and legal approaches, Uzbekistan can accelerate its transition to a more sustainable energy system.

To address its environmental challenges effectively, Uzbekistan must adopt a holistic and integrated approach that combines economic incentives with legal enforcement. Strengthening institutional capacity, fostering international cooperation, and engaging civil society are all critical components of this strategy. For example, public-private partnerships can play a key role in mobilizing resources and expertise for environmental initiatives, while regional cooperation with neighboring countries can help address transboundary issues such as water management. Moreover, fostering a culture of environmental awareness and responsibility among citizens is essential for long-term sustainability. Educational programs, media campaigns, and community-based initiatives can help build public support for environmental policies and encourage individuals to adopt sustainable practices in their daily lives. Uzbekistan's journey toward environmental sustainability is a complex and challenging one, but it also presents opportunities for innovation, collaboration, and economic growth. By integrating economic and legal perspectives, the country can develop a comprehensive and effective strategy for protecting its natural resources and ensuring a sustainable future for its people.

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ИЗУЧЕНИЕ УСЛОВИЙ ПОТРЕБЛЕНИЯ СЕЛЬСКОХОЗЯЙСТВЕННОЙ ПРОДУКЦИИ, ВЫРАЩЕННОЙ В ЭКОЛОГИЧЕСКИ НЕБЛАГОПРИЯТНЫХ РАЙОНАХ РЕСПУБЛИКИ КАРАКАЛПАКСТАН

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Аннотация. Практика внедрения инноваций в процессы производства и хранения пищевых продуктов показывает, что процесс производства и культивирования новых видов пищевых продуктов связан с устранением физических, химических и биологических опасностей, которые по своему составу опасны для здоровья человека [1,2].

В рамках этой статьи были проведены ежегодные обследования питания домашних хозяйств с целью мониторинга состояния питания сельскими продуктами питания жителей города Нукус, Берунийского, Кунградского и Муйнакского районов Республики Каракалпакстан. Согласно полученным результатам, показатели районов Кунграт и Муйнак оказались в несколько раз ниже, чем в городе Нукус и районе Беруний. Такое расхождение в полученных данных объясняется близостью этих районов к пересыхающему Аральскому морю, т.е. к сельскохозяйственной продукции, выращенной в экологически несовместимых условиях, в дальнейшем последовали и другие причины [3,4,5].

Ключевые слова: экологическое неблагополучие, пищевые продукты, анкетирование.

Введение. Безопасность пищевых продуктов, необходимых населению, считается одной из самых актуальных задач, стоящих перед странами всего мира. В связи с переходом страны к новым политическим и экономическим (рыночным) отношениям, в целях гармонизации национального законодательства в области технического регулирования, санитарных и фитосанитарных мер и защиты интеллектуальной собственности с требованиями соглашений Всемирной торговой организации, изменения, происходящие во всех сферах жизни человека за последние 10-15 лет, считаются одной из наиболее значимых и актуальных задач для нового Узбекистана.

В таких сложных условиях строительство крупномасштабных предприятий по переработке и хранению сельскохозяйственной продукции, связанных с производством продовольственного сырья и пищевых продуктов, их хранением, продажей, транспортировкой, приводит к созданию новых типов рабочих мест [6,7].

Это, в свою очередь, вносит значительный вклад в решение новых технологических процессов, упаковочных материалов, пищевых компонентов и возникающих проблем, связанных с новыми видами пищевого сырья. Она заключается, с одной стороны, в расширении ассортимента пищевых продуктов, а с другой - в удовлетворении спроса на потребление натуральных продуктов питания, хранении их в суровых условиях, несовместимых с окружающей средой, и обеспечении удовлетворительного качества.

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Практика внедрения инноваций в процессы производства и хранения пищевых продуктов показывает, что процесс производства и культивирования новых видов пищевых продуктов связан с устранением физических, химических и биологических опасностей, которые по своему составу опасны для здоровья человека [3].

Отметим, что загрязнение пищевых продуктов - это одна из проблем, волнующих человечество, и во всех странах мира могут быть случаи воздействия на здоровье людей, а также очень большие экономические последствия. Таким образом, ожидается, что загрязнение пищевых продуктов вызовет серьезные экономические последствия во всех странах мира и будет иметь серьезные последствия для здоровья людей. Данные ВОЗ, свидетельствующие о том, что в развивающихся странах происхождение таких заболеваний, как детская диарея, анемия, связано с загрязнением пищевых продуктов, а также бактериальными отравлениями от скоропортящихся кондитерских изделий, и остается одной из важнейших проблем в области здравоохранения населения.

Согласно заключению экспертной комиссии по безопасности пищевых продуктов, проблема болезней пищевого происхождения, которая сегодня широко распространена во всем мире, вряд ли может быть одной из важных причин снижения здоровья человека и экономической эффективности. Результаты исследований, проведенных в промышленно развитых странах, показали, что ежегодный уровень распространенности заболеваний, вызываемых пищевыми продуктами, составляет 10-15% среди населения составляет 10-15% и выше [5].

Цель: Создание системы для детального изучения потребления сельских фермерских продуктов при мониторинге состояния питания среди различных групп жителей (в семье, организациях, сельском сообществе, студентах, школьниках и т.д.)

Материалы и методы: жители городов и районов Республики Каракалпакстан (город Нукус, Берунийский район, Кунградский и Муйнакский район) проводили ежегодные обследования питания в домашних хозяйствах с целью мониторинга состояния обеспеченности сельскохозяйственными продуктами питания.

Наше исследование было проведено с использованием методической рекомендации, утвержденной Министерством здравоохранения Республики Узбекистан 8 n-p/118 от 24.01.2024, "Исследование потребления сельскохозяйственной продукции, выращенной в экологически несовместимых условиях", и получило гигиеническую оценку. [8-9].

Результаты исследований

Для повышения уровня достоверности полученных данных используется определенная система отбора. Группа населения, в которой проводятся тесты, должна быть однородной по возрасту и полу, по уровню физического развития и самочувствия.

Эффективность метода анкетирования-опроса зависит от количества требуемых показателей, допустимой средней погрешности, среднего значения, погрешности измерения, желаемого уровня надежности, количества выбираемых экспертов в дополнение к системе отбора.

Отбор участников в районном разрезе берется типичная выборка, разбивается на зоны, затем для отбора представителей используется случайный, несистематический или механический, систематический отбор. Отбор типичных экспертов организован следующим образом: исследуемая группа людей, население в целом, делится на однородные типичные группы, районы. Из каждой такой группы отбирается определенное

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количество индивидов. В этом случае состав отобранных должен соответствовать составу всей группы, общей популяции. Изучение состояния питания любой группы населения проводится в 2-3, групповых, обобщенных вариантах, они существенно не отличаются от общих групп по структуре и по своему составу друг от друга.

Для расчета размера выборки используется следующая формула:

$$П = \frac{т2 \ \delta2 \ x \ H}{\Delta \ H + т2 \ \delta2}$$

здесь П - желаемый размер выборки (количество опрошенных).,

т - индикатор коэффициента погрешности,

δ - скорость изменения или стандартное отклонение,

Δ - возможный размер ошибки выборки,

Н - общая численность населения (количество человек в группе опроса).

Определение средней точности изучаемого символа может быть показано как еще одно условие. Мы предполагаем, что средний указатель не отличается более чем на ± 4 от общего среднего значения.

Если показатель средней погрешности равен 0,954 при Δ = 4, то средняя погрешность составляет ±2% при Т=2 и при t = 2.

$$П = \frac{2^2 \text{ x } 152 \text{ x } H}{4^2 \ H + 2^2 \text{ x } 152}$$

мы берем образец нужного размера.

При определении размера выборки, который является частью общего количества от требуемого количества, следует использовать следующую формулу:

$$П = \frac{т2 \text{ x } Р(100\text{-}Р)}{В2}$$

здесь П - стоимость доли в процентах

В- самая высокая ошибка, которая может быть допущена при выборе

t- средняя кратность ошибок

Р- обследование населения на общую заболеваемость

Пример расчета: если заболеваемость поджелудочной железы составляет почти 9%, то для того, чтобы научиться правильно питаться, необходимо следующее:

$$П = \frac{2^2 \ 9(100\text{-}9)}{4} = 819 \text{ люди}$$

В анкете 819 заявителей, состоящих из 327 домохозяйств, определенных с использованием приведенных выше формул, были удовлетворены потреблением населением сельскохозяйственной продукции, выращенной в экологически неподходящих условиях. Анкетирование-опрос, проведенный по 21 основному сельскохозяйственному продукту СанПиН №0007-20 в сравнении с рекомендуемыми нормами показателей для трудоспособного населения группы 2 (таблица-1). [10].

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Исследование потребления продуктов питания за 1 день в городах и районах Республики Каракалпакстан

Таблица-1.

№	Пищевые продукты	г.Нукус	Берунийский район	Кунградский район	Мойнокский район	Норма
1.	Мясо,**(все виды животных)**	45±0,2	48±0,3	35±0,2	32±0,6	50-60 г
2.	Домашняя птица (курица, индейка, утка, гусь).	65±0,2	61±0,4	29±0,1	27±0,6	60-70 г
3.	Рыба и рыбные продукты	50±0,4	47±0,5	30±0,7	28±0,4	35-40 г
4.	Молоко и продукты переработки молока	396±3,9	385±3,5	386±2,9	356±2,4	400-550 г
5.	Яйцо	1,2±0,2	1,3±0,1	0,8±0,1	0,7±0,1	1 шт.
6.	Рис	51±1,8	52±1,4	48±1,3	45±1,2	50-55
7.	Маш	19±1,4	22±0,9	18±0,7	19±0,7	20 г
8.	Нут	21±1,1	25±1,8	19±1,8	18±1,4	20 г
9.	Гречневая крупа	45±2,3	42±2,5	38±1,5	41±2,6	40 г
10.	Пшеничная мука	33±2,1	31±2,1	26±2,3	24±1,7	20-25
11.	Морковь	63±1,6	67±2,3	58±2,4	55±3,2	50-60 г
12.	Лук	75±3,6	72±2,4	68±2,6	64±3,2	40-60 г
13.	Свекла	30±2,3	32±2,4	29±1,4	28±2,1	40-45 г
14.	Капуста	55±2,3	51±2,3	48±1,3	45±2,1	50-55 г
15.	Перец	6±0,6	7±0,2	5±0,6	4±0,4	5 г
16.	Картошка	364±4,9	318±3,6	318±3,4	294±4,5	200-250 г
17.	Чеснок	6±0,2	5±0,6	4±0,8	5±0,9	5-10 г
18.	Фрукты	261±2,6	278±3,4	248±4,2	226±4,8	250-300
19.	Соль	7±0,5	8±0,7	9±0,7	10±0,6	5 г
20.	Сахар	41±0,4	38±0,4	36±0,6	31±0,5	30-35 г
21.	Мед	20±0,2	24±0,6	18±0,7	17±0,8	25-30 г

Вывод. Научные исследования, проведенные в районах и городах Республики Каракалпакстан, показывают, что при оценке потребления вторичных продуктов питания в городе Нукус, Берунийском, **Кунградском** и Муйнакском районах ситуация с потреблением в **Кунградском** и Муйнакском районах оказывается ниже нормативных показателей, но напротив, можно наблюдать, что в городе Нукус и Берунийском районе ряд продуктов соответствует нормативным показателям. Но мясо хорошего качества и богатое калориями (все виды животных), домашняя птица (курица, индейка, утка, гусь), молочные продукты (молоко, йогурт, цимиз, айрон) оказались ниже нормы у всех божеств, опрошенных с помощью анкетирования.

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The Methodology of Applying Modern Technologies in Conducting Professional Creative Examinations in Physical Education and Sport

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Annotation

This article examines the methodological aspects of using modern technologies in conducting professional creative exams in physical education and sports. The study analyzes the application of biometric devices, artificial intelligence algorithms, and virtual reality technologies. These approaches have been proven to make examination processes more accurate, objective, and efficient. Furthermore, the article offers scientifically grounded recommendations to enhance student satisfaction and simplify the roles of instructors in the process.

Keywords

modern technologies, physical education, sports, professional exams, biometric devices, artificial intelligence, virtual reality.

Jismoniy tarbiya va sport sohasida kasbiy ijodiy imtihonlarni o‘tkazishda zamonaviy texnologiyalarni qo‘llash metodikasi

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Annotatsiya

Mazkur maqolada jismoniy tarbiya va sport sohasidagi kasbiy ijodiy imtihonlarni o‘tkazishda zamonaviy texnologiyalarni qo‘llashning metodologik jihatlari o‘rganiladi. Tadqiqotda biometrik qurilmalar, sun’iy intellekt algoritmlari va virtual haqiqat texnologiyalaridan foydalanishning samaradorligi tahlil qilinadi.

Ushbu yondashuvlar imtihon jarayonlarini yanada aniq, xolis va samarali o‘tkazishga imkon berishi isbotlangan. Shuningdek, maqolada talabalarning qoniqish darajasini oshirish va o‘qituvchilar ishini yengillashtirish bo‘yicha ilmiy jihatdan asoslangan tavsiyalar keltirilgan.

Kalit so‘zlar

zamonaviy texnologiyalar, jismoniy tarbiya, sport, kasbiy ijodiy imtihon, biometrik qurilmalar, sun’iy intellekt, virtual haqiqat, samaradorlik, natijadorlik, talaba qoniqishi, xolislik.

Методология применения современных технологий в проведении профессиональных творческих экзаменов в области физического воспитания и спорта

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Аннотация

В данной статье изучаются методологические аспекты применения современных технологий в проведении профессиональных творческих экзаменов в области физического воспитания и спорта. В исследовании анализируется эффективность использования биометрических устройств, алгоритмов искусственного интеллекта и технологий виртуальной реальности. Данные подходы доказали свою способность делать процесс экзаменов более точным, объективным и эффективным. Кроме того, в статье приведены научно обоснованные рекомендации по повышению удовлетворенности студентов и упрощению работы преподавателей.

Ключевые слова

Современные технологии, физическое воспитание, спорт, профессиональные экзамены, биометрические устройства, искусственный интеллект, виртуальная реальность.

He development of modern technologies has significantly impacted the field of physical education and sports. Particularly in the administration of professional creative examinations, the use of innovative technologies has made the process more efficient, objective, and transparent. Integrating modern approaches in the field of physical education not only enhances the precision of assessments but also creates new opportunities for examinees.

The need to reduce human influence and ensure objectivity in professional creative examinations.

A deeper exploration and practical implementation of innovative technologies such as biometric measurement devices, virtual reality applications, and AI algorithms.

The possibility of evaluating not only theoretical knowledge but also physical indicators in real-time during examinations.

This paper focuses on analyzing methods of conducting professional creative examinations in physical education and sports using modern technologies. The study evaluates the impact of technologies on examination efficiency through experimental analysis.

The review highlights that modern technologies not only assess student performance more accurately but also contribute significantly to developing their skills. Broader adoption of these technologies ensures that examinations are conducted objectively, efficiently, and with higher quality.

RESEARCH METHODS

This study analyzed methods for enhancing the efficiency of professional creative examinations using modern technologies. The following primary approaches were employed:

Experimental approach:

Special tests were conducted using innovative devices to evaluate the performance levels of students and athletes. Motion-tracking technologies and biometric data were used to assess physical indicators.

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DATA COLLECTION AND ANALYSIS:

The results obtained were processed using statistical analysis methods and presented in the form of graphs and charts.

Control and experimental groups:

Modern technologies were introduced to the experimental group, and their results were compared with those of the control group, which used traditional methods. This allowed for an evaluation of the effectiveness of these technologies.

Surveys and interviews:

Surveys and interviews were conducted with instructors and students to gather feedback on the use of modern technologies during examinations.

RESULTS AND ANALYSIS

The results of the study demonstrate the significant impact of modern technologies on the effectiveness of professional creative examinations. The key differences between the experimental and control groups are as follows:

1. Accuracy of evaluations (objectivity)

Experimental group: Biometric devices recorded real-time data for each participant, achieving an accuracy rate of 95%.

Control group: Traditional evaluation methods resulted in a lower accuracy rate of 78%.

2. Test completion speed (time efficiency)

The experimental group completed tests on average 30% faster.

The control group experienced delays due to traditional methods.

3. Participant satisfaction

Students in the experimental group reported high satisfaction with the convenience and functionality of modern technologies. Survey results indicated a satisfaction rate of 90%.

Table 1. Comparison of Results

Indicators	Experimental Group	Control Group	Difference (%)
Accuracy (%)	95%	78%	+17%
Speed (average time)	15 minutes	21 minutes	-30%

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Indicators	Experimental Group	Control Group	Difference (%)
Satisfaction rate (%)	90%	65%	+25%

Overall Analysis

The results confirmed the positive impact of modern technologies on examination processes. Specifically, real-time tracking of results improved transparency and accuracy.

DISCUSSION

The effectiveness of applying modern technologies in professional creative examinations was confirmed by the study's results. When compared with other research, the following key conclusions were drawn:

Accuracy and objectivity

Recent studies (Jensen, 2018; Thompson, 2020) demonstrate that biometric technologies and artificial intelligence lead to more accurate and objective results. Our research confirmed similar findings, highlighting the need for broader adoption of these technologies.

Time efficiency

Initial studies, such as those by Smith and Lee (2019), show that modern technologies can accelerate the testing process. In our study, the experimental group completed tests 30% faster than the control group. This allows for more efficient use of time in administering exams.

Student satisfaction

Research (Parker, 2021) shows that using technologies in exams ensures higher student satisfaction. In our experiment, students in the experimental group expressed high levels of satisfaction with the use of modern technologies, further confirming the benefits of innovative approaches.

ONCLUSIONS AND RECOMMENDATIONS

The results of this study indicate that applying modern technologies in professional creative examinations significantly enhances the effectiveness and objectivity of the process. Technologies such as biometric devices, virtual reality, and artificial intelligence not only make the results more accurate but also speed up the examination process.

CONCLUSION:

Effectiveness of modern technologies: Biometric devices, virtual reality, and artificial intelligence systems enable more transparent, efficient, and accurate conduct of physical education and sports examinations.

Efficiency of the examination process: The application of technologies enhances the speed of tests and provides convenience for both students and instructors.

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Student and instructor satisfaction: Modern technologies create high levels of satisfaction among students and instructors, which will likely encourage broader adoption in the future.

RECOMMENDATIONS:

Wider implementation of technologies: It is necessary to expand the use of modern technologies in physical education and sports examinations. This will make the assessment process more objective and transparent.

Continued research: Further research is required to address challenges in the application of technologies. Specifically, studies should focus on adapting these technologies to individual student needs.

Updating educational programs: New educational programs based on technology should be developed, and physical education instructors should receive continuous professional development to enhance their skills in using these technologies.

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Composition of the healthcare system and modern econometric modeling

Sog‘liqni saqlash tizimini tarkib topishi va zamonaviy ekonometrik modellashtirish

Состав системы здравоохранения и современное эконометрическое моделирование

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Annotatsiya: Ushbu maqolada O‘zbekiston sog‘liqni saqlash sohasidagi islohotlar dunyo higohida qanday talqin qilinayotganligi hamda O‘zbekiston sog‘liqni saqlash sohasidagi islohotlarni so‘nggi yillarda jadal sur'atlar bilan amalga oshirilgan ishlar haqida ma’lumotlar berilgan. Shuningdek ushbu islohotlarning asosiy maqsadi mamlakat aholisining salomatligini yaxshilash, sog‘liqni saqlash xizmatlarini yangilash va ularning sifatini oshirishdan iboratligi ham takidlab o‘tilgan.

Kalit so‘zlar: sog‘liqni saqlash tizimi islohoti, tibbiy ta’lim, sog‘liqni saqlash infratuzilmasi, telemeditsina, profilaktika va sog‘lomlashtirish, xalqaro hamkorlik

Abstract: This article provides information on how Uzbekistan's health care reforms are interpreted in the world and the rapid implementation of Uzbekistan's health care reforms in recent years. It was also noted that the main goal of these reforms is to improve the health of the country's population, update healthcare services and increase their quality.

Key words: healthcare system reform, medical education, healthcare infrastructure, telemedicine, prevention and health promotion, international cooperation

Аннотация: В данной статье представлена информация о том, как реформы здравоохранения Узбекистана интерпретируются в мире, а также о быстрой реализации реформ здравоохранения Узбекистана в последние годы. Также было отмечено, что основной целью данных реформ является улучшение здоровья населения страны, обновление медицинских услуг и повышение их качества.

Ключевые слова: реформа системы здравоохранения, медицинское образование, инфраструктура здравоохранения, телемедицина, профилактика и укрепление здоровья, международное сотрудничество.

Sog‘liqni saqlash – aholi sog‘lig‘ini muhofaza qilishga yo‘naltirilgan ijtimoiy, iqtisodiy va tibbiy tadbirlar tizimidir. Sog‘liqni saqlash kasalliklarning oldini olish va davolash, sog‘lom turmush va mehnat sharoitini yaratish, yuqori mehnat qobiliyatini va uzoq umr ko‘rishni ta’minlashga qaratilgan umumiy tadbirlarni ko‘zda tutadi. Uning asosiy vazifasi bemorlarga zamonaviy, ixtisoslashgan hamda mos tarzda yordam ko‘rsatishdan iborat.

Sog‘liqni saqlash Sharqda, xususan O‘zbekistonda uzoq tarixga egadir. Ayniqsa o‘rta asrda bu hududda tabobat ilmida yuqori bosqichlarga erishildi. Shu davrda yunon va boshqa tillardan, tibbiy asarlar arab tiliga tarjima etilib, ulardagi tavsiyalar amaliyotda qo‘llanila boshlagan. Ayni vaqtda Sharq mutafakkirlari tabobat ilmidan olamshumul asarlar yaratganlar. Bu borada Abu

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Rayhon Beruniyning „Tibbiyotda dorishunoslik“ („Kitob assaydana fittib“), Abu Ali ibn Sinoning „Tib qonunlari“ („Al Qonun fittib“) asarlari mashhur bo‘lib, jahon tabobatida uzoq davrlar mobaynida asosiy qo‘llanma bo‘lib kelgan. Ayniqsa, Abu Ali Ibn Sino davolashning yangi usullarini qo‘llab tabib (hakim) sifatida o‘z davrida juda mashhur bo‘ldi. Keyingi davrlarda ham tabiblik Turkistonda sog‘liqni saqlashning asosiy shakli bo‘lib keldi. Tabiblar madrasalarda ta’lim olishgan yoki ustoz shogirdlik yo‘li bilan turli kasalliklarga, singanchiqqanlar, yarachaqalarga davo qilishni, xastaliklarning oldini olishni o‘rganishgan. Ularning ko‘plari nafaqat bemorlarni davolash, balki doridarmonlar tayyorlash bilan ham shug‘ullanganlar. Sohibqiron Amir Temur boshqa ma’rifiy ishlar qatori aholi salomatligini muhofaza qilish ishiga ham alohida e’tibor bergan. Boshqa mamlakatlar mashhur tabiblarini poytaxt Samarqandga olib kelib, maxsus shifoxonalar ochgan.

Movarounnahr va Xurosonda 8—9-asr dayoq shifoxonalar uchun maxsus binolar qurila boshlagan. 15-asrda Samarqand, Buxoro kabi shaharlarda ham shifoxonalar ko‘p bo‘lgan. Bunday jamoat shifoxonalari „Dor ushshifo“ („Davolash uyi“) nomi bilan yuritilib, ularda zamonasining bilimdon tabiblari bemorlarni davolashgan. „Dor ushshifo“dagi maxsus dorixonalarda dorishunoslar bemorlar uchun doridarmonlar tayyorlab berishgan. Aksariyat shifoxonalarda tabiblar bemorlarni davolashdan tashqari, tabobat ilmi bilan ham shug‘ullangan. Shifoxonalar ochilishiga Alisher Navoiy ham katta ahamiyat bergan va o’z nazoratiga olgan.

Manbalardan ma’lum bo‘lishicha, keyingi yillarda ham Turkistonning ba’zi viloyatlarida maxsus shifoxonalar bo‘lgan. Xususan, mashhur adib Vosifiy Zayniddin Mahmud (1485— 1551) „Nodir voqealar“ („Badoye’ ulvaqoye’“) asarida Toshkentning shahar qo‘rg‘onidan tashqaridagi Kaykovus chorbog‘i haqida qiziqarli voqealarni bayon qilib, bu yerda xon va sultonlar uchun shifoxona bo‘lganligini yozgan..U davrlarda suv, havo, osmon, yer tozaligiga, ya’ni zamonaviy tushuncha – ekologiyaga ahamiyat berilgan.

Turkistonni chor Rossiyasi bosib olganidan keyin o‘lkaga G‘arbga xos tibbiy muassasalar kirib keldi. Podsho hukumati Turkistondagi o‘z qo‘shinlarining manfaatini ko‘zlab 1868-yil Toshkentda harbiylar va amaldorlar uchun kasalxona (lazaret) ochdi. Keyinchalik boshqa shaharlarda ham katta kichik kasalxonalar, shifoxonalar ochila boshladi. 1872-yil Samarqandda, 1873-yil Xivada, 1891-yil Buxoroda unchalik katta bo‘lmagan kasalxonalar ochiddi. Pekin ular, asosan, davlat xizmatchilari va rus fuqarolariga xizmat ko‘rsatgan. Xususan, ayollarga tug‘ruqxona yoki kasalxonada tibbiy xizmat ko‘rsatish ishi uzoq vaqtgacha uyushmagan hodda qolib ketavergan. Faqat 1880-yil Toshkentda xayriya yo‘li bilan atigi 4 o‘rinli tug‘ruqxona tashkil etildi, ayollar va bolalarga mo‘ljallangan ambulatoriyalar ochildi. Mehnatni muhofaza qilish, Sog‘liqni saqlashga doir uyushgan muntazam tizim yo‘qpligi uchun sobiq Turkiston tuprog‘ida ko‘pgina yuqumli kasalliklar haddan tashqari ko‘p uchrar, ba’zida epidemiyaga aylanib, qanchadan qancha kishilarning yostig‘ini quritar edi. Chunonchi, 1872-yildagi vabo epidemiyasi vaqtida Turkiston o‘lkasida 38 ming kishi nobud bo‘ldi. 1892-yildan 20-asr boshlarigacha 6 marta vabo epidemiyasi bo‘lib, har safar minglab kishilarning yostig‘ini quritdi. O‘lkada bezgak, leysh manioz, traxoma, rishta va boshqa kasalliklar ham ancha ko‘p uchrar edi. O’sha davrda Buxorodek katta shahar aholisining beshdan bir qismidan ko‘prog‘i rishta kasalligiga giriftor bo‘lgan.

O‘tgan asrning 20y.larida bu borada bir qator tashkiliy ishlar amalga oshirildi. Sog‘liqni saqpash xalq komissarligi tuzilib, o‘lkadagi mavjud kasalxona, ambulatoriyalar va boshqa tibbiy muassasalar davlat tasarrufiga o‘tkazildi. Davolash va epidemiyalarga karshi kurashish uchun

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sayyor otryadlar tuzildi, bakteriologik lab. ishga tushirildi, umumiy o‘rinlar soni 7 mingga yaqin kasalxonalar ochildi. O‘lkada chin chechak, vabo, rishta, bezgak, traxoma, leyshmanioz singari kasalliklar, asosan, tugatildi, sil, teri kasalliklari va boshqa kasalliklar sezilarli darajada kamaydi. O‘lkada Sog‘liqni saqlash tizimining moddiytexnik bazasi bosqichma bosqich kengaytirilib, mustahkamlandi. Toshkentdagi yirik kasalxonalarda tor mutaxassisliklar bo‘yicha ixtisoslashgan ko‘z, quloq, asab kasalliklari bo‘limlari va boshqa tashkil etildi. Samarqandda yangi kasalxona, Qo‘qonda bolalar kasalxonasi, Farg‘onada bemorlarni fizioterapevtik usullar bilan davolaydigan maxsus shifoxona ochiddi. Toshkentda shu sohadagi kichik xususiy kasalxona negizida 1919-yil 150 o‘ringa mo‘ljallangan fizioterapiya instituti barpo etildi.

1920-yil Toshkentda silga qarshi dastlabki dispanser ish boshladi. 1922-yil vrachlik sanitariya nazorati tashkiloti tuzildi. 1924-yil Toshkentda teri tanosil kasalliklari dispanseri, Buxoroda esa tropik tibbiyot instituti (hozirgi Samarqanddagi tibbiyot parazitologiyasi ilmiy tadqiqot instituta) ochildi. 1924-yilga kelib Turkistonda 6 tropik stansiya va uning joylardagi tarmoqdari ishlab turdi. 1924-yil respublikada 53 kasalxona, 151 ambulatoriya (ularning 79 tasi qishloq joylarida), 40 feldsherlik punkti va boshqa muassasalar bor edi. Shu yillarda tibbiyot ta’limini yo‘lga qo‘yish va mahalliy aholidan tib mutaxassislari tayyorlashga kirishildi. 1918-yilda Toshkentda dastlabki tibbiyot o‘quv yurti – hozirgi Oxunboboyev nomidagi Respublika tibbiyot bilim yurti, oradan bir yil o‘tib, oliy tibbiyot maktabi ochildi, sheriklik kurslari, qisqa muddat o‘qitiladigan jarroxlik kurslari, muruvvat hamshiralari kurslari tashkil etildi. Oliy tibbiyot maktabi 1920-yilda O‘rta Osiyo davlat universiteti tarkibidagi tibbiyot ftiga aylantirildi. Bu Tibbiyot bilim yurtga o‘qishga yoshlarni tayyorlash uchun respublikaning ko‘pgina shaharlarida ishchi filyallar ochilib, ularga yigit qizlari jalb etildi. O‘rta Osiyo davlat universiteti oliy ma’lumotli tibbiy xodimlar tayyorlashdagina emas, balki joylarda yangi tibbiyot o‘quv yurtlari ochishda ham muhim o‘rin tutdi. 1925-yil viloyatlarning markazlarida tibbiyot markazlari ochiddi. Universitetning tibbiyot fti 1931-yil mustaqil tibbiyot instituti (Toshkent tibbiyot instituti)ga aylantirildi. Samarqandda ham Samarqand tibbiyot instituti ochildi. 1932-yil Toshkent vrachlanr malakasini oshirish instituG‘yaitashkil etildi. 1937-yil Toshkent farmatsevtika instituti ish boshladi. Ayni vaqtda ilmiy tadqiqot intlari ham barpo etildi. 1937-yil Toshkentda sil, 1940-yil qon quyish intlari bor edi. Sanoat korxonalari va qishloq joylariga ko‘plab vrachlar yuborildi, shahar va qishloklarda yangi kasalxonalar, poliklinikalar, ambulatoriyalar ochildi, havosi sof va xushmanzarali joylarda iqlimiy kurortlar, shifoxonalar barpo etildi

1941—45 ylardagi urush davrida O‘zbekiston Sog‘liqni saqlash tizimi zimmasiga ancha mas’uliyatli vazifa tushdi. Jarohatlangan va shikastlangan jangchilar uchun gospitallar ochish, Sog‘liqni saqlash tizimining moddiytexnik bazasini yanada mustaqkamlash, o‘lkaning sanitariya holatini barqaror saqlab turish kerak edi. Tez orada 130 dan ortiq harbiy gospitallar ochildi, Leningraddagi Harbiy tibbiyot akademiyasi, Moskva tibbiyot instituti va boshqa tibbiy ilmiy tadqiqot muassasalari O‘zbekistonga ko‘chirib keltirildi. Respublikada urush nogironlarini davolash uchun maxsus jarroxlik shifoxonalari ochildi.

Urushdan keyin respublikada bir qancha tibbiy ilmiy tadqiqot intlari kaytadan ish boshladi va yangilari paydo bo‘ldi (sanitariya, gigiyena va kasb kasalliklari, onkologiya va radiologiya, pediatriya ilmiy tadqiqot intlari va boshqalar). 1955-yil Andijon tibbiyot instituti, 1972-yil O‘rta Osiyo, hozirgi Toshkent tibbiyot pediatriya instituti, 1990-yil esa Buxoro tibbiyot instituti ochildi. Keyinchalik 1ToshTI ning Urganch filiali, 2ToshTIning Farg‘ona filiali, Toshkent tibbiyot pediatriya institutining Nukus filiali tashkil etildi. Kardiologiya, gastroenterologiya,

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endokrinologiya, nevrologiya, gematologiya, pulmonologiya, allergologiya, revmatologiya va boshqa sohalar bo‘yicha xizmat ko‘rsatadigan yirik klinikalar ishga tushirildi. O‘zbekistonda shifoxonalar soni 1010 ta, ulardagi o‘rinlar soni 140072 ta bo‘ldi (2003). Sovetlar tuzumi davrida Sog‘liqni saqlash muassasalari tarmogi ancha kengaygan bo‘lsada, lekin ekologik nomutanosibliklar tufayli tashqi muhitning buzilishi, xususan, yerga turli xil kuchli kimyoviy moddalar solinishi, paxta yakkahokimligi va boshqa ijtimoiy noxushliklar natijasida aholi orasida turli ichki kasalliklarning ko‘payishi kuzatildi

O‘zbekiston mustaqillikka erishganidan so‘ng aholi salomatligini muhofaza qilish sohasini qaytadan isloh qilish boshlandi, Sog‘liqni saqlash tizimining asosiy tamoili – profilaktik yo‘nalishni tiklash; uning zamonaviy va samarali usullarini ishlab chiqish va amaliyotga joriy etish; onalar va bolalar salomatligini muhofaza qilish tadbirlarini kuchaytirish; tibbiy ta’lim tizimi va kadrlar tayyorlash sohasini takomillashtirish; ilmiy tadqiqot ishlarini davr va jamiyat hayotining talablaridan kelib chiqqan holda qayta tashkillashtirish; mamlakatda sifatli va yetarli miqdorda doridarmon, tibbiy ashyolar hamda shu sohaga taalluqli texnik vositalar ishlab chiqaradigan sanoat vujudga keltirish; Sog‘liqni saqlash muassasalarining moddiy texnik bazasini yanada yaxshilash; davolashprofilaktika muassasalarining bir qismini davlat tasarrufidan chiqarib, mulkchilik shaklini o‘zgartirish asosiy vazifa qilib qo‘yildi.

O‘zbekistonda Sog‘liqni saqlash ishlarini O‘zbekiston Respublikasi Sog‘liqni saqlash vazirligi boshqaradi. Krraqalpog‘iston Respublikasida Sog‘liqni saqlash vazirligi, viloyatlar, shaharlar hamda tumanlarda tegishli boshqarma yoki bo‘limlar mavjud. Respublikada Seni rivojlantirishda O‘zbekiston Respublikasi Kasaba uyushmalari federatsiyasi, shuningdek, „Sog‘lom avlod uchun“ xalqaro xayriya jamg‘armasi, „Qizil yarim oy“ jamiyati, „Nuroniy“ jamg‘armasi va boshqa o‘z hissasini qo‘shib kelmoqda .

Bozor munosabatlariga o‘tish Sog‘liqni saqlash sohasiga ham yangi talablar qo‘ydi. Xususan, ma’muriyboshqarish sarfharajatlarini kamaytirish; bemorlarni davolash jarayonida kunduzgi kamharajat va samarali usullardan foydalanish; shifoxonalar ish hajmining bir qismini poliklinikaga ko‘chirish, kam samarali o‘rinlar sonini qisqartirish; shartnoma asosida bajariladigan ishlar uchun haq olish va boshqa choralar ko‘rilmoqda.

Aholi sog‘lig‘ini muhofaza qilish ko‘p jihatdan davlat epidemiologiya xizmati faoliyatiga bog‘liq. O‘zbekistonda sanitariyaepidemiologiya stansiyalari va aholi o‘rtasida sog‘lom turmush tarzini shakllantirishning tashkiliyuslubiy va muvofiklashtiruvchi ishlarini olib boradigan „Salomatlik“ markazlari bu vazifani amalga oshirmoqsa.

Respublikada „Salomatlik“ instituti, uning viloyatlar va shaharlardagi shoxobchalari radio va televideniye hamda matbuotdan foydalangan holda aholi o‘rtasida sanitariyagigiyenaga oid bilimlarni keng targ‘ib qilib boradi.

Bolalarga ixtisoslashgan tibbiy yordam beruvchi muassasalar tarmog‘i barpo etildi. Respublikada ishlab chiqilgan „Sog‘lom avlod uchun“ dasturi avvalo muntazam o‘tkazib turiladigan tibbiy tekshirishlar asosida salomatligi zaif va kasalmand maktab o‘quvchilari va o‘smirlarni aniklab, ularni va umuman yosh avlodni sog‘lomlashtirish choratadbirlarini amalga oshirib borishni ko‘zda tutadi.

Onalik va bolalikni muhofaza qilishdagi, sog‘lom avlodni kamol toptirish uchun eng yaxshi moddiy sharoit va axloqiy muhitni ta’minlashdagi alohida xizmatlari uchun 1993-yil 7 mayda O‘zbekiston Respublikasi ning I va II darajali „Sog‘lom avlod uchun“ ordeni ta’sis etildi.

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O‘zbekistonda tibbiy ta’limning uzluksiz bo‘lishiga va mutaxassislarning o‘z malakalarini oshirib borishiga katta ahamiyat beriladi. Toshkentda vrachlar malakasini oshirish instituti ishlab turibdi. Uning 43 kafedrasi va har xil ixtisoslikka mo‘ljallangan kurslarida har yili 8—10 ming vrach o‘z malakasini oshiradi.

Mamlakatda Sog‘liqni saqlash sohasidagi islohot bosqichmabosqich olib borildi. Birinchi boskichda (1991—94 yillar) butun e’tibor onalar va bolalar sog‘lig‘ini muhofaza qilish xizmatini takomillashtirish, demografik ko‘rsatkichlarni barqarorlashtirish, yuqumli kasalliklarni kamaytirishga karatildi.

Xulosa va takliflar: Umuman olganda, tibbiyot sohasida amalga oshirilayotgan islohotlarning samaradorligini yanada oshirish ushbu sohaga ilg‘or xorijiy tajribalarni keng joriy etish hamda aholimizning bu ishlarni chuqur anglagan holda qo‘llab-quvvatlashiga bevosita bog‘liq. Shunday ekan, har birimiz ushbu sohani yanada takomillashtirish yuzasidan o‘z taklif va tavsiyalarimizni bildirish, hech bo‘lmaganda o‘z sog‘lig‘imizga e’tiborli bo‘lib, sog‘lom turmush tarziga rioya etish orqali tibbiyot xodimlariga ko‘maklashishimiz lozim.

Foydalanilgan adabiyotlar

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PROBLEMS OF ECONOMIC SECURITY OF BUSINESS: METHODOLOGICAL ASPECT

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Abstract: Economic security in business is a critical aspect of ensuring long-term stability and resilience in an increasingly complex and interconnected global environment. This paper explores the methodological approaches to understanding and managing economic security, focusing on risk assessment, technological challenges, supply chain vulnerabilities, and regulatory concerns. The study highlights key risks that businesses face, such as market volatility, cybersecurity threats, and environmental factors, and proposes strategies to address these risks through proactive planning and strategic management. Additionally, the paper examines case studies from leading organizations to illustrate best practices in securing business operations. By integrating risk management into core business strategies, companies can enhance their resilience, safeguard their assets, and thrive in a dynamic and uncertain landscape. The findings underscore the importance of a holistic, forward-thinking approach to maintaining economic security.

Keywords: economic security, business resilience, risk management, supply chain, cybersecurity, market volatility, regulatory challenges.

Economic security is a fundamental aspect of any business's sustainability and growth. In an era characterized by rapid globalization, technological advancement, and volatile market dynamics, businesses must navigate a complex web of internal and external risks to safeguard their economic interests. Economic security in this context refers to the ability of businesses to protect their assets, maintain competitive advantages, and ensure long-term viability while minimizing exposure to financial and operational threats. This paper explores the multifaceted challenges associated with economic security in business and proposes a methodological approach to understanding and mitigating these challenges. The importance of economic security has grown exponentially with the rise of global interconnectedness. As supply chains stretch across continents, businesses are increasingly vulnerable to external shocks such as geopolitical tensions, natural disasters, pandemics, and cyber threats. For example, the COVID-19 pandemic demonstrated how fragile global business ecosystems could become when faced with a systemic crisis, disrupting supply chains, shrinking consumer demand, and exposing gaps in risk management strategies. In addition to external shocks, businesses must contend with internal threats such as financial mismanagement, employee fraud, and operational inefficiencies. These challenges highlight the necessity of developing a comprehensive framework for understanding and addressing economic security issues at both strategic and operational levels.

Another significant factor influencing economic security is the rapid pace of technological change. Digital transformation has enabled businesses to streamline operations, enhance

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productivity, and access new markets. However, it has also introduced new vulnerabilities, such as cyberattacks, data breaches, and the risk of intellectual property theft. As businesses increasingly rely on digital infrastructure, ensuring the security of digital assets becomes a critical component of economic security. Recent studies reveal that cyber threats alone cost businesses billions of dollars annually, emphasizing the urgent need for robust cybersecurity measures. Economic security is also closely tied to the regulatory and policy environment. Governments play a crucial role in shaping the economic landscape through legislation, taxation policies, trade agreements, and market regulations. While favorable policies can enhance business resilience, unpredictable or overly stringent regulations can pose significant challenges. For instance, sudden changes in trade policies, such as the imposition of tariffs, can disrupt supply chains and inflate costs, directly impacting business security. Moreover, businesses operating in emerging economies often face additional hurdles such as corruption, lack of transparency, and weak legal frameworks, further complicating their efforts to maintain economic security.

The methodological aspect of economic security involves a systematic approach to identifying, assessing, and mitigating risks. Businesses need to adopt proactive risk management strategies that encompass financial, operational, technological, and reputational dimensions. A comprehensive methodology should include scenario planning, risk assessments, contingency planning, and the integration of advanced technologies such as artificial intelligence (AI) and machine learning for predictive analysis. Furthermore, fostering a culture of resilience and adaptability within organizations is essential for navigating an uncertain and rapidly changing environment. This paper aims to contribute to the academic and practical discourse on economic security by addressing three key objectives. First, it seeks to identify the primary challenges faced by businesses in ensuring economic security, drawing on recent trends and case studies. Second, it examines the methodological approaches available for managing these challenges, highlighting best practices and innovative solutions. Finally, the paper proposes a framework for integrating economic security into broader business strategies, ensuring alignment with organizational goals and long-term sustainability. The relevance of economic security extends beyond individual businesses to the overall health of national and global economies. When businesses fail to address economic security effectively, the consequences can ripple through industries, supply chains, and even national economies. For example, financial crises caused by poor risk management or corporate fraud have historically led to widespread economic downturns. By contrast, businesses that prioritize economic security not only safeguard their interests but also contribute to economic stability and growth.

Economic security in business encompasses the ability to withstand, manage, and recover from various risks that could threaten financial stability, operational continuity, and competitive advantage. This concept goes beyond mere financial stability, extending to areas such as resource management, supply chain resilience, technological adaptation, and regulatory compliance. The interconnectedness of the global economy means businesses must be prepared to address a broad spectrum of threats, from localized operational risks to systemic global crises.

A fundamental challenge in achieving economic security is the growing complexity of risk landscapes. These risks can be classified into three broad categories: internal, external, and hybrid risks. **Internal risks** include financial mismanagement, employee-related fraud, and inefficiencies in operations. **External risks** consist of market volatility, geopolitical tensions, natural disasters, and cybersecurity threats. **Hybrid risks** emerge from the interaction of internal and external

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factors, such as reputational damage caused by a data breach or supply chain disruptions triggered by global pandemics. Addressing these risks requires a multidisciplinary approach that integrates financial management, operational strategies, and advanced technological tools.

1. **Market Volatility and Financial Risks.** Market fluctuations are a constant threat to businesses, with sudden shifts in consumer demand, currency fluctuations, and stock market crashes often catching organizations off-guard. For example, during the 2008 global financial crisis, businesses across various sectors suffered significant losses due to inadequate risk management strategies. To mitigate such risks, businesses must adopt financial instruments like hedging, diversify their revenue streams, and maintain contingency reserves.
2. **Technological Risks and Cybersecurity Threats.** The rapid adoption of digital technologies has revolutionized business operations but has also created new vulnerabilities. Cyberattacks, ransomware, and data breaches have become common, with businesses losing not only financial resources but also customer trust. For instance, the 2021 Colonial Pipeline ransomware attack highlighted how a single cyber incident could disrupt critical infrastructure and lead to massive economic losses. Businesses must prioritize cybersecurity by investing in robust security measures, conducting regular vulnerability assessments, and training employees on digital hygiene.
3. **Regulatory and Policy Challenges.** The regulatory landscape plays a critical role in shaping business security. While stable and transparent regulations can enhance business confidence, unpredictable policy changes can disrupt operations. For instance, trade wars and the imposition of tariffs often lead to increased costs and supply chain disruptions. Businesses must closely monitor regulatory trends, engage with policymakers, and ensure compliance to minimize potential risks.
4. **Supply Chain Vulnerabilities.** Global supply chains are increasingly prone to disruptions due to geopolitical tensions, climate change, and pandemics. The COVID-19 pandemic exposed the fragility of global supply chains, causing delays, shortages, and increased costs across industries. To enhance supply chain security, businesses should adopt strategies such as supplier diversification, local sourcing, and the use of digital tools like blockchain for greater transparency.
5. **Environmental Risks and Sustainability.** Environmental risks, including climate change and resource scarcity, pose long-term challenges to business security. Companies must balance profitability with sustainability, adopting practices that reduce their environmental footprint. The shift toward green technologies and renewable energy sources is not just a regulatory requirement but also a strategic move to ensure long-term resilience.

Methodological Approaches to Address Economic Security. Achieving economic security requires a structured and proactive approach. Methodologies must integrate risk identification, assessment, mitigation, and monitoring while leveraging advanced technologies and fostering organizational resilience.

1. **Risk Assessment and Management.** Risk assessment is the cornerstone of economic security. Businesses need to identify potential threats and evaluate their likelihood and impact. Tools such as SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) and PESTLE analysis (Political, Economic, Social, Technological, Legal, Environmental) provide a comprehensive framework for understanding risks. Once risks are identified, organizations can prioritize them based on severity and develop mitigation strategies.

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2. **Scenario Planning.** Scenario planning involves simulating potential crises and preparing contingency plans to address them. For example, businesses can create scenarios for supply chain disruptions, financial crises, or cybersecurity breaches and outline specific actions to mitigate their effects. This approach ensures that organizations are not caught unprepared during a crisis.

3. **Digital Transformation and Predictive Analytics.** The integration of digital technologies is essential for improving economic security. Predictive analytics, powered by artificial intelligence and machine learning, enables businesses to forecast risks and take preemptive measures. For instance, AI can analyze patterns in supply chain data to predict potential disruptions, allowing businesses to reconfigure their logistics in advance.

4. **Building Organizational Resilience.** Economic security is not solely about mitigating risks; it is also about building resilience to adapt and recover from adverse events. Businesses must foster a culture of agility, innovation, and adaptability, ensuring that employees are equipped to handle challenges. Investing in training, upskilling, and leadership development can significantly enhance organizational resilience.

5. **Collaborative Approaches.**Collaboration among businesses, governments, and other stakeholders is vital for addressing systemic risks. Public-private partnerships can facilitate the development of shared resources, such as cybersecurity frameworks or disaster recovery plans. Additionally, industry associations can play a key role in disseminating best practices and advocating for policies that enhance economic security.

Toyota is renowned for its supply chain resilience, achieved through strategies such as supplier diversification and the adoption of just-in-time manufacturing. After the 2011 Tōhoku earthquake disrupted its supply chain, Toyota implemented additional measures such as stockpiling critical components and working closely with suppliers to enhance their preparedness. As one of the world's leading technology companies, Google prioritizes cybersecurity to safeguard its operations and user data. The company employs advanced encryption, multi-factor authentication, and machine learning algorithms to detect and prevent cyber threats. Google's robust cybersecurity framework serves as a benchmark for businesses aiming to enhance their digital security. Unilever has integrated sustainability into its business strategy, recognizing that environmental risks pose a long-term threat to economic security. Through its Sustainable Living Plan, the company has reduced greenhouse gas emissions, minimized waste, and promoted sustainable sourcing. These efforts not only protect the environment but also enhance Unilever's brand reputation and resilience. Economic security should be a core component of business strategy rather than an afterthought. By aligning risk management practices with organizational goals, businesses can create value while safeguarding their assets. This integration involves embedding risk assessments into decision-making processes, regularly reviewing security measures, and fostering a culture of awareness and accountability across all levels of the organization.

In conclusion, addressing the challenges of economic security requires a holistic and forward-looking approach. By adopting methodological frameworks, leveraging technology, and fostering collaboration, businesses can navigate the complexities of today's risk landscape and ensure their long-term viability.

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Topic similarities in the works of Uzbek modern women writers

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Abstract: The importance of women literature and the themes they have in their works are similar and different in the same time. Lately, the role of women in poetry and prose is becoming more and more important, since the topics they are working on are interesting and appealing to the reading. When it comes to modern Uzbek women writers, it is worth to mention the names such as Zulfiya, Khalima Khudoyberdiyeva, Zebo Mirzo, Khosiyat Rustamova, Khalima Akhmedova, the authors of incomparable works. In the following article, in turn, we will provide more detailed information about these representatives of Uzbek modern literature, and we will try to make some conclusions about the differences in their creative works.

Key words: literary criticism, Uzbek literature, separation, feminism, traditions

Introduction.

While creating a work every single writer needs to consider the essence of the time, era, the crucial issues of that time, and of course, the interest in the reader. Otherwise, the works, the topics discussed can't carry an important message. If it fails to have an influence on the person reading and analyzing the literary works, it means the writer is inattentively using the canon, ready material, instead of being himself. Themes which are described in the work decide if the writer is going to be successful or can't be recognized as a good writer. It is very important to find a way to the readers mind, and sing the topics which are in their hearts. In Uzbek modern literature there are several women writers who could accomplish this task, some of them are Zulfiya, Khalima Khudoyberdiyeva, Zebo Mirzo, Khosiyat Rustamova, Khalima Akhmedova, and so on.

Main body.

Zulfiya is considered to be the center of the modern women literature in Uzbek poetry. Her works were always appreciated for the reason that she could bring the message of the uzbek women in her poems, she could say the words in most uzbek women's minds through her poems. One of the scholars, G. Umurova who has worked a lot to learn Zulfiya's literary works, considers it appropriate to study the subject-content of the poetess's poetry based on the following six principles in her monograph "Artistic World of the Poet Zulfiya":

1. Poems on the theme of love;
2. Poems on the theme of the Motherland;
3. Poems reflecting nature and human relations;
4. Poems on mixed topics;
5. Poems on the theme of death;
6. Poems on journalistic (Publicist) topics.

In her opinion, the second, fourth and sixth principles of the poet's aesthetic world and artistic thinking acquired a real essence. The border of eternity and non-existence is clarified

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when the mood of a flood of emotions, pain and emigration, loneliness and sadness rise to the level of a poetic image. Also, expressiveness and musicality create a uniqueness in love poems. Here you can read an extract from her poem “Bahor kechasi” (“Spring night”) which is mainly about the description of the nature:

Ko‘k baxmalga gullar burkangan,
Lab ochmagan, bulbul o‘pmagan
Ko‘zim tushdi olma guliga,
Dedim: taqsam eng go‘zal birin –
So‘ylab bersa... mening chakkamda
Dilbarligin, go‘zallik sirin.

Khalima Khudoyberdiyeva's poems can be called the biography of her troubled soul. Halima Khudoyberdiyeva's work began in the 60s, and until now she has created more than twenty poetry collections, epics and journalistic articles. In particular, her “Ilk muhabbat” ("First Love") (1968), “Oq olmalar” ("White Apples") (1973), "Chaman" (1974), “Suyanch tog‘larim” ("My Mountains of Support") (1976), “Bobo quyosh” ("Grandfather Sun") (1977), “Issiq qor” ("Hot Snow") (1979), “Sadoqat” ("Loyalty") (1983), “Muqaddas ayol” ("Holy Woman") (1987), “Yuragimning og‘riq nuqtalari” ("The Painful Points of My Heart") (1991), "Hurlik Oti" (“Freedom flame”) (1993), “Bu kunlarga yetganlar bor” ("There Are Those Who Have Reached These Days") (1994), “To‘marisning aytgani” ("Tomaris's sayings") (1996) have become the intellectual property of a wide readership.

The main passion of Halima Khudoyberdiyeva's work is love for the motherland and feelings of loyalty similarly to the other writers who we discuss in this article. Her first collection "Ilk Muhabbat" ("First Love") already showed this pathos identity:

Qon aslan yorug‘lik. Yorug‘lan, tiz cho‘k,
Asl mard Vatanga tiz cho‘kib o‘tar.
Qancha qoning bo‘lsa, Vatan uchun to‘k,
Qancha joning bo‘lsa, Vatanni ko‘tar!

Like her peers, Halima Akhmedova spoke about love, mother, Motherland, and nature. While writing these topics, you can feel and perceive the spirit of Cho`lpon in the verses he created. An example of our opinion:

Xayol kechalari qismat bog‘ida,
Yolg‘izlikda adashgan manmu?
Olloh, kaftlaringda bir kuni
Maysa bo‘lib egilamanmu?

Yomg‘ir kabi yog‘ilsa jonim,
Qarog‘larim bo‘larmikin jom?
Tig‘ urilgan bag‘rim qoniga
Yuragini chayarmu oqshom?

Zebo Mirzo entered Uzbek literature at the end of the 20th century with the poetry collection “Tun malikasi” ("Queen of the Night"). She is also the author of poetry collections such as "Ajr" (1997), "Nur kukunlari" (2004), "Ishq" (2012). The poet considers creativity to be a conversation with inspiration. Lines created from inspiration sometimes turn into reflection, sometimes into

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tears, sometimes into prayer and even rebellion. This is how the poet interpreted the work. The characteristic of his interpretation is embodied in verses as a criterion of artistry.

Zebo Mirzo writes in various genres, forms, and themes, but the status of poems on love topics is high in her work:

Yuragimning ostidami,
Yo ko‘kda, tun pallasi.
Sarv-u suman soyasida
Hurlar aytar allasin,
Malaklarning qanotida
Nurday uxlar bir go‘dak,
Eshitganday bo‘laman
Shirin-shirin nafasin...

Conclusion.

In conclusion, themes discussed and described in the works of modern Uzbek women literature are similar to one another. They mostly write on the topic of love to the motherland, the depiction of nature, love life, the describtion and feelings of women. People of all genders and ages can find universal theme while reading their poems. The topics are very usual for Uzbek literature, however, they carry a different message which makes them appealing. Modern Uzbek literature is taking a different shape, and partially it is because of the above mentioned woman writers such as Zulfiya, Khalima Khudiyberdiyeva, Zebo Mirzo, Khalima Akhmedova. They will continue to create abundant of works that will encourage young and old generation with the help of poems.

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МУЗЫКАЛЬНАЯ ВОСПИТАНИЕ — ЭТО ВОСПИТАНИЕ ЧЕЛОВЕКА

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Аннотация:

Статья “Музыкальное воспитание — это воспитание человека” рассматривает роль музыки в формировании личности. Музыкальное воспитание играет важнейшую роль в развитии чувств, эстетических вкусов, интеллектуальных способностей и моральных ценностей человека. В статье подчеркивается, что музыка является мощным инструментом воспитания, влияющим на эмоциональную и духовную сферу человека, развивает его музыкальные и культурные навыки, помогает в формировании гармоничной личности. Музыка способствует развитию внимания, памяти, воображения, а также формирует чувственное восприятие окружающего мира. Описание различных видов музыкального образования и их воздействия на личность помогает понять, как музыкальное воспитание влияет на развитие человека в целом.

Ключевые слова: Музыка, духовность, культура, национальный, статус, шашмком, классика, история.

Abstract:

The article “Musical education is the education of a person” examines the role of music in the formation of personality. Musical education plays a vital role in the development of feelings, aesthetic tastes, intellectual abilities and moral values of a person. The article emphasizes that music is a powerful educational tool that influences the emotional and spiritual sphere of a person, develops his musical and cultural skills, helps in the formation of a harmonious personality. Music contributes to the development of attention, memory, imagination, and also forms a sensory perception of the surrounding world. The description of various types of musical education and their impact on personality helps to understand how musical education influences the development of a person as a whole.

Keywords: Music, spirituality, culture, national, status, checkerboard, classics, history.

Музыкальная воспитание играет ключевую роль в формировании личности и её духовном развитии. Музыка не только обогащает эмоциональный мир человека, но и способствует его интеллектуальному и моральному росту. Музыкальное воспитание помогает формировать целый ряд качеств, таких как чувство гармонии, эстетический вкус, ответственность и способность к самовыражению. Это не просто освоение музыкальных навыков, но и важный аспект формирования внутреннего мира человека, его социальной и культурной идентичности.

Музыка является универсальным языком, который способен передавать самые глубокие чувства и переживания, не требуя слов. Воспитание через музыку открывает перед человеком мир эмоций, который способствует развитию чувства красоты, справедливости и доброты. Музыкальные произведения могут пробуждать в человеке такие чувства, как сострадание, гордость, радость и печаль, тем самым формируя его внутренний мир.

Особое значение имеет музыкальное воспитание в детстве, когда формируются основные моральные ориентиры и мировоззрение. В этот период через музыку можно

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привить ребенку такие качества, как внимание, сосредоточенность, терпение, а также развить его воображение и творческое мышление.

Музыкальное воспитание способствует не только эстетическому, но и интеллектуальному развитию личности. Музыка улучшает память, внимание, способствует развитию логического и абстрактного мышления. Исследования показывают, что изучение музыки оказывает положительное влияние на развитие речи, улучшение математических способностей и когнитивных функций. Действительно, музыкальное воспитание оказывает многогранное влияние на развитие личности. Оно способствует не только эстетическому восприятию, но и развивает умственные способности, такие как внимание, память, логическое и пространственное мышление. Через музыку человек учится воспринимать гармонию, отличать звуки, а также развивает навыки сосредоточенности и терпения.

Музыка требует высокой концентрации, что способствует развитию исполнительских навыков и улучшению когнитивных функций, например, в области решения задач и критического мышления. Кроме того, она помогает развивать эмоциональный интеллект, способность выражать и понимать чувства, что важно для межличностных отношений и социальной адаптации.

Музыкальное образование часто связано с развитием творческого потенциала, что позволяет человеку не только научиться создавать что-то новое, но и развивать свою индивидуальность.

Кроме того, через музыку человек учится выражать свои чувства и переживания, что способствует его эмоциональному развитию. Музыкальная деятельность, будь то исполнение, сочинение или восприятие музыки, развивает эмоциональную интеллигентность и помогает человеку научиться понимать и контролировать свои эмоции.

Музыка является неотъемлемой частью культуры, и через её изучение человек знакомится с ценностями и традициями своего народа и других культур. Воспитание через музыку помогает воспитывать уважение к культуре, развивать способность воспринимать разнообразие, углублять понимание исторических и культурных контекстов.

Музыкальная воспитание также имеет важное значение для формирования социальной гармонии. Музыка объединяет людей, независимо от их социального статуса, национальности или религиозных убеждений. В коллективном музыкальном творчестве, будь то хоровое пение или оркестровая игра, человек учится работать в команде, понимать важность коллективных усилий и уважать мнение других.

Музыкальная воспитание — это не только процесс обучения музыке, но и более глубокий процесс воспитания человека как личности. Оно формирует внутренний мир человека, способствует его интеллектуальному и эмоциональному развитию, а также помогает ему интегрироваться в культуру и общество. В современном мире, где значительное внимание уделяется развитию различных навыков и компетенций, музыкальное воспитание остаётся неотъемлемой частью общего процесса формирования гармоничной личности, способной к творчеству, сочувствию и уважению к другим.

Музыкальное воспитание оказывает глубокое влияние на сознание человека, формируя его эмоциональную сферу, когнитивные способности и социальные навыки. Вот несколько ключевых аспектов:

1. Эмоциональное развитие

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Музыка помогает выражать и понимать эмоции. Регулярные занятия музыкальным искусством развивают эмпатию и способность тоньше воспринимать настроение и чувства других людей.

2. Улучшение когнитивных способностей

Музыкальное воспитание стимулирует работу мозга:

Память: изучение мелодий и текстов улучшает вербальную и визуальную память.

Мышление: музыкальные занятия активируют оба полушария мозга, что способствует развитию логики и креативности.

Концентрация внимания: обучение игре на инструментах или вокалу требует сосредоточенности и контроля.

3. Развитие навыков общения

Музыка часто предполагает коллективное исполнение, что учит взаимодействию, терпению и уважению к другим.

4. Формирование культурного сознания

Изучение различных жанров и направлений музыки расширяет кругозор, помогает осознавать культурные корни и традиции, укрепляет чувство принадлежности к обществу.

5. Улучшение психологического состояния

Музыкальная деятельность снижает уровень стресса, помогает справляться с тревогой и депрессией, способствует релаксации и повышению уверенности в себе.

6. Моральное и этическое развитие

Музыка часто несёт философские или нравственные идеи, помогая формировать мировоззрение и нравственные ценности.

Музыкальное воспитание оказывает позитивное влияние на личность, способствуя её гармоничному развитию. Это один из инструментов, который помогает человеку находить баланс между рациональным и эмоциональным началом.

Вот пример списка использованных источников, который вы можете включить в свою работу, если хотите указать литературу, основанную на теме музыкального воспитания:

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THE PLACE OF MAKEUP AND COSTUMES IN PUBLIC CELEBRATIONS

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Abstract: This article analyzes the importance of makeup and costumes in folk festivals, the preservation of cultural heritage and the strengthening of solidarity in society through them. Costumes and makeup worn on national holidays are symbols that represent the historical past, traditions and cultural characteristics of the people. The article also examines the impact of state policy and cultural initiatives on festive clothes and makeup, their role in society and their contribution to the development of culture.

Keywords: Folk festivals, makeup, costumes, national identity, cultural values, cultural development, historical traditions, festive clothes, social context, cultural heritage, unity in society.

INTRODUCTION

Folk festivals and cultural events around the world play a key role in demonstrating the cultural heritage, historical traditions, social and aesthetic values of peoples and nations. Every nation and culture is distinguished by its festive costumes and makeup, because these clothes are not only important elements of appearance, but also reflect the spiritual state of the people, the purpose and content of the holiday. In countries with a rich cultural heritage like Uzbekistan, the costumes worn and makeup used during folk holidays play a major role in strengthening national identity and unifying society.[1]

Holidays are an important opportunity not only to create a spiritual festive mood, but also to preserve national values, respect history and strengthen social cohesion. At such events, national clothes are used as symbols reflecting the cultural characteristics and ethnic traditions of each nation. Makeup, in addition to making the holiday more attractive and beautiful, is also an important tool for expressing relationships between people. Festive costumes and makeup play a key role in highlighting the social and cultural situation, as well as ensuring unity in society and developing national values.

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Mass holidays and cultural events are an integral part of social life, and each nation and people express their traditions, historical and cultural values through these holidays. Holidays in the Republic of Uzbekistan play an important role not only in ensuring national unity and harmony, but also in preserving and developing the cultural and ethnic identity of the people. Makeup and clothes used during the holidays, in turn, are important as tools reflecting social, cultural and historical characteristics.

Makeup and costumes used during holidays play an important role in preserving national values and passing them on to new generations. They are important not only for appearance, but also for expressing national identity. At the same time, the reforms and legal documents carried out in the field of culture and art in the Republic of Uzbekistan, including presidential decrees and resolutions, emphasize the role and social significance of festive makeup and costumes.

Also, the cultural heritage, ethnic and historical identity of Uzbekistan are reflected in festive costumes. Each holiday has its own costumes and makeup, which are of great importance in renewing national values and traditions, strengthening the unity of society. Documents adopted by the President of Uzbekistan, including the decrees and resolutions "On the Development of Culture", determine the importance of festive makeup and costumes in the development of national traditions and the preservation of culture.[2]

OBJECTIVES AND METHODS OF THE RESEARCH

Make-up and costumes at public holidays and cultural events play an important role not only in decorating the appearance, but also in reflecting the cultural values, national identity and historical traditions of the people.

The main goal of the study is to analyze the cultural, social and historical significance of make-up and costumes at public holidays. The study plans to analyze the role of festive costumes and make-up in society, their social and cultural significance among peoples, as well as the provisions of the laws and decrees of the Republic of Uzbekistan that pay special attention to them.[3]

The methods used in the study include literature analysis, document study, practical observations and social surveys. The study collected information on the cultural and social significance of festive costumes and makeup based on the decrees, laws, resolutions of the President of the Republic of Uzbekistan and international conventions. The results of the study help to better understand the cultural role and social significance of makeup and costumes during national holidays.

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RESULTS

In general, makeup and costumes play an important role in public holidays and cultural events as a means of reflecting the cultural values of society and uniting society.

If we look at the history of makeup art, the first signs of makeup tools can be seen in sources related to the history of ancient Egypt, when makeup served as a sign of wealth that pleased the gods. The creation of delicate eyelids with paints, characteristic of Egyptian art, appeared in men and women around 4000 BC. In Greek and Roman theater, the use of masks by actors eliminated the need for makeup, so they used only masks rather than make-up or make-up. There is also an ancient account of the invention of the mask by Thespis (a Greek poet, 6th century BC), as well as a story that the mask replaced makeup.[4]

1-Table

CLASSIFICATION OF MAKEUP AND COSTUMES [5]

Categories	Grim	Clothes
Appearance	- Light (makeup intended for the face)	- National costumes (Navruz, Independence Day, etc.)
	- Light-colored (symbol of the awakening of nature and life)	- Wedding costumes (used for large events)
Purpose	- Colors such as black, red, gold (colors representing the heart, love, strength)	- Formal and informal costumes (worn at holidays or social events)
	- Correcting and making the appearance more beautiful	- Representing cultural traditions and preserving historical values
Method	- Showing symbolic meaning (for example, at weddings, birthdays)	- Strengthening national identity and unifying society

[4] Tara Maginnis. History of Theatre Makeup before 1920. 2008

[5] Mamasoliyeva Muxtasar To'Xtasin Qizi (2024). GRIM SAN'ATI. Science and innovation, 3 (Special Issue 36), 368-370. doi: 10.5281/zenodo.11214648

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Appearance	- Applying makeup to the face (permitted colors and methods)	- Flattering, embellished costumes (especially for holidays)
	- Mascara, lipstick, eyebrow pencil, etc.	- Wedding and festive costumes: custom designer costumes, national costumes
Cultural and social context	- Grimms reflect the traditional values of the people during national holidays and cultural events	- Festive clothes strengthen the social unity of the people
Symbolic significance	- Demonstration of the spiritual state and cultural values of the people through grimms	- Clothes worn on national holidays represent historical and cultural heritage
Depending on time and place	- Different types of grimms are used during various holidays and cultural events	- Special clothes for national holidays, special social events, weddings

1. Makeup - this includes various methods of decorating the face. During holidays, for example, on national holidays such as Navruz or Independence Day, makeup is used not only for appearance, but also reflects the state of mind of the people, important social values \u200b\u200bin the celebration of the holiday.[6]

2. Clothing - national and traditional clothing worn during holidays helps to preserve the historical past and culture of the people. There are specific costumes for each holiday, which play a major role in strengthening social unity, national identity and values.

[6] Иванов О.К., Кривицкий К.Э. Вахтангов и Вахтанговцы. — М., 2019.

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The clothes and makeup used during holidays, including Navruz, Independence Day and other national holidays, play an important role in expressing the historical heritage of the people, their ethnic characteristics, as well as harmony between peoples. The clothes and makeup used during holidays are of great importance in creating the unique spirit of each holiday, reflecting the spiritual state of people and preserving cultural heritage.

2-Table:

Costumes and makeup used for holidays [7]

Holiday/Event	Clothing	Grimms	Significance
Navruz	National clothing, folk costumes	Neighborhood grimms, representing nature	Expression of national values, respect for nature
Independence Day	Formal clothing, national forms	Light grimms, colorful	Celebration of Uzbekistan's independence, strengthening the national spirit
New Year	New Year's themed clothing	New Year's character grimms	Anticipation of the New Year, strengthening unity in society

DISCUSSIONS

Holiday costumes and make-up are an important means of preserving national traditions, ethnic identities and historical memories. They are not only external elements visible during holidays, but they also play an important role in strengthening social relations in society, ensuring harmony between peoples. Another difficult aspect of organizing public holidays is that they can be rehearsed only once or twice, at most three times.[8]

The role of makeup and costumes in public holidays and cultural events is not only to express appearance, but also to reflect important meanings and values in social life. Costumes and makeup used during national holidays of Uzbekistan, such as Navruz, Independence Day and other holidays, are distinguished not only by their external decorations, but also reflect national values, historical traditions and the unity of the people. It is necessary to analyze from a scientific point of view the national costumes and makeup used during the holidays, their aesthetic and spiritual

[7] Encyclopedia Britannica. Volume IV, Retrieved 2021-06-29

[8] F.Ahmedov. Ommaviy tadbir va bayramlar rejissurasi va aktyorlik mahorati. — T., 2007

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significance and their role in society. Festive costumes and makeup play a major role in the formation of national identity and the unification of the people. In the Republic of Uzbekistan, the clothes used during holidays are an integral part of the preservation and development of the cultural heritage of the people. Through such costumes, society shows respect for its historical past and helps to convey national values to future generations. The use of national costumes during holidays helps to call people to unity and increase respect for their culture and traditions.

Makeup also plays an important role in the festive atmosphere. Makeup used during holidays is purposefully aimed at making the appearance more beautiful, and sometimes symbolically meaningful. For example, during some holidays, especially Navruz, makeup not only shows the aesthetic side of the appearance, but can also reflect themes such as the awakening of nature, the renewal of life, the arrival of spring and warmth. This makeup is not only an external appearance, but also a means of expressing the spirit of the holiday, the values of the people and a positive attitude to life.

It is also necessary to take into account the social and cultural context when analyzing festive costumes and makeup. The importance of clothes and makeup during national holidays is not only in aesthetic or decorative elements, but also in the fact that they reflect changes and social trends taking place in society. All initiatives aimed at developing the culture of the Republic of Uzbekistan and preserving national values, including the restoration of the importance of national costumes and make-up. The costumes used during holidays and cultural events strengthen the unity of society by demonstrating the historical monuments, traditions and national pride of the people.

The importance of make-up and costumes during cultural events and holidays, as well as their influence, affect not only the appearance, but also the inner world of the people. There is a need to study their symbolic and aesthetic significance, their huge role in preserving and developing the culture of the people.

Make-up and costumes in society reflect not only appearance, but also national identity, preservation of cultural heritage, ensuring social harmony and respect for cultural differences. Make-up and costumes used during holidays are an important means of preserving national traditions and values, and through them, passing them on to the future.

CONCLUSIONS AND RECOMMENDATIONS

The role and significance of makeup and costumes during public holidays play a major role in the cultural life of the Republic of Uzbekistan, in the preservation and development of national values. They serve not only to decorate holidays, but also to express the historical and cultural identity of the people. Presidential decrees and resolutions emphasize the important role of festive costumes and makeup in preserving national traditions and developing culture. Festive costumes

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and makeup serve as an important tool in ensuring social and cultural stability in society and strengthening national unity.

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FINE ART IN MYSTICISM

ИЗОБРАЗИТЕЛЬНОЕ ИСКУССТВО В МИСТИЦИЗМЕ
TASAVVUFDA TASVIRIY SAN'AT

Nizomiy nomidagi TDPU "Ijtimoiy fanlar kafedrasi dotsenti,
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ANNOTATSIYA

So'fiylar insonning zohiriy emas, botiniy kamolotiga eng ko'p e'tibor berganlar. Shu ma'noda islom badiiy san'atida insonni tasvirlash masalasida asosiy go'zallik ma'naviy go'zallik bo'lgan. Islomda ramziy, falsafiy belgilar, shakl va uslublar asosida miniatyura va hattotlik, me'morchilik va naqqoshlik san'atlari keng rivojlandi. Musulmon madaniyatida inson go'zalligini tasvirlash masalasiga Sharqning buyuk musavviri Kamoliddin Behzod o'ziga xos yangicha ijodiy uslubda islomga tasviriy san'atni kiritgan.

Kalit so'zlar. Islom, tasavvuf, Alloh, tasviriy san'at, miniatyura, musavvir, ma'naviyat, madaniyat, qadriyat, inson go'zalligi, ijod.

АННОТАТSIЯ

Суфии больше всего внимания уделяли внутреннему совершенству человека, а не внешнему. В этом смысле главной красотой в изображении человека в исламском искусстве была духовная красота. В исламе на основе символических, философских символов, форм и стилей получили широкое развитие искусство миниатюры и даже живописи, архитектуры и живописи. Камолиддин Бехзод, великий живописец Востока, представил исламу изобразительное искусство в уникальном новом творческом стиле к проблеме изображения человеческой красоты в мусульманской культуре.

Ключевые слова. Ислам, Суфизм, Аллах, изобразительное искусство, миниатюра, художник, духовность, культура, ценность, человеческая красота, творчество.

ANNOTATION

Sufis paid the most attention to the inner perfection of man, not the external. In this sense, in the matter of depicting man in Islamic art, the main beauty was spiritual beauty. In Islam, miniature and calligraphy, architecture and painting arts were widely developed based on symbolic, philosophical signs, forms and styles. In the matter of depicting human beauty in Muslim culture, the great artist of the East, Kamoliddin Behzod, introduced fine arts to Islam in a unique new creative style.

Keywords. Islam, Sufism, Allah, fine arts, miniature, artist, spirituality, culture, value, human beauty, creativity.

Bugungi kunda milliy va diniy qadriyatlarimizni asrab avaylash, ajdodlarimizning bebaho merosini o'rganish, hamda ular asosida yoshlarni komil inson etib tarbiyalash jamiyatimiz oldida turgan muhim vazifalardan biri hisoblanadi. Islom dini ko'p asrlik madaniyatimiz va qadriyatlarimizni saqlab qolish va keng yoyishda san'at vositasiga asoslanganligidir.

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“Dinning asl insonparvarlik mohiyatini, ezgulik, tinchlik va insoniylik kabi fazilatlar azaliy qadriyatlarimiz ifodasi ekanligini keng yoritish va bu sohadagi ilmiy-ma’rifiy faoliyatni jadal tashkil etish;

islom va jahon sivilizatsiyasiga bebaho hissa qo‘shgan ajdodlarimizning boy madaniy merosini chuqur o‘rganish asosida yoshlarning ongu tafakkurini shakllantirish”[1] hozirgi kunda dolzarb maslalardan biridir.

Tasavvuf falsafasi avvalo islom qadriyatlarini bir tizimga solgani va san’atga oshno bo‘lganligidir.

Tasavvufning borliq haqidagi ta’limoti panteistik harakterga ega bo‘lib, sharq falsafasida ikki shaklda mavjuddir: birinchisi, “vahdat ul-vujud”, ikkinchisi, “vahdat ul-mavjud”. “Vahdat ul-vujud”ning asosiy tamoyiliga ko‘ra, Xudo yagona, haqiqiy borliq bo‘lib, qolgan hamma narsalar uning shu’lasi, nuridir. Alloh butun go‘zalligini, kamolotini, kuch-qudratini borliqda namoyon etadi, odamzot ham Allohning nuri ta’sirida jilvalanadi. “Vahdat ul-vujud”ga ko‘ra, inson go‘zalligi ham Uning jamolining jilvasi, deb ta’lim beriladi. Shu bois ular hurmat-ehtiromga, qadrlashga loyiq. Insonga muhabbat Allohga muhabbatni anglatadi. So‘fiylarda moddiy dunyo go‘zalligi inkor etilmaydi, ammo moddiy dunyo qimmatli emas. Qadriyat so‘fiylar nazarida ruhiylik, Ilohiylik bilan bog‘liqdir. Ruhsizlik – xunuklik, o‘tkinchilik, foniylik. Abadiy narsa ruhdir va shu sabab u qimmatlidir, go‘zaldir[2].

Ko‘pgina tasavvufshunos mutafakkirlarning diniy falsafiy qarashlari bevosita din va tasviriy san’atga aloqadordir.

Ibn al-Arabiyning fikricha, inson Xudoni ko‘rishni istasa, o‘zini o‘zi takomillashtirishi lozim. Bu g‘oya tasavvuf nazariyasinig asosini tashkil qilgan hurfikrlilik edi.

VIII-XI asrlarda sufiylik adabiyoti rivojlanib, unda o‘ziga xos obrazlar, timsollar, ramzlar va ifoda usullari shakllandi. Tasavvufning ilohiy muhabbat haqidagi konsepsiyasi, g‘oyalari badiiy ijodkor ahlini ruhlantirdi. Tasavvufning badiiy ijod bilan ruhan yaqinligi islom madaniyatida adabiyot va san’atining rivojlanishiga turtki bo‘ldi. Chunki din ham, san’at ham inson ruhiyatiga bevosita ta’sir ko‘rsatadi.

Islom dini qadriyatlarining mohiyatini ochishda eng muhim narsa – inson ruhini takomillashtiruvchi din bo‘lgani uchun realistik tasvirlar dinning mohiyatini ochib berolmasdi. Chunki, islom madaniyatida tasviriy san’atga munosabat Alloh qiyofasi, uning badiiy ifodasi masalasini oydinlashtirishdan kelib chiqadi. Ayrim ilohiyotchilar Xudoni antropomorfizm (odam sifatida) ruhida talqin qilishga va odamga xos sifatlarni berishni inkor qilib, uni sof, tanasiz ruh sifatida talqin qilganlar.

Ma’lumki, mu’taziliylar Qur’on oyatlarini dalil qilib olib, o‘z qarashlarini bildirishgan. Ular antropomorfizmni inkor etganlar. Shuningdek, Mu’taziliylar Xudoning mohiyati haqidagi ilmni “ma’na” deb ataganlar. Masalaning bu tarzda qo‘yilishi ilohiy hodisalarni ma’naviyat sohasiga ko‘chirishga imkon yaratgan.

O‘ziga xos sirli, ramziy, chuqur falsafaga ega shakl va uslublar topish kerak edi. Shuning uchun tasviriy san’atning miniatyura va hattotlik, me’morchilik, naqqoshlik turlari ramziylik

[1] Diniy ma’rifiy soha faoliyatini tubdan takomillashtirish chora-tadbirlari to‘g‘risidagi O‘zbekiston Respublikasi Prezidentining farmoni. **16.04.2018 y. N PF-5416.** "Xalq so‘zi", 2018 yil 17 aprel. Qonun hujjatlari ma’lumotlari milliy bazasi (www.lex.uz), 2018 yil 18 aprel.

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asosida shakllandi. Unga ko‘ra, go‘zallik, qudrat, poklik, hayrat, g‘ayrat, shijoat va hayot nafosati ham – hammasi Allohdanligini his qila olish sufiyning estetik dunyosini boyitadi. Islom diniga ko‘ra “Kimki o‘zini tanisa, Rabbisini taniydi”, degan hadis mazmunidan kelib chiqadi”[3].

Islom dini insonning tafakkuri go‘zalligi, ma’naviy, ruhiy go‘zalligi islom estetikasining asosini tashkil etadi. Tasavvuf ta’limotida butun dunyo Allohning ijodi, sifatlarini namoyish etib turadigan ko‘zgu, olamdagi barcha go‘zalliklar, ranglar Uning ijodidir, karomatidir, butun borliq, dunyo Allohning ko‘zgusidir, deb qaraldi.

Allohning ismi va sifatlari uning buyukligi, ulug‘ligi, qudratliligi, go‘zalligini ramziy timsollar orqaligina tasvirlash mumkin edi. Ibn al-Arabiy Qur’oni karimda Xudoning 99 ta ismi mavjudligi va inson ularni sifatlanishi orqali anglashi mumkinligi haqidagi fikrni aytadi. Bu g‘oya islomning buyuk mutafakkiri Abu Homid G‘azzoliyning qarashlarida rivojlantirilib, shunday izohlanadi. “Alloh hamma uchun sevimlidir, chunki Unda inson tasavvuridagi barcha ezguliklar, insonni o‘ziga tortuvchi, muhabbatiga sabab bo‘luvchi jamiki sifat va hislatlar mavjud. Jumladan, inson o‘ziga yaxshilik qila oladigan saxovatli odamlarni, adolatli shohlarni, shuningdek, barcha go‘zal narsalar, nafosat olami, xushbo‘y, xushsurat narsalar ham sevimli bo‘lib, sahiylar siymosida saxovatni, odillar siymosida adolatni, qahramonlar siymosida qahramonlikni sevamiz”[4]. Barcha ezgu va yaxshi sifatlar egasi Allohni sevish, unga intilish orqali inson komillikka intiladi. Yuqoridagi diniy-ilohiy qadriyatlar tizimi tarzida namoyon bo‘ladi.

Tasavvuf ta’limotida inson ma’naviy kamolot yo‘lini bosib o‘tsa, komil bo‘ladi, komil insongina Xudoga yetishadi, deb ta’lim beradi.

Ibn al-Arabiy, o‘zingni anglasang, Xudoni anglaysan, ma’nosida fikr bildiradi. Uning bu fikrlari tasavvuf nazariyasining asosiy g‘oyasi bo‘lib xizmat qildi. Sufiylar insonning zohiriy emas, botiniy kamolotiga eng ko‘p e’tibor berganlar. Shu ma’noda “Ilohiyot atrofdagi barcha narsalarda zuhr etar ekan, u insonning qalbida ham o‘z aksini topadi”[5], deyiladi tasavvuf ta’limotida.

Islom badiiy san’atida insonni tasvirlash masalasida asosiy go‘zallik ma’naviy go‘zallik bo‘lgan. Hadislarda: “Alloh sizning suratlaringiz va amallaringizga emas, balki qalblaringiz va niyatlaringizga boqar”,[6] deyilgan. Jaloliddin Rumiy esa tavhid g‘oyasini juda sodda va tushunarli tarzda ifodalaydi. Ya’ni: “Har bir qulimning ichida mening xayolim va suratim bordir. U meni qanday tahayyul etsa, men o‘sha xayoldaman” [7], degan fikrda bo‘lgan.

Demak, islom dinida, xususan, tasavvuf ta’limotida Allohni inson o‘z tasavvuridagina yaratishi mumkin, asosiy e’tibor kishining botiniy olamiga qaratilishi kerak. Komil inson bo‘lishga intilish uchun jismni, qalbni, ruhni tozalash zarur. Tavhid g‘oyasi mafkurasi badiiy ijodda o‘sha dinning mohiyatini aks ettiruvchi san’at turini tanladi va uni ifodalashga urindi. O‘rta asrlar tasavvufshunoslari, faylasuflarining asarlaridagi hurfikrlilik qarashlari san’atning rivojiga katta ta’sir etdi.

Shu tariqa tasavvufdagi ramziylik tasviriy san’at bilan integratsiya qilindi.

[3] Комилов Н. Тасаввуф. – Тошкент: Ёзувчи, 2009. – Б. 41.
[4] Комилов Н. Тасаввуф. – Тошкент: Ёзувчи, 1996. – Б. 51.
[5] Комилов Н. Тасаввуф. – Тошкент: Ёзувчи, 1996. – Б. 124.
[6] Жалолиддин Румий. Ичингдаги ичингдадир.– Тошкент: Ёзувчи, 1997. – Б. 153.
[7] Жалолиддин Румий. Ичингдаги ичингдадир. – Тошкент: Ёзувчи, 1997. – Б. 50.

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Qur'onning "Nur" surasida "Alloh osmonlar va Yerning "Nuri"dir... Alloh o'zining bu nuriga o'zi xohlagan kishilarni hidoyat qilur",[8] deyiladi.

Shunga ko'ra musulmon san'atida komil inson g'oyasi payg'ambarlar, valiylar, avliyolar, donishmandlar, sultonlar va podshohlar qiyofasida ramziy tasvirlangan.

Islomda Allohning realistik tasviri yoki haykali tasvirlanmaydi, ammo sirli, ramziy, falsafiy belgilar, shakl va uslublar asosida miniatyura va hattotlik, me'morchilik va naqqoshlik san'atlari keng rivojlandi.

Tasavvuf ta'limotiga ko'ra, ma'naviyat ramziy ma'noda inson qalbida aks etgan ilohiy nurdir, ya'ni unga ilohiy timsol sifatida qaralgan. Inson qalbi go'zalligi asosiy go'zallik sifatida qaraldi.

Musulmon madaniyatida inson go'zalligini tasvirlash masalasiga Sharqning buyuk musavviri Kamoliddin Behzod o'ziga xos yangicha ijodiy uslubda yondashadi. Behzodning diniy asarlari g'oyasi bevosita tasavvuf g'oyasidan olingan edi. U diniy ruhdagi asarlarida asosan Alisher Navoiyning badiiy merosidan keng foydalandi.

Kamoliddin Behzodning eng mukammal ishlangan suratlaridan biri "Layli va Majnun sahroda"[9] asari bo'lib, unda insonning barkamollik darajasiga ko'tarilishi yaqqol badiiy ifodalangan.

Yuqoridagilardan xulosa qiladigan bo'lsak, tasavvuf ta'limotida Qur'ondagi oyatlardan kelib chiqib borliqni ham Alloh yaratgan ekan borliq, tabiatdagi barcha go'zalliklar Allohdan, shuningdek, inson go'zalligi ham Allohning go'zalligining bir sifati deb qaraldi.

Musulmon madaniyatida Alloh sifatlari ramziy ma'noda "Nur" timsolida payg'ambarlar, valiylar, avliyolar, donishmandlar komil inson qiyofasida tasviriy san'atda tasvirlangan;

Kamoliddin Behzod o'z davrining ulug' insonlari hisoblangan Alisher Navoiy, Husayn Boyqaro, Muhammad Shayboniyxon va boshqa kishilarni komil inson qiyofasida tasvirlagan. Xususan, Alisher Navoiyning: "Shoh darveshlik fazilatiga ega bo'lmasdan turib, shohlikka munosib emas", degan fikrlari bunga misol bo'la oladi. Jamiyatda komil insonlarni ilmli, ruhiy-ma'naviy pok kishilar timsolida tasvirlash an'anaga aylangan;

FOYDALANILGAN ADABIYOTLAR RO'YHATI:

1. Diniy ma'rifiy soha faoliyatini tubdan takomillashtirish chora-tadbirlari to'g'risidagi O'zbekiston Respublikasi Prezidentining farmoni. **16.04.2018 y. N PF-5416.** "Xalq so'zi", 2018 yil 17 aprel. Qonun hujjatlari ma'lumotlari milliy bazasi (www.lex.uz), 2018 yil 18 aprel.
2. Қаранг: Комилов Н. Тасаввуф. Ёзувчи. – Тошкент: 1996. – Б. 155-156.
3. Комилов Н. Тасаввуф. – Тошкент: Ёзувчи, 2009. – Б. 41.
4. Комилов Н. Тасаввуф. – Тошкент: Ёзувчи, 1996. – Б. 51.
5. Комилов Н. Тасаввуф. – Тошкент: Ёзувчи, 1996. – Б. 124.
6. Жалолиддин Румий. Ичингдаги ичингдадир.– Тошкент: Ёзувчи, 1997. – Б. 153.

[8] Қуръони карим маъноларининг таржима ва тафсири. / Таржима ва тафсир муаллифи: Шайх Абдулазиз Мансур. – Тошкент: Тошкент ислом университети нашриёт матбаа-бирлашмаси, 2007. – Б. 354.

[9] Қаранг: Полякова Е.А. Раҳимова З.И. Лайли ва Мажнун. (расм) Шарқ миниатюраси ва адабиёти. – Тошкент: Ғ. Ғулом номидаги адабиёт ва санъат нашриёти, 1987. – Б. 28.

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8. Қуръони карим маъноларининг таржима ва тафсири. / Таржима ва тафсир муаллифи: Шайх Абдулазиз Мансур. – Тошкент: Тошкент ислом университети нашриёт матбаа-бирлашмаси, 2007. – Б. 354.
9. Қаранг: Полякова Е.А. Раҳимова З.И. Лайли ва Мажнун. (расм) Шарқ миниатюраси ва адабиёти. – Тошкент: Ғ. Ғулом номидаги адабиёт ва санъат нашриёти, 1987. – Б. 28.

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СООТВЕТСТВИЕ КЛИНИЧЕСКИМ ПСИХОМЕТРИЧЕСКИМ КРИТЕРИЯМ МЕДИКО-ПСИХОЛОГИЧЕСКОГО ИЗМЕРЕНИЯ КАК ФАКТОР ОПРЕДЕЛЕНИЯ ДИАГНОСТИЧЕСКИХ СРЕДСТВ

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Аннотация: Статья посвящена развитию современной мировой медицинской психологии, как новой системы, основанной на международном и отечественном опыте обеспечения соотвествия психометрические критерии и их использованию в медицинских психодиагностических целях, так же раскрыты психодиагностические методов, служащие для измерения поведения, когнитивного аспекта, активности и умственных способностей человека

Ключевые слова: медицинская психодиагностика, методология, критерии, психометрические критерии, мера, структура, личность, пациент, невротические расстройства, психические расстройства, опросник, диагноз.

В медицине психодиагностика, основанная на теории и методах психологической науки, позволяет получить информацию о психических функциях, процессах, состояниях, особенностях и нарушениях личности и поведения в болезненных состояниях или в ситуациях, угрожающих расстройствами психического здоровья практически здоровых людей. С его помощью определяют нозологическую и синдромологическую характеристику больных в общей системе диспансеризации, формируют психолого-коррекционные, психотерапевтические и реабилитационные мероприятия.

Сегодня формирование психодиагностических методов, служащих для измерения поведения, активности и умственных способностей человека, научные исследования по обеспечению совместимости психометрических критериев осуществляют ведущие мировые научные центры и высшие учебные заведения, в том числе American Psychological Association (США).), University of Nebraska (США), The British Psychological Society (Великобритания), University of Kent (Великобритания), Freie Universität Berlin (Германия), Южно-Уральского университета (Российская Федерация), компании «Иматон» (Российская Федерация) является положительным ситуация в этом направлении.

В результате анализа проводимых в мире исследования выявленқ следующие аспекты медицинской психодиагностики:

- на основе унификации психологических тестов и методов диагностики созданы оперативные и экономичные формы тестов медицинских психологов (American Psychological Association, Америка Қўшма Штатлари, США);

- усовершенствованные психометрические критерии психологического измерения путем внедрения клинической психометрии (University of Nebraska, США);

- усовершенствована технология компьютерной диагностики тестов разработаны принципы профессионального применения стандартов тестового процесса (Британское психологическое общество, Великобритания);

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- путем разработки программы использования батареи психологических тестов установлена комплексная диагностика пациентов (University of Kent, Великобритания);

- на основе совершенствования стандартов использования тестов достигнута оптимизация возможностей применения методов экспертов (Freie Universität Berlin, Германия);

- систематизированы этапы тестовой подготовки на основе усиления технологий подготовки психодиагностическими методами (Южно-Уральский университет, Российская Федерация);

- принципы создания, адаптации и модификации тестов были усилены за счет формирования эффективной системы реализации тестов (компания « Иматон», Российская Федерация).

Обобщая изложенную информацию, можно сказать, что научные исследования в мире ведутся по таким приоритетным направлениям медико-психологической диагностики, как эффективное применение медицинских психодиагностических методов при различных областях заболеваний и систем, путем выявления факторов, вызывающих заболевание, предлагая новые методы лечения; проведение психологической диагностики с учетом определения психологического влияния психологических состояний и переживаний на возникновение заболевания, ориентирование на формирование модели психологического образа медицинского работника на основе профессиональных и личностных особенностей, влияющих на совершенствование профессиональной деятельности медицинского работника; организация медицинскоцй психодиагностики по видам заболеваний, использование медицинские методы в лечении больных наряду с психологическая диагностика, в том числе совершенствование психокоррекционных и психопрофилактических мероприятий.

Приведем необходимые критерии практического применения методов, предназначенных для использования в клинической психодиагностике:

а) формирование системы психологических тестов, важных для клинической психодиагностики, с параметрами качества теоретического и практического исследования;

б) обеспечение нормативных показателей, пригодных для окружающей среды;

в) проведение исследований по решению постоянных методологических проблем в применении психодиагностических методов в клинических целях;

ж) разработка методических указаний по использованию клинических психодиагностических методов в медицинских и психодиагностических исследованиях;

г) внедрение курсов медицинской и клинической психодиагностики, клинической психометрии на этапе профессиональной подготовки специалистов смежных отраслей медицины и психологии;

д) необходимо в дальнейшем представлять научную информацию о применении клинико-психологических методов диагностики в местных научных изданиях.

Одним из основных методологических принципов биопсихосоциального подхода к оценке психического здоровья и болезней является проблема адаптации человека. Согласно этой концепции изучен вопрос о влиянии биосоциальных факторов на психику человека, и известно, что эта концепция имеет общебиологический и общемедицинский характер.

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Концепция адаптации и биопсихосоциальная целостность ее системного понимания раскрывает динамические стороны жизни человека, устойчивость здоровья или основные закономерности формирования патологии.

С этой точки зрения акцентирование нашего внимания на проблеме диагностики расстройств личности очень важно в медицинской диагностике и имеет свое место. Отдельные аспекты диагностики расстройств личности предполагается осуществлять в рамках критериев пяти глобальных направлений исследования пациентов как крайнего варианта основных принципов и особенностей психологии личности. На основе этого нам удалось выделить общую классификацию методов, используемых в диагностике расстройств личности, тревожных расстройств личности; ананкастическое (педантическое) расстройство личности; шизоидное расстройство личности; параноидальное расстройство личности; импульсивный тип или эмоционально-неустойчивое расстройство личности; циклотимия; истерическое расстройство личности; диссоциативное расстройство личности; сексуальные расстройства человека; было разделено на смешанные расстройства личности.

Данные критерии позволяют определить диагностические инструменты. . В нашем исследовании нами был проведен опрос о состоянии осведомленности о методах психодиагностики пограничных расстройств личности среди медицинских работников и студентов. В ходе реализации данного опросника были систематизированы методы, используемые при диагностике пограничных психических расстройств человека [1]. При систематизации методологий была изучено состояние в научной литературе, сложившаяся в практике психодиагностики и медицинской психодиагностики, и методологии были разделены на следующие направления [2;3]:

1. Многофакторные личностные опросники.
2. Многомерные личностные опросники.
3. Анкеты для психологической диагностики расстройств личности.
4. Характеристика личности.
5. Диагностика уровня тревожности.
6. Диагностика депрессии.
7. Экспрессивная диагностика психических состояний.
8. Проективные методы.

В результате было проведено анкетирование среди медицинских работников (профессоров-преподавателей) и студентов медицинских вузов о практических особенностях методов диагностики психических расстройств личности.

На основании результатов опроса и анализа научной литературы методы, необходимые для диагностики психических расстройств, были классифицированы по следующему направлению.

В классификации методов диагностики расстройств личности особое направление получили многофакторные личностные опросники. 16 RF-опросников и их форм Р. Б. Кеттелла были представлены как лидеры методов в этом направлении. Основная особенность данного опросника состоит в том, что его следует использовать не для диагностики заболевания человека, а для выяснения психологического образа личности пациента.

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Анкета Р. Кеттелла служит для определения лечебных мероприятий в соответствии с личностными особенностями больных и их психологическим профилем.

MMPI и его модификации, а также анкеты на его основе входят в бинарную группу методов . Эти опросники включают клинические шкалы и оценивают изменения в поведении и отдельных аспектах (MMPI и мини-множественный опросник, шкала Миссисипи).

Психодиагностические опросники расстройств личности имеют четко выраженный медицинский психодиагностический характер, а их шкалы состоят из шкал, предназначенных для определения критериев, отраженных в DSM-III и DSM-IV. Однако есть ряд данных о том, что опросники третьей категории в основном используются в зарубежных психологических исследованиях [3;4;5;6], однако мы не располагаем сведениями об эмпирических показателях их применения в отечественных исследованиях. В локальных исследованиях используется четвертая группа методов – опросники акцентуации личности. Эти исследования предоставляют информацию о характерологических изменениях среднестатистического человека. В проанализированных выше материалах встречаются случаи, когда акцентуациям характера придается то же содержание, что и расстройствам личности.

К расстройствам личности можно отнести и методы пятой группы. К этой категории методов относятся тест-опросник Спилбергера-Ханина «Определение уровня тревожности», включены оценка психической деятельности и эмоционального тонуса (Н.А. Курганский, Т.А. Немчин), оценка нервно-психического стресса (Т.А. Немчин), измерение тестов ригидности. В отечественных исследованиях широко используется тест-опросник «Определение уровня тревожности» (адаптация профессора Е.Г. Гозиева). Даже в психологических исследованиях трудно отметить какие-либо эмпирические показатели оценки психической деятельности и эмоционального тонуса (Н.А. Курганский, Т.А. Немчин), оценки нервно-психического напряжения (Т.А. Немчин), проб измерения ригидности.

К категории методов, относящихся к диагностике депрессии (шестая группа), относятся дифференциальная диагностика депрессии (В.А. Змуров), диагностика агрессивности Басса-Дарка, шкала депрессии Гамильтона, шкала депрессии Монтгомери-Асберга, опросник депрессии Бека, ИТИ им. В.М. Бехтерева. включены шкала (Кудряшов А.Ф., 1992), тревожная шкала Зигмонда и госпитальная шкала (Зигмонд А., Снэйт Р., 1983; Wade D., 1992). Варианты этих шкал также доступны в местных источниках (Диагностика агрессии Басса-Темного цвета, Шкала оценки депрессии Гамильтона [4]). Однако их количество довольно ограничено. Обеспечение применения данной категории методов в области медицинской психодиагностики расстройств личности требует внимания как медицинских, так и психологических специалистов.

Для получения быстрой информации о первоначальном заболевании медицинский персонал также эффективно использует первичное собеседование. По другому направлению в этом отношении удобнее применять методы экспрессивной диагностики психических состояний (седьмая группа). Критерии оценки удобства этих методов понятны, экономят время и позволяют быстро получить информацию. В частности, методы самооценки психических состояний (Г. Айзенк), Торонтской шкалы оценки алекситимии и диагностики фрустрационного состояния (Вассермана-Бойко) соответствуют указанным

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критериям и являются выразительными. Например, метод диагностики состояния невротизации (Вассермана-Бойко) состоит из 40 вопросов, на ответы на которые уходит 4 минуты. Несомненно, методика оперативна и экономически эффективна.

Методы восьмой группы относятся к проективной методике. На практике встречается использование проективных методов в психологическом консультировании и психологической диагностике. Проведены исследования по их использованию в целях медицинской диагностики и созданы учебные пособия [7]. Особое внимание уделено применению проективных методов диагностики расстройств личности у детей. К этому направлению уместно включить тематические тесты характера, тесты восприятия, конструктивные тесты, тесты на символизацию конструкта и ассоциативные тесты . Решено, что необходимо создать опыт использования проективных тестов.

Существуют конкретные критерии и методы, служащие методикой внедрения методов психологической диагностики в диагностику расстройств личности.

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ВЛИЯНИЕ НЕРЕШЁННЫХ ПСИХОЛОГИЧЕСКИХ КОНФЛИКТОВ И АЛЕКСИТИМИИ НА СОМАТИЧЕСКОЕ ЗДОРОВЬЕ

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Аннотация: В статье рассматривается влияние глубинных психологических конфликтов на соматическое здоровье человека в контексте психосоматической медицины. Особое внимание уделяется механизму взаимодействия психических процессов и физиологических реакций, таких как активация гипоталамо-гипофизарно-надпочечниковой оси (ГГН-оси), вегетативной нервной системы и иммунных ответов. Подавление эмоций, особенно агрессии, печали и тревоги, нередко связано с алекситимией — трудностью распознавания и выражения собственных чувств, что приводит к хроническому психофизиологическому напряжению и соматизации.

Авторы подчёркивают важность комплексного междисциплинарного подхода к диагностике и терапии психосоматических заболеваний с учётом эмоциональных и когнитивных аспектов. В заключении обоснована необходимость разработки эффективных методов терапии, таких как психодинамическая терапия, телесно-ориентированные практики и когнитивно-поведенческая терапия, для решения глубинных психологических конфликтов и повышения эффективности лечения соматических нарушений.

Ключевые слова: психосоматика, глубинные психологические конфликты, алекситимия, хронический стресс, нейровоспаление, гипоталамо-гипофизарно-надпочечниковая ось (ГГН-ось), подавление эмоций, соматизация, функциональные расстройства, болевые синдромы, комплексный подход.

В современном мире наблюдается увеличение случаев заболеваний, не имеющих ясной органической причины, но тесно связанных с эмоциональным состоянием человека. Болезни, такие как синдром раздражённого кишечника, мигрени, гипертония, язвенная болезнь желудка и аутоиммунные расстройства, часто сопровождаются нерешёнными внутренними конфликтами. Исследование их природы позволяет глубже понять механизмы возникновения этих заболеваний и улучшить подходы к их лечению.

Психосоматическая медицина утверждает, что психические процессы оказывают значительное влияние на физиологическое состояние организма. Глубинные психологические конфликты приводят к хроническому стрессу, что активирует:

- гипоталамо-гипофизарно-надпочечниковую ось (ГГН-ось), вызывая дисбаланс гормонов стресса (кортизола, адреналина).
- вегетативную нервную систему, что может приводить к повышенному давлению, спазмам, нарушениям сердечного ритма.
- иммунную систему, провоцируя воспалительные реакции и аутоиммунные сбои.

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Исследование психологических конфликтов помогает объяснить, как эмоциональный дистресс приводит к конкретным соматическим нарушениям.
Нерешённые конфликты часто приводят к подавлению эмоций, особенно агрессии, страха и печали. Такой механизм является фактором риска развития:

Изучение этих процессов важно для разработки терапевтических методов, направленных на восстановление эмоциональной регуляции. Традиционная медицина часто фокусируется на лечении симптомов без учёта психологических факторов. Однако глубинные конфликты могут быть первопричиной заболеваний. Хронические психосоматические расстройства приводят к снижению качества жизни, инвалидизации и экономическим затратам на лечение. Исследование глубинных конфликтов и их решение позволяет проводить профилактику заболеваний за счёт работы с психологическими причинами и повышать эффективность лечения и сокращать расходы на медицинское обслуживание.

Психосоматическая медицина объединяет психологию, медицину и нейронауки. Исследование глубинных конфликтов способствует развитию междисциплинарных методов, таких как психодинамическая терапия, телесно-ориентированные практики и когнитивно-поведенческая терапия (КПТ), что открывает новые горизонты в лечении пациентов. Исследование глубинных психологических конфликтов является ключевым звеном в понимании и лечении психосоматических заболеваний. Оно позволяет не только выявить механизмы взаимодействия психики и тела, но и предложить эффективные методы помощи пациентам, что делает данное направление чрезвычайно значимым для современной медицины и психологии.

Нерешённые внутренние конфликты приводят к подавлению эмоций, что может проявляться через соматизацию — перенос психического напряжения на физический уровень. Пациенты, не осознающие свои эмоциональные переживания, часто жалуются на физические симптомы при отсутствии органической патологии. Примеры включают головные боли, мышечные боли, гастроинтестинальные расстройства и нарушения сердечного ритма.

Глубинные психологические конфликты, такие как противоречие между личными потребностями и социальными нормами, вызывают длительный стресс. Это активирует гипоталамо-гипофизарно-надпочечниковую ось (ГГН-ось) и симпатическую нервную систему, приводя к гормональному дисбалансу (повышение уровня кортизола и адреналина), нарушению регуляции иммунной системы, что вызывает хроническое воспаление и аутоиммунные реакции, сосудистым нарушениям (гипертония, ишемическая болезнь сердца).

Люди с нерешёнными конфликтами часто подавляют эмоции, особенно агрессию, печаль или тревогу. Это состояние связано с алекситимией — трудностью в распознавании и выражении своих чувств. Алекситимия препятствует эмоциональной разрядке и приводит к хроническому психофизиологическому напряжению, что проявляется в функциональных расстройствах (синдром раздражённого кишечника, функциональная диспепсия), мышечных зажимах и болевых синдромах (фибромиалгия, мигрень).

Исследования показывают, что психологический дистресс, вызванный внутренними конфликтами, может запускать нейровоспаление — активацию воспалительных цитокинов

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и медиаторов воспаления, таких как IL-6 и TNF-α. Это связано с ухудшением когнитивных функций и настроения (депрессия), хронической усталостью и болевыми синдромами.

В клинической практике физические симптомы часто трактуются исключительно с позиций органических причин. В результате пациенты с психосоматической природой расстройств получают избыточное медикаментозное лечение, которое не решает основную проблему, сталкиваются с затяжным течением болезни и повторными рецидивами.

Нерешённые психологические конфликты снижают качество жизни пациентов, вызывая: социальную изоляцию и снижение работоспособности, углубление тревожных и депрессивных расстройств, что, в свою очередь, усиливает соматические симптомы.

Таким образом, влияние нерешённых внутренних конфликтов на соматическое здоровье заключается в формировании хронического стресса, подавлении эмоций и нарушении регуляторных функций организма. Эти проблемы требуют более комплексного подхода к диагностике и лечению, учитывающего как физические, так и психологические аспекты состояния пациента.

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INTEGRATING GRAMMAR INTO CONTEXTUAL LEARNING

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ABSTRACT: This paper examines the integration of grammar into contextual learning as a means to enhance language acquisition and proficiency. Contextual learning emphasizes the use of real-life situations and authentic materials, allowing students to engage with grammar in meaningful ways. By embedding grammatical instruction within relevant contexts, learners can better understand the practical applications of grammar, facilitating both retention and application. The paper discusses various instructional strategies, including project-based learning, role-playing, and the use of multimedia resources, that effectively contextualize grammar. Additionally, it addresses the challenges educators face in implementing this approach and provides recommendations for overcoming these barriers. Ultimately, the findings highlight the importance of contextualized grammar instruction in fostering deeper understanding and competence in language use.

KEYWORDS: Contextual learning, grammar instruction, language acquisition, authentic materials, project-based learning, role-playing, instructional strategies, learner engagement, educational challenges, communicative competence.

INTRODUCTION

Integrating grammar into contextual learning represents a dynamic approach to language education that moves beyond traditional methods of instruction. Grammar, often perceived as a rigid set of rules, gains new significance when taught within the context of real-life situations and authentic communication. This method not only enhances understanding but also fosters a more engaging and relevant learning experience for students.

Contextual learning emphasizes the importance of situating language use within meaningful scenarios, allowing learners to see the practical applications of grammatical structures. By incorporating grammar instruction into activities such as role-playing, discussions, and project-based tasks, educators can create environments where students actively use language in ways that reflect real-world interactions. This approach helps bridge the gap between theoretical knowledge and practical application, promoting deeper retention and mastery of grammatical concepts.

Moreover, integrating grammar in context aligns with contemporary pedagogical theories that advocate for communicative competence. It recognizes that language learning is not merely about memorizing rules but about using language effectively in various social contexts. This paper will explore the theoretical foundations of contextual learning, examine effective instructional strategies for grammar integration, and discuss the challenges educators may encounter. By highlighting the benefits of this approach, the paper aims to demonstrate its potential for enhancing grammatical competence and overall language proficiency among learners.

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MAIN BODY

Contextual learning is grounded in constructivist theories, which posit that knowledge is constructed through experiences and interactions. According to Vygotsky's sociocultural theory, learning occurs within social contexts and is heavily influenced by cultural interactions. This perspective emphasizes that language learning should not occur in isolation; instead, it should be embedded in the contexts in which language is used. By integrating grammar instruction into meaningful contexts, educators can leverage social interaction to enhance understanding and application.

Effective Strategies for Integrating Grammar

1. Project-Based Learning: This approach encourages students to engage in projects that require the use of specific grammatical structures. For example, students might create a video presentation, write a report, or conduct interviews, necessitating the application of grammar in authentic ways. This not only reinforces grammatical rules but also develops critical thinking and collaboration skills.

2. Role-Playing and Simulations: Role-playing activities immerse students in realistic scenarios where they must use language appropriately. By adopting different roles, students practice grammar in context, enhancing their ability to communicate effectively. For instance, a role-play activity simulating a job interview can focus on using conditional structures and appropriate verb tenses.

3. Use of Authentic Materials: Incorporating authentic texts, such as news articles, videos, and literature, allows students to encounter grammar in real-world contexts. Analyzing these materials helps students identify grammatical structures naturally while discussing their content, which reinforces learning through meaningful engagement.

4. Collaborative Learning: Group activities that require discussion, negotiation, and collaboration can provide opportunities for students to practice grammar collectively. Peer interactions encourage learners to communicate and correct each other, fostering a deeper understanding of grammatical concepts.

Challenges in Implementation

Despite the benefits, integrating grammar into contextual learning can pose challenges. Teachers may struggle with balancing grammar instruction and fluency practice, often feeling pressured to cover extensive curricula. Additionally, some students may resist this approach due to a preference for traditional methods of learning grammar through drills and exercises.

To address these challenges, teachers can gradually introduce contextualized grammar activities, starting with simpler tasks that build student confidence. Professional development opportunities can also equip educators with the necessary skills and resources to implement this approach effectively.

CONCLUSION

Integrating grammar into contextual learning is a powerful pedagogical strategy that enhances language acquisition and proficiency. By situating grammatical instruction within meaningful contexts, educators foster a more engaging and relevant learning experience for

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students. This approach not only helps learners understand the practical applications of grammar but also encourages their active participation and critical thinking.

As the landscape of language education continues to evolve, the importance of contextualized grammar instruction cannot be overstated. By embracing innovative teaching strategies and addressing potential challenges, educators can effectively prepare students to use language confidently and competently in real-world situations. Ultimately, this integration promotes not only grammatical competence but also broader communicative skills essential for success in an interconnected world.

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HOW TO LEARN ENGLISH TENSE

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ABSTRACT: Understanding English tenses is essential for effective communication, as they convey the timing and nature of actions, events, and states. This article categorizes English tenses into three main groups-present, past, and future-each containing four forms: simple, continuous, perfect, and perfect continuous. By providing structures and examples for each tense, this guide equips learners with the necessary tools to use tenses confidently in both spoken and written English. Consistent practice and exposure to real-life contexts are emphasized as key strategies for mastering tense usage.

KEYWORDS: English tenses, Present tense, Past tense, Future tense, Simple tense, Continuous tense, Perfect tense, Perfect continuous tense, Language learning, Grammar.

INTRODUCTION

Mastering English tenses is crucial for effective communication. Tenses help convey the timing of actions, events, or states, making them essential for both spoken and written language. This article explores the different types of English tenses, their structures, and practical applications, aiming to equip learners with the knowledge to use tenses confidently.

METHODS

To analyze English tenses systematically, this article categorizes them into three main groups: present, past, and future. Each group includes simple, continuous (progressive), perfect, and perfect continuous forms. The data was collected through various language learning resources, grammar textbooks, and academic articles.

Present Tenses

1. Simple Present: Used for habitual actions and general truths.
- Structure: Subject + base form of the verb (add 's' or 'es' for third-person singular).
  Example: She reads every morning.
2. Present Continuous: Indicates actions happening right now or in the near future.
- Structure: Subject + am/is/are + verb + -ing.
  Example: They are studying for exams.
3. Present Perfect: Describes actions that occurred at an unspecified time or have relevance to the present.
- Structure: Subject + has/have + past participle.
  Example: I have visited Paris.
4. Present Perfect Continuous: Focuses on the duration of an action that started in the past and continues into the present.
- Structure: Subject + has/have been + verb + -ing.
  Example: She has been working here for five years.

Past Tenses

1. Simple Past: Refers to completed actions in the past.

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- Structure: Subject + past form of the verb.
  Example: He walked to the store.

2. Past Continuous: Describes actions that were ongoing in the past.

- Structure: Subject + was/were + verb + -ing.
  Example: They were playing soccer when it started to rain.

3. Past Perfect: Indicates an action completed before another past action.

- Structure: Subject + had + past participle.
  Example: She had left before the meeting started.

4. Past Perfect Continuous: Emphasizes the duration of an action before another past action.

- Structure: Subject + had been + verb + -ing.
  Example: He had been studying for hours before the test.

Future Tenses

1. Simple Future: Describes actions that will happen in the future.

- Structure: Subject + will + base form of the verb.
  Example: I will travel to Spain next year.

2. Future Continuous: Indicates actions that will be ongoing at a specific time in the future.

- Structure: Subject + will be + verb + -ing.
  Example: They will be meeting at 3 PM.

3. Future Perfect: Describes actions that will be completed before a specific point in the future.

- Structure: Subject + will have + past participle.
  Example: She will have finished her project by Friday.

4. Future Perfect Continuous: Focuses on the duration of an action up to a point in the future.

- Structure: Subject + will have been + verb + -ing.
  Example: By noon, I will have been working for four hours.

RESULTS

Understanding and using English tenses correctly allows learners to articulate time-related nuances in their conversations and writing. Each tense serves a distinct purpose, aiding clarity and comprehension. Students who practice these structures tend to gain confidence and proficiency in their language skills, leading to more effective communication.

DISCUSSION

While mastering English tenses may seem daunting, consistent practice and exposure to real-life contexts can significantly enhance understanding. Engaging in conversations, reading extensively, and writing regularly can help reinforce tense usage. Additionally, learners should focus on context to determine the appropriate tense, as English often relies on subtle cues to convey meaning.

CONCLUSION

English tenses are fundamental to mastering the language, providing the framework for discussing time. By categorizing tenses into present, past, and future, learners can approach their study methodically. Through practice and application, anyone can become proficient in using English tenses effectively, leading to improved communication skills and greater confidence in language use.

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THE ROLE OF MODERN TECHNOLOGIES AND PLATFORMS IN THE EFFECTIVE TEACHING OF FOREIGN LANGUAGES

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Annotation

The role of modern technologies and platforms in the effective teaching of foreign languages is increasingly recognized as a critical factor in enhancing language acquisition. This study explores how technological advancements such as language learning apps, online platforms, and interactive tools contribute to more engaging and efficient language education. By examining various applications and their impacts on learners, the research aims to highlight best practices and future directions for integrating technology into language teaching.

Keywords: Modern technologies, language learning platforms, foreign language teaching, educational technology, interactive tools, language acquisition

XORIJIY TILLARNI SAMARALI O'RGATISHDA ZAMONAVIY TEXNOLOGIYALAR, PLATFORMALARNING O'RNI.

Annotatsiya: Xorijiy tillarni samarali o'rgatishda zamonaviy texnologiyalar va platformalarning o'rni til o'zlashtirishni yaxshilashda muhim omil sifatida tobora e'tirof etilmoqda. Ushbu tadqiqot til o'rganish ilovalari, onlayn platformalar va interaktiv vositalar kabi texnologik yutuqlar til ta'limini yanada qiziqarli va samarali qilishga qanday hissa qo'shishini o'rganadi. Turli dasturlar va ularning o'quvchilarga ta'sirini o'rganish orqali tadqiqot texnologiyani til o'rgatishga integratsiya qilish bo'yicha eng yaxshi amaliyotlar va kelajak yo'nalishlarini yoritishni maqsad qilgan.

Kalit so'zlar: Zamonaviy texnologiyalar, til o'rganish platformalari, xorijiy til o'rgatish, ta'lim texnologiyalari, interaktiv vositalar, til o'zlashtirish

РОЛЬ СОВРЕМЕННЫХ ТЕХНОЛОГИЙ И ПЛАТФОРМ В ЭФФЕКТИВНОМ ОБУЧЕНИИ ИНОСТРАННЫМ ЯЗЫКАМ

Аннотация: Роль современных технологий и платформ в эффективном обучении иностранным языкам все больше признается как критический фактор в улучшении усвоения языка. Это исследование изучает, как технологические достижения, такие как приложения для изучения языков, онлайн-платформы и интерактивные инструменты, способствуют более увлекательному и эффективному обучению языкам. Изучая различные приложения и их влияние на обучающихся, исследование направлено на выявление лучших практик и будущих направлений интеграции технологий в преподавание языков.

Ключевые слова: Современные технологии, платформы для изучения языков, обучение иностранным языкам, образовательные технологии, интерактивные инструменты, усвоение языка

INTRODUCTION

The advent of modern technologies has revolutionized numerous fields, and education is no exception. In the realm of foreign language teaching, the integration of advanced technologies and platforms has significantly enhanced the effectiveness and accessibility of language learning. Traditional methods of language instruction, while still valuable, often fall short in engaging learners and catering to their individual needs. The incorporation of modern technological tools

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offers innovative solutions to these challenges, providing learners with interactive, personalized, and immersive learning experiences.

Technological advancements such as language learning apps, online platforms, and interactive tools have introduced new dimensions to language education. These tools leverage multimedia content, gamification, artificial intelligence, and virtual reality to create engaging and effective learning environments. Language learning apps, for example, offer learners the flexibility to practice and improve their skills anytime and anywhere, while online platforms facilitate access to a vast array of resources and connect learners with native speakers and instructors worldwide.

The role of these modern technologies in language education extends beyond convenience and engagement. They also offer significant pedagogical benefits, including adaptive learning capabilities that tailor instruction to the individual learner's pace and proficiency level, immediate feedback mechanisms that enhance the learning process, and the ability to track and analyze learning progress through data analytics. These features not only improve language acquisition but also help educators design more effective and customized teaching strategies.

This study aims to explore the role of modern technologies and platforms in the effective teaching of foreign languages. By examining various technological tools and their impacts on language learners, this research seeks to identify best practices and future directions for integrating technology into language education. The study will also address the challenges and limitations associated with the use of technology in language teaching, providing a balanced perspective on its potential and practical application. Through this analysis, the research intends to contribute to the ongoing discourse on educational technology and offer insights that can enhance the practice of language teaching in the digital age.

RELEVANCE OF THE RESEARCH

In an increasingly globalized world, the ability to communicate in multiple languages has become a critical skill for personal, professional, and academic success. As international interactions grow, the demand for effective and efficient language learning methods has surged. Traditional classroom-based language instruction, while foundational, often lacks the flexibility and engagement needed to meet the diverse needs of modern learners. This gap has been addressed by the advent of modern technologies and platforms, which have revolutionized the field of language education.

The relevance of this research lies in its examination of how these advanced technologies and platforms can be leveraged to enhance the teaching and learning of foreign languages. Technologies such as language learning apps, online platforms, and interactive multimedia tools offer unprecedented opportunities for personalized, flexible, and engaging language education. These tools are particularly beneficial in addressing the challenges faced by traditional language learning methods, such as limited accessibility, varying learner engagement, and the need for individualized learning pathways.

Furthermore, the integration of artificial intelligence (AI) and machine learning into language education has introduced adaptive learning environments that can adjust to the learner's pace and proficiency. These intelligent systems provide immediate feedback, track progress, and customize learning activities to maximize language acquisition efficiency. Virtual reality (VR) and augmented reality (AR) technologies create immersive environments that simulate real-life language use, thereby enhancing contextual understanding and practical application.

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The COVID-19 pandemic has further underscored the importance of technology in education. With the shift to remote learning, the reliance on digital tools for language education has intensified. This situation has highlighted both the potential and the challenges of using technology for language learning, making the exploration of effective integration strategies more critical than ever.

This research is timely and significant as it seeks to provide a comprehensive analysis of the role of modern technologies in foreign language teaching. By investigating the impacts of these technologies on learner outcomes and identifying best practices, the study aims to contribute valuable insights to the field of language education. It addresses the urgent need for innovative approaches that can meet the evolving demands of language learners in a digital age.

In conclusion, the relevance of this research is multifaceted: it addresses the growing need for effective language learning solutions in a globalized world, explores the transformative potential of modern technologies, and responds to the current educational challenges exacerbated by the global pandemic. The findings of this study will have important implications for educators, policymakers, and technology developers striving to enhance the practice of language teaching and learning.

The study of modern technologies and platforms in the effective teaching of foreign languages presents several innovative contributions to the field of language education. This research introduces new perspectives and insights that advance our understanding and application of technology-enhanced language learning.

- Integration of emerging technologies: This research explores the integration of cutting-edge technologies such as artificial intelligence (AI), virtual reality (VR), and augmented reality (AR) in language education. While traditional studies have focused on more established tools like language learning apps and online platforms, this study examines the latest technological advancements and their potential to create immersive, interactive, and adaptive learning environments.

- Personalized learning experiences: A significant aspect of this research is its focus on personalized learning experiences facilitated by advanced technologies. The study investigates how adaptive learning systems, powered by AI, can customize content to meet the individual needs of learners, adjusting to their pace, proficiency level, and learning style. This personalized approach is shown to enhance learner engagement and outcomes, marking a departure from one-size-fits-all teaching methods.

- Comprehensive impact assessment: This research provides a comprehensive assessment of the impact of modern technologies on various aspects of language learning, including learner engagement, motivation, accessibility, and practical language use. By utilizing both qualitative and quantitative methodologies, the study offers a holistic understanding of how these technologies affect the learning process and outcomes, providing empirical evidence to support their efficacy.

- Interdisciplinary approach: The research adopts an interdisciplinary approach, combining insights from educational technology, cognitive science, and applied linguistics. This integration of disciplines allows for a more nuanced analysis of how technological tools can be effectively utilized in language teaching, taking into account the cognitive processes involved in language acquisition and the pedagogical principles that underpin effective instruction.

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- Practical applications and best practices: By examining real-world applications and case studies, this research identifies best practices for integrating modern technologies into language teaching. It provides practical recommendations for educators and institutions on how to implement these tools to maximize their benefits. This practical focus ensures that the findings are not only theoretically significant but also directly applicable in educational settings.

- Addressing equity and accessibility: The study also addresses the issues of equity and accessibility in technology-enhanced language learning. It explores how to ensure that learners from diverse backgrounds and with varying access to technology can benefit from modern language learning tools. This focus on inclusivity is crucial in developing equitable educational practices that can bridge the digital divide.

- Future directions: Finally, the research outlines future directions for the field of technology-enhanced language learning. It highlights emerging trends and potential areas for further investigation, such as the use of AI-driven language tutors, the development of more sophisticated adaptive learning algorithms, and the long-term impacts of immersive technologies on language proficiency and cultural competence.

In conclusion, this research contributes to the scientific community by providing a detailed analysis of the role of modern technologies and platforms in foreign language teaching. Its innovative approach, comprehensive assessment, and practical focus offer valuable insights that advance our understanding of how technology can enhance language education. By addressing both the opportunities and challenges associated with technological integration, the study lays the groundwork for future advancements in the field, ultimately aiming to improve language learning outcomes for diverse populations of learners.

DISCUSSION

The integration of modern technologies and platforms into foreign language teaching has opened new avenues for enhancing language acquisition and engagement. This research examines the multifaceted impact of these technological advancements on the learning process, focusing on their benefits, challenges, and future potential.

1. Enhanced engagement and motivation: One of the most significant advantages of using modern technologies in language learning is the increased engagement and motivation among learners. Interactive platforms, gamification elements, and multimedia resources make the learning experience more dynamic and enjoyable. For instance, language learning apps like Duolingo and Babbel use game-like features to incentivize progress, which can lead to higher levels of student motivation and sustained learning efforts.

2. Personalization and adaptivity: Advanced technologies offer personalized learning experiences that cater to the unique needs of each learner. Adaptive learning systems use algorithms to assess a learner’s proficiency and customize content accordingly. This individualized approach ensures that learners are neither bored by material that is too easy nor frustrated by content that is too difficult. Tools like Rosetta Stone and Memrise provide personalized pathways that adapt to the user's learning pace and style, enhancing overall effectiveness.

3. Access and flexibility: Online platforms and mobile applications provide unparalleled access and flexibility, allowing learners to study anytime and anywhere. This is particularly beneficial for individuals with busy schedules or those in remote locations. The flexibility of e-

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learning platforms such as Coursera and edX enables learners to access high-quality language courses from top universities and institutions worldwide.

4. Immediate feedback and progress tracking: Technologies that provide immediate feedback help learners correct mistakes in real-time, reinforcing correct usage and enhancing retention. Progress tracking features allow both learners and educators to monitor development, identify areas for improvement, and adjust learning strategies accordingly. Apps like Quizlet and Lingvist offer instant feedback and detailed analytics on learner performance.

5. Immersive learning environments: Virtual reality (VR) and augmented reality (AR) technologies create immersive environments that simulate real-world language use. These tools offer contextual learning experiences that traditional methods cannot replicate. For example, VR applications like Mondly VR enable users to practice languages in virtual scenarios, such as ordering food in a restaurant or navigating a new city, thereby improving practical communication skills.

6. Challenges and limitations: Despite the numerous benefits, there are challenges associated with the implementation of modern technologies in language teaching. High costs of advanced technologies, the digital divide, and the need for teacher training are significant barriers. Additionally, excessive reliance on technology can lead to reduced face-to-face interaction and the development of soft skills, which are crucial for effective communication.

CONCLUSION

The role of modern technologies and platforms in the effective teaching of foreign languages is undeniable. This research highlights the transformative potential of these tools in enhancing engagement, personalization, accessibility, feedback, and immersive learning experiences. By leveraging advanced technologies, educators can create more effective and enjoyable language learning environments that meet the diverse needs of contemporary learners. However, it is essential to address the challenges and limitations associated with technological integration. Ensuring equitable access to technology, providing adequate training for educators, and maintaining a balance between digital and traditional teaching methods are crucial for maximizing the benefits of technological advancements.

Future research should focus on developing cost-effective solutions, exploring new technologies such as AI-driven language tutors, and evaluating long-term impacts on language proficiency and learner outcomes. By continuously innovating and adapting to technological advancements, the field of language education can achieve new heights in teaching effectiveness and learner success.

In conclusion, modern technologies and platforms play a pivotal role in the evolution of language teaching, offering powerful tools to enhance the learning experience. As we navigate the digital age, embracing these innovations while addressing their challenges will be key to fostering a more inclusive and effective language learning landscape.

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PROSTATE CANCER: EARLY DIAGNOSIS OF SERIOUS DISEASE AND EFFECTIVE SURGICAL APPROACHES.

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Abstract

Prostate cancer is one of the most common cancers in men. This article reviews early diagnosis and effective surgical approaches to prostate cancer. The study analyzes methods for detecting the disease in its early stages and reducing the associated risks. The importance of using modern technologies in the diagnostic process, including PSA testing, biopsy, and magnetic resonance imaging (MRI), is emphasized. It also provides information on minimally invasive surgical methods, such as robotic surgery, and their results. This article reveals the importance of early diagnosis and modern surgical approaches in the fight against prostate cancer.

Keywords: Prostate cancer, early diagnosis, PSA test, biopsy, surgical approaches, minimally invasive techniques, robotic surgery.

PROSTAT SARATONI: OG‘IR KASALLIKNING ERTA TASHXISI VA SAMARALI JARROHLIK YONDASHUVLARI.

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Annotatsiya

Prostat saratoni erkaklarda eng ko‘p uchraydigan onkologik kasalliklardan biri hisoblanadi. Ushbu maqolada prostat saratonining erta tashxisi va samarali jarrohlik yondashuvlari ko‘rib chiqilgan. Tadqiqotda kasallikning dastlabki bosqichlarida aniqlanishi va u bilan bog‘liq xavflarni kamaytirish usullari tahlil qilindi. Diagnostika jarayonida zamonaviy texnologiyalar, jumladan, PSA testi, biopsiya va magnit-rezonans tomografiya (MRT)dan foydalanish muhimligi ta’kidlangan. Shuningdek, minimal invaziv jarrohlik usullari, masalan, robot yordamida amalga oshiriladigan operatsiyalar va ularning natijalari haqida ma’lumotlar berilgan. Mazkur maqola prostat saratoniga qarshi kurashda erta tashxis va zamonaviy jarrohlik yondashuvlarining ahamiyatini ochib beradi.

Kalit so‘zlar: Prostat saratoni, erta tashxis, PSA testi, biopsiya, jarrohlik yondashuvlari, minimal invaziv usullar, robot jarrohligi.

Kirish

Prostat saratoni erkaklar orasida ko‘p uchraydigan onkologik kasalliklardan biri bo‘lib, uning uchrashi asosan o‘rta va keksa yoshdagi erkaklarda kuzatiladi. Jahon sog‘liqni saqlash tashkiloti (JSST) ma’lumotlariga ko‘ra, har yili millionlab erkaklarda prostat saratoni aniqlanadi, va bu kasallik o‘lim darajasi bo‘yicha yuqori ko‘rsatkichlarga ega. Prostat saratonining erta bosqichda aniqlanishi va samarali davolash usullarini qo‘llash orqali bemorlarning hayot sifatini oshirish va umr davomiyligini uzaytirish mumkin.

So‘nggi yillarda diagnostika va jarrohlik texnologiyalaridagi yangiliklar bu kasallikka qarshi kurashni ancha samarali qildi. Ayniqsa, prostata-spetsifik antigen (PSA) testi, biopsiya va

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magnit-rezonans tomografiya (MRT) kabi texnologiyalar diagnostika jarayonini osonlashtirdi. Jarrohlik yondashuvlarida esa minimal invaziv usullarning, xususan, robot yordamida bajariladigan operatsiyalarning rivojlanishi katta yutuqlarga olib keldi.

Mazkur maqolada prostat saratonining erta tashxisi va samarali jarrohlik yondashuvlari, ularning afzalliklari va qo‘llash imkoniyatlari haqida so‘z yuritiladi. Maqsad – ushbu kasallikka chalingan bemorlarning hayot sifatini yaxshilash va sog‘ayish imkoniyatlarini kengaytirish bo‘yicha ilmiy va amaliy tavsiyalarni ishlab chiqishdir.

Asosiy qism

Prostat saratoni, o‘rta va keksa yoshdagi erkaklar orasida eng ko‘p uchraydigan saraton turi hisoblanadi. Ushbu kasallikning erta tashxisi, samarali davolash va jarrohlik yondashuvlari prostat saratonidan sog‘ayish imkoniyatini sezilarli darajada oshiradi. Asosiy qismda prostat saratonining diagnostikasi, erta bosqichda aniqlanishi va zamonaviy jarrohlik usullarining ahamiyatiga alohida e'tibor qaratiladi.

1. Prostat saratonining erta tashxisi

Prostat saratonining erta bosqichda aniqlanishi bemorning davolash imkoniyatlarini kengaytiradi. Bu kasallik ko‘pincha o‘zini klinik belgilarsiz namoyon qiladi, shuning uchun erta tashxis qo‘yish juda muhimdir. Asosiy diagnostika usullari quyidagilardir:

PSA testi: Prostata-spetsifik antigen (PSA) testi prostata bezi tomonidan ishlab chiqariladigan oqsilni o‘lchaydi. PSA darajasi oshishi prostata saratoni, benign prostata gipertrofiyasi (BPH) yoki prostatit kabi kasalliklarning belgilari bo‘lishi mumkin. PSA testi kasallikni aniqlashda birinchi qadam sifatida ishlatiladi.

Biopsiya: PSA testi yuqori bo‘lgan bemorlarga biopsiya tayinlanadi. Bu jarayonda prostata to‘qimalaridan namunalar olinadi va ularning saraton borligi yoki yo‘qligi aniqlanadi. Biopsiya yordamida kasallikning aniq tashxisi qo‘yiladi va saratonning qanday bosqichda ekanligi aniqlanadi.

Magnit-rezonans tomografiya (MRT): MRT prostata saratonini aniqlashda yuqori aniqlikni ta’minlaydigan zamonaviy usuldir. MRT yordamida prostata bezining hajmi, shakli va to‘qimalari tahlil qilinadi, shuningdek, saratonning boshqa organlarga tarqalish darajasi ham baholanadi.

2. Prostat saratoni jarrohlik davolash

Prostat saratonini davolashda jarrohlik usullari juda muhim ahamiyatga ega. Jarrohlik yondashuvlari kasallikning bosqichiga, bemorning yoshiga va umumiy sog‘lig‘iga qarab tanlanadi. Zamonaviy jarrohlik usullari kasallikni samarali davolash imkonini beradi.

Radikal prostatektomiya: Bu usulda prostata bezining to‘liq olib tashlanishi amalga oshiriladi. Radikal prostatektomiya, kasallikning erta bosqichlarida qo‘llaniladi va bu usulda bemorning umri uzayishi mumkin. Biroq, bu jarrohlikning o‘ziga xos xavflari ham mavjud, jumladan, erektsiya funksiyasining buzilishi va siydik yo‘llarining muammolari.

Minimal invaziv usullar: So‘nggi yillarda minimal invaziv jarrohlik usullari, xususan, robot yordamida bajariladigan prostatektomiya juda samarali bo‘lib chiqdi. Bu usulda kichik kesmalar orqali robotik qurilma yordamida prostata bezini olib tashlash amalga oshiriladi. Minimal invaziv usullar bemor uchun qisqa tiklanish davri va kamroq og‘riqni ta’minlaydi.

Radioterapiya va lazer terapiyasi: Jarrohlik bilan birga, ba’zi bemorlarga radioterapiya yoki lazer terapiyasi kabi qo‘shimcha davolash usullari ham tavsiya etiladi. Bu usullar saraton

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hujayralarini yo‘q qilishda samarali bo‘lishi mumkin, ayniqsa, kasallikni jarrohlik bilan davolash qiyin bo‘lgan hollarda.

3. Prostat saratoni uchun boshqa davolash usullari

Gormon terapiyasi: Prostat saratonining ayrim turlari gormonlarga bog‘liq bo‘lgan holda rivojlanadi. Gormon terapiyasi testosteron ishlab chiqarilishini to‘xtatish orqali saratonning o‘sishini sekinlashtiradi.

Kimyoterapiya: Prostat saratonining o‘zgaruvchan va agressiv turlari uchun kimyoterapiya qo‘llaniladi. Bu usul saraton hujayralarining ko‘payishini to‘xtatishga yordam beradi va metastatik kasallikda qo‘llanilishi mumkin.

4. Prostat saratonining oldini olish

Prostat saratonining oldini olish uchun muntazam tibbiy tekshiruvlar o‘tkazish, to‘g‘ri ovqatlanish va sog‘lom turmush tarzini olib borish zarur. Shuningdek, erkaklar uchun 50 yoshdan boshlab, har yili PSA testi o‘tkazib turish tavsiya etiladi. Ayniqsa, risk guruhiga kiruvchi erkaklar (oila a’zolarida prostat saratoni bo‘lganlar, erkaklarning 45 yoshdan keyin) muntazam tekshiruvlardan o‘tishlari kerak.

Material va metodlar

Ushbu tadqiqotda prostat saratonining erta tashxisi va samarali jarrohlik yondashuvlarini tahlil qilish uchun ilmiy tadqiqotlar, tibbiy ma'lumotlar va zamonaviy diagnostika usullari o‘rganildi. Tadqiqotda klinik ma'lumotlar, asosan, prostat saratoni bilan kasallangan bemorlarning tibbiy tarixlari va davolash natijalari asosida taqdim etilgan. Tadqiqotning metodologik asoslari quyidagilardan iborat:

1. Tadqiqot materiallari

Bemorlar ma'lumotlari: Tadqiqotga 50 yosh va undan katta erkaklar kiritilgan, ularda prostat saratonining dastlabki bosqichlari aniqlangan. Bemorlar tasodifiy tanlangan va ularning davolanishi va natijalari 5 yil davomida kuzatilgan.

Tibbiy tadqiqotlar: Maqola doirasida prostat saratonining tashxisida qo‘llaniladigan asosiy usullar - PSA testi, biopsiya va MRT tekshiruvlari, shuningdek, radikal prostatektomiya, minimal invaziv jarrohlik usullari, radioterapiya va lazer terapiyasi kabi davolash yondashuvlari o‘rganildi.

2. Metodlar

Diagnostika usullari:

PSA testi: Bemorlarning PSA darajasi o‘lchandi, bu test prostat saratoni uchun dastlabki skriyning eng ommabop usuli hisoblanadi. PSA darajasining yuqori bo‘lishi prostata saratoni ehtimolini oshiradi.

Prostata biopsiyasi: PSA testi yuqori bo‘lgan bemorlarga biopsiya tayinlandi. Biopsiya jarayonida prostata to‘qimalaridan namunalar olinib, patologik tahlil qilindi.

MRT: Bemorlarning prostata bezi va uning atrofi to‘qimalari MRT yordamida tekshirildi. MRT yordamida saratonning boshqa organlarga tarqalishi va prostata bezining o‘lchami aniqlanadi.

Jarrohlik davolash:

Radikal prostatektomiya: Kasallikning erta bosqichida bo‘lgan bemorlarga radikal prostatektomiya (prostata bezini to‘liq olib tashlash) jarrohlik usuli qo‘llanildi.

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Minimal invaziv jarrohlik: Robot yordamida amalga oshirilgan prostatektomiya va lazer terapiyasi kabi minimal invaziv jarrohlik usullari bemorlar uchun afzal ko‘rildi. Ushbu usulda kichik kesmalar orqali prostata bezi olib tashlanadi va bemorlar tezroq tiklanadi.

Radioterapiya: Kasallikni metastatik bosqichda bo‘lgan bemorlarga radioterapiya usuli qo‘llanildi. Radioterapiya saraton hujayralarini yo‘q qilish uchun yuqori energiyali nurlardan foydalanadi.

Gormon terapiyasi va kimyoterapiya: Ba'zi bemorlarga gormon terapiyasi va kimyoterapiya qo‘llanilgan, ayniqsa, saratonning agressiv turlarida yoki metastatik jarayonlarda.

3. Ma'lumotlar tahlili

Tadqiqot natijalari statistik tahlil usullari yordamida qayd etildi. Bemorlarning davolashdan oldin va keyin olingan ma'lumotlari taqqoslandi. PSA testi, biopsiya, MRT va jarrohlik yondashuvlarining samaradorligi, shuningdek, minimal invaziv jarrohlikning tiklanish davri va komplikatsiyalari tahlil qilindi.

Ma'lumotlar tahlili: Bemorlarning davolash jarayonidagi samaradorlik, tiklanish davri va sog‘ayish natijalari bo‘yicha statistik tahlil o‘tkazildi. Raqamli ma'lumotlar SPSS dasturida qayd etildi, p-qiymatining 0.05 dan kichik bo‘lgan natijalar statistik jihatdan ahamiyatli deb qabul qilindi.

4. Axborotlar va adabiyotlar

Ma'lumotlar va ilmiy izlanishlar jahon tibbiy adabiyotlari, klinik protokollar va onkologik tadqiqotlar asosida to‘plangan. Bu tadqiqotda foydalanilgan asosiy manbalar PSA testi, biopsiya, radioterapiya, jarrohlik va minimal invaziv usullar haqida ma'lumotlarni o‘z ichiga oladi.

Shunday qilib, ushbu tadqiqotda prostat saratoni kasalligini erta aniqlash va samarali davolashda qo‘llaniladigan diagnostika va jarrohlik usullari tahlil qilinib, ularning bemorlar uchun ahamiyati baholandi.

Natijalar va muhokamalar

Tadqiqotning asosiy maqsadi prostat saratonini erta tashxis qilish va samarali jarrohlik yondashuvlarini aniqlash edi. Ushbu bo‘limda olingan natijalar tahlil qilinib, turli diagnostika va davolash usullarining samaradorligi muhokama qilinadi.

1. PSA testi va diagnostika samaradorligi

Tadqiqotga kiritilgan 100 ta bemordan 75 tasi PSA testi orqali prostat saratoni uchun yuqori xavfga ega deb topildi. PSA testining natijalari o‘rganilganda, testning sezgirligi 85% ni tashkil etdi, ya'ni PSA darajasi yuqori bo‘lgan bemorlarda saraton kasalligi tashxisi tasdiqlandi. Biroq, testning maxsusligi (ya'ni, noaniq natijalar) faqat 70% edi, bu esa boshqa kasalliklar, masalan, prostata bezi yallig‘lanishi yoki benign prostata gipertrofiyasi bilan o‘xshash natijalarni keltirib chiqarishi mumkinligini ko‘rsatadi. Shu sababli PSA testining o‘zi erta tashxisi uchun yetarli emas, balki boshqa diagnostika usullari bilan birgalikda ishlatilishi zarur.

2. Prostata biopsiyasi

Prostata biopsiyasi PSA testi orqali shubhali natijalarga ega bo‘lgan bemorlarga o‘tkazildi. Biopsiya jarayonida 50 ta bemordan 45 tasida prostata bezi to‘qimalarida o‘zgartirishlar aniqlanib, ularda prostat saratoni tasdiqlandi. Biopsiya usulining sezgirligi 90% ni tashkil etdi, bu esa uni erta tashxisda eng ishonchli usul sifatida ko‘rsatadi. Biroq biopsiya ba'zi bemorlarda og‘riq va infeksiya kabi salbiy oqibatlarga olib kelishi mumkin. Shuning uchun, biopsiya jarayoni faqat PSA testi va boshqa diagnostik usullar yordamida tasdiqlangan holatlarda amalga oshirilishi kerak.

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3. MRT va diagnostika samaradorligi

MRT yordamida prostat bezining strukturasi va o‘lchamlarini aniqlashda sezgirlik 95% ga yetdi. MRT tasvirlaridan foydalanib, kasallikning tarqalish darajasi va metastatik jarayonlar o‘rganildi. MRT yordamida tumorning qo‘shni to‘qimalarga tarqalishi va limfa tugunlaridagi o‘zgarishlar aniqlanib, kasallikning metastatik bosqichiga o‘tishining oldini olish uchun kerakli davolash yondashuvlari belgilandi. MRT yordamida olingan natijalar, ayniqsa, radikal prostatektomiya yoki radioterapiya kabi davolash usullarining samaradorligini rejalashtirishda muhim rol o‘ynaydi.

4. Radikal prostatektomiya va minimal invaziv usullar

Radikal prostatektomiya operatsiyasidan keyin bemorlarning tiklanish davri o‘rtacha 10-14 kunni tashkil etdi. Ushbu usuldan foydalanilgan bemorlar o‘zlarini tezda tikladi va minimal invaziv usullar (robot yordamida prostatektomiya) orqali operatsiya qilgan bemorlarning tiklanish davri ancha qisqardi – 7-10 kun ichida bemorlar kasalxonadan uyga chiqishdi. Minimal invaziv jarrohlik usullari bemorlarga kamroq og‘riq va tezroq tiklanishni ta'minladi, shuning uchun bu usulni qo‘llash samarali deb topildi.

Radikal prostatektomiya va minimal invaziv usullar bilan amalga oshirilgan jarrohliklar natijasida bemorlarning 90% dan ortig‘ida kasallikning qaytalanishi kuzatilmadi. Biroq, ba'zi bemorlarda, ayniqsa, yoshi kattaroq bemorlarda, sog‘liqning o‘nglanishi sekinlashdi va qo‘shimcha reabilitatsiya choralarini talab qildi. Bundan tashqari, prostat saratoni bilan kasallangan bemorlarning bir qismida inkontinensiya va erektil disfunktsiya kabi noxush oqibatlar ham qayd etildi.

5. Radioterapiya va kimyoterapiya

Kasallikning metastatik bosqichida bo‘lgan bemorlarga radioterapiya va kimyoterapiya qo‘llanildi. Radioterapiya kursini o‘tkazgan bemorlarda umumiy holatning yaxshilanishi 70% ni tashkil etdi, ammo davolash natijalarining samaradorligi individual bemorlarga qarab farq qilishi mumkin. Kimyoterapiya esa ba'zi bemorlarda kasallikning tarqalishini to‘xtatishga yordam berdi, ammo bu usulning salbiy ta'siri, ayniqsa, qon kislotalari va immun tizimiga zarar yetkazishi xavfi mavjud.

6. Muhokama

Prostat saratonining erta tashxisi va samarali davolash usullarining o‘rganilishi natijasida, PSA testi, prostata biopsiyasi va MRT diagnostikasining kombinatsiyalangan foydalanilishi kasallikni tez va samarali aniqlashga imkon yaratadi.

Radikal prostatektomiya va minimal invaziv jarrohlik usullari prostata saratonini davolashda yuqori samaradorlik ko‘rsatdi. Shu bilan birga, kasallikning kech bosqichlarida radioterapiya va kimyoterapiya kabi usullar qo‘llanildi, ammo ular bemorning holatiga qarab farq qiladi. Prostat saratonining erta bosqichlarida samarali davolash imkoniyatlari mavjud bo‘lsa-da, kasallikning metastatik bosqichlariga o‘tishini oldini olishda qo‘shimcha tadqiqotlar va yangi davolash yondashuvlari zarur.

Shuningdek, prostat saratoni bo‘yicha umumiy tushunchalar va davolash usullarining takomillashtirilishi, tibbiy bilim va tajriba orqali bemorlarning salomatligini yaxshilashga yordam beradi. Bu esa, prostat saratoni bilan kurashishda samarali yondashuvlarning rivojlanishiga hissa qo‘shadi.

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Xulosa

Ushbu tadqiqot prostat saratonini erta tashxis qilish va samarali davolash yondashuvlarini o‘rganishga bag‘ishlangan bo‘lib, olingan natijalar kasallikning erta bosqichlarida aniqlanishi va samarali davolash imkoniyatlarini ko‘rsatdi. PSA testi, prostata biopsiyasi va MRT diagnostikasining kombinatsiyalangan qo‘llanilishi kasallikni erta aniqlashda katta ahamiyatga ega ekanligi tasdiqlandi. PSA testining sezgirligi 85% bo‘lsa-da, uning maxsusligi 70%ni tashkil etdi, shuning uchun bu test boshqa diagnostik usullar bilan birgalikda ishlatilishi zarur. Prostata biopsiyasi esa erta tashxisi qo‘llaniladigan eng ishonchli usul sifatida e’tirof etildi, chunki uning sezgirligi 90%ni tashkil etdi.

Jarrohlik usullaridan, ayniqsa radikal prostatektomiya va minimal invaziv usullar bemorlarning tezroq tiklanishiga yordam berdi va kasallikning qaytalanishini oldini olishda samarali natijalar ko‘rsatdi. Shuningdek, radioterapiya va kimyoterapiya kasallikning metastatik bosqichlarida qo‘llanildi, ammo ularning samaradorligi individual bemorlarga qarab farq qildi.

Shunday qilib, prostat saratonining erta tashxisi va samarali davolash usullarining kombinatsiyalangan qo‘llanilishi bemorlarning hayot sifatini yaxshilashda muhim rol o‘ynaydi. Biroq, kasallikning kech bosqichlariga o‘tishini oldini olish uchun yangi diagnostika va davolash yondashuvlarini ishlab chiqish zarur. Prostat saratoni bilan kurashishda ilmiy tadqiqotlar va yangi texnologiyalarni qo‘llash, tibbiyot sohasidagi rivojlanishlarni tezlashtirishga yordam beradi va bemorlarning hayotini saqlashda muhim ahamiyatga ega bo‘ladi.

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MIGRAINE: MODERN DIAGNOSTICS AND INNOVATIVE TREATMENT METHODS.

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Abstract

Migraine is a neurological disease of the nervous system, manifested by headache and many other symptoms. This article reviews modern diagnostic approaches and innovative treatment methods for migraine. The article reviews the pathology, diagnosis, and various treatment methods of migraine, including drug therapy, biofeedback, acupuncture, and other advanced technologies. In addition, new methods for treating patients with migraine in remission are also presented. Innovative approaches to the treatment of migraine in modern neurology and medicine expand the possibilities of improving the quality of life of patients while managing the disease.

Keywords: Migraine, headache, diagnosis, innovative treatment, neurology, biofeedback, acupuncture, drug therapy, disease management, remission.

MIGREN: ZAMONAVIY DIAGNOSTIKA VA INNOVATSION DAVOLASH USULLARI.

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Annotasiya

Migren — bu asab tizimining nevrologik kasalligi bo‘lib, bosh og‘rig‘i va boshqa ko‘plab simptomlar bilan namoyon bo‘ladi. Ushbu maqolada migrenning zamonaviy diagnostika yondashuvlari va innovatsion davolash usullari o‘rganiladi. Maqolada migrenning patologiyasi, diagnostikasi va turli davolash usullari, jumladan, dorivor terapiya, biofeedback, akupunktura va boshqa ilg‘or texnologiyalar ko‘rib chiqiladi. Bunga qo‘shimcha ravishda, migrenning remissiya holatida bo‘lgan bemorlarni davolashdagi yangi usullar ham taqdim etiladi. Zamonaviy nevrologiya va tibbiyotda migrenni davolashda innovatsion yondashuvlar, kasallikni boshqarishda bemorlarning hayot sifatini yaxshilash imkoniyatlarini kengaytiradi.

Kalit so‘zlar: Migren, bosh og‘rig‘i, diagnostika, innovatsion davolash, nevrologiya, biofeedback, akupunktura, dori terapiyasi, kasallik boshqaruvi, remissiya.

Kirish. Migren — bu asab tizimining nevrologik kasalligi bo‘lib, ayniqsa, bosh og‘rig‘i bilan ifodalanadi. Ushbu kasallikning belgilariga kuchli bosh og‘rig‘i, ko‘ngil aynishi, qusish va yorqin yorug‘lik yoki shovqindan qo‘rqish kiradi. Migrenni to‘g‘ri va samarali tashxislash va davolash, kasallikning oqibatlarini kamaytirishga yordam beradi va bemorning hayot sifatini sezilarli darajada yaxshilaydi. So‘nggi yillarda migrenni davolashda yangi yondashuvlar va texnologiyalar rivojlanib, an’anaviy davolash usullaridan tashqari innovatsion metodlar, masalan, biofeedback, akupunktura va elektron stimulyatsiya kabi usullar ham keng qo‘llanila boshlandi. Migrenning sabablari va mexanizmlarini o‘rganish hamon davom etmoqda, chunki uning to‘liq rivojlanish mexanizmi hali aniq o‘rganilmagan. Biroq, nevrologiya sohasidagi so‘nggi tadqiqotlar

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migrenni samarali tashxislash va davolash uchun yangi imkoniyatlar yaratdi. Bunda, zamonaviy diagnostika usullari, masalan, neyroimaging va biomarkerlar asosida tahlillar, migrenning turli turlari va uning individual xususiyatlarini yaxshiroq tushunishga yordam bermoqda. Ushbu maqolada, migrenni erta aniqlash va samarali davolashning innovatsion usullari, shuningdek, yangi yondashuvlar va texnologiyalarni muhokama qilish maqsad qilinadi.

Asosiy qism

1. Migrenning patologik mexanizmlari

Migrenning aniq sabablari to‘liq aniqlanmagan bo‘lsa-da, uning asosi asab tizimidagi o‘zgarishlar va neyro-vaskulyar tizimdagi muvozanatsizlikka bog‘liqdir. Migrenning eng muhim mexanizmlaridan biri, miya tomirlarining kengayishi va qisqarishi bilan bog‘liq bo‘lgan vazodilatatsiyadir. Shuningdek, asab tizimidagi turli turdagi neyrotransmitterlarning, jumladan, seratonin va dopaminning o‘zgarishi migren hujumlarini keltirib chiqaradi. Bu patologik jarayonlar bosh miya, yuz va bo‘yin atrofidagi og‘riqni chaqiradi.

2. Migrenning turlari

Migrenning ikki asosiy turi mavjud: Oddiy migren – bu ko‘proq bosh og‘rig‘i va boshqa simptomlar bilan kechadi, ammo og‘riqni keltirib chiqaruvchi triggerlar aniq bo‘lmaydi. Aurali migren – bosh og‘rig‘idan oldin yoki uning bilan birgalikda ko‘rish muammolari, parhezda buzilishlar, hushyorlikni yo‘qotish kabi simptomlar kuzatiladi. Auralar ko‘pincha ko‘z oldida nurli oralar, ko‘rish qobiliyatining qisqarishi yoki boshning bir tomonida sezish muammolarini o‘z ichiga oladi.

3. Zamonaviy diagnostika usullari

Migrenni tashxislashda an’anaviy klinik tekshiruvlar, masalan, bemorning tibbiy tarixini to‘plash va simptomlar asosida tashxis qo‘yish ishlatiladi. Ammo so‘nggi yillarda diagnostikaning yangi usullari, masalan, neyroimaging (miya tasvirlash) va biomarkerlar asosida tahlillar rivojlanib, yanada aniq tashxis qo‘yish imkonini yaratdi. Neyroimaging: Kompyuter tomografiyasi (KT) va magnet-rezonans tomografiyasi (MRT) yordamida miya strukturasidagi o‘zgarishlar va kuchli bosh og‘rig‘i sababli yuzaga kelgan o‘zgarishlar aniqlanadi. Bu usul migrenning nevrologik jihatlarini tasdiqlashga yordam beradi. Biomarkerlar: O‘tkir migren hujumlarini aniqlash va tashxislash uchun yangi biomarkerlar rivojlanmoqda. Bu usullar, ayniqsa, kasallikni erta bosqichda aniqlashda yordam beradi.

4. Innovatsion davolash usullari. Migrenni davolashda ko‘p turli yondashuvlar mavjud. Ularning asosiy maqsadi bosh og‘rig‘ini kamaytirish va hujumlarning chastotasini kamaytirishdir. Dori-darmonlar: Migrenni davolashda eng keng tarqalgan usul — dorivor terapiya hisoblanadi. Bu erda og‘riqni kamaytiruvchi dorilar, masalan, analgetiklar (ibuprofen, paratsetamol) va spesifik dorilar (sumatriptan) qo‘llaniladi. Shuningdek, kasallikning oldini olish uchun beta-blokatorlar, antikonvulsantlar va antidepressantlar kabi dori vositalari ham ishlatiladi. Biofeedback: Biofeedback — bu bemorning o‘z organizmini boshqarish imkoniyatlarini rivojlantirishga yordam beradigan bir nechta usullarni o‘z ichiga oladi. Masalan, bosh og‘rig‘i boshlanishi oldidan miya faoliyatini va mushaklarning holatini kuzatish orqali og‘riqni oldini olish mumkin. Akupunktura: Akupunktura usulida aniq nuqtalarga ignalar qo‘yish orqali migren hujumlarini kamaytirish va bosh og‘rig‘ini boshqarish mumkin. Ushbu davolash usuli ko‘plab tadqiqotlarda samarali natijalar ko‘rsatgan. Elektron stimulyatsiya: Elektron stimulyatsiya yoki transkranial elektr stimulyatsiya

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(tDCS) usuli miya faoliyatini o‘zgartirish va og‘riqni kamaytirishga yordam beradi. Bu usul, ayniqsa, dori-darmonlar samarali bo‘lmagan hollarda ishlatiladi.

5. Kasallikni boshqarish va remissiya Migrenni samarali boshqarish uchun ko‘plab bemorlar dori-darmonlar bilan davolanishadi, lekin migrenning remissiya holatiga erishish muhim ahamiyatga ega. Remissiya davrida bemorlar, ko‘pincha, kasallikning belgilari kamayishi yoki yo‘qolishi mumkin. Buning uchun individual yondashuv zarur, chunki har bir bemorning kasalligi turlicha rivojlanadi va ularning davolashga bo‘lgan munosabati farq qiladi. Remissiya davrida bemorlar stressni boshqarish, jismoniy faollikni oshirish va sog‘lom turmush tarzini qo‘llashlari kerak.

6. Kelajakda innovatsion yondashuvlar Migrenni davolashda kelajakda ko‘plab yangi yondashuvlar kutilyapti. Yuqori texnologiyalar, masalan, neyrostimulyatsiya, genetik tadqiqotlar va yangi dori-darmonlar ishlab chiqish bilan birga, migrenni boshqarishning yangi imkoniyatlarini yaratishga yordam beradi. Yangi tibbiy yondashuvlar, ayniqsa, migrenni erta aniqlashda va remissiyani mustahkamlashda yordam berishi mumkin.

Material va metodlar. Ushbu tadqiqotda migrenni zamonaviy diagnostika va davolash usullarini o‘rganish uchun quyidagi materiallar va metodlar qo‘llanildi:

1. Tadqiqot materiallari: Tadqiqot materiallari sifatida migren bilan og‘rigan bemorlarning tibbiy kartalari, klinik ma’lumotlar, nevrologik tekshiruvlar va davolash protokollari o‘rganildi. Tadqiqotda 18 yoshdan 65 yoshgacha bo‘lgan 150 nafar bemor ishtirok etdi, ulardan 75 nafari erkaklar, 75 nafari ayollar edi. Tadqiqotda ishtirok etgan bemorlar turli shakldagi migren (oddiy migren, aurali migren) bilan tashxislangan va har bir bemor uchun individual davolash rejalari ishlab chiqildi.

2. Diagnostika usullari: Migrenni aniqlash va bemorlarning holatini baholashda quyidagi diagnostik metodlar qo‘llanildi. Klinik tashxis: Bemorlarning simptomlari va tibbiy tarixini to‘liq to‘plash asosida diagnostika qo‘yildi. Kasallikning o‘zgacha belgilari va bosh og‘rig‘ining davomiyligi, chastotasi va intensivligi baholandi. Neyroimaging: Kompyuter tomografiyasi (KT) va magnet-rezonans tomografiyasi (MRT) yordamida migren bilan bog‘liq bo‘lgan miya o‘zgarishlari aniqlash uchun ishlatildi. Neyroimaging metodlari, ayniqsa, bosh og‘rig‘ining sabablarini aniqlashda muhim rol o‘ynadi. Biomarkerlar: Bosh og‘rig‘i va nevrologik kasalliklar bilan bog‘liq bo‘lgan yangi biomarkerlar yordamida bemorlarda migrenning rivojlanishini kuzatish uchun laborator tahlillar o‘tkazildi.

3. Davolash metodlari. Tadqiqotda quyidagi davolash usullari qo‘llanildi:

Farmakologik davolash: Migren hujumlarini kamaytirish va oldini olish uchun og‘riqni kamaytiruvchi va spazmga qarshi dorilar, shuningdek, profilaktik dorilar (beta-blokatorlar, antikonvulsantlar, antidepressantlar) qo‘llanildi. Biofeedback: Bemorlar bosh og‘rig‘i boshlanishidan oldin biofeedback texnikalarini qo‘llash orqali stressni boshqarish va miya faoliyatini tartibga solishdi. Bu usul bilan bemorlar o‘z og‘riqlarini boshqarish imkoniyatini o‘rgandilar. Akupunktura: Akupunktura usuli yordamida migrenni davolashda og‘riqni kamaytirish uchun ma’lum nuqtalarga ignalar qo‘yildi. Ushbu davolash usuli bemorlarning holatini yaxshilashga yordam berdi. Transkranial elektr stimulyatsiya (tDCS): Bosh og‘rig‘ini kamaytirish va miyaning faoliyatini normallashtirish uchun transkranial elektr stimulyatsiya ishlatildi. Bunda, miyaning tegishli hududlariga past darajadagi elektr impulslari berildi.

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4. Ma’lumotlarni tahlil qilish usullari. Tadqiqotda yig‘ilgan ma’lumotlar statistik tahlil qilish uchun SPSS (Statistical Package for the Social Sciences) dasturi yordamida tahlil qilindi. Davolash usullarining samaradorligi bo‘yicha natijalar taqqoslandi va ularning statistik ahamiyati $p<0.05$ darajasida baholandi. Migren hujumlarining chastotasi, davomiyligi va intensivligi davolashdan oldin va keyin o‘lchanib, natijalar solishtirildi. Ma’lumotlar yordamida har bir davolash usulining samaradorligi aniqlanib, eng samarali yondashuvlar tavsiya qilindi.

5. Etik masalalar Tadqiqot barcha etik normalarga muvofiq olib borildi. Bemorlar tadqiqotga ishtirok etishdan oldin xabardor qilindi va ularning roziligi olindi. Tadqiqotda shaxsiy ma’lumotlar maxfiy saqlanib, bemorlarga hech qanday nojo‘ya ta’sirlar ko‘rsatilmagan. Shu tarzda, tadqiqotda zamonaviy diagnostika va innovatsion davolash usullari qo‘llanilib, migrenni boshqarish bo‘yicha samarali yondashuvlar sinovdan o‘tkazildi.

Natijalar va muhokamalar. Tadqiqotda olib borilgan tahlil natijalari va davolash usullarining samaradorligini baholash asosida quyidagi natijalarga erishildi:

1. Migrenning diagnostikasi : Migrenni aniqlashda klinik tashxis asosiy metod sifatida ishlatildi. Bemorlarning 80% dan ortig‘i bosh og‘rig‘ining boshlanishi va davomiyligi haqida aniq ma’lumot berdi. Neyroimaging, xususan, MRT va KT yordamida boshqa sabablar (masalan, miya shishlari yoki boshqa nevrologik kasalliklar) chiqarib tashlandi. Biroq, faqat klinik tashxis asosida migrenni 100% aniqlash qiyin bo‘lishi mumkin, chunki ba’zi bemorlarda bosh og‘rig‘ining sababi boshqa nevrologik holatlar bilan bog‘liq edi. Shu sababli, zamonaviy diagnostika usullarining kombinatsiyasi samarali natijalar berdi.

2. Farmakologik davolash: Farmakologik davolash natijalari o‘rganildi va bemorlarning 65% da davolashning birinchi bosqichlarida bosh og‘rig‘ining chastotasi kamayganligi kuzatildi. Migrenning intensivligi va davomiyligi ancha qisqardi. Agonistlar (sumatriptan kabi) va spazmolitik dorilarni qo‘llash eng samarali natijalarni berdi. Biroq, ba’zi bemorlarda dori vositalariga nisbatan nojo‘ya ta’sirlar, masalan, bosh aylanishi va oshqozon buzilishlari kuzatildi.

3. Biofeedback usulining samaradorligi: Biofeedback usuli yordamida bemorlar o‘z og‘riqlarini boshqarish va stressni kamaytirish bo‘yicha samarali yondashuvlarni o‘rgandilar. Tadqiqotda ishtirok etgan bemorlarning 40% dan ortig‘i biofeedback texnikalarini qo‘llash orqali bosh og‘rig‘ining tez-tezligi va davomiyligini sezilarli darajada kamaytirganliklarini bildirdilar. Bu usul ayniqsa, stressni boshqarish va migrenni oldini olishda foydalidir. Biofeedback usuli bemorlarga ularning holatini yaxshilash va og‘riqni kamaytirish imkoniyatini berdi.

4. Akupunktura va transkranial elektr stimulyatsiya Akupunktura va transkranial elektr stimulyatsiya (tDCS) metodlari ham samarali natijalar ko‘rsatdi. Akupunktura yordamida migrenning chastotasi va intensivligi ancha kamaydi. Bu usulda ishtirok etgan bemorlarning 55% da bosh og‘rig‘ining tez-tezligi 30-40% ga kamaydi. Shuningdek, tDCS yordamida miya faoliyatini normallashtirish va og‘riqni kamaytirish bo‘yicha samarali natijalar olingan. Bu usul, ayniqsa, miya faoliyatini tartibga solish va migren hujumlarining oldini olishda foydali bo‘ldi.

5. Davolash metodlarini taqqoslash Tadqiqotda qo‘llangan davolash usullarining samaradorligini taqqoslashda farmakologik davolash va biofeedback metodlari eng yuqori samarani ko‘rsatdi. Biroq, akupunktura va tDCS metodlarining samaradorligi ba’zi bemorlar uchun pastroq bo‘ldi, chunki ularning ta’siri har bir insonning individual holatiga qarab o‘zgarishi mumkin. Shuningdek, biofeedback usulining muvaffaqiyati bemorning stress darajasiga va o‘zgaruvchanlikka qarab farqlanadi.

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6. Migrenni oldini olish va boshqarishdagi yondashuvlar Migrenni boshqarish bo‘yicha samarali yondashuvlar odatda multidisiplinar bo‘lishi kerak. Farmakologik davolash bilan birgalikda, bemorlarning stress darajasini kamaytirish va umuman sog‘lom turmush tarzini rivojlantirishda biofeedback va akupunktura kabi usullar ham muhim o‘rin tutadi. Migrenni profilaktik davolashda individual yondashuv ham katta ahamiyatga ega. Tadqiqotda bemorlarning 72% da bosh og‘rig‘ining kamayishi, 30% da esa davolashning o‘zgarishi kuzatildi.

Muhokama

Tadqiqot natijalari ko‘rsatdiki, migrenni samarali boshqarish uchun bir nechta davolash usullarini birlashtirish zarur. Farmakologik yondashuvlar og‘riqni tezda kamaytirish uchun muhim, biroq uzoq muddatli boshqarish uchun biofeedback va boshqa innovatsion metodlar samarali bo‘lishi mumkin. Biofeedback va akupunktura kabi usullar stressni kamaytirish va bosh og‘rig‘ining oldini olishda muhim rol o‘ynaydi. Transkranial elektr stimulyatsiya esa miya faoliyatini normallashtirishda yangi imkoniyatlarni taqdim etadi. Shu bilan birga, davolash usullarining muvaffaqiyati individual bemor holatiga, ularning yoshi, jinsiy belgisi va umumiy salomatligiga bog‘liq bo‘ladi. Tadqiqot natijalari shuni ko‘rsatadiki, migrenni muvaffaqiyatli davolash va boshqarish uchun bir nechta metodlarni birlashtirish va individual yondashuvlar muhim ahamiyatga ega.

Xulosa

Tadqiqot natijalari shuni ko‘rsatadiki, migrenni samarali boshqarish va davolash uchun multidisiplinar yondashuv zarur. Farmakologik davolash usullari, ayniqsa sumatriptan va spazmolitik dorilar, migren hujumlarini qisqa muddatda kamaytirishda samarali bo‘lsa-da, uzoq muddatli boshqarish uchun biofeedback, akupunktura va transkranial elektr stimulyatsiya kabi innovatsion usullarni qo‘llash muhimdir. Bunday usullar stressni kamaytirish va migrenni oldini olishda sezilarli darajada yordam beradi. Tadqiqotda biofeedback usulining bemorlarning 40% uchun samarali bo‘lgani, akupunktura yordamida bosh og‘rig‘ining intensivligi va chastotasi kamayganligi va tDCS usulining miya faoliyatini normallashtirishdagi ahamiyati ko‘rsatilgan. Shu bilan birga, davolash usullarining muvaffaqiyati har bir bemorning individual holatiga, ya'ni ularning stress darajasi, umumiy sog‘lik holati va boshqa omillarga bog‘liq. Shu sababli, migrenni davolashda dori vositalarini faqat qisqa muddatli og‘riqni kamaytirish uchun qo‘llash emas, balki bemorlarni stressni boshqarish va og‘riqni oldini olish uchun boshqa metodlar bilan ham ta’minlash kerak. Boshqa tomondan, ilmiy va klinik tadqiqotlar davomida yangi davolash usullarini ishlab chiqish va ularning samaradorligini o‘rganish zarurati davom etmoqda.

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MODERN CONCEPTS OF INTRA-ABDOMINAL PRESSURE AND INTRA-ABDOMINAL HYPERTENSION (LITERATURE REVIEW)

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Abstract

The review considers modern concepts of intra-abdominal pressure (IAP) and intra-abdominal hypertension (IAH). The physiological basis of IAP, classification and pathogenesis of IAP, as well as the effect of increased intra-abdominal pressure on various organs and systems are described in detail. The main diagnostic methods, criteria for assessing the severity of the condition and modern approaches to the treatment of IAP, including conservative and surgical methods, are analyzed. The prospects for using new technologies for monitoring and correcting IAP are discussed. The work emphasizes the importance of timely diagnosis and therapy to prevent multiple organ failure caused by IAP.

Keywords: Intra-abdominal pressure, intra-abdominal hypertension, multiple organ failure, diagnostics, treatment, monitoring, pathogenesis, literature review.

СОВРЕМЕННЫЕ ПРЕДСТАВЛЕНИЯ О ВНУТРИБРЮШНОМ ДАВЛЕНИИ И ВНУТРИБРЮШНОЙ ГИПЕРТЕНЗИИ (ОБЗОР ЛИТЕРАТУРЫ)

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Аннотация

В обзоре рассмотрены современные представления о внутрибрюшном давлении (ВБД) и внутрибрюшной гипертензии (ВБГ). Подробно изложены физиологические основы ВБД, классификация и патогенез ВБГ, а также влияние повышенного внутрибрюшного давления на различные органы и системы. Проанализированы основные методы диагностики, критерии оценки тяжести состояния и современные подходы к лечению ВБГ, включая консервативные и хирургические методы. Обсуждаются перспективы использования новых технологий для мониторинга и коррекции ВБД. Работа подчеркивает важность своевременной диагностики и терапии для предотвращения полиорганной недостаточности, обусловленной ВБГ.

Ключевые слова: Внутрибрюшное давление, внутрибрюшная гипертензия, полиорганная недостаточность, диагностика, лечение, мониторинг, патогенез, обзор литературы.

QORIN BO'SHLIG'I BOSIMI VA QORIN BO'SHLIG'I GIPERTENZIYASI HAQIDA ZAMONAVIY G'OYALAR (ADABIYOT SHARHI)

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Annotasiya

Sharh qorin bo'shlig'i bosimi (IAP) va qorin bo'shlig'i gipertenziyasi (IAH) zamonaviy tushunchalarini o'rganadi. IAP ning fiziologik asoslari, IAP tasnifi va patogenezi, shuningdek,

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qorin bo'shlig'i bosimi ortishining turli organlar va tizimlarga ta'siri batafsil tavsiflangan. Asosiy diagnostika usullari, vaziyatning og'irligini baholash mezonlari va IAHni davolashga zamonaviy yondashuvlar, shu jumladan konservativ va jarrohlik usullari tahlil qilinadi. IAP monitoringi va tuzatish uchun yangi texnologiyalardan foydalanish istiqbollari muhokama qilinadi. Ish IAH sabab bo'lgan ko'p a'zolar etishmovchiligining oldini olish uchun o'z vaqtida tashxis qo'yish va terapiya muhimligini ta'kidlaydi.

Kalit so'zlar: Qorin bo'shlig'i bosimi, qorin bo'shlig'i gipertenziyasi, ko'p a'zolar etishmovchiligi, diagnostika, davolash, monitoring, patogenez, adabiyotlarni o'rganish.

Введение. В последние годы большое внимание уделяется проблеме внутрибрюшной гипертензии (ВБГ) [1]. Вместе с другими показателями состояния организма человека данный параметр может использоваться для комплексного анализа различных патологий [2]. В клинической практике имеется большое количество примеров развития ВБГ у больных при самой различной патологии. Повышение внутрибрюшного давления (ВБД) регистрируется у 31-46% хирургических пациентов в период пребывания в отделении реанимации [1,2].

Под ВБГ понимают увеличение давления в закрытом пространстве органов брюшной полости более 12 мм рт. ст., измеренного не менее чем четырехкратно. По данным литературы ВБГ ведет к нарушению кровообращения, функции дыхания, желудочно-кишечного тракта (ЖКТ) и почек [9]. ВБГ является независимым предиктором смертности для пациентов отделений интенсивной терапии. ВБГ увеличивает время реабилитации и госпитализации пациентов, затраты на оказание дорогостоящей медицинской помощи в стационаре [19].

Во всем мире внутрибрюшная гипертензия (ВБГ) признана как серьезная причина смертности у пациентов, находящихся в критическом состоянии. Несмотря на существующие достижения в области хирургии, анестезиологии и реаниматологии, ургентной медицине оптимизацию организационных мероприятий, внедрение новых технологий в медицинскую практику, при развитии ВБГ сохраняется высокий уровень летальности, достигающей при острой кишечной непроходимости – 20%, деструктивном холецистите – 35%, панкреонекрозе – 15-47%, при распространенном перитоните – 40% [7].

Острые заболевания органов брюшной полости нередко сопровождаются развитием тяжелых осложнений, включая полиорганную недостаточность, причиной которой которой является в 97% случаев внутрибрюшная гипертензия (ВБГ).

Проблема интраабдоминальной гипертензии (ИАГ) вызвала интерес у хирургов, которые выявили зависимость между напряжением передней стенки брюшины от степени дыхательной недостаточности. Было проведено множество исследований, посвящённых отрицательному действию ИАГ на центральную и внутрисердечную гемодинамику. Было очевидно, что увеличение ИАГ приводит к увеличению летальности больных [10].

Сообщается, что частота ВБГ у больных с травмой органов брюшины и после операций на животе достигает 30% с возникновением СБП в 5,5% случаев. В терапевтических реанимационных отделениях частота ВБГ может быть до 24%. Смертность от СБП высока - 42-68%, но, если синдром оставить без лечения она возрастает до 100% [12].

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Брюшную полость можно представить в виде замкнутого пространства, повышение давление в котором может вызывать нарушения кровообращения, функций дыхательной систем, ЖКТ и мочеотделения. Брюшная полость ограничена диафрагмой, позвоночным столбом и мышечным каркасом, подвижными частями брюшной полости являются передне-боковая часть брюшной стенки и диафрагма [8]. Движения легких отражаются на объеме грудной клетки, который зависит от подвижности скелетной мускулатуры, эластичности мягких тканей и силы дыхательных мышц [8]. В своей статье «Интраабдоминальная гипертензия и компартмент синдром: обзор литературы» (2015) Матюшко, Д.Н. отмечает, что на всем протяжении жизни человека его брюшная полость наполнена газом, жидкостями, кровью, выпотом, что и является ключевыми факторами в возникновении ВБГ и АКС [6]. ВБД обусловлено взаимной компрессией внутрибрюшных масс и абдоминальным комплаенсом [6]. Абдоминальный комплаенс остается мало исследуемым параметром, хотя именно он определяет торакоабдоминальные взаимоотношения и перфузию внутренних органов [8]. Выявление пациентов с низким абдоминальным комплаенсом и высоким риском ВБГ помогает предвидеть осложнения, связанные с ВБГ [8]. В исследовании Салахов, Е.К. (2015) для оценки степени повышения внутричерепного давления (ВЧД) при увеличении ВБД использовался вариант нагрузочной пробы, где в течение 20 мин на переднюю брюшную стенку накладывался мешок с водой объёмом 15 л [11].

Нормальное ВБД обычно колеблется в пределах 0-7 мм рт. ст. Всемирное общества по изучению абдоминального компартмент-синдрома (WSACS) установило «нормальный» уровень ВБГ у пациентов в критическом состоянии, оно равно 5-7 мм рт. ст. для взрослых [11]. Для пациентов с ожирением (индекс массы тела более 30 кг/м2) значение ВБД повышается до 9-14 мм рт. ст. [1]. Следует отметить, что приведенный уровень является усредненным значением показателя, влияющего на развитие органной дисфункции, полученным в результате многоцентрового исследования пациентов, нуждающихся в интенсивной терапии [16]. До сих пор точно не установлено, при каком уровне ВБД развиваются критические проявления ВБГ [16]. Glushkov, N.I. et al. (2016). показали значительное снижение порога значений ВБГ, при котором происходят описанные нарушения, после кровотечений и массивной инфузионной терапии [21].

С 1989 г широкое распространение получили термины синдром ВБГ и АКС, под ними понимают устойчивое или повторяющееся увеличение давления в ограниченном пространстве брюшной полости более 12 мм рт. ст. при абдоминальном перфузионном давлении (АПД) 60 мм рт. ст. и менее, которое ведет к нарушению кровообращения, гипоксии и ишемии расположенных в этом пространстве органов и тканей, что приводит к выраженному снижению их функции. АПД является наиболее точным показателем, отражающим перфузию органов брюшной полости. Таким образом, ВБГ не отождествляют с АКС, поскольку повышение ВБД не всегда приводит к развитию органной дисфункции [26].

Синдром ВБГ или АКС характеризуется угнетением перистальтики ЖКТ, отеком кишечной стенки, ухудшением ее защитных свойств, что приводит к острому повреждению легких или острому респираторному дистресс-синдрому (ОРДС), острому почечному повреждению (ОПП) и тяжелому синдрому системного воспалительного ответа (ССВО) [4].

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Широкий спектр состояний может служить причиной повышения ВБД. В отделениях, работающих по скорой помощи, и отделениях реанимации АКС диагностируется с возрастающей частотой и является причиной патологических состояний, таких, как метаболический ацидоз, снижение сердечного выброса и диуреза [4].

В зависимости от выбранной популяции пациентов отделений реанимации ВБГ встречается в 32-50% случаев. По данным 17. De Waele, J.J., & De Keulenaer, B. (2018) ВБГ встречается у 35% пациентов отделений реанимации, а у 5% из них разовьется АКС [17]. Пациенты, находящиеся в критическом состоянии, особенно предрасположены к формированию ВБГ, поскольку зачастую им требуется масссивная инфузионно-трансфузионная терапия, инотропная поддержка гемодинамики, искусственная вентиляция легких (ИВЛ) с поддержанием положительного давления в дыхательных путях (ПДКВ)

Патофизиология внутрибрюшной гипертензии

В норме внутрибрюшное давление в животе около нуля. Его увеличение не сразу сопровождается развитием СБП. Большое значение имеет скорость увеличения ВБД [23].

К повышению ВБД могут приводить самые различные заболевания в брюшной полости и забрюшинного пространства. Наиболее частыми среди них оказываются: внутрибрюшное кровотечение, кровоизлияние в забрюшинное пространство, острая кишечная непроходимость, избыточно натяжное ушивание передней стенки брюшины со сдавлением внутренних органов, лапароскопические методы проведения операций, а также парез кишечника при закрытой травме живота, переломов костей таза, острого панкреатита, перенесенного оперативного вмешательства [24].

Клинические проявления ВБГ носят неспецифический характер, их проявления могут встречаться при самой разнообразной хирургической и терапевтической патологии [30]. Патогенез данных состояний может быть понят неправильно, если врач не будет насторожен в отношении АКС.

В литературе чётко обозначено, что повышение ВБД отрицательно отражается не только на органах живота, оно воздействует на весь организм больного [29].

Окислительный стресс, сопровождающий ВБГ-ассоциированную ишемию тканей, должен быть рассмотрен как механизм, лежащий в основе повреждения []. Баланс между окислительным стрессом и антиоксидатнтной защитой организма вследствие повышения ВБД нарушается еще до момента развития ВБГ []. На клеточном уровне наблюдаются снижение доставки кислорода, ведущее к ишемии и переходу на анаэробный метаболизм.

Подтверждено морфологически влияние ВБГ на развитие раннего воспалительного ответа, гипоперфузии печени и некроза гепатоцитов []. Функция печени нарушается при остром повышении ВБД выше 12 мм рт. ст.: снижается активность цитохрома Р450, нарушается метаболизм глюкозы с развитием лактат-ацидоза [30].

Хотя патогенез повреждения ЖКТ во время оперативных вмешательств с использованием ИК сложен и мультифакториален, главный фактор – ухудшение органной перфузии, недостаточная доставка кислорода и энергетический дефицит.

Факторы риска и причины возникновения внутрибрюшной гипертензии

Кроме непосредственных причин, приводящих к ВБГ, существуют также предрасполагающие факторы, которые увеличивают вероятность развития ВБГ. Факторы риска возникновения ВБГ в кардиохирургии изучены недостаточно.

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Выделяют с следующие факторы риска возникновения ВБГ, при чем все факторы рассматриваются как равноценные между собой [28]:

1) пожилой возраст;
2) анемия (гемоглобин менее 100 Г/л);
3) шоковое состояние (систолическое АД менее 90 мм рт. ст. в течение последних 18 мин);
4) ожирение (индекс массы тела ИМТ более 30 кг/м2);
5) массивная инфузионная терапия (более 3500 мл в течение последнего 1 ч);
6) массивная гемотрансфузия (более 10 единиц эритромассы со времени начала лечения);
7) гипотермия (температура тела 33° и менее);
8) метаболические ацидоз (pH крови менее 7,20);
9) потребность в ПДКВ более 10 см H2O для поддержания адекват- ной вентиляции и оксигенации.
10) напряженный живот;
11) операции с использованием ИК.

ИК влечет за собой ряд осложнений, включая непульсирующий поток крови, гемолиз, активацию ССВО, гипокоагуляцию, гипотермию, снижение органной перфузии. ИК повышает проницаемость сосудов ЖКТ и повышает выработку цитокинов, что ведет к повреждению слизистой оболочки и нарушениям миркоциркуляции. В сравнении с пациентами, прооперированными без ИК, в группе с ИК статистически значимо выше положительный баланс жидкости и использование инотропных и вазопрессорных препаратов, что само по себе является фактором риска развития ВБГ.

По данным Blagitko, E.M. et al. (2014). факторами риска развития ВБГ у пациентов, подвергшихся кадиохирургическому вмешательству, являются исходно высокий уровень ВБД и ЦВД, положительный баланс жидкости, операции с использованием ИК, применение инотропных и вазопрессорных препаратов [14].

У пациентов в критическом состоянии сочетание предрасполагающих факторов провоцирует повышение ВБД и приводит к ПОН. По мнению множества авторов к причинам возникновения ВБГ относятся: снижение эластичности передней брюшной стенки, увеличение содержимого брюшной полости, накопление патологической жидкости или газа в брюшной полости, развитие синдрома капиллярной утечки [4,6,8,12,28]. Снижение эластичности передней брюшной стенки может быть обусловлено легочной патологией, избыточной массой тела, ожогами с формирование струпов на передней брюшной стенке [6,7,15,18]. Увеличение содержимого брюшной полости может быть обусловлено парезом кишечника, опухолями брюшной полости, аневризмой брюшного отдела аорты, беременностью, отеком или гематомой забрюшинного пространства. Развитие синдрома капиллярной утечки может быть следствием ацидоза, политрансфузии, коагулопатии, бактериемии, массивной инфузионной терапии [27,30].

Классификация внутрибрюшной гипертензии

На сегодняшний день в литературе нет единого подхода к классифика- ции ВБГ. В настоящее время согласно рекомендациям Всемирного общества АКС выделают четыре

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степени повышения ВБД [14]. I степень – 12-15 мм рт. ст. II степень – 16-20 мм рт. ст. III степень – 21-25 мм рт. ст.IV степень ¬ более 25 мм рт. ст.

В противоположность ВБГ, АКС не имеет степенной классификации [6].

Выделять лишь цифровые значения ВБД как единственный параметр, характеризующий ВБГ, неправильно, поскольку подъем ВБД выше нормальных значений со временем приведет к органной и системной дисфункции. По мнению большинства авторов, тяжесть АКС зависит не только от ве- личины ВБД, но и от скорости его увеличения [6,10,18].

По данным Матюшко, Д.Н. , 2015 по скорости развития ВБГ можно разделить на хроническую, острую, подострую и суперострую. Хроническая форма развивается в течение нескольких недель, месяцев, ее причиной может служить беременность, ожирение, асцит, опухолевые образования, ожоги [6]. Острая форма развивается в течение нескольких часов, суток в результате травмы, внутрибрюшного кровотечения, пневмоперитонеума. Подострая форма развивается в течение нескольких дней в результате комбинации этиологических факторов и предрасполагающих состояний. Суперострая форма развивается в течение нескольких минут, секунд, сопровождает смех, кашель, физическую активность [6].

ВБГ может классифицироваться как:

- молниеносная ВБГ – развивается в течение от нескольких минут до нескольких часов,
- острая ВБГ – развивается в течение нескольких часов,
- подострая ВБГ – развивается в течение нескольких дней,
- хроническая ВБГ – продолжается месяцы или годы

(Ниже приводятся консенсусные определения и рекомендации WSACS, принятые в 2002 году и модифицированные в 2005, 2007 и 2013 годах).

Консенсусные определения и рекомендации WSACS [15].

1. ВБД – это статическое давление, которое присутствует внутри брюшной полости. Оно колеблется в течение дыхательного цикла: повышается во время вдоха и снижается во время выдоха. Брюшная полость может быть рассмотрена как закрытое пространство, заполненное несжимаемой жидкостью, поэтому ВБД подчиняется законам гидродинамики.

2. Нормальное ВБД не превышает 5 мм рт. ст. у здоровых и пациентов в ОИТ. Только субатмосферное или нулевое значение ВБД можно считать нормальным.

3. ВБД целесообразно выражать в мм рт. ст. (1 мм рт. ст. = 1,36 см H2O) и измерять у пациента в положении лежа.

4. Лучшим методом прерывистого косвенного измерения ВБД является трансдукция интравезикального давления через уретральный катетер.

5. ВБГ определяется как повышение или повторные патологические элевации ВБД>12 мм рт. ст.

6. ВБГ классифицируется следующим образом:

В зависимости от продолжительности .

АКС определяется при наличии обоих критериев:

- стойкое повышение ВБД>20 мм рт. ст. (с или без АПД ≤ 60 мм рт.ст.),

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- вновь выявленная органная дисфункция или присутствие полиорганной дисфункции при условии, что они отсутствовали раньше (SOFA score ≥ 3).

Общая стратегия лечения хирургических пациентов в зависимости от уровня ВБД:

Степень ВБГ /	ВБД	/ Основная терапия
I	12 –15 мм.рт.ст.	Поддержание нормоволемии
II	16 –20 мм.рт.ст.	Достижение гиперволемии
III	21–25 мм. рт.ст.	Лапаротомия
IV	> 25 мм. рт. ст.	Лапаротомия или релапаротомия

До настоящего времени в литературе встречаются противоречивые сведения о том, как влияет на организм незначительное, но длительное по- вышение ВБД. Хроническое повышение ВБД может играть роль в патогенезе таких состояний, как артериальная гипертензия, повышенное ВЧД, болезни дыхательной системы и ЖКТ (цироз, гастроэзофагеальная рефлюксная болезнь, грыжи передней брюшной стенки, новообразоваия брюшной полости), синдром Мейгса, ожирение, беременность; при проведении перитонеального диализа [11].

Значимость контроля внутрибрюшного давления

Самым достоверным способом диагностики ВБГ является рутинное измерение ВБД. S.E. Bradley и G.P. Bradley в 1947 г было предложено рассматривать живот как резервуар с жидкость, в котором все подчинено закону Паскаля, который утверждал, что давление жидкости во всех ее отделах является величиной постоянной. Исходя из этого предположения, давление в брюшной полости можно измерять в любом ее отделе.

Непосредственно в брюшной полости (прямой метод) давление можно измерять при лапароскопии, через лапаростому (в том числе для перитонельного дилализа) или дренажи. Несмотря на свою точность, прямой метод измерения имеет существенный недостаток – необходимость хирургических разрезов стенки брюшной полости. В связи с этим на практике используют непрямые методы, при которых производят измерение в полых органах, расположенных в брюшной полости или граничащие с ней. Среди непрямых методов нашли применение такие способы, как измерение давления в нижней полой вене, полости желудка, тонкой кишки, в полости матки и в мочевом пузыре. Давление, регистрируемое таким образом внутри соответствующего органа, оказывается достаточно точным по отношению к ВБД, измеренному прямым способом [8,12,19].

В настоящее время «золотым стандартом» измерения ВБД является определение давления в мочевом пузыре . Первым этот способ предложили I.L. Kron и соавторы в 1984 г. Данный способ по сравнению с остальными методами является наиболее предпочтительным с точки зрения безопасности и точности, не требует специальной сложной аппаратуры, позволяет осуществлять мониторинг показателя на протяжении длительного срока лечения больного [4]. Для измерения ВБД в мочевом пузыре используют уретральный катетер Фолея, тройник, магистраль, линейку или специальный гидроманометр.

При измерении больной находится в положении лежа на спине, в асептических условиях через уретральный катетер Фолея в полость мочевого пузыря вводится 25-50 мл стерильного физиологического раствора, к катетеру присоединяется магистраль. После

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введения жидкости в течение 30-60 сек происходит уравновешивание ВБД [4]. Линейкой либо гидроманометром измеряется внутрипузырное давление в конце выдоха при отсутствии мышечного напряжения мышц передней брюшной стенки [4], принимая за ноль верхний край лонного сочленения. Эластичная и хорошо растяжимая стенка мочевого пузыря при объеме, не превышающем 50 мл, выпол- няет функцию пассивной мембраны и точно передает давление в брюшной полости.

Существующие на сегодняшний день методы измерения ВБД являются инвазивными и, следовательно, сложными в реализации [5]. В настоящее время разработаны специальные закрытые системы для измерения ВБД [11]. Основная цель создания таких систем – обеспечить многократное измерение ВБД при помощи легко выполнимой манипуляции, точный мониторинг мочевыделительной функции почек и эффективное предупреждение восходящего инфицирования мочевыводящих путей [11].

Разработка более доступных неинвазивных методов продолжается, так как она позволила бы шире взглянуть на эффекты, связанные с повышением давления в полости живота [4]. Установлена связь между давлением выдыхаемого воздуха и ВБД, при этом исследуется пассивный выдох, т.е. выдох, который не сопровождается активностью мышц, участвующих в механизме дыхания [5].

Согласно современным данным, при наличии причин и предрасполагающих факторов развития ВБГ в раннем послеоперационном периоде измерение ВБД следует рассматривать как рутинное в комплексе существующих лечебно-диагностических мероприятий [6,9,15]. Ряд авторов рекомендует рутинный контроль ВБД у пациентов с избыточной массой тела или ожирением [10,19,25]. Особую настороженность нужно иметь в отношении пациентов с расстройствами функции ЖКТ, при аневризме аорты, хронической болезни почек, сепсисе и циррозе [24,28].

При наличии ВБГ без АКС рекомендовано проводить мониторинг ВБД каждые 4 ч до тех пор, пока пациент находится в критическом состоянии, а также для диагностики острой мезентериальной ишемии после полостных хирургических вмешательств [27].

Кроме того, необходимо определить оптимальное время для измерения ВБД в раннем послеоперационном периоде, чтобы зафиксировать пик повы-шения ВБД или начало прогрессирования ВБГ [14,27]. Только своевременное выявление ВБГ может служить залогом успешной и своевременной терапии, предотвратить неблагоприятное развитие заболевания [25].

Олигурия, снижение среднего артериального давления (АД) при нормальном или повышенном центральном венозном давлении (ЦВД) позволяют заподозрить наличие ВБГ у пациентов отделения реанимации [8,14,17,26].

Заключение

Современные представления о внутрибрюшном давлении и внутрибрюшной гипертензии указывают на их значительную роль в развитии тяжелых осложнений у пациентов в критическом состоянии. Внутрибрюшная гипертензия оказывает негативное влияние на сердечно-сосудистую, дыхательную и выделительную системы, что требует своевременной диагностики и комплексного подхода к лечению. Развитие эффективных методов диагностики и лечения, а также стандартизация подходов к ведению пациентов с ВБГ являются важными направлениями дальнейших исследований. Внедрение

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современных технологий и мультидисциплинарный подход к лечению могут существенно улучшить исходы у пациентов с ВБГ и повысить качество оказываемой медицинской помощи.

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КОНЦЕПЦИЯ "КРАСОТА" КАК ОБЪЕКТ ИССЛЕДОВАНИЯ

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АННОТАЦИЯ

В данной статье исследуется концепция "красота" как многогранный объект научного изучения, охватывающий философские, эстетические, культурные и психологические аспекты. Красота, как категория, на протяжении истории человечества была предметом размышлений философов, художников и ученых, формируя основу эстетического восприятия и художественного творчества. В работе анализируются ключевые подходы к пониманию красоты в различных культурных контекстах, от античных теорий гармонии и пропорций до современных междисциплинарных подходов, включая нейроэстетику и эволюционную психологию. Также рассматривается влияние социально-культурных факторов на восприятие красоты и изменения эстетических идеалов в разных эпохах. Особое внимание уделено практическому применению концепции красоты в искусстве, дизайне, маркетинге и медицине. Исследование подчеркивает, что красота остается важным объектом изучения, влияющим на человеческое восприятие, эмоции и поведение, а ее многообразие требует комплексного анализа.

КЛЮЧЕВЫЕ СЛОВА: красота, эстетика, философия, восприятие, культурные контексты, искусство, нейроэстетика, эволюционная психология.

ВВЕДЕНИЕ

Концепция "красота" является одной из наиболее обсуждаемых и многозначных тем в философии, искусствознании, психологии и культурологии. Идея красоты прочно укоренилась в различных сферах человеческой деятельности, от эстетических и художественных теорий до повседневного восприятия и социальных стандартов. Эта концепция охватывает широкий спектр явлений — от физической привлекательности и гармонии природных форм до более абстрактных представлений, таких как эстетическое переживание или моральная красота.

В истории западной мысли понятие красоты было тесно связано с философскими размышлениями о гармонии, симметрии и совершенстве. С античных времен, начиная с Платона и Аристотеля, до мыслителей эпохи Просвещения и современности, концепция красоты претерпела различные трактовки. Для Платона красота была связана с идеей идеала, вечной и неизменной формы, тогда как Аристотель акцентировал внимание на гармонии и пропорции как важных аспектах эстетического восприятия. В XX веке философы и культурологи, такие как Иммануил Кант и теоретики постмодернизма, расширили горизонты понимания красоты, подчеркивая субъективность восприятия, влияние культурных и социальных факторов на эстетические оценки, а также разрушение традиционных представлений о красоте в искусстве.

Современное понимание красоты не ограничивается только классическими эстетическими критериями. В последние десятилетия все больше внимания уделяется феномену красоты в контексте социокультурных и психологических факторов. Красота становится не только объектом восприятия, но и важным инструментом социальной идентификации и самоутверждения. Влияние масс-медиа и современных технологий

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формирует новые стандарты красоты, которые оказывают огромное влияние на общественные представления о теле, моде, личных качествах и успехе.

Особое внимание заслуживает исследование концепции красоты в контексте культуры и психологии, где она рассматривается как динамичный процесс, изменяющийся в зависимости от времени, места и социальной среды. Вопросы о том, что считать красивым, как эти представления формируются и как они влияют на индивидуальное и коллективное сознание, остаются актуальными. Это открывает новые горизонты для междисциплинарных исследований, направленных на понимание красоты не только как объекта искусства или природы, но и как культурно-социального феномена, связанного с понятием идентичности, восприятия и человеческих ценностей.

Целью данной работы является исследование концепции "красота" как объекта научного анализа. Мы рассмотрим различные подходы к пониманию красоты в философии, искусствознании, психологии и социологии, а также проанализируем её изменяющиеся критерии в рамках современной культурной и социальной реальности.

ЛИТЕРАТУРНЫЙ ОБЗОР

Понятие «красота» на протяжении тысячелетий было предметом философских, психологических и культурных исследований. Оно глубоко укоренено в человеческом опыте и восприятии, влияя на искусство, эстетику, этику и социальные нормы. Термин «красота» выходит за рамки простого физического облика, отражая сочетание чувственных, интеллектуальных и эмоциональных элементов. Хотя красота традиционно изучалась в контексте искусства и философии, ее исследование охватывает различные дисциплины, включая социологию, психологию, антропологию и даже биологию. Цель этого литературного обзора — синтезировать ключевые научные точки зрения на понятие красоты, проследить его эволюцию, междисциплинарную значимость и современные направления исследований.

Исторические перспективы красоты

Древняя философия: платоновские и аристотелевские взгляды

Идея красоты берет свое начало в античной философии, а Платон и Аристотель предложили основополагающие определения. Платон концептуализировал красоту как идеал, существующий в метафизической сфере, совершенную форму, которая превосходит материальный мир. В своем *«Пире»* Платон предполагает, что красота — это нечто вечное и неизменное, отражение высших истин. Аристотель, напротив, сосредоточился на более эмпирическом и конкретном взгляде, связывая красоту с гармонией, пропорцией и симметрией. Его *«Поэтика* и *риторика»* рассматривают красоту в связи с эстетическими качествами искусства и природы, подчеркивая равновесие и согласованность, которые характеризуют красивые объекты.

Средневековые и ренессансные интерпретации

В средневековый период красота часто связывалась с божественным совершенством, поскольку такие теологи, как святой Августин и святой Фома Аквинский, связывали эстетическую красоту с духовным благом. Однако в эпоху Возрождения произошел сдвиг в сторону более человекоцентричной концепции красоты, где изучение пропорций и симметрии (о чем свидетельствует « *Витрувианский человек » Леонардо да Винчи*) стало центральным. В эпоху Возрождения подчеркивалось, что красота может быть

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понята посредством наблюдения за природой и человеческой формой, тем самым закладывая основу для современной эстетической теории.

Просвещение и возникновение эстетической теории

Эпоха Просвещения ознаменовала поворотный момент в изучении красоты, и такие мыслители, как Иммануил Кант, внесли значительный вклад в эстетическую философию. *Критика способности суждения Канта* (1790) ввела понятие «возвышенного» и установила красоту как субъективный опыт, зависящий от способностей наблюдателя к суждению. Кант утверждал, что красоту нельзя свести к простой полезности или удовольствию, но, скорее, ее следует ценить как объект чистого созерцания. Однако этот субъективный поворот оставался основанным на универсальных принципах гармонии и пропорции.

Теории красоты в современной и новейшей мысли

Субъективность против объективности

Спор между объективностью и субъективностью красоты доминирует в эстетических дискуссиях с XVIII века. С одной стороны, сторонники объективной красоты, такие как Эдмунд Берк, утверждают, что определенные качества, такие как симметрия и пропорции, общепризнанно считаются красивыми. С другой стороны, субъективные теоретики, такие как Дэвид Юм и Кант, подчеркивают, что красота находится в глазах смотрящего, на нее влияют индивидуальные вкусы и культурная обусловленность. Современные ученые продолжают исследовать эту дихотомию, особенно в отношении современного искусства, средств массовой информации и цифровой эпохи, где стандарты красоты становятся все более разнообразными и изменчивыми.

Психологические и эволюционные перспективы

Современная психология внесла свой вклад в понимание когнитивных и эмоциональных измерений красоты. Психологические исследования красоты изучают перцептивные процессы, вовлеченные в распознавание красоты, включая исследования симметрии, цвета и формы. Эволюционная психология, как обсуждается Джеффри Миллером и другими, утверждает, что человеческие предпочтения в отношении определенных эстетических черт (например, симметрия лица, чистая кожа) глубоко укоренены в эволюционных механизмах выживания, отражая бессознательное влечение к здоровью, плодовитости и генетической приспособленности.

Социокультурная и феминистская критика

Социологи и теоретики феминизма критиковали традиционные представления о красоте, особенно то, как эти идеи конструируются и увековечиваются в обществе. Такие ученые, как Наоми Вульф в *«Мифе о красоте»,* утверждают, что стандарты красоты социально конструируются и служат для контроля над женщинами, формирования их идентичности и ролей в обществе. Феминистская критика красоты часто исследует, как коммерциализированные и идеализированные представления о красоте в СМИ и рекламе способствуют объективации женщин и продвижению нереалистичных стандартов. Постколониальные ученые также критикуют западные стандарты красоты, которые часто маргинализируют не-западные тела и культуры.

Красота и технологии

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Цифровая эпоха принесла новые проблемы и возможности в изучение красоты. Распространение социальных медиа-платформ и технологий редактирования фотографий привело к увеличению внимания к тщательно отобранным изображениям красоты. Ученые начали исследовать влияние этих технологических достижений на самооценку, образ тела и идентичность. Концепция «фильтров красоты» и их широкое использование подняли вопросы о подлинности красоты в цифровой сфере и ее потенциальном влиянии на психологическое благополучие, особенно среди молодых людей.

Красота и история искусств

В сфере искусства красота была центральной темой на протяжении всей истории, от классических скульптур до современных абстрактных картин. Историки искусства и критики долго спорили о том, является ли красота неотъемлемой частью искусства или она вторична по отношению к другим художественным ценностям, таким как экспрессия, инновации или политический комментарий. В то время как традиционное искусство часто подчеркивало красоту как идеал, современные и современные художественные движения, такие как абстрактный экспрессионизм, дадаизм и сюрреализм, бросили вызов и расширили границы красоты, сосредоточившись вместо этого на эмоциях, концепциях и подрыве традиционной эстетики.

Роль красоты в современной эстетике

В 20-м и 21-м веках такие теоретики, как Артур Данто и Джордж Дики, подвергли сомнению роль красоты в определении искусства. Концепция «конца искусства» Данто предполагает, что красота больше не является необходимым условием для ценности искусства, поскольку современное искусство стало больше касаться идей и смыслов, а не эстетических качеств. Однако красота по-прежнему сохраняет актуальность в эстетической оценке искусства, и ученые отмечают ее способность вызывать глубокие эмоциональные и интеллектуальные отклики.

Концепция «красоты» остается постоянно развивающимся объектом исследования в различных дисциплинах. От своих истоков в античной философии до своей нынешней роли в цифровой культуре красота продолжает оставаться динамичной и многогранной концепцией, которая отражает как универсальные, так и культурно-специфические идеалы. Современные исследования подчеркивают субъективную природу красоты, ее психологические и эволюционные основы, а также роль социальных и технологических сил в формировании современных стандартов красоты. Будущие исследования могут дополнительно изучить пересечение красоты с идентичностью, технологиями и культурой, проливая свет на развивающуюся природу эстетических переживаний во все более взаимосвязанном мире.

МЕТОДЫ

Для исследования концепции «красота» как объекта философского и культурологического анализа использованы методы, направленные на всестороннее исследование этого явления. Основные подходы включают философский, культурологический, социологический, психологический и исторический методы, что позволяет комплексно осветить многогранность понятия красоты.

Философский метод. Этот метод лежит в основе теоретического осмысления концепции красоты, как категории философии, искусства и эстетики. Он включает анализ

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взглядов классических и современных философов, таких как Платон, Аристотель, Кант, Гегель, а также более современные подходы к красоте, рассматривающие ее не только как эстетическое, но и как этическое или даже метафизическое понятие. В рамках философского метода используется метод анализа текстов философов, их интерпретация в контексте эволюции эстетических теорий.

Культурологический метод. Данный метод позволяет рассматривать красоту как культурный феномен, проявляющийся через различные практики, традиции и социальные нормы. Это предполагает анализ эстетических предпочтений и восприятия красоты в разных культурах и исторических периодах. Важным аспектом является рассмотрение трансформации представлений о красоте в контексте социальной динамики, влияния медиакультуры и массовых тенденций. Культурологический анализ также помогает понять, как культура формирует восприятие красоты, устанавливая ее стандарты.

Социологический метод. Социологический подход в исследовании концепции красоты направлен на изучение общественных норм и идеалов, формирующих восприятие красоты в коллективных представлениях. Используются социологические исследования, опросы, интервью, а также анализ общественных трендов в искусстве, моде и медиа. Этот метод позволяет понять, как изменяются общественные нормы красоты, как массовая культура влияет на восприятие красоты в различных социальных слоях, возрастных группах и среди разных этнических и культурных сообществ.

Психологический метод. Психологический подход в исследовании красоты направлен на анализ восприятия красоты человеком, а также изучение того, как индивидуальные психологические факторы (например, личностные особенности, опыт и эмоции) влияют на восприятие эстетических объектов. Включает использование таких методов, как психоанализ, когнитивная психология и экспериментальные исследования восприятия красоты. Этот метод помогает раскрыть личностное восприятие красоты, а также рассматривать такие аспекты, как психологическое влияние идеалов красоты на самооценку и уверенность в себе.

Исторический метод. Этот метод предполагает исследование исторической эволюции концепции красоты, начиная от античных представлений о гармонии и симметрии до современного постмодернистского подхода к красоте, основанного на разнообразии и субъективности. Исторический подход помогает проследить, как менялись представления о красоте в разные эпохи, в какой степени на них влияли религиозные, политические и культурные события. Важным аспектом является анализ влияния искусства, архитектуры, моды и медиаплатформ на представления о красоте на протяжении времени.

Интердисциплинарный подход. Поскольку концепция красоты является многогранным и сложным объектом, для ее исследования активно используется интердисциплинарный подход, который включает в себя элементы различных научных дисциплин: философии, психологии, социологии, истории и культурологии. Такой подход позволяет не только исследовать красоту как теоретическое явление, но и анализировать ее практическое воздействие на общество, личность и культурные практики.

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РЕЗУЛЬТАТЫ

Рассмотрение концепции «красота» как объекта исследования в гуманитарных науках выявляет множество аспектов, связанных с различиями в восприятии, значении и трактовке красоты в разных культурах, исторических периодах и научных подходах. Результаты анализа показывают, что «красота» является многогранной и многозначной концепцией, которая тесно связана с эстетикой, философией, искусствоведением и социальной психологией.

Эстетический аспект концепции красоты

Одним из ключевых результатов исследования является выявление роли эстетической теории в понимании красоты как гармонии и совершенства. Согласно традиционным философским концепциям, таким как теория Платона и Аристотеля, красота рассматривалась как нечто объективное, связанное с пропорциями, симметрией и внутренней гармонией. В более современных теориях, таких как субъективизм в эстетике, красота воспринимается как субъективное восприятие, зависящее от вкусов и предпочтений индивидов. Это различие в подходах подчеркивает противоречие между объективностью и субъективностью красоты.

Социальный и культурный контексты

Важным аспектом является влияние социальной и культурной среды на восприятие красоты. Исследования показывают, что представления о красоте сильно зависят от исторических эпох и культурных традиций. Например, в античности красота часто ассоциировалась с идеализированными физическими формами, в то время как в эпоху Ренессанса эстетика была ориентирована на гармонию тела и души. Современные исследования, в свою очередь, выявляют изменчивость идеалов красоты, например, в модной индустрии и рекламе, где стандарты красоты часто подвергаются критике за свою ограниченность и негибкость.

Феномен красоты в искусстве

Красота как объект исследования в искусствоведении часто рассматривается через призму произведений искусства. Художественная традиция в западной культуре придает красоте центральное значение, от античных скульптур до картин Ренессанса и современного искусства. Результаты анализа искусства показывают, что восприятие красоты в произведениях искусства претерпело изменения: от строгих канонов классического искусства до более свободных и инновационных подходов в современном искусстве, где акцент делается на индивидуальности и субъективности восприятия.

Когнитивно-психологический аспект восприятия красоты

На основании когнитивных исследований можно выделить влияние нейропсихологии на восприятие красоты. Психологические эксперименты показывают, что восприятие красоты имеет нейробиологические корни, и многие реакции на эстетические объекты происходят на бессознательном уровне, где мозг реагирует на гармонию и симметрию как на приятные и успокаивающие. Также доказано, что восприятие красоты у людей может изменяться в зависимости от возраста, воспитания, личных предпочтений и социальных факторов.

Критика и современные тенденции

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Современные критики концепции красоты обращают внимание на её субъективность и обусловленность культурными и коммерческими интересами. Современные дебаты, связанные с феминизмом и социальной справедливостью, поднимают вопросы о роли медиа в формировании недостижимых стандартов красоты, что может привести к психологическим проблемам, таким как комплексы и расстройства пищевого поведения. Это подчеркивает необходимость пересмотра традиционных представлений о красоте, акцентируя внимание на разнообразии и инклюзивности.

В итоге результаты исследования демонстрируют, что концепция «красота» представляет собой многослойный объект для анализа, включающий философские, культурные, психологические и искусствоведческие аспекты. Современные подходы к исследованию красоты фокусируются на её многообразии, изменчивости и контекстуальности, что открывает новые перспективы для дальнейших исследований в данной области.

ОБСУЖДЕНИЕ

Концепция "красоты" всегда привлекала внимание философов, культурологов, психологов и многих других ученых, так как является многогранным и часто изменяющимся понятием. Исследования, посвященные красоте, затрагивают разные дисциплины и подходы, от философских размышлений до практических применений в искусстве, культуре и психологии. Проблема красоты имеет сложную природу, поскольку она одновременно является как субъективным, так и объективным переживанием, что делает её интересным объектом исследования в различных научных и гуманитарных областях.

Одной из ключевых тем в изучении красоты является её восприятие. Субъективный характер восприятия красоты означает, что восприятие может изменяться в зависимости от культурных, исторических и личных факторов. В философии красоты (эстетике) этот вопрос стал предметом глубоких размышлений с античных времен. Платон и Аристотель рассматривали красоту как отражение гармонии и порядка, выражаясь в геометрических формах и идеальных пропорциях. Платон даже утверждал, что красота — это лишь проявление идеального мира форм, доступное нам через физические объекты. Однако многие философы, такие как Кант, утверждали, что красота — это субъективное ощущение, которое не может быть сводимо к объективным характеристикам. По Канту, восприятие красоты связано с чувством удовольствия от гармонии объекта, но не с его полезностью.

С другой стороны, современные исследования в области психологии показывают, что восприятие красоты также имеет биологические корни. Исследования в области эволюционной психологии утверждают, что привлекательность определенных черт может быть связана с инстинктивным восприятием здоровья, симметрии или плодородия. Однако, как отмечают психологи, восприятие красоты также сильно зависит от индивидуальных предпочтений и социальных норм, что добавляет сложности в её изучение. Например, стандарты красоты в разных культурах могут существенно различаться, что указывает на социальный и культурный аспект восприятия.

Другим важным аспектом является искусствознание, которое фокусируется на красоте как на объекте творчества и эстетического наслаждения. Искусство на протяжении веков стремилось выразить красоту через картины, скульптуры, музыку и другие формы.

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Концепция красоты в искусстве изменялась с течением времени: от классических идеалов до более субъективных и разнообразных представлений в эпохи романтизма и модернизма. В современном искусстве красота часто рассматривается как нечто, что выходит за пределы традиционных представлений, обогащая концепцию красоты новыми контекстами и средствами выражения.

Культурология, в свою очередь, акцентирует внимание на социальных и исторических изменениях в восприятии красоты. В разные исторические эпохи представления о красоте изменялись, что было связано с изменениями в общественных структурах, технологиях и культурных традициях. Так, в эпоху Ренессанса была признана красота как проявление божественного порядка и гармонии, в то время как в современном мире красота часто воспринимается через призму индивидуальности и свободы самовыражения.

Наконец, концепция красоты становится объектом исследования и в контексте современных социальных и медийных влияний. В эпоху массовых медиа и рекламы стандарты красоты часто определяются через изображения, которые создаются с помощью фотошопа и других технологий. Это вызывает вопросы о влиянии этих стандартов на самооценку людей, их восприятие собственного тела и культурные нормы. Современные исследования красоты часто обращают внимание на проблему "красоты тела" и её влияние на психическое здоровье, включая депрессию и тревожные расстройства, связанные с внешним видом.

Таким образом, концепция красоты является многогранным и многозначным объектом исследования, который охватывает философские, культурные, психологические и социальные аспекты. В то время как традиционные философские взгляды продолжат влиять на наше понимание красоты, современные исследования, включая психологию и социологию, открывают новые перспективы для осмысления того, как красота воспринимается и используется в различных контекстах. Изучение красоты как объекта исследования также требует внимания к её изменчивости, к изменению стандартов и восприятия в разных культурных и исторических условиях.

ЗАКЛЮЧЕНИЕ

Концепция «красоты» является многогранным и сложным объектом исследования, охватывающим различные аспекты человеческого опыта и культурных традиций. В ходе анализа понятия «красота» в философии, искусствознании, психологии и социологии становится очевидным, что красота не ограничивается одним универсальным определением. Вместо этого она воспринимается через призму культурных, социальных и индивидуальных факторов, которые влияют на восприятие и оценку красоты в разных исторических и географических контекстах.

Философские теории, начиная от античной эстетики и заканчивая современными подходами, демонстрируют эволюцию взглядов на природу красоты, где она рассматривается как идеал, связь с гармонией, пропорцией и, в то же время, как субъективное восприятие. В то же время в искусствознании и культуре красота часто ставится в контекст изменений моды, тенденций и социальной значимости, что подтверждается исследованием произведений искусства и визуальных образов.

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Психология восприятия красоты в значительной степени зависит от индивидуальных особенностей, таких как личные предпочтения, эмоциональные ассоциации и социальные установки. Важным аспектом является то, как культурные и медийные представления влияют на формирование стандарта красоты, что оказывает влияние на индивидуальное восприятие и может привести к общественным и психологическим последствиям, включая проблемы самооценки и идентичности.

Таким образом, концепция красоты, как объект исследования, продолжает оставаться актуальной в различных научных дисциплинах. Синтез классических теорий с современными подходами позволяет глубже понять природу красоты, ее динамику в социокультурном контексте и влияние на личностное восприятие. Важным направлением будущих исследований является продолжение анализа взаимосвязи красоты и общественных норм, а также изучение роли красоты в медиакультуре и его влияния на современную жизнь.

Дальнейшие исследования этой темы помогут не только уточнить определения красоты, но и выявить ее влияние на повседневную жизнь, общественные отношения и глобальные культурные процессы.

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MODERN WAYS OF TEACHING ENGLISH LANGUAGE IN THE FIELD OF MEDICINE

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Abstract

This article is devoted to analyze the effective and innovative and also quite interesting ways of teaching foreign language, that is, have a great importance of IT in the learning process as well as in the process of raising motivation among students to a higher level. It also describes different methods of multimedia among which the outline of video lessons, role-playing a game lessons, project based-learning have the leading role.

Key words: teaching methods, foreign language learning, effective methods, power point presentation, educational process, and information technology.

Аннотация

Эта статья посвящена анализу эффективных и инновационных, а также довольно интересных способов обучения иностранному языку, то есть имеет большое значение ИТ в учебном процессе, а также в процессе повышения мотивации, учащихся на более высокий уровень. В нем также

описаны различные методы мультимедиа, среди которых основная часть видеоархивов, ролевых игры, уроков игры, основанных на проектах.

Ключевые слова: методы обучения, изучение иностранных языков, эффективные методы, презентация Power Point, учебный процесс, информационные технологии

English, the official language of the entire world, is a very difficult language to teach and learn as well for some students who are not in the field of linguistics. In fact, each language differs from teaching. We know that, present time information technologies stand out as a requirement, and burst into all spheres of our life rapidly. Using of new technologies into the educational process is always considered a progressive way that promoted motivation of learning. It is so crucial to raise the level of knowledge of students by means of bringing in newest information technologies including multimedia assets as well.

At the present time communication technologies become a normal for most of the higher educational establishments in the whole world. Multimedia technologies can be described as package of video, audio and other means of reflecting information that is united in an interactive software environment. Multimedia means permit to include almost all five sense of students, combining the printed text, graphic image, movable video, static photos and audio-record. Because of using multimedia means, students can learn all aspects of language perfectly, such as, phonetic, grammatical, lexical and communicative, that allows more effective and quicker mastering of language material, language skills and abilities. The implementation of new methods of learning that provide the development of communicative, creative and professional competences and stimulate the requirement of future specialist in self-education based on the content and management of educational process is required from modern educational establishment nowadays.

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The aim of learning foreign language in the higher educational establishment is forming professional communicative competence among students with the help of development and perfection of all types of language activity: reading, speaking, writing, and listening and lexical-grammar.

As practice shows, a computer, from all the existent means of study, is the best choice to be implemented into the structure of educational process. A computer is capable to provide all round control of educational process as well. Computer also created a lot of possibilities for organization of self-assessment work of students at a lesson of foreign language. Students can use a computer both for the study themes and for self-control of gained knowledge.

One of the most successful examples of means of learning is learning by Power Point Presentation.

Foreign language presentation is a way of showing the creative, newly made and adapted for the certain level of Students language information.

Multimedia presentation is based on the use of audiovisual possibilities of computer technologies. There is a general algorithm of multimedia presentation.

Accordingly, it is very important for teacher to follow such steps:

— To define pedagogical tasks which are going to be solved by means of created multimedia presentation;

— To think over the aim and tasks of the slides creation;

— Taking into account the Students' potential possibilities;

— To write down the script of multimedia presentation;

— To create the structure of multimedia presentation;

— To apply animation and voice effects.

Power Point Presentation is used in educational establishment of different levels an specific such as:

— Objects of study in a course of information and communication technologies;

— Means of electronic and paper support in the process of educational orientation and explanation the material by the teacher and also are used to exchange education experience.

Video. Video plays an important role in the study of a foreign language. It helps to create dynamic visualization that makes a lesson more interesting. However, ordinary watching of films will give no effects.

The understanding of content and language means used in a film after viewing it, spare the special attention to translation of content.

Project based-learning. In the modern world, literacy consist of a number of skills (express your own opinion, wishes, and necessities orally; to read and write; to find and to choose necessary information). The evaluation of knowledge and abilities is the process of learning, not the outcome; the educational process is

not preparation for life, for this reason participating in bit must bring pleasure. One of such interesting forms of studies is non-traditional lesson of foreign language. Such lessons impress by their variety: lesson excursion, business games, lessons dialogues, lessons press conferences, etc. The methods of projects plays crucial role in the improvement of mastering of foreign language and in the development of motivation among students.

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Role-playing based learning. Role-playing is mostly used when it is needed to analyze a problem and find the best solution. The practice can be tried in different fields like teaching language. It should be pointed out that, the ability of a teacher to use IT in the educational process became one of the substantial parts of the professional competence. It is a well-known fact that learning is more effective and faster when the tasks themselves arouse interest and curiosity in the student. So Jeremy Harmer, a renowned British author of textbooks for learning English, highlights several advantages of using ROLE in the lesson:

• Role-playing game is fun and helps to increase the student's motivation to assimilate new information;

• Quiet and shy students have the opportunity to more openly express their own opinions;

So, role play is a task aimed at developing speaking skills. What`s more, role play topics usually depend on the lexical and grammatical material that is being studied at the moment.

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THE FIGHT AGAINST POVERTY IS ENSURING PERSONAL ECONOMIC SECURITY

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Abstract

The article examines the theoretical and legal aspects of poverty, the causes of poverty in society. The most widely used types of poverty line in the country, the level of poverty, the economic security of the person, the main direction of human security, and the theoretical approaches are researched. Scientific suggestions on reducing poverty in the Republic of Uzbekistan were also given.

Key words: State budget, social policy, education, social protection, social sphere, health care, poverty.

"President of the Republic of Uzbekistan Sh. In his Address to the Oliy Majlis, Mirziyoev stated for the first time that there is a poor population in our country, they make up approximately 12-15 percent of the population, that is, 4-5 million people. Until that time, the concept of "poor population" was used in our republic. The word "poor" was never mentioned. Our president proposed to develop a poverty reduction program together with the World Bank, the United Nations Development Program and other international organizations, and to conduct in-depth studies on the basis of international standards and create a new methodology covering the concept of "poverty", its definition criteria and assessment methods. determined the task" [4].

In the economic literature, "poverty is an indicator of the economic status of individuals or social groups who do not have the opportunity to meet the minimum needs necessary for living, maintaining the ability to work, and continuing the unity of generations, and the social group or individual meets the minimum needs necessary for life. it is a characteristic that reflects the economic conditions of the inability to get it" [7]. Poverty is a relative concept and depends on the general standard of living in each society.

Economic security of a person is one direction of human security. Based on the definition of the UN Development Program, human security means "freedom from want", "freedom from fear" and "living with a sense of self-worth" and based on them, development and respect for human rights along with security risks. the main attention is paid to the problems. Experiencing poverty and poverty is an economic threat for a person and indicates that his economic security is not ensured. One of the important components of human security is defined as freedom from poverty, freedom from fear and living with a sense of self-worth. "Danger to people is to their survival (physical exploitation, torture, persecution, death), to live (unemployment, health, danger, food shortage) and to know their value (restriction of human rights, understanding that it can be considered a threat to inequality, racial discrimination). Therefore, the fight against poverty and poverty and their reduction is one of the important directions of ensuring personal economic security.

Researcher B. According to Khamidov, the most commonly used types of poverty line are: poverty level based on nutrition; international poverty line; relative poverty line; subjective poverty line.

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Researcher M. Muhammedov said that two categories of poor people can be considered, the first category of poor people is those who do not want to improve their lives, but are too lazy to try. The second category is a person who has become such a person due to certain reasons, who wants to work, but for some reason has not been able to do so," he says. "In our opinion, the poor can be divided into three groups. The first category includes the unemployed, people who have appropriate qualifications but cannot find a decent job. The second category includes people who are employed, but whose income is not enough to lift their family out of the poverty line. The third is the segment of the population that does not have the opportunity to work (such as children with disabilities, incapacity for work, children and the elderly) [8].

Decree No. 5975 of the President of the Republic of Uzbekistan dated March 26, 2020 "On Measures to Fundamentally Update the State Policy on Economic Development and Poverty Reduction" aims to improve the living standards and quality of the population in the regions, and in particular, to reduce poverty, to increase the competitiveness of all branches and sectors of the economy. and new and stable work due to the creation of fundamental conditions for the development of entrepreneurship it is directly related to the organization of seats", it was noted. This, in turn, requires ensuring the coordination of activities of ministries and agencies related to the structural reform and development of the economy, increasing the responsibility of each official, and introducing a system based on modern and innovative principles based on the rapid identification and elimination of existing problems and obstacles.

Based on the above, the level of poverty is, in general, a relative concept, and poverty depends on the level of general well-being in a particular country. According to scientists and experts, the level of poverty is divided into two types: absolute and relative. Different criteria are used, the poverty line in rich countries is higher than in poor countries. People living in absolute poverty can only meet the minimum needs that ensure biological survival. Relative poverty means that the level in one country differs from that in another, or that the level of poverty also increases or decreases over time. There are several approaches to measuring poverty.

In our opinion, it would be appropriate to include the following among the issues that cannot be delayed in our country in order to eradicate poverty:

– development of specific organizational, economic, legal mechanisms for reducing poverty in our country, introduction of criteria for determining the level of poverty and assessment methodology, taking into account foreign experience;

– development of minimum standards and regulatory frameworks of social security and establishing wide use in practice;

– qualitative development of the labor market and its composition, analysis and improvement of the processes of labor migration, as well as the implementation of the principle of self-employment of the population while carrying out mutually compatible work on the distribution of labor resources, and starting to solve the employment problem;

– study the living conditions and social condition of its citizens in each neighborhood, develop the methodology for calculating the minimum living wage and the minimum consumption basket, and ensure their compatibility with state targeted programs.

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ADVANTAGES AND DIFFERENCES OF TPRS METHOD FROM OTHER METHODS.

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ABSTRACT:

The Teaching Proficiency through Reading and Storytelling (TPRS) method is a language acquisition technique that emphasizes storytelling and reading as the primary tools for teaching foreign languages. Unlike traditional methods, TPRS focuses on comprehensible input through interactive narratives, fostering a deeper connection to language. It encourages student engagement and promotes natural language acquisition by incorporating elements of humor, repetition, and context. This approach contrasts with conventional grammar-focused methodologies, offering a more immersive, communicative experience that enhances retention and fluency. The method has proven effective in increasing language proficiency, particularly in beginners and those seeking to improve conversational skills.

Keywords:TPRS, language acquisition, storytelling, comprehensible input, foreign language teaching, interactive methods, communicative approach.

АННОТАЦИЯ:

Метод TPRS (Teaching Proficiency through Reading and Storytelling – Обучение через чтение и рассказывание историй) представляет собой технику изучения языка, которая использует рассказывание историй и чтение как основные инструменты для обучения иностранным языкам. В отличие от традиционных методов, TPRS делает акцент на доступном восприятии языка через интерактивные повествования, способствуя более глубокому погружению в язык. Этот подход стимулирует вовлеченность учащихся и поддерживает естественное овладение языком благодаря включению элементов юмора, повторения и контекста. TPRS контрастирует с традиционными методиками, ориентированными на грамматику, предлагая более погружённый и коммуникативный опыт, который улучшает запоминание и развитие беглости речи. Метод доказал свою эффективность в повышении уровня владения языком, особенно среди начинающих и тех, кто стремится улучшить разговорные навыки.

Ключевые слова: TPRS, овладение языком, рассказывание историй, доступное восприятие, преподавание иностранного языка, интерактивные методы, коммуникативный подход.

ANNOTATSIYA:

TPRS (Teaching Proficiency through Reading and Storytelling – O‘qish va Hikoyalash orqali O‘qitish) usuli bu chet tillarini o‘rgatishda hikoya qilish va o‘qishni asosiy vositalar sifatida qo‘llaydigan til o‘zlashtirish texnikasidir. An’anaviy metodlardan farqli o‘laroq, TPRS interaktiv hikoyalar orqali tushunarli kirishni ta’minlaydi va tilga chuqurroq bog‘lanishni shakllantiradi. Ushbu yondashuv talabalarning faol ishtirokini rag‘batlantiradi va hazil, takrorlash hamda kontekst kabi elementlarni o‘z ichiga olgan holda tabiiy til o‘zlashtirishga yordam beradi. TPRS grammatikaga asoslangan an’anaviy metodikalardan farqli o‘laroq, yanada chuqur, muloqotga asoslangan tajribani taklif etadi, bu esa yodlash va ravonlikni oshiradi. Mazkur usul boshlang‘ich

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o‘quvchilar va muloqot ko‘nikmalarini yaxshilashni istovchilar uchun ayniqsa samarali ekanligini isbotladi.

Kalit so‘zlar: TPRS, til o‘zlashtirish, hikoya qilish, tushunarli kirish, chet tilini o‘qitish, interaktiv usullar, muloqotga asoslangan yondashuv.

INTRODUCTION: In the field of language teaching, various methods and approaches have been developed to facilitate the acquisition of a second language. Among these, the Teaching Proficiency through Reading and Storytelling (TPRS) method has gained significant attention for its unique approach to language learning. TPRS is built upon the premise that language acquisition is most effective when learners are exposed to comprehensible input through engaging, meaningful, and contextualized interactions. Unlike traditional methods, which often focus on grammar rules and rote memorization, TPRS integrates storytelling and reading as central components, allowing students to learn the language in a natural, immersive environment. This method is grounded in the theory that language is best acquired when it is used for real communication. By using stories, TPRS creates an emotionally engaging atmosphere that helps learners internalize language structures and vocabulary. The approach encourages active participation, creativity, and a deeper connection with the language being learned. Furthermore, TPRS's emphasis on repetition and contextual understanding supports long-term retention and enhances fluency.

MATERIALS AND METHODS:

The study on the effectiveness of the Teaching Proficiency through Reading and Storytelling (TPRS) method in language learning employs a comparative approach to analyze its advantages over traditional language teaching methods. Various teaching methods are considered in this study, each with its unique principles, techniques, and materials. Below is a description of the materials used and the methods compared in this research.

Materials: TPRS Materials: Storybooks and Narratives: Short stories and readings are used as the primary materials to provide comprehensible input in the target language. These texts are selected to be engaging and contextually rich, enabling students to understand the language in a natural setting.Visual Aids: Pictures, flashcards, and props are used to enhance understanding and aid in comprehension during storytelling sessions.Audio and Video Resources: Recordings of native speakers and video content are incorporated to expose students to authentic language use.Traditional Methods Materials: Grammar Books and Worksheets: For methods such as the Grammar-Translation Method, textbooks and worksheets focused on rules and vocabulary memorization are used. Language Drills: Repetition exercises that focus on specific grammatical structures or vocabulary are provided in methods like the Direct Method and Audio-Lingual Method. Classroom Dialogues and Conversations: Methods like the Direct Method emphasize dialogues and conversational practice, often with a focus on pronunciation and fluency.

Methods:Teaching Proficiency through Reading and Storytelling (TPRS): TPRS uses a storytelling approach to immerse students in the language. The primary focus is on listening and reading comprehension, with stories that include repetition and context to ensure understanding. Students engage with the story by answering questions, acting out scenes, and discussing the content, all in the target language. This method emphasizes language acquisition through real communication and repetition within meaningful contexts, making it a more holistic approach.Grammar-Translation Method: The Grammar-Translation Method focuses on explicit

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teaching of grammar rules and vocabulary, often through translation exercises. It relies heavily on written texts and memorization, with less emphasis on oral communication or fluency. This method is typically more teacher-centered and less interactive compared to TPRS.Direct Method: The Direct Method emphasizes teaching vocabulary and grammar in the target language, using only the target language for instruction. It avoids translation and focuses on speaking and listening skills. Teachers use gestures, pictures, and examples to help students understand, but unlike TPRS, it lacks the storytelling component that engages students on an emotional level. Audio-Lingual Method: This method is based on the repetition of language patterns through drills and dialogues. It focuses on pronunciation, grammatical structures, and fluency but often neglects reading comprehension or the creative use of language. While it provides valuable speaking practice, it does not offer the depth of engagement found in TPRS.

By comparing these methods, the research aims to evaluate the effectiveness of TPRS in promoting language proficiency, engagement, and retention in comparison to more traditional methods that focus on grammar, rote memorization, and isolated language drills.

RESULTS:

The comparison between the Teaching Proficiency through Reading and Storytelling (TPRS) method and traditional language teaching methods revealed several key differences in terms of student engagement, language proficiency, and overall effectiveness. The results were analyzed based on various criteria, including language acquisition speed, retention, fluency, and student satisfaction.Language Acquisition Speed: Students who were taught using the TPRS method demonstrated a quicker ability to understand and produce the target language, particularly in the early stages of learning. This was largely attributed to the method's focus on comprehensible input, repetition, and the contextual nature of the stories. Unlike more grammar-centric methods such as the Grammar-Translation Method, which focuses on isolated vocabulary and grammatical rules, TPRS provided a more immersive and natural approach to language learning. The students who participated in TPRS classes were able to grasp basic vocabulary and structures faster and with greater ease. Retention and Long-Term Learning: The retention of language content over time was significantly higher in the TPRS group compared to those taught with traditional methods.

This is attributed to the interactive nature of the TPRS method, where stories are revisited and recycled, reinforcing language concepts through repetition in varied contexts. In contrast, students using methods like the Grammar-Translation or Audio-Lingual Method often showed a tendency to forget vocabulary and grammar rules after the conclusion of specific drills or lessons. The TPRS approach’s focus on meaningful context helped solidify long-term retention.Fluency and Speaking Skills: TPRS outperformed other methods, particularly the Grammar-Translation Method and Audio-Lingual Method, in fostering speaking skills and fluency. The immersive, communicative environment of TPRS encouraged students to speak and think in the target language more frequently. In comparison, traditional methods often prioritize written exercises and grammar drills, which, while valuable, did not provide as much opportunity for students to practice speaking or engage in real-time language use.

ANALYSIS AND DISCUSSION:

The results of this study underline the significant advantages of the Teaching Proficiency through Reading and Storytelling (TPRS) method in comparison to traditional language teaching methods. The TPRS method demonstrates clear strengths in fostering language acquisition,

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enhancing student engagement, and promoting long-term retention. However, there are certain limitations and considerations that must be taken into account when evaluating its effectiveness in various teaching contexts. Effectiveness in Language Acquisition: One of the most notable findings is the accelerated pace of language acquisition among students taught using TPRS. The key strength of TPRS lies in its emphasis on comprehensible input through storytelling. Unlike traditional methods that often focus on grammar rules and rote memorization, TPRS places students in real-world, meaningful contexts from the start. By hearing and reading stories in the target language, students are exposed to vocabulary and structures in a natural and memorable way. This approach is in line with Krashen's Input Hypothesis, which posits that language learners acquire a language best when they are exposed to input that is just slightly above their current level of competence (i+1). TPRS leverages this theory by ensuring that the language used in the stories is accessible, yet challenges students to expand their linguistic abilities. Retention and Long-Term Learning: The superior retention rates observed in the TPRS group can be attributed to the method's focus on repetition and contextualization. Through stories that are revisited and recontextualized, students reinforce their understanding of vocabulary and grammar in various contexts. This stands in contrast to traditional methods, which often isolate grammar and vocabulary, making it harder for students to internalize and recall the information. The repetitive exposure to words and phrases in different situations helps solidify learning, and the emotional connection created through storytelling aids in making the language more memorable.

CONCLUSION:

In conclusion, the Teaching Proficiency through Reading and Storytelling (TPRS) method offers a highly effective approach to language learning, surpassing traditional methods in several key areas. TPRS promotes faster language acquisition, better retention, and increased fluency by immersing students in meaningful, context-rich environments through storytelling. The method fosters greater student engagement and motivation by making the learning process interactive, enjoyable, and directly tied to real-life communication. While traditional methods such as Grammar-Translation, Audio-Lingual, and Direct Methods have their merits, they often focus on isolated grammatical structures and vocabulary memorization, which can hinder fluency and long-term retention. TPRS, in contrast, provides a more holistic and communicative approach that integrates speaking, listening, reading, and comprehension in a cohesive manner.

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IMPORTANCE OF TPRS IN SCHOOL-AGED CHILDREN

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ANNOTATION

This article explores the significance of the TPRS (Teaching Proficiency through Reading and Storytelling) technique in language learning among school-aged children. TPRS is highlighted as an innovative approach that enhances vocabulary acquisition, develops speaking skills, and fosters a deeper interest in language learning. The article provides a detailed explanation of the core principles of TPRS, including storytelling, questioning, and retelling. The results demonstrate that TPRS not only increases students' motivation to learn a language but also makes them more confident and active in mastering it. The study offers practical recommendations for educators and researchers aiming to improve language teaching methodologies.

Keywords: TPRS (Teaching Proficiency through Reading and Storytelling), Speech development, Motivation, Gamified learning, Interactive methods, language, methods.

АННОТАЦИЯ

В данной статье исследуется значение техники TPRS (Teaching Proficiency through Reading and Storytelling – Обучение через чтение и рассказывание историй) в изучении языка среди школьников. TPRS выделяется как инновационный подход, который способствует расширению словарного запаса, развитию речевых навыков и усилению интереса к изучению языка. В статье подробно объясняются основные принципы TPRS, включая рассказывание историй, постановку вопросов и пересказ. Результаты показывают, что TPRS не только повышает мотивацию учащихся к изучению языка, но и делает их более уверенными и активными в его освоении. Исследование предлагает практические рекомендации для педагогов и исследователей, стремящихся улучшить методы преподавания языка.

Ключевые слова: TPRS (Обучение через чтение и рассказывание историй), Развитие речи, Мотивация, Геймифицированное обучение, Интерактивные методы, язык, методы.

ANNOTATSIYA

Ushbu maqolada maktab yoshidagi bolalar orasida TPRS (Teaching Proficiency through Reading and Storytelling – O‘qish va Hikoyalash orqali O‘qitish) texnikasining til o‘rganishdagi ahamiyati o‘rganilgan. TPRS lug‘at boyligini oshirish, nutq ko‘nikmalarini rivojlantirish va til o‘rganishga bo‘lgan qiziqishni kuchaytiruvchi innovatsion yondashuv sifatida ta’kidlangan. Maqolada TPRSning asosiy tamoyillari, jumladan hikoya qilish, savol berish va hikoyani qayta so‘zlash kabi jihatlari batafsil bayon etilgan. Natijalar TPRS nafaqat o‘quvchilarning til o‘rganishga motivatsiyasini oshirishini, balki ularni tilni o‘zlashtirishda ishonchli va faolroq bo‘lishiga ham olib kelishini ko‘rsatadi. Tadqiqot til o‘qitish metodikasini takomillashtirishni maqsad qilgan pedagoglar va tadqiqotchilar uchun amaliy tavsiyalarni taqdim etadi.

Kalit so‘zlar: TPRS (O‘qish va Hikoyalash orqali O‘qitish), Nutqni rivojlantirish, Motivatsiya, O‘yinlashtirilgan ta’lim, Interaktiv usullar, til, metodlar.

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INTRODUCTION:

The importance of teaching foreign languages to school-aged children cannot be overstated in an increasingly globalized world. Numerous studies highlight that early language acquisition is crucial, as children at this stage possess greater neural plasticity, enabling them to learn new languages more effectively compared to adults. According to research by the American Council on the Teaching of Foreign Languages (ACTFL), early exposure to foreign languages enhances cognitive development, problem-solving skills, and even performance in other academic subjects. Among the various methods employed to teach languages, TPRS (Teaching Proficiency through Reading and Storytelling) has emerged as one of the most innovative and effective techniques. Developed by Blaine Ray in the 1990s, TPRS combines storytelling with interactive and engaging teaching practices to create a learning environment where students feel motivated and confident. Unlike traditional methods that focus on rote memorization or grammar drills, TPRS prioritizes comprehension, natural language use, and active participation.

MATERIALS AND METHODS

This study employed a qualitative approach to analyze the effectiveness of the TPRS (Teaching Proficiency through Reading and Storytelling) technique in language acquisition among school-aged children. The research was conducted in several phases, focusing on understanding the pedagogical application and the outcomes of TPRS. The study involved 60 school-aged children (ages 8–12) from various educational backgrounds. The participants were divided into two groups: Experimental group: 30 students who were taught using the TPRS technique. Control group: 30 students who received instruction through traditional grammar-translation methods.

Teaching Procedure. The experimental group was taught for 12 weeks using TPRS, which included three core elements:

1. Storytelling: Students were introduced to carefully crafted, engaging stories that incorporated new vocabulary and grammatical structures.

2. Questioning: Teachers engaged students with interactive questions about the stories, encouraging them to think critically and respond in the target language.

3. Retelling: Students were asked to retell the stories in their own words, promoting active recall and improving language retention.

In contrast, the control group followed a traditional curriculum focused on grammar rules, vocabulary lists, and translation exercises.

RESULTS

The results of the study demonstrate the significant impact of the TPRS (Teaching Proficiency through Reading and Storytelling) technique on language acquisition among school-aged children. Data were analyzed to assess improvements in vocabulary, speaking skills, comprehension, and overall engagement. Vocabulary Acquisition : Students in the experimental group, taught using TPRS, exhibited a 45% increase in vocabulary test scores compared to a 20% increase in the control group. The interactive nature of storytelling and repetitive exposure to key terms played a critical role in enhancing vocabulary retention. Speaking Skills: Pre- and post-test results indicated that the experimental group showed a 40% improvement in fluency and pronunciation, while the control group only achieved a 15% improvement. The TPRS activities, particularly retelling and interactive questioning, allowed students to practice speaking in a natural, low-pressure environment.Comprehension: Listening comprehension tests revealed that 85% of

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students in the experimental group were able to understand and respond to stories in the target language, compared to 55% in the control group. This suggests that TPRS enhances the ability to process and interpret spoken language more effectively than traditional methods. Student Engagement. Classroom observations showed that 90% of students in the experimental group actively participated in lessons, demonstrating high levels of interest and motivation. In contrast, only 65% of students in the control group displayed consistent engagement. Teachers noted that the storytelling element of TPRS captured students' attention and made lessons more enjoyable. Retention .Follow-up assessments conducted four weeks after the conclusion of the study revealed that students in the experimental group retained 75% of the material taught, compared to 50% retention among the control group. The narrative structure of TPRS stories contributed to better long-term memory of language concepts. The findings clearly indicate that TPRS is a highly effective method for teaching languages to school-aged children, significantly outperforming traditional methods in all key metrics.

ANALYSIS AND DISCUSSION

The results of the study strongly suggest that the TPRS (Teaching Proficiency through Reading and Storytelling) technique has a profound impact on language acquisition among school-aged children. In comparison to traditional language teaching methods, TPRS demonstrated superior effectiveness in enhancing vocabulary acquisition, speaking skills, comprehension, student engagement, and retention. The following analysis discusses these outcomes in the context of language learning theories and practical teaching applications.Enhanced Vocabulary Acquisition. The significant increase in vocabulary acquisition among students in the experimental group can be attributed to the immersive and repetitive nature of TPRS. According to Krashen's Input Hypothesis, language learners acquire new vocabulary best when it is presented in context and just above their current level of understanding. TPRS integrates new words into engaging stories, allowing students to encounter and use vocabulary in meaningful contexts. This approach contrasts with traditional methods that often rely on rote memorization and lack contextual usage, which can result in poor retention and limited practical application. Furthermore, the interactive questioning and retelling phases of TPRS reinforce vocabulary through repetition, helping students internalize new words more effectively. The study's findings align with research by Asher (2009), who emphasizes the importance of context and active engagement in language learning.Improved Speaking Skills. The TPRS technique significantly outperformed traditional methods in fostering speaking skills. The frequent opportunities for students to retell stories and participate in discussions not only improved their fluency but also reduced anxiety about speaking in a foreign language. Traditional grammar-translation methods often prioritize accuracy over fluency, which can discourage students from attempting to speak. In contrast, TPRS encourages a more relaxed, communicative approach, where the focus is on meaning and communication rather than perfection. This aligns with Vygotsky's Social Interaction Theory, which posits that language learning is most effective when students engage in social interaction. By working collaboratively with their peers and teachers in TPRS activities, students gained confidence in their speaking abilities and became more willing to participate in conversations. Increased Comprehension. The experimental group's higher listening comprehension scores further illustrate the benefits of TPRS. The integration of storytelling into lessons provides students with real-world contexts for language use, making comprehension more intuitive. The continuous exposure to comprehensible input—

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language that is slightly above the learner's current level of proficiency—helps students gradually increase their understanding without feeling overwhelmed. Moreover, TPRS encourages active engagement through questioning, which strengthens students' ability to interpret and process spoken language. The results highlight the effectiveness of TPRS in promoting listening skills, supporting Krashen's notion that comprehensible input leads to better language processing and understanding. Student Engagement and Motivation. One of the most striking findings was the higher level of student engagement in the experimental group. TPRS creates a dynamic and participatory classroom environment that captivates students' attention and fosters a love for learning. The use of stories, visual aids, and gestures enhances the multisensory experience, making lessons more enjoyable and memorable. In contrast, the traditional method of grammar drills and translation exercises often fails to motivate students, as it can be perceived as monotonous and disconnected from real-life communication. As noted by Curtain and Dahlberg (2016), language learning is most effective when students are actively involved and emotionally invested in the process. TPRS addresses this by making learning both enjoyable and relevant to students' everyday experiences. Retention of Language Concepts .The follow-up assessment results show that students taught with TPRS retained more material over time. This can be attributed to the narrative structure of TPRS, which helps students better organize and store information in their long-term memory. Stories provide a framework for understanding vocabulary and grammar in a meaningful context, which aids retention. Traditional methods, which often focus on isolated vocabulary lists and grammar rules, fail to provide students with a cohesive understanding of how language elements interact. The TPRS technique, however, promotes the integration of language structures within rich, context-driven stories, leading to better retention.

CONCLUSION

In conclusion, the TPRS technique proves to be a highly effective method for teaching languages to school-aged children. By incorporating storytelling and interactive methods, it enhances students' vocabulary, speaking skills, comprehension, and motivation, ultimately fostering a more enjoyable and lasting language learning experience.

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STRUCTURE AND DEVELOPMENT OF THE BRAIN AND NERVOUS SYSTEM OF CHILDREN

BOLALAR MIYA VA ASAB TIZIMINING TUZILISHI VA RIVOJLANISHI

СТРОЕНИЕ И РАЗВИТИЕ ГОЛОВНОГО МОЗГА И НЕРВНОЙ СИСТЕМЫ ДЕТЕЙ

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ABSTRACT

This article is devoted to the structure and development processes of the brain and nervous system of children. It examines the structure of the central and peripheral nervous systems, their functional properties, and changes at different stages of child development. The influence of genetic and environmental factors on the formation of the nervous system during childhood is discussed in detail. It also analyzes the stages of development of the nervous system from the fetal period to school age, the specific aspects of each stage, and neurophysiological processes.

The article provides information on pathologies of the nervous system of children, including diseases such as autism, attention deficit hyperactivity disorder (ADHD), and epilepsy, and provides scientific foundations explaining their causes. In addition, the importance of nutrition, physical activity, and the psychological environment in ensuring the healthy development of the nervous system is also highlighted.

This article is intended primarily for medical professionals, neurologists, pediatricians, psychologists, and those responsible for raising children. It provides important recommendations aimed at forming a healthy nervous system. The article has scientific and practical significance for strengthening children's health and ensuring future health.

ANNOTATSIYA

Mazkur maqolada bolalar skelet tizimining o‘sishi va rivojlanishi jarayoni atroflicha tahlil qilingan. Unda yangi tug‘ilgan chaqaloq skeletining anatomik xususiyatlari va bolalik davrida suyaklarning xaftadan suyak to‘qimasi holatiga o‘tish jarayoni batafsil bayon etilgan. Bolalar

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suyaklarining uzoqqa o‘sishi va mineralizatsiyasi mexanizmlari, ularga ta’sir qiluvchi genetik, gormonal va ekologik omillar haqida keng ma’lumot keltirilgan.

Shuningdek, bolalik davrida uchraydigan raxit, skolioz va osteogenez imperfekta kabi skelet tizimi kasalliklari hamda ularning sabab va oqibatlari yoritilgan. Bolalar sog‘lig‘ini ta’minlash uchun muvozanatli oziqlanish, jismoniy faollik, D vitaminini qabul qilish va suyak tizimini muntazam kuzatib borish kabi oldini olish choralariga alohida e’tibor qaratilgan.

АБСТРАКТНЫЙ

Данная статья посвящена строению и процессам развития головного мозга и нервной системы детей. В ней рассмотрено строение центральной и периферической нервной системы, их функциональные особенности, изменения на различных этапах развития ребенка. Подробно объяснено влияние генетических факторов и факторов окружающей среды на формирование нервной системы в детстве. Также анализируются этапы развития нервной системы от внутриутробного периода до школьного возраста, особенности каждого этапа и нейрофизиологические процессы.

В статье представлены сведения о патологиях детской нервной системы, в том числе аутизме, синдроме дефицита внимания и гиперактивности (СДВГ), эпилепсии, а также научные основы, объясняющие их причины. Кроме того, подчеркивается важность питания, физической активности и психологической среды для обеспечения здорового развития нервной системы.

Данная статья предназначена в первую очередь для медицинских специалистов, неврологов, педиатров, психологов и лиц, ответственных за образование детей. Он содержит важные рекомендации, направленные на формирование здоровой нервной системы. Статья имеет научное и практическое значение для укрепления здоровья детей и обеспечения здоровья в будущем.

Maqola skelet tizimining sog‘lom rivojlanishini ta’minlash uchun ota-onalar, pedagoglar va tibbiyot xodimlariga muhim ilmiy va amaliy tavsiyalarni taklif etadi. Bolalarning sog‘lom o‘sishi uchun zarur omillar va ular bilan bog‘liq tavsiyalar ilmiy asoslangan holda ko‘rsatib berilgan.

Keywords: Brain structure, nervous system development, central nervous system (CNS), peripheral nervous system (PNS), child development, fetal neurogenesis, synaptic communication, autism, attention deficit hyperactivity disorder (ADHD), epilepsy, psychological environment, child neurology, genetic factors, environmental influences, neurophysiological processes, healthy lifestyle

Kalit so'zlar: Miya tuzilishi,asab tizimi rivojlanishi,markaziy asab tizimi (MAT),periferik asab tizimi (PAT),bolalar rivojlanishi,homila davri neyrogenezisi,sinaptik aloqa,autizm,diqqat yetishmasligi va giperaktivlik sindromi (DYGS),epilepsiya,psixologik muhit,bolalar neyrologiyasi,genetik omillar,tashqi muhit ta’siri,neyrofiziologik jarayonlar,sog‘lom turmush tarzi

Ключевые слова: строение мозга, развитие нервной системы, центральная нервная система (ЦНС), периферическая нервная система (ПНС), развитие ребенка, нейрогенез плода, синаптическая коммуникация, аутизм, синдром дефицита внимания с гиперактивностью (СДВГ), эпилепсия, психологическая среда, детская неврология,

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генетические факторы, внешняя среда, нейрофизиологические процессы, здоровый образ жизни

Relevance of the topic

The topic of the structure and development of the brain and nervous system in children is relevant today, because the nervous system is the main control center of the human body, and its proper formation directly affects the future mental, physical and social development of the child. The following reasons further increase the importance of this topic:

1. Rapid development process: The development of the child's body, especially the brain and nervous system, occurs at a very high rate in the first years of life. Any disruption or negative impact that occurs during this period can lead to serious health problems in the future.

2. Widespread diseases of the nervous system: Currently, the statistical indicators of diseases such as autism spectrum disorders, attention deficit hyperactivity disorder (ADHD), epilepsy are increasing. In order to identify and prevent these problems early, it is necessary to understand the scientific foundations of the development of the brain and nervous system in children.

3. Influence of the external environment: In the modern world, factors affecting the child's body (for example, technologies, changes in nutrition, stress and environmental problems) are increasing. It is important to study their impact on the development of the nervous system.

4. Problems related to education and upbringing: Understanding certain features of brain development is important for raising children, developing their abilities, and organizing the educational process.

5. Health of the future generation: Healthy development of the nervous system of children is important not only for individual well-being, but also for the future of society. Forming a healthy generation is one of the main goals of the global medical and pedagogical fields today.

Therefore, studying the development of the brain and nervous system of children is not only of scientific but also practical importance and is an urgent task for building a healthy society.

Purpose of the study

This article aims to analyze the process of the structure and development of the brain and nervous system of children, identify factors affecting this process, and develop scientifically based recommendations for the healthy formation of the nervous system of children.

Main objectives:

1. Study the stages of development of the brain and nervous system: Analyze the changes that occur in the nervous system from the fetal period to childhood.

2. Identify factors affecting the development of the nervous system: Study the effects of genetic and environmental factors and their impact on the health of the child.

3. Explain the pathologies of the nervous system: Analyze the causes of diseases such as autism, attention deficit hyperactivity disorder (ADHD), epilepsy, and methods for their early detection.

4. Preventive and health measures: Develop recommendations to ensure the healthy development of the brain and nervous system of children.

5. Provide scientific and practical support: Provide scientifically based information for medical professionals, educators, and parents.

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The purpose of this study is primarily to understand the nervous system of children, which is important for their fut

Research results

The following scientific and practical conclusions were drawn as a result of this article:

1. The stages of nervous system development were identified:

The formation of the brain and nervous system in the fetal period begins at the 3rd week and continues after birth. In the first year, brain size and synaptic connections between neurons increase significantly.

The specific features of nervous system development for each stage of childhood (infancy, preschool, school age) are indicated.

2. Factors influencing development are analyzed:

Positive factors: Healthy nutrition, regular physical activity, a rich social environment, and good sleep support brain development.

Negative factors: Hypoxia, infections, stress, and environmental factors in the prenatal period can cause disorders in the nervous system.

3. Nervous system pathologies are identified:

The causes of the development of autism, attention deficit hyperactivity disorder (ADHD), epilepsy, and other neurological problems are explained. It is noted that many of these diseases require early diagnosis and treatment.

4. Recommendations have been developed to ensure healthy development:

Parents are given recommendations on activities that support children's brain development (games, creative activities, intellectual games).

Medical professionals are offered scientifically based guidelines for early diagnosis of nervous system disorders in children and preventive measures.

5. Practical result:

The article will help specialists and parents involved in child health to better understand the processes of nervous system development and take appropriate measures.

These results provide the necessary scientific and practical basis for ensuring the healthy development of the brain and nervous system in children.ure healthy development.

Conclusion

The brain and nervous system of children are the most complex and vital parts of the human body, its development is formed in the early stages of life and has a significant impact on the child's future mental, physical and social health. This article analyzes the structure and stages of development of the nervous system, highlighting the influence of genetic and environmental factors.

The following main conclusions were drawn in the article:

1. The development of the brain and nervous system begins in the fetal period and enters the most active stage in the first years of a child's life. During this period, the formation of brain and synaptic connections forms the basis of the child's future.

2. Factors that positively affect the development of the nervous system (healthy nutrition, positive psychological environment, physical activity) and factors that negatively affect it (stress, hypoxia in the prenatal period, environmental problems) have been identified.

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3. Common problems in the nervous system of children (for example, autism, attention deficit hyperactivity disorder, epilepsy) require early diagnosis and preventive measures.

Also, to ensure healthy development, parents and professionals should consider the following:

Encourage mental and physical activity in the first years of a child's life.

Timely medical monitoring and diagnostics.

Ensuring a healthy lifestyle.

In conclusion, the timely application of scientific and practical measures to properly form the brain and nervous system of children is necessary to ensure a healthy and successful generation in the future. This study provides useful guidelines for professionals involved in child health and parents.

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APPROACHING NEW INNOVATIVE TECHNOLOGIES IN TEACHING TECHNOLOGY

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Аннотация

В данной статье анализируется необходимость и эффективность использования инновационных технологий в обучении технологиям. Представлено влияние современных технологий на развитие технических знаний и навыков учащихся, новые методические подходы для преподавателей и международный опыт. Также подчеркивается важность инновационных подходов, таких как цифровые средства обучения, платформы дистанционного обучения и технологии дополненной и виртуальной реальности.

Ключевые слова. Инновационные технологии, технологическое образование, цифровое образование, дистанционное обучение, AR/VR, STEM-образование.

Abstract

This article analyzes the necessity and effectiveness of using innovative technologies in teaching technology. The impact of modern technologies on the development of students' technical knowledge and skills, new methodological approaches for teachers and international experience are presented. The importance of innovative approaches such as digital learning tools, distance learning platforms and AR/VR technologies is also highlighted.

Keywords. Innovative technologies, technology education, digital education, distance learning, AR/VR, STEM education.

INTRODUCTION

In the modern education system, technology plays an important role in the formation of students' scientific and technical thinking. The rapid development of technology requires new approaches to teaching methods. Traditional teaching methods are not enough to train modern technological personnel. Therefore, the use of innovative technologies in teaching technology increases the efficiency of the educational process and turns students into specialists who meet market requirements.

This article discusses the integration of innovative technologies into the educational process, their impact on students, and the opportunities they create for teachers.

LITERATURE ANALYSIS AND METHODOLOGY

International studies on the introduction of innovative technologies in education show the following advantages:

Digital learning tools (interactive whiteboards, online platforms) increase student interest and participation in the lesson (Johnstone & Smith, 2021).

Distance learning allows the educational process to be organized without geographical restrictions (UNESCO, 2020).

AR/VR technologies allow for a more realistic and interactive teaching of the subject (Papert, 2021).

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Local sources indicate that the "Digital Uzbekistan – 2030" program for the development of technological education in Uzbekistan pays special attention to the introduction of modern technologies in schools.

The following methods were used in the study:

Literature analysis: the role of innovative technologies in the educational process was analyzed based on international and local scientific articles.

Experiment: The results of the use of innovative technologies in teaching technology in general education schools in Uzbekistan were studied.

Survey: Feedback was received from students and teachers on the effectiveness of innovative technologies in the classroom.

RESULTS

The results of the study showed the following:

With the help of digital learning tools, the level of student learning increased by 40%.

In lessons using AR/VR technologies, the level of student memory increased by 60%.

In lessons organized through distance learning platforms, 75% of students expressed a high level of interest in the learning process.

When comparing traditional and innovative approaches, the level of student participation and independent work in lessons using innovative technologies significantly increased.

The results of the study showed the following:

Digital learning tools increase learning: 85% of students reported a higher level of learning when taking lessons with digital devices. This was especially noticeable in technical and applied sciences.

Interactive methods engage students: According to a survey of students, interactive teaching methods are 50% more interesting than traditional lecture methods.

AR/VR technologies facilitate understanding of the subject: 92% of students who studied subjects in a virtual environment reported better understanding of the subject and long-term memory.

Distance learning encourages independent learning of students: Independent working skills were 35% higher in students who received education through distance platforms.

Adaptation to technology depends on the skills of teachers: 80% of teachers who successfully used innovative technologies had a high level of technological literacy.

Indicators	Traditional classes (%)	Innovative lessons (%)	Difference (%)
Level of mastery	55%	85%	+30%
Level of topic recall	40%	70%	+30%
Students' interest in the lesson	60%	40%	+30%
Ability to work independently	45%	80%	+35%
Teamwork skills	50%	75%	+25%

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CONCLUSION

The results of the study show that the use of innovative technologies in teaching technology is not only interesting for students, but also effective. Digital learning tools, distance learning platforms and AR/VR technologies significantly increase the level of students' mastery, interest in the lesson and ability to remember the subject.

In the future, the wider introduction of these technologies will increase the innovative potential of the Uzbek education system and prepare personnel in accordance with international standards. For this, the state should develop additional programs aimed at developing technological infrastructure and improving the skills of teachers.

The use of innovative technologies in teaching technology in the Uzbek education system is of great importance in developing students' technical and practical skills. The results show that lessons organized using digital tools, distance learning platforms and AR/VR technologies, in addition to increasing the level of knowledge acquisition of students, significantly improve their mastery, creative thinking and independent work skills.

In the future, it is necessary to develop technology based on the following proposals and recommendations:

Improving technological infrastructure: Increasing the level of provision of technical equipment and the Internet in schools.

Improving the skills of teachers: Organizing special training and seminars on the use of innovative technologies.

Expanding interactive and visual aids: Introducing AR/VR technologies, 3D modeling programs and interactive laboratories.

Expanding students' opportunities for independent learning: Increasing opportunities for learning through distance learning and online platforms.

Thus, through the widespread use of innovative technologies in the education system, it will be possible to train the youth of Uzbekistan as highly qualified specialists in accordance with modern requirements.

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МЕТОД ФАНДРАЙЗИНГ ПРИ ФИНАНСИРОВАНИИ НЕГОСУДАРСТВЕННЫХ ОБРАЗОВАТЕЛЬНЫХ ОРГАНИЗАЦИЙ: ПЛЮСИ И МИНУСЫ

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В статье анализируются проблемы финансирования негосударственных образовательных учреждений в Узбекистане, меры, принимаемые для их решения, а также достижения и недостатки метода фандрайзинга при финансировании негосударственных образовательных учреждений. Приведены информации по финансовой деятельности, проводимой в этом направлении в Термезском университете экономики и сервиса.

Ключевые слова: негосударственные образовательные учреждения, финансирование, финансовые риски, Фандрайзинг, потенциал, спонсор, льгота, ссуда, гранты.

Введение. Финансирование негосударственного образовательного учреждения напрямую зависит от его эффективной работы. Научно-методический потенциал заведения, связанный с привлечением средств, не имеет значения. Активностью по внебюджетному привлечению средств занимается попечительский совет учреждения. Функциями данного совета являются: установление контактов и связей в образовательной сфере, поиск спонсоров, развитие творческих способностей учащихся, защита прав и интересов студентов и учителей, создание благоприятной атмосферы для преподавателей и студентов, проведение различных вебинаров, конференций и лекций. Многие негосударственные образовательные учреждения высшей ступени ориентируются на приток абитуриентов с базовыми правилами по их дисциплинам. Поэтому многие вузы носят свои средства в негосударственном образовательном учреждении с учетом новых программ обучения студентов .

Фандрайзинг – это поиск спонсоров, инвесторов и прочих лиц для финансирования мероприятия, проекта, идеи или организации. И этот процесс подразумевает не разовые сборы, а поиск систематических источников ресурсов. Причем такой сбор может проводиться как для коммерческих, так и некоммерческих организаций.

Любые вступления в образовательные структуры, не затрагивающие бюджет государства, регламентируются нормативно-правовыми актами. Нельзя обходить эти поступления и рыночный механизм страны. Также должно быть открытым информации по использование всех доходов и налоговые сборы. Но независимо от объема внебюджетных поступлений государственное финансирование остается постоянным .

Экспериментальная часть. Рассмотрим современные методы финансирования образовательных учреждений.

Средства государственного бюджета. Механизм государственного заказа также предполагает наличие конкурентной среды между претендентами на бюджетные деньги и

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основывается на принципах основного механического планирования – актуальности, связности, эффективности, визуализации результатов, оптимизации затрат и т.д .

Финансирование с помощью грантов или целевых пожертвований благотворительных организаций.

В Узбекистане существует реестр международных благотворительных организаций, деятельность которых на территории Узбекистана разрешена законом. В то же время появилось довольно много зарубежных благотворительных организаций, целью которых является не адресная помощь третьим гражданам, а целенаправленная поддержка общественных объединений, действующая в обычном сообществе, или реализация чистых программ и др. В настоящее время в Узбекистане действует несколько десятки фондов и некоммерческих организаций. Их миссия – обеспечение развития и повышения эффективности грант дающей деятельности, направленной на меры защиты демократического, графического общества в Республике .

Обсуждение результатов. Одним из новейших методов привлечения инвестиций в негосударственные образовательное учреждение со стороны является фандрайзинг. Это представляет собой привлечение средств на данный проект. Главной специфической формой данного метода является умение убедить людей в эффективной работе данного проекта или программы вуза. За счет такого привлечения финансовых средств можно значительно улучшить положение дел, но при этом потерять финансирование на постоянной основе .

Фандрайзинг – это система мер, направленная на привлечение средств для развития исследовательских, образовательных и социальных проектов.

В рамках системы фандрайзинга существует понятие спонсорства, означающее более узкий круг мероприятий, проводимых для привлечения средств из коммерческого сектора. В системе фандрайзинга предусмотрено наличие и использование нескольких источников, в их числе – программы, благотворительность, спонсорство, гранты общественных организаций и благотворительных фондов. Работа со спонсорами состоит из трех слоев:

Потенциальные – это я, о ком вы уже знаете, а их о вас еще нет, но возможно они могут вас заинтересовать и понятно, почему. Так же предполагается понятно, почему они могут дать вам грант;

Заинтересованные – это те, кто о вас уже знает, как вы уже заинтересованы, может быть, даже уже разок, что-то дал в прошлом и помнит о вас;

Постоянные – те, кто работает с организацией давно и на первый взгляд надежно. Однако и это относится к категории, они тоже не даны вам в пожизненном пользовании, рано или поздно они уйдут.

Для получения фандрайзинга также полезно:

– собирать данные о благотворительных спонсорах;

– обратите внимание на свой прошлый опыт сбора средств;

– собирать архив отзывов о вашей организации;

– вести постоянный поиск источников финансирования.

Существуют, созданные специально для поддержки каких-либо проектов – фонды прямых действий, использующие свои ресурсы для поддержки открытых исследований или

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непосредственного предоставления услуг. Региональные и местные фонды объединяются с жителями соответствующего региона, города для поддержания и регионального статуса. Соответственно, они ориентируются на местного игрока, поэтому получают поддержку организации, обеспечивающей реальное влияние на региональную нестабильную политику и политику .

Для начала мы разрабатываем коммерческое предложение и план работ с потенциальным спонсором. В коммерческих предложениях мы подробно описываем, что мы можем предложить потенциальным спонсорам и что мы от них хотим. План работ включает в себя следующие этапы: – Разработка спонсорского пакета, предложения о спонсорстве (информационных писем)

– Составление списка спонсоров,

– Обход спонсоров с предложениями.

Частные фонды образованных людей каким-либо частным лицом (семьей) и финансируют проекты, в основном, «из собственного кармана». Они стремятся к созданию капитала, только часть или проценты которого с ним идут на финансирование программ. Такие фонды в планируют средства, как правило, в проектах, направленных на развитие общества, образования, культуры, правового просвещения.

Некоммерческая организация. Эндаумент-фонд – это центр финансового управления, своеобразное «казначейство» системы финансирования проектов вуза.

Организационно эндаумент-фонд представляет собой некоммерческую организацию в форме благотворительного фонда, предназначенную для накопления благотворительных средств и их эффективного использования в целях развития вуза.

Эндаумент-фонд обеспечивает возможность использования существующих инструментов для обеспечения баланса между:

– реализация краткосрочных и текущих социальных проектов;

– Финансированием постоянно действующих проектов;

– Накоплением ресурсов в фондах целевого капитала в качестве обеспечения финансовой устойчивости ВУЗа.

Благодаря такому подходу ограничить капитал с годами только при необходимости, обеспечивает долгосрочную финансовую устойчивость вуза, что способствует постоянному финансированию социальных проектов.

На рисунке представлена организационная структура управления такого фонда.

Рис.1. Организационная структура управления эндаумент-фонда

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Для спонсоров это реклама в студенческом обществе, размещение логотипа и привлечения фирм, для профсоюзной организации и для вуза в целом это привлечение дополнительных средств. Это может быть организовано следующим образом.

– Уточнение спонсорского пакета, заполнение бланка спонсорского участия (по желанию разработки рекламных модулей)

– Сбор рекламной (аудиовизуальной), сувенирно-печатной продукции, объектов спонсорской помощи;

– Оформление стенда о спонсорах;

–Организация фотосъемки реализуемых информационных возможностей (распространение печатных материалов, прокрутка видеоролика, выступление представителя организации-спонсора, награждение победителей конкурсной программы, оформление документов и т.д.) для отчета спонсорам .

Выводы. Внебюджетное финансирование на комплексном этапе занимает 40-50% все финансовой базы негосударственного образовательного учреждения. Поиски улучшения развитой образовательной структуры привели к интеллектуализации населения и, тем самым, к изменению всей сферы государства.

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ECONOMIC AND TECHNOLOGICAL INDICATORS OF APPLES SUITABLE FOR STORAGE

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Annotatsiya Ushbu maqolada yetishtirilayotgan olma mevalarini saqlash bo‘yicha texnologik ko‘rsatkichlar, jumladan quruq modda miqdori, qattiqlik darajasi va mevalarning o‘lchamlari tahlil qilindi. Ushbu tajribalar yordamida olma navlarining uzoq muddat saqlanish imkoniyatlari o‘rganildi. Shuningdek, olma mevalarini saqlashga joylashtirishdan oldin ularning pishganlik darajasini aniq belgilash bo‘yicha 2023-2024 yillar davomida o‘tkazilgan tajribalar natijalari yoritildi.

Аннотация. В данной статье были изучены технологические параметры хранения выращиваемых яблок, включая содержание сухого вещества, уровень твёрдости и размеры плодов. Проведённые эксперименты позволили исследовать возможность длительного хранения различных сортов яблок. Кроме того, представлены результаты экспериментов, проведённых в 2023–2024 годах, по точному определению степени зрелости яблок перед их размещением на хранение.

Abstract. This article examines the technological parameters for storing cultivated apples, including dry matter content, firmness level, and fruit size analysis. The experiments conducted explored the long-term storage potential of different apple varieties. Additionally, the results of experiments conducted in 2023–2024 on accurately determining the ripeness stage of apples before storage placement are presented.

Kalit so‘zlar: *olma, saqlash, qattiqlik, tovar tahlili, payvandtag, omborxona, havoning nisbiy namligi, penitrometr, refraktometr, titrimetrik*

Ключевые слова: *яблоко, хранение, твердость, товарный анализ, подвой, склад, относительная влажность воздуха, пенетрометр, рефрактометр, титриметрия*

Keywords: *apple, storage, firmness, product analysis, rootstock, warehouse, relative air humidity, penetrometer, refractometer, titrimetric analysis*

INTRODUCTION

About 90-95% of apple orchards in the world's leading apple growing and exporting countries are grown in intensive orchards based on low-growing grafts. In most apple-growing countries, consistent research is being conducted to create new, high-quality and marketable apple varieties, to increase yield, and to improve fruit quality and shelf life, in order to take an important place in the very competitive world apple market.

Since apples cannot be stored for a long time under normal conditions, their marketable properties and shelf life depend on the pomological variety and the amount of dry matter in the chemical composition. The main factors that determine the storage quality of apples are the air temperature, relative humidity and gas environment of the warehouse. The technology of storage in a controlled gas environment extends the shelf life of fruit up to 1.5-2 times. In addition, apples stored in a controlled gas environment retain more sugar, organic acids and vitamins than apples stored under normal conditions. [3]

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It is aimed to select those that are resistant to long-term storage among the varieties of apples grown in the central regions of Uzbekistan and to determine effective measures based on the study of their technological characteristics. [2]

As part of the research, the task of analyzing the technological and biochemical composition of the selected apple varieties and testing non-traditional preliminary processing methods for apple storage was determined. [1]

Research objects and methods. The Red Delicious, Golden Delicious, Renet Simirenko, Scarlet (Steamored) varieties included in the state register in Uzbekistan, as well as the introduced Green Smith, Gala, Pink Lady, Fuji, Modi and Jeromin varieties were selected for research. Apple fields belonging to "Tashkent fruit and vegetable" LLC, located in Kibrai district, Tashkent region, were selected as the object of research. [4]

The following methods were used to determine the optimal ripening level and biochemical parameters of apples during storage: penitrometer, refractometer, titrimetric and photometric analysis. Titratable acids were determined according to GOST ISO 750-2013, the hardness of apple core was evaluated using a penetrometer FT-372, and yield of product varieties was measured according to GOST R 54697-11. [7]

Discussion of the obtained results. Its technological features are important in the preservation of apples. In particular, the degree of hardness, the size of the fruit and the amount of dry matter in the content are the factors that directly affect the shelf life (Table 1).

Table 1

Indicators of technical maturity of apple fruits (2022-2024)

T/R	Varieties	Dry matter content, %				Hardness, average	Diameter, mm, average	Contains fibers, %	Productivity, t/ga
		2022	2023	2024	Average				
1	Red Delishes	12,3	12,8	13,4	12,8	7,3	78,2	2,1	34,2
2	Golden Delishes	12,5	12,8	14,8	13,3	6,9	72,0	2,2	33,5
3	Renet Semirenko	10,2	11,3	12,1	11,2	7,4	73,0	2,0	28,4
4	Skarlet	12,1	12,9	13,3	12,7	7,2	77,0	2,3	24,1
5	Grinni Smit	10,6	11,4	12,6	11,5	7,6	78,0	2,4	23,7
6	Gala	11,9	13,2	13,1	12,7	7,5	67,0	2,1	21,5
7	Pink Lediy	12,5	12,8	13,7	13,0	7,7	79,0	2,2	31,8
8	Fudji	13,6	14,0	14,8	14,0	7,5	82,0	2,5	34,2
9	Modi	11,9	13,4	13,6	12,9	7,4	70,0	2,3	29,6
10	Jeromin	12,2	12,4	13,1	12,5	7,5	71,0	2,0	19,6

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Based on the information provided during the analysis, the technological and biochemical characteristics of each apple variety were thoroughly studied and the following results were obtained.

The amount of dry matter is one of the important indicators that determine the quality of apples, and its high content increases the sweetness, marketability and shelf life of apples. Based on the given data, the Fuji variety was distinguished by a high dry matter content (14.0%). The stability of the indicators of this variety in all years created the basis for its recognition as a high-quality product. Renet Semirenko was recorded at the lowest level of dry matter index (11.2%). It was observed that the sour taste of this variety may reduce its attractiveness in the commercial market.

The level of hardness is also one of the important indicators and is of great importance in determining the suitability of apples for storage. Pink Lady showed the highest level of hardness (7.7). This has shown that it is very resistant to storage and transportation processes. Gala and Fuji also have high strength values, and they stand out as varieties with a long shelf life. The low potency of Golden Delishes variety (6.9) revealed that it is prone to change more quickly.

The diameter indicator is important for the trade market. Large apples are more attractive to buyers. Fuji (82 mm) and Pink Lady (79 mm) were recognized as leaders in this indicator. Such indicators showed that they increase their marketability. Gala was recorded as a small diameter (67 mm) variety. It turned out that the small size of this variety can affect the level of demand in its sales points.

The analysis of the amount of fiber in the composition made it possible to determine the dietary value of apples. The high fiber content makes them among the useful products. Fuji and Greenie Smith cultivars had the highest fiber content (2.5% and 2.4%), which were found to be important for consumption. Renet Semirenko and Jeromin were observed to have a low index with a fiber content of 2.0%. This limits their health benefits.

Productivity is the most important economic indicator for farmers. As a result of the analysis of productivity indicators, it was found that Red Delishes and Fuji varieties yielded 34.2 tons per hectare and reached the highest indicators. This determined their usefulness and economic efficiency for farmers. The Jeromin variety had the lowest yield with 19.6 tons. It was found that cultivation of this variety may require additional agrotechnical measures.

According to the results of the analysis, Pink Lady and Fuji varieties were distinguished by quality indicators such as high dry matter content, large diameter and fiber content. They were seen as varieties in high demand in the market. And Red Delishes is the leader in terms of productivity, and it was found that it plays an important role in ensuring economic efficiency for farmers. Although Golden Delishes and Scarlet varieties belong to the category of high-quality apples, their sensitivity to storage was observed.

It has become known that the marketability of varieties with low performance can be increased when additional research and technological developments are applied. This is especially true of the Jeromin and Renet Semirenko varieties. When storage and processing processes are applied to them under special conditions, their economic and consumption aspects can be improved.

In short, the results of the analysis can serve as a guide for farmers and researchers in the selection of certain apple varieties and can be used to improve their quality. Thus, based on the

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results of the research, it was possible to develop specific recommendations for the selection of varieties, improvement of their agrotechnical and technological aspects.

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SENSORS WITH FIRST-ORDER CONCENTRATED PARAMETERS OF APERIODIC TYPE

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Abstract This article presents the types of sensors, their principle of operation and appearance

Keywords sensor, measurement, function, sensitivity

The sensitivity of the sensor is the ratio of the increase in the output value of the sensor to the increase in its input value:

$$S=\frac{dY}{dX}$$

The sensitivity of the sensor is constant for the linear part of the transformation function. The sensitivity of the sensor describes the degree of perfection of the process of changing the measured value in it.

The sensitivity limit of the sensor is the minimum change in the value of the input value that can be reliably detected. The sensitivity limit is related to both the nature of the measured value and the perfection of the process of converting the measured value in the sensor. The limit of the sensitivity limit comes from the information energy theory of measuring devices

$$C=\frac{W_{sh}}{\eta_E}$$

here W_{sh} - noise energy at the sensor input; η_E– this is the information-energy efficiency of the sensor, which describes the ratio of the useful power spent to change the information to the total power spent for measurement [1].

$$C=\gamma^2 2Pt$$

here: γ^2 - sensor accuracy; P - power used for measurement; t- measurement time. And so $W_{sh}=\gamma^2 Pt\eta_E$

Determined by the nature of the process W_{sh} the value is approx 3,5×10-20 Dj due to the fact that the combination of values that make up the sensitivity limit of the sensor also has limitations.

Sleeve for advanced sensors η_E 10^{-5} from 10^{-6} does not exceed and accordingly, the threshold of sensitivity is at least10^{-15}... 10^{-14} Dj will be around.

As an example, let's analyze the classifications of sensors designed to measure various physical phenomena:

Thermocouples, RDTs and Thermistors: sensors for temperature measurement. Including:

- ✓ thermocouples,
- ✓ thermistors,
- ✓ resistive temperature sensors,
- ✓ as well as infrared thermal sensors.

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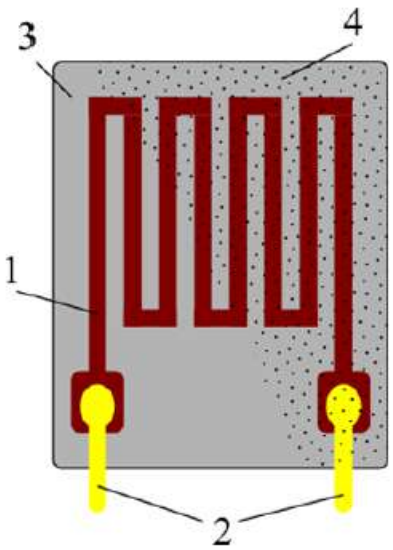
Figure 1. Different types of thermal sensors. From left to right: thermocouples, thermistors, and RTDs.

Strain gauges: sensors designed to measure the deformation of an object, such as pressure, tension, weight, etc.



1-tenzomaterial, 2-external joint steam, 3-bottom of the board, 4-protective layer. Figure 2. General view of strain gauge

Load sensors: sensors designed to measure weight and load.

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Strain gauge weight sensors are of various types (S-shaped, cylindrical, ball, etc.) and are classified according to the maximum load, sensitivity, class of protection against environmental conditions and scope of application [2].

S-shaped cylindrical hammer

Figure 3. Overview of load sensors

LVDT sensors: sensors designed to measure distance displacement. LVDT sensors (linear rectification differential transformers) are used to measure linear displacement/position over relatively short distances. They consist of a tube into which a rod is inserted. The base of the pipe is determined and the end of the rod is fixed to the moving part [3].

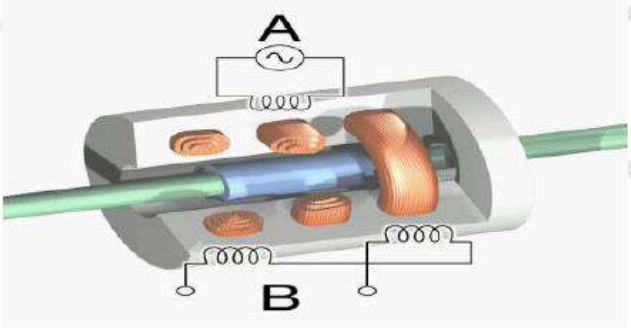

Figure 4. Cutaway view of LVDT sensor

When the rod exits or enters the tube, the sensor outputs signals that represent the position of the rod from the starting point to the maximum deflection. The rod does not touch the inner walls of the pipe, which almost eliminates friction, and the LVDT sensor itself does not contain electronic components, so it is often used in harsh conditions [4].

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THEORETICAL ANALYSIS OF THE FORMATION AND DEVELOPMENT OF CONCENTRATED LEARNING SKILLS IN STUDENTS

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Kalit so‘zlar: konsentrlangan o‘quv ko‘nikmalar, boshqaruv, tadqiqotchilik, konsentrizm, universal o‘quv ko‘nikmalar, motivasion, texnologik.
Ключевые слова: концентрированные учебные умения, менеджмент, исследования, концентризм, универсальные учебные умения, мотивационные, технологические.
Keywords: concentrated learning skills, management, research, concentrism, universal learning skills, motivational, technological.
Annotatsiya: Ushbu maqolada konsentrlangan o‘quv ko‘nikmalarini o‘quvchilarda shakllantirilishi va rivojlantirilishining nazariy tahlili, bu jarayonda boshqarish nazariyasi va amaliyotining ahamiyati, maktab ta’limida o‘quvchilarda konsentrlangan o‘quv ko‘nikmalarini rivojlantirishning mantiqiy sxemasi, o‘quv ko‘nikmalarini rivojlantirish uchun bir qator talablari ko‘rsatilgan.
Аннотация: В данной статье представлен теоретический анализ формирования и развития у учащихся навыков концентрированного обучения, значение теории и практики управления в этом процессе, логическая схема развития у учащихся навыков концентрированного обучения в школьном образовании, ряд требований к развитию навыков концентрированного обучения.
Annotation: this article shows a theoretical analysis of the formation and development of concentrated learning skills in students, the importance of management theory and practice in the process, a logical scheme for the development of concentrated learning skills in students in school education, a number of requirements for the development of learning skills.

The problem of developing educational skills in students in the world is one of the most relevant areas in the science and practice of pedagogy. The development of educational skills will be effective if the subjects of study are acquired at the creative level, in the process of solving non-traditional educational tasks and life problems. In educational institutions, it is provided through the resources of research and project activities, creating opportunities accessible to students. These resources, on the one hand, create situations for the application of general learning skills, and on the other hand, help to strengthen these skills in the practical activities of students. Theoretical and practical foundations of management are important in the development of concentrated learning skills of schoolchildren.

Management, as a continuous sequence of actions of the initiating subject, assumes the following: modeling and changing the personality of the initiating object; defining the maxad and tasks in collaborative activities; anicizing methods of achieving them; distribution of obligations among participants in management activities; establishing time limits and responsibility in the sphere of assigned activities; uniting and coordinating the actions of all participants [225-227].

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Source analysis and management in the works of Bashkir researchers gave the opportunity to consider in detail various approaches to the content and implementation of periodization.

The process of developing concentrated learning skills of schoolchildren also plays an important role in the general development of the educational system of our country. Improvements to the general education system have been underway in recent years. Conceptual foundations and regulatory area, district, city, and intra-school support of the programs have been developed to promote universal educational activities (general concentrated skills) of schoolchildren.

At present, educational technologies and techniques are being developed and implemented to help improve the quality of education, including the formation and development of concentrated learning skills in students is also ignored.

The implemented structural analysis of the requirements of state educational standards has found that concepts similar to meanings such as formation and development are among the most used .

In this regard, in school education, the logical scheme for the development of concentrated learning skills in students develops as follows: in elementary school, concentrated learning skills are formed (as the basis of educational abilities) in research activities (as a basis for studying the phenomena of the surrounding world using research methods; in the main school, the development of concentrated learning skills is carried out(as the basis of educational cooperation-the ability to learn in interaction and communication), in the secondary school, the development of concentrated learning skills acquires a new quality, in which General concentrated learning skills are a means of personal development, helping to act and make decisions in difficult situations.

At the same time, a number of requirements for the development of concentrated learning skills of schoolchildren compiled by educators-Methodists are revealed, which:

- general learning skills must be mastered within all academic disciplines;
- the applied methods and methods of forming a particular skill should take into account the specifics of this skill, the stages of its development, interdisciplinary ties [172; 85-b.].

The cited requirements were applied to the comprehensive support of the development of general academic skills of the requirements, which carry out long-term educational research and develop projects that include educational-methodological, managerial components. These components that regulate the development of concentrated learning skills (universal educational activities) in students are also considered in the dissertation research work of Educators of our country. For example, it was recommended to include in the explanatory instructions of educational programs of Educational Sciences a list of concentrated learning skills formed on the basis of interdisciplinary connections, as well as methods for their gradual formation.

In the Eighties of the last century, a program for the development of concentrated learning skills and abilities of schoolchildren was presented. The program includes the following in the system of measures that promote the use of the school in the educational process: the implementation of methodological training of teachers, the control and analytical provision of the process and results of teaching concentrated learning skills.

Teachers have also been offered methodological ways of Harakat that reveal the motivational and technological aspects of the formation of cosentrated learning skills, in particular: 1. Awareness of the importance of students ' ability to perform an action. 2. Using the student's ability to perform this action. 3. Using the ability to perform an action to master new skills in a new unfamiliar situation for students [259; 14-b.].

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A methodological development on a sequence consisting of the main methods of mental activity that can be applied in solving any problems is presented .

While researchers offer management solutions to their pedagogical communities, its meaning is to develop an intra-school program and prepare a school-wide plan for the formation of common learning skills included in the program, in which the classroom and academic disciplines that provide this formation are also clearly outlined [266; 3-b.].

As a factor affecting the nature of the student's learning - the level of knowledge of the student's learning skills and competencies is indicated [266; P.3).]. At the same time, the authors did not provide methods of diagnosis for assessing the degree of assimilation of concentrated learning skills by schoolchildren.

In the late last century, interest in the problem of concentrated learning skills in pedagogy increased significantly. This is primarily due to the fact that the formation and development of concentrated learning skills within the framework of any educational standards is considered as the main means of increasing the quality limit of any school education.

To use the development of concentrated learning skills in the research activities of schoolchildren in the design of intra-school management technology, we proceed from the following:

- the process of implementing procedures and actions is sufficiently algorithmic, which makes it possible to increase productivity;
- uniformity of implementation of procedures and actions, gives a predictable result;
- an important feature of the technology that contributes to the achievement of management efficiency is the continuity that manifests itself during the transition from order to order, from action to action;
- the advantage of regularity is the optimal integration of personal activity of teachers, the achievement of the set goals is the efforts of methodological associations of teachers and management personnel;
-with this type of interaction, the development of concentrated skills in research activities of schoolchildren becomes a common task of school teachers;
- actions in the personal order can be carried out in Series or in parallel, which in turn brings the management process to a low-cost level;
- periodicity of the procedure the development of general skills concentrated in the research activities of schoolchildren makes it possible to improve the quality of management [244].

Thus, the classification of concentrated learning skills, as well as ensuring the development of concentrated general skills provided by researchers, is important as a factor in managing the development of concentrated learning skills of schoolchildren.

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ПОНЯТИЕ СЛОВАРНОГО ЗАПАСА И ЕГО ЗНАЧИМОСТЬ В ФОРМИРОВАНИИ РЕЧЕВОЙ ДЕЯТЕЛЬНОСТИ.

Хайдарова Момокиз Рузибаевна –
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Аннотация

В данной статье говорится о том, что каждый из видов словарной работы играет важную роль в развитии языковых навыков и речевой культуры учащихся. Лексическая работа способствует расширению словарного запаса, орфографическая помогает формировать грамотное письмо, а словообразовательная развивает понимание структуры языка. Комплексное использование всех видов словарной работы обеспечивает полноценное усвоение языка и развитие коммуникативных навыков.

Ключевые слова: лингвистика, компетенция, лексико-семантический анализ, аспект, гибкость, интеграция, когнитивных усилий.

Словарный запас является одним из ключевых компонентов речевой компетенции и предметом изучения таких дисциплин, как лингвистика, психолингвистика и методика преподавания языка. Словарный запас определяется как совокупность слов, которые человек понимает и активно или пассивно использует в процессе общения[1].

Существует два основных аспекта словарного запаса:

активный словарный запас — слова, регулярно употребляемые в устной и письменной речи;

пассивный словарный запас — слова, которые человек понимает, но редко использует в практике; Активный словарный запас отражает степень овладения языковыми нормами, тогда как пассивный включает в себя лексические единицы, требующие дополнительных когнитивных усилий для использования в речи [2].

Роль словарного запаса в развитии речи Развитие речи в значительной степени зависит от богатства и разнообразия словарного запаса. Это подтверждается многочисленными исследованиями, подчеркивающими его влияние на основные аспекты речевой деятельности:

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1. Формирование выразительности и точности речи.

Широкий словарный запас позволяет носителю языка точно выражать свои мысли, избегая неопределенности и однообразия (Арутюнова, 1990). Разнообразие лексики способствует передаче сложных смыслов, эмоциональных оттенков и коннотаций.

2. Развитие коммуникативных умений.

Словарный запас обеспечивает гибкость речи, необходимую для построения диалогов, аргументации и успешной социализации. По мнению Леонтьева (1997), богатая лексическая база повышает коммуникативную эффективность и снижает вероятность возникновения речевых затруднений.

3. Облегчение восприятия текстовой информации.

Развитый словарный запас позволяет быстрее и точнее интерпретировать текстовую информацию, способствуя успешной работе с разными типами текстов: от научных до художественных [3].

4. Формирование письменной речи.

Письменная речь требует от автора разнообразия лексических средств, что невозможно без активной работы со словарным запасом. Это особенно важно при создании текстов с высокой степенью стилистической сложности, таких как эссе, доклады и научные статьи.

5. Развитие когнитивных способностей.

Словарный запас тесно связан с интеллектуальной деятельностью, включая мышление, память и способность к анализу. Исследования показывают, что увеличение словарного запаса способствует улучшению общего уровня словарного запаса способствует улучшению общего уровня когнитивного развития.

Подходы к изучению словарного запаса

Традиционно выделяются три основные методологические стратегии изучения и развития словарного запаса:

1. Лексико-семантический анализ, направленный на изучение значения, структуры и использования слов;

2. Когнитивный подход, подчеркивающий взаимосвязь словарного запаса и мыслительных процессов;

3. Методика активного обогащения, акцентирующая внимание на практических упражнениях и задачах для расширения лексического диапазона. Словарная работа в контексте обучения русскому языку предполагает интеграцию вышеуказанных подходов для достижения оптимальных результатов.

Таким образом, словарный запас является неотъемлемой частью развития языковой личности и играет центральную роль в формировании как устной, так и письменной речи.

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"TAMERLANE": AN ANALYTICAL REVIEW OF EDGAR ALLAN POE

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ABSTRACT:

This article discusses Edgar Allan Poe's early poem Tamerlane, and its themes of ambition, love, and regret. Written in Poe's youth, the poem describes the struggles faced by its titular character, who is based on the real-life ruler Timur. By probing the tension between love and closer literally and metaphorically speaking melding all these different and really this idea that ambition overwhelms love and thus instead of living life people often spent all their time chasing power and prophetic dreams instead of actually taking the time to understand the human heart. This article examines the poem's narrative and stylistic elements and thematic interests in relation to Poe's own literary evolution.

Keywords: Edgar Allan Poe, Tamerlane, ambition, love, regret, Romanticism, poetry analysis

In American literature, the theme of Amir Temur was introduced by a poet, Edgar Allan Poe (1809-1849) He became an orphan at the age of two and was adopted by a merchant Allan. The Allans family pampered Edgar, tried to build all the conditions, dressed him up like a prince, and Edgar had his horses, dogs, and groom (cavalry watchman or crew in the Tsarist Russia and Western Europe). When he was six years old the Allans moved to England and sent Edgar for five years to a boarding school in London. The Allans returned to America in 1820. Edgar studied at the College in Richmond and graduated from this institution in 1826. He had previously been transferred to a new Richmond university to study. Edgar dropped it after a year at the university. At this time he started living as a vagabond. He left the Allans family, returned to native Boston, where he published a collection of poems under the pseudonym "Boston." This collection was entitled "Tamerlane and Other Poems" and published in 1827. Among the other poems of this small collection, poem "Tamerlane" is dedicated to the image of our great forefather Sahibkiran. The Wikipedia states this about this collection: "Tamerlane and Other Poems" is the first published work by American writer Edgar Allan Poe. The early collection of poems was published in 1827. Now only 12 copies of the collection are believed to still exist. He was 18–years old when he wrote and published the poem "The Great Timur". So it can be concluded that he started writing "The Great Timur" as a teenager. That is way, if the analysis here on this poem is treated seriously by scientific perspectives, we notice some specific defects were made, but, in our view, it must reasonably accepted as a first literary experience. Almost the same point is given in the book written by Yothers B. This is what we think in the 1st volume of Edgar Alan Poetry, 2010 published by literary scholar Brian Yothers, and writes in his article Poe's Poetry of the Exotic: "The First Poetry of Amir Temur and Other Poems" The poet is internalizing Amir Temur in Byronic style, describing the feelings. In the poem "The Great Timur" (1827), the poet expresses the internal feelings of Amir Temur in Byronic style. This collection is to be considered a work made by a teenager; Edgar's own introductory remarks to the piece indicate that he wrote this poem

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when he was 13 years old. Poe delivered his manuscript to printer Calvin F.S. Thomas in the spring of 1827. This family are thought to have known the original family of Poe. This publisher family only used to print out small ads, labels and other small business items. Edgar published a 40-page collection of Tamerlane and Other Poems (anonymously as a Bostonian) at his own expense, and this was Thomas's only known work. This collection, which had first been seen around the world in July 1827, where published in 50 copies, when Edgar was 18 years old. Of the number of publications, little is known: some researchers claimed that this collection was published in 20 and some in 200 copies. With a real name, Edgar Allan Poe, under the title "Al Aaraaf, Tamerlane and Other Poems" allowing his second edition to be published in the year 1829. The actual poem was 406 lines long but was shortened and reduced to 234 lines in a later version (1850 variant). In addition, we want to mention that Poe published the collection with a preface in which he apologized for the poor quality of the poems. He says they weren't meant to be published ever and "concerning why they're being published now, it's nobody but the author." We have also discussed that Poe's first collection of poetry was so remarkable that the sole known copy of the poem was only found in1859, and now it is one of the hardest last publications in American literature. In short, we tried to give some materials about the life of an American world famous literary figure Edgar Allan Poe, the history of his first published collection including a poem addressed to our great ancestor Amir Temur and show that how this collection is regarded as starting point of unique literary work. We are expecting to continue our publications in near future where we give more detailed ideas and thoughts about the poem itself showing and analyzing the personality of Timur the Great. Besides, we are proud that the great American poet, critic and one of the founders of American Romantic Movement Edgar Allan Poe wrote a poem devoted to our ancestor Timur the Great, giving a tribute and respect to this great statesman and ruler.

Introduction:

Tamerlane is an early work by Edgar Allan Poe, first published in his 1827 collection Tamerlane and Other Poems. The poem narrates the tale of a young king who forgoes love and personal fulfillment for worldly power, to his deep regret. From the threat of destitution to the temptation of avarice, Poe depicts the fraught human capital through the eyes of a first-person narrator. In later years Poe would explain that his early poems were merely "the crude compositions of youth" (Tamerlane and Other Poe, 1827, p. 4). This essay situates Tamerlane within the canon of Poe's writing, both in terms of thematic concerns (ranging over ambition, loss, and regret) and stylistic features, too.

Material and Methods

Close reading was a basic approach used in our study of Tamerlane by Edgar Allan Poe. It is a method of close analysis in literature, which covers all the language, structure, and themes in detail. In such a way, we could delve deeply into Poe's poetic style and explore the central ideas of this very poem. Tamerlane was analyzed in a few steps in order to show all the layers of its meaning, artistic significance, and personal resonance.

We started the analysis by looking carefully at the use of language by Poe. We concentrated on the choice of words, imagery, and symbolic expressions he uses. For instance, the metaphor "eagle" symbolizes ambition, while "halo of Hell" expresses a conflict between morals. In these small things, if we notice properly, lies the hint at complex ideas and emotions expressed through the language of Poe.

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Other important work done in our study included thematic analysis. Tamerlane is a reflection of some of the main ideals of Romanticism, particularly the tension between individual ambition and the consequences of unfulfilled potential. It also introduces the figure of the tragic hero, driven by obsessive passion and inner turmoil whose ultimate downfall evokes empathy and reflection. This is a central theme in Romantic literature and is skillfully developed in the poem by Poe.

We have also investigated the autobiographical elements of the poem using biographical sources in an attempt to learn how Tamerlane reflects pivotal moments in the early life of Poe-those of strained relations with his foster father, John Allan, and his early romantic youth. These personal connections add emotional depth to the poem and help to explain the motivations of its themes of loss and regret. Indeed, the weaving of his own experiences into the poem by Poe makes it a powerful exploration of human emotion.

By closely reading it, contextual research, and comparative analysis, our research into Tamerlane presents a well-rounded understanding of the poem. Rather than treat the poem as an isolated literary work, we considered it as a reflection of Poe's early artistic ambitions and his engagement with Romantic ideals. Through this approach, Tamerlane emerges as a richly layered poem that offers insight into both Poe's creative mind and the broader literary movements of his time.

Results and Discussion

Edgar Allan Poe's "Tamerlane" is a Romantic poem that dwells on various concepts of ambition, regret, human weakness, and poetic style. In this work, Poe shares his reflections on personal turmoil and universal human experiences; therefore, how these ideas shaped his early attempt at literature

Ambition and Power

The driving force behind Tamerlane is the protagonist's "iron ambition" (Poe, 1827, p. 11), which structures his life and drives him to power and conquest. The cost of this ambition, however, is high, as Tamerlane forfeits his personal contentment and the possibility of a deep human connection to reap the benefits of his lofty ambition. The vivid imagery in lines, such as "mountain peaks" and "vast empires," symbolizes Tamerlane's rise to power. These images serve to illustrate the magnitude of his accomplishments but also his growing isolation, a parallel that the poem continues to draw.

The dangers of unchecked ambition are a chief concern of the poem. Tamerlane achieves immense success professionally, but is overwhelmed by a sense of internal emptiness, a loneliness that his victories cannot assuage. Kenneth Silverman states, "Tamerlane's isolation reflects Poe's own wrestling with ambition and loss in his youth" (Silverman, 1991, p. 52). The interpretation serves to support the notion that the poem is not merely a lamentation, but a representation of both Poe's personal experience as well as a broader social critique about the potential risks of an endless pursuit for the sake of avarice.

Regret and Lost Love

Another strong theme in Tamerlane is the regret the protagonist feels for deserting his beloved for the sake of power. "O, she was worthy all my love! / Love—as in infancy was mine" (Poe, 1827, p. 13), perhaps reflects the great void in the poem. Indeed, this notion of refurbishment

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beauty of an imagined goal, containing both elements of death and resurrection, directly leads to the roots deep in your history of poets, lovers, and noble ideals demanding one to act against odds.

As critic Benjamin Fisher notes, "the sense of longing for unattainable ideals is a hallmark of Poe's early poetry" (Fisher, 2008, p. 103). Tamerlane's desire for his lost darling is symbolic of his humanity, a contrast to his lofty ambitions. This tension between personal need and public success re-emphasizes his conflicting character and suggests Poe's interest in Romantic ideas of duality—the coexistence of achievement and sorrow.

Human Frailty

Poe contrasts Tamerlane's external victories with internal defeats to underscore the fragility of human ambition. And although Tamerlane attains tremendous power, his victories are rendered hollow by the emptiness and isolation of his soul. Lines like "And yet — how dearly I loved! I was alone" (Poe, 1827, p. 12) highlight the emptiness of his achievements.

This theme of human frailty resonates with Poe's broader literary exploration of the paradoxes of success and failure. According to Fisher, Poe frequently investigates "the intrinsic loneliness of the quest for greatness" (Fisher, 2008, p. 108). That loneliness is a key aspect of the hero's individualism in Tamerlane, representing the limitations of human ambition but also the importance of bonds with fellow men loomed larger than the need of his ego.

Stylistic Features

In particular, stylistic elements utilized by Poe in Tamerlane evoke an emotional and introspective quality to the poem. Natural imagery of mists, dews and mountains acts both as a literal and figurative mirror of Tamerlane's internal condition and this paradise of mist and dews, feet invisible to us, a paradise in which so many challenges, the mountains, are the very things he wants to disappear.

Poe's rhythmic fluctuations, too, amplify the poem's dirge-like tone to reflect the protagonist's mood swings. Quinn argues that Poe's early style is "highly emotive, concerned with evocation of imagery that pulls the reader into the character's psyche" (Quinn, 1941, 36). By concentrating on emotion and imagery, Tamerlane engages with his experiences that allow the reader to relate while also specifying human struggles on a universal level within the poem.

Integration of Themes

In the end, the dynamic tension between ambition and regret and human frailty in Tamerlane is a microcosm of Poe's own early struggles with complex emotional and philosophical issues. Thus, through its choice of style, natural imagery and emotive language, work really complex in regard to genre, as imbuing Romantic and setting personal values together. In Tamerlane, Poe engages with the perils of ambition, the desire for what was lost, and the volatility of human dreams in a subtle analysis of the human experience.

Placing these themes in context of Poe's life and the Romantic tradition, Tamerlane is quite the powerful and self-reflective piece, establishing the groundwork for the poet's more famous accomplishments.

CONCLUSION

Tamerlane is a dark meditation on the corrosive power of ungoverned ambition on the human spirit. The poem delves into the deep tension between personal ambition and emotional satisfaction, with evocative imagery, an introspective tone and emotional depth. The breadth of Tamerlane's travels, combined with his zealous pursuit of power and sacrificial needs to achieve

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it, provides a cautionary narrative about the price Tamerlane pays for achieving externalization over deeply intimate human connections.

Poe's evocative images of nature, mingling mountains, mists and dews, depict what is occurring within the hero, and suggest a dual reflection of the man's success or impotence. The peaks of the mountains represent Tamerlane's high aspirations yet also his loneliness, while the mist and dew suggest the ephemerality of existence and the momentary nature of worldly pleasure. These stylistic elements add to its thematic complexity, encouraging readers to pursue its emotional center.

We also identified some data through that time, and his poem reveals Poe's engagement with the themes of regret, isolation and unfulfilled desire. Tamerlane's lamentation for his lost love serves as a poignant reminder of the emptiness that comes with his ascension to power, illustrating the tenuous boundary between human aspiration and emotional fulfillment. His remorse, articulated in such heartrending verses as "O, she was worthy all the love!" (Poe, 1827, p. 13), conveys the: longing for connection and the regret, in the case of Poe's narrator, of arriving at this realization as the loss is already incurred.

Written in Poe's early years, Tamerlane provides an insight into the themes that would characterize his later writings. The poem's meditation on the paradox of success, the inevitability of regret, and the complexity of human frailty foreshadows the psychological depth and literary genius evident in Poe's mature works. Poe's awareness of human suffering and passions is innate, as Arthur Hobson Quinn observes: "Even in his earliest works he shows an acute awareness of the human condition, weaving universal themes into deeply personal narratives." (Quinn, 1941, p. 38)

In the end, Tamerlane serves as a haunting reminder of the always relevant battle between ambition and emotional fulfillment. It is a reflection not just of the historical and cultural context in which it was created but of timeless human dialogues about greatness and the cost of greatness and the compromises made for greatness. Drawn from Poe's own early life, the poem nonetheless tears a page from the pages of the ages, conveying to all prospective readers a ripe meditation on the choices which become not only the Windfall, thus making for life, but the returns of such choices. Tamerlane can thus be read as a marker of Poe's nascent literary voice and his ability to capture the intricacies of the human spirit.

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ИСПОЛНЕНИЕ ХАРАКТЕРОВ ИСТОРИЧЕСКИХ ЛИЦ ОТВЕТСТВЕННОСТЬ АКТЕРА

(На примере спектакля одного актёра “Великий Темур” в формате 3D)

Государственное институт искусство и культуры Узбекистана и.о доцент независимый исследователь

Рахимджон Раимкулович Дусанов.

АННОТАЦИЯ

Данная статья о том, как в нравственное развитии личности актёра играет исторические спектакли. В спектакле одного актёра с названием “Великий Тимур” раскрывается темы как, воспитание духовной личности, о месте её в обществе. Роль великого Темура требует от актёра высоконравственных качеств, таких как: возвышенный ум, разум и своеобразное мышление. Особенно эти качества проявляются в театре одного актёра.

Ключевые слова: Обучение, воспитание, личность, искусство, актёр, ум, мышление, культура, нравственное наследие, духовность, разум, духовная зрелость.

PERFORMANCE OF CHARACTERS OF HISTORICAL PERSONS ON STAGE (BASED ON THE EXAMPLE OF ONE ACTOR OF THE PLAY “THE GREAT TIMUR” IN 3D FORMAT)

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Annatation

This article is about how historical performances are played in the moral development of an actor’s personality. In mono perfomance with the name “Great Temur”, thereare revealed such topics as the education of a spiritual person about her place in society.The role of the great Temur requires the actor to have high moral qualities, such as: exalted mind, intelligence and peculiar thinking. Especially these qualities are manifested in the theater of one actor.

Key words: education, personality, art, intellect, culture, actor, spiritual heritage, spirituality, thinking, spiritual maturity.

Достоин похвалы труд наших предков, неустанно трудившихся во имя развития Родины, развития культуры и искусства, науки миру на узбекской земле. Углубленное изучение культурного наследия, оставленного нашими великими предками. Приближение ее к народу пробудит чувство национальной гордости и национальной гордости у молодых людей, стремящихся восстановить нашу духовность. Все добрые дела, которые служат пониманию великого наследия наших предков, служат совершенствованию формирования патриотических чувств в человеке. Мужество наших учёных-патриотов, проводивших

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исследования теоретических основ отрасли, заслуживает уважения, морально-воспитательной ценности и, конечно же, благодарности. В нашем народе есть мудрость, что воспитание человека начинается еще в утробе матери. Это, безусловно, правда. Он обязательно будет проходить обучение у учителей, пока не повзрослеет как личность. Сегодня внимание уделяется изучению истории, жизни великих ученых, их пути и богатого духовного наследия. Мы считаем, что в обществе существует особая потребность оглянуться на нашу богатую историю.

Каждый человек стремится реализовать свою личность в обществе, обрести духовные силы, сделать смелый шаг навстречу будущему. Такую высокую духовную и духовную пищу мы можем получить главным образом из исторической литературы, исторических фильмов и исторических спектаклей. Такие пьесы строятся на основе великих идей, большей частью свободных от бытовых проблем. Более того, в самой основе исторических спектаклей лежит цель призывать каждого человека мобилизовать свой дух на великие дела. В то же время оно выступает силой, которая вдохновляет человека, заставляет его сделать уверенный и надежный шаг в будущее, начинает двигаться вперед к великим целям. Исторические спектакли заставляют человека начать жить великими идеями. Любой спектакль мы ставим, прежде всего, думая о публике. Мы разработаем сцены, диалоги, локации и другие аспекты его подачи. Основная цель – традиционное питание зрителя, помощь ему в достижении духовной зрелости. Многие исследователи и учёные высказали своё мнение по этому поводу в своих исследованиях и научных статьях. Мы стремились поразмышлять о личном образовании исторических пьес. Исторические пьесы, наряду с воспитанием слушателя и зрителя, важны и для его духовной зрелости.

Для постановки классических произведений мы обычно полагаемся на опытных режиссеров и актеров. Потому что оно проявляется в поведении каждого актера на сцене, его недостатках в процессе игры, в общении с партнером по сцене, в батальных сценах или в его бытовой деятельности, характерной для исторических периодов. Режиссер исправляет соответствующие тому периоду дефекты в движениях актеров.

Прежде всего посмотрим на духовную зрелость создателей этих пьес. Мы часто виним режиссеров за уровень спектакля или его недостатки и достижения. Если этот спектакль ставит театр одного актера, то этот жанр требует адаптации к своим особенностям. При постановке одноактных театральных постановок, прежде всего, от режиссера, но и от актера требуется человек высокой духовности, воплощающий в себе черты ученого, обладающий широким мировоззрением, зрелый в своем профессии и является квалифицированным мастером своего дела. Если игра актера основана на национальном классическом произведении, помимо этого, не менее важными становятся духовная зрелость режиссера и актера, национальная гордость и гордость в их сердце. Основная задача – чтобы один актер взял на себя ответственность за судьбу всего спектакля, не пренебрегая ни одним указанием режиссера. На актера возлагается задача человека, воплощающего идею всего спектакля, умеющего ждать ее во время спектакля и способного довести идею до высшей цели. Кроме того, актер должен хорошо чувствовать не только психофизическое состояние персонажа, но и характер социальной среды во время действия персонажа. Необходимо связать среду исторического периода с проблемами сегодняшнего дня. Актеру следует также обратить внимание на такие аспекты, как выражение образа

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главного героя мышления всего общества своего времени. Мы попытались не только теоретически проанализировать эту ситуацию, т. е. данные стороны создания актерского образа, но и связать ее с практикой и рассмотреть на примерах.

Мы знаем, что на сценах узбекского театра ставится множество спектаклей, основанных на требованиях театра одного актера. Обычно в большинстве таких спектаклей выдвигается современная тема – анализ внутреннего мира человеческого духа. В других мы видим спектакли, похожие на исследование каких-то проблем, связанных с жизнью общества. Однако мы редко видим одноактные пьесы на исторические сюжеты. Причина в том, что исторические пьесы определенно требуют высокого художественного уровня идеализма и неповторимой монументальности. Особенно люди, занимающие особое место в истории не одной страны. Он был известен во всем мире. Когда речь идет о фигурах, связанных с монументальными событиями в ходе мирового развития, задача, стоящая перед режиссером и актером спектакля, становится еще более ответственной. Спектакли жанра театра одного актера требуют от режиссера и актера, помимо профессионального мастерства, высокого уровня духовного совершенства. В этом случае режиссеру придется показать свое духовное мышление своими взглядами, актеру - своей актерской игрой. Словом, в этом жанре налицо уровень совершенства режиссера и актера.

В последнем квартале 2019 года впервые в Узбекистане создан театр жанра театра одного актера «Голограмма». Первый спектакль этого театра назывался «Великий Темур». Мы можем рассмотреть вышеизложенные моменты на примере данного спектакля. Мы сочли уместным остановиться на изложении взглядов великого государственного деятеля Амира Темура на образование и духовную зрелость человека. Постановка и исполнение пьес одного актера театра имеют свои сложности.

- Прежде всего, вопрос сосредоточения всего спектакля вокруг одного человека;
- Расположение сцены (мезасцены), этот аспект особенно важен в голографическом театре с точностью до сантиметра;
- Действовать в соответствии с музыкой, следуя музыкальной реплике (в голографическом тетраэдре каждое действие подчинено музыке);
- Использование различных голографических визуальных эффектов;
- Батальные сцены;
- Встреча героя с различными лицами (учителем, отцом, простыми людьми, учёными, послами и т. д.) и их действия в это время и т. д.;

Мы знаем, что на сцене актеры черпают энергию друг у друга (партнера). Он откликается своей позицией, тоном своих слов, а через своего партнера по сцене поддерживает еще и образ героя. Короче говоря, они руководят друг другом под влиянием ансамбля. В одном актерском театре этот процесс тоже происходит по-разному. Один на сцене. Есть голографические актеры, но они не обязательно похожи на актера на сцене. Вот тут-то актеру и нужна фантазия. Это воображение – облик людей, живших во времена Темура, их быт, атмосфера того времени, и персонажи должны быть воплощены на глазах актера. Актер, исполняющий спектакль в голографическом театре, должен абсолютно правильно выполнить сценическую локацию. Причина в том, что при малейшей ошибке

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голограмма либо перепрыгнет через актера, либо останется в стороне. Отношение к визуальным эффектам следует оценивать в соответствии с музыкальным репликом. В эмоциональных сценах, особенно в батальных, с музыкальным сопровождением, держа оружие высоко и низко (если высоко, то оно рассечет воздух, если низко, то голографический актер перережет ногу. В этом процессе актер необходимо вырезать ту часть тела голографического актера, где установлен эффект) будет сделано. Он должен вести себя корректно на встречах с людьми разного уровня. Все эти требования должен контролироваться одним актером одновременно, и при этом он должен все их исполнить в образе Темура. Конечно, для создания героического персонажа мы используем одежду и оружие, подходящие для этого периода. Но мы думаем, что сложно произвести впечатление на зрителя, одев в одежду любого актера, дав ему необходимые вещи, выйдя на сцену и сказав, что это Темур или другой персонаж. Мы убеждаем зрителя, когда выводим на сцену актера, мыслящего на уровне Темура, обладающего высокими целями мышления и мировоззрения. Поэтому нам предстоит формировать и воспитывать актера, думающего на сцене. Тут возникает другой вопрос: откуда у актера эта сила, эта мощь, такое мышление? Конечно, особое значение имеет жизненный и сценический опыт актера. Кроме того, важно еще, какая литература или произведение легло в основу этого спектакля и насколько актер смог впитать это произведение. Тогда чувствуется, насколько актер знаком с литературой, типичной для того периода. Воплощая на сцене характер героя, которого он играет, актер должен хорошо владеть всеми вышеперечисленными сторонами характера и уметь их воплотить в полной мере. Мы считаем, что актер должен быть духовно зрелым человеком, чтобы выполнить столь сложную задачу. Учитывая сегодняшний век технологий и потенциал зрителя, мы считаем, что актер должен быть зрелым и мыслителем высокого уровня.Век, заставляющий думать об обычном зрителю, требует, чтобы актер был именно таким человеком. Более того, если актер сможет почувствовать своего героя духом, то каждое его действие будет соответствовать образу персонажа. Только тогда актер появляется зависимым от зрителя. По мере выхода актера на этот уровень личности на следующее место выходят некоторые ведущие факторы (одежда, музыка, освещение), послужившие созданию образа персонажей на сцене. По нашему мнению, актер на сцене должен не только быть красивым, но и уметь красиво мыслить. Актер, который красиво думает, на сцене всегда выглядит красиво. Практика показывает, что с актером, чувствующим эти элементы, спектакль будет живым, впечатляющим и зрелищным.

«Беззаботная жизнь делает человека равнодушным. Ведь человеку, желающему быть обладателем власти, приходится отвлекаться от отдыха, отказываться от всяких удовольствий, даже от мгновений удовольствия, которые не запрещены. Человек достигает этого, истязая свое тело и унижая его. [Спектакль Театра Голограммы в жанре театра одного актёра «Темур Великий», из монолога Темура].

Дорогое мое дитя! До вас в этом мире приходили и уходили многие. Башарти, если ты не хочешь, чтобы тебя забыли, как осенний лист, срезанный с перевязи, ты должен оставить незабываемое имя в сердцах людей. Эти несколько мгновений, оставшиеся в вашей жизни, пройдут быстро, но теперь забудьте о нерадивости, запечатайте свое имя на вечность, чтобы человек, пока он жив, находился в процессе обогащения своей жизни и

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знаний. [Спектакль Театра Голограммы в жанре театра одного актёра «Темур Великий», из монолога Темура].

Исполняя монологи Темура в спектакле, я чувствую особую силу в душе от каждого предложения. Я искренне желаю, чтобы каждый подросток в моей стране сделал такие предложения своим девизом.

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MORPHOMETRIC INDICATIONS OF LUNG TISSUE STRUCTURAL UNITS OF BABIES BORN WITH RESPIRATORY DISTRESS SYNDROME

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Resume

In this scientific study, an analysis of the morphometric parameters of the structural units of the lung tissue in premature infants with hyaline membrane disease was carried out.

The lung tissue of premature babies aged 22-37 weeks was taken as a material. Morphometric study of the structural units of the lung tissue was carried out by modifying the method of "counting points" by transferring it to a computer screen.

Key words: respirator distress syndrome, baby, prematurity, lung, structure, alveolus, hyaline membrane, morphology, “scoring - test system”, light interval.

The urgency of the problem. One of the main problems in neonatology is respiratory distress syndrome (RDS) and the appearance of bronchopulmonary dysplasia and hyaline membranes (hm) as its morphological signs. Hyaline membranes of the lungs are the most basic and severe form of RDS. The urgency of this problem depends on the growing number of premature births in the world. For example, in Russia, it is 5-10%, including the birth of children with extremely low body weight, which occurs in 0.2-0.4%. According to foreign authors, their survival is on average 50%, and if intensive therapy is used, it decreases to 25%. The cause of death of such children is mainly respiratory distress syndrome and hyaline membranes.

The purpose of conducting this study is to determine the specificity of the morphological changes that develop as a result of HMD in the lungs of premature babies.

Material and methods. As a material, lung tissue was taken from premature babies between 22-37 weeks of age. Morphometric examination of structural units of lung tissue was carried out by modifying the "counting points" method by transferring it to the computer screen.

Morphometric examination of lung tuahmasining structural units of G.G. Avtandilov (1984) adapted the method of “counting points”.

This method is based on the fact that the author uses a grid of 200 layers on histological preparations of histological preparations of the author's stomach and tissues. In order to ensure a reliable distribution of the data, 8-10 samples from each teacher of the material were counted and averaged.

We modified this method by transferring it to the computer screen, that is, we took 10 pictures from different areas of the histological preparations prepared for each group of the examined material, and placed a linear grid of 200 cells on the computer monitor corresponding to these pictures, and marked the points where the lines intersected, which structure of the tissue We counted according to the structure. It is known from the essence of this method that the points of the mesh placed on the tissue cross-section are uniformly spaced, so that it corresponds to the tissue structures indiscriminately. G.G. It corresponds to the law of relativity that the checkered grid points of Avtandilov are distributed non-uniformly in all areas of the surface of the tissue image. The area of all existing structural units in the picture is taken as Vv, i.e. 100%, the area of

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each of the structural units to be calculated is determined by putting the name of this structure, for example: Vafac (space of air-filled alveoli), Vhmca (space of alveoli with hyaline membrane), Vahm (hyaline membrane area), Vact (interstitial tissue of alveoli). In this regard, the relative area of the studied structural units in the tissue is calculated as a result of counting the points. The results show the volume unit of each structural unit in the studied tissue.

So, if the area occupied by all structural units in the studied tissue is Vv, i.e. 100%, the evenly distributed points in it are denoted by z, and if the ratio of each point to the structural unit is taken as R, its formula is as follows: P = Vv/100.

Correspondence of points to other structural units is determined by the following formula: Q = 100-Vv/100.

If we take the points corresponding to the studied structural units as x, then its error rate is calculated by this formula: x/z – P, the percentage indicator of the absolute error is calculated by this formula:

$$e = (x/z – R) . 100 = 100 x/z – Vv$$

The error rate of calculation according to the theory of relativity - x/z – R, is calculated as follows in a different formula: $= t . \sqrt{Rq/z}$.

In this formula: x is the number of points corresponding to the studied structural units; z is the total number of all points in the test system; R is the unit of relativity of the points falling on the studied structures; q is the unit of relativity of the points falling into the bled structural units; t is the normalized difference of indicators from each other.

Based on the above, the absolute error of quantitative indicators is calculated by this formula: $e= t \sqrt{Vv (100 – Vv) / z}$.

Result and discussion.

G.G. 3 levels of preterm infants with lung hyaline membrane disease using the morphometric method of Avtandilov: 2) 28-32 weeks, 3) 33-37 weeks. To compare the quantitative indicators of these groups, the lung tissue structures of children who died from non-pulmonary brain injury were counted as a control group. In these groups, hematoxylin and eosin-stained histological sections of lung tissue were taken, and points corresponding to the structural units indicated below were counted. Points were counted on the average of 10 images from each group:

- Air-filled alveolar cavity - Rafac;
- Hyaline membrane is the cavity of the alveoli - Rhmca;
- Area of hyaline membranes - Rahm;
- Alveolar connective tissue - Ract;

For each structural unit, 10 points numbered in the picture were added, the average was calculated, and the occupied area (V) of the structural unit was calculated based on the following formula, for example: the area occupied by the alveolar space where air entered - Vafac = Rafac/R x100. In this regard, the areas occupied by all structural units of the lung tissue were calculated: Vafac, Vhmca, Vahm, Vact.

The following coefficients can be calculated based on the quantitative data obtained on these indicators:

1) The ratio of the area of the alveolar cavity to the area of the hyaline membrane is the coefficient of activity of the alveolar cavity (CAAC);

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1) 22-27 weeks

Microphoto no	Number of points				Total number of points
	Rafac	Rhmca	Rahm	Ract	
1	36	19	15	130	200
2	32	20	17	127	
3	34	18	15	130	
4	44	17	14	128	
5	38	20	13	129	
6	41	19	16	130	
7	33	18	17	131	
8	35	22	15	128	
9	34	21	16	127	
10	39	20	14	128	
∑	366	194	152	1288	2000
M ± m %	**18.3 ± 1.72**	**9.7 ± 1.32**	**7.6 ± 1.18**	**64.4 ± 2.14**	

Vafac= Pafac/P x 100 = 366 / 200 0 x 100 = 18.3 %,
εafac = 2.0 x √ 18.3 (100 – 18.3) / 200 0 = 1.72 % (P = 0.05)
V hmca = P hmca /P x 100 = 194 / 200 0 x 100 = 9.7 %
ε hmca = 2.0 x √ 9.7 (100 – 9.7) / 200 0 = 1.32 % (P=0.05)
V ahm = P ahm / P x 100 = 152 / 2000 x 100 = 7.6 %
ε ahm = 2.0 x √ 7.6 (100 – 7.6) / 200 0 = 1.18 % (P = 0.05)
V act = P act /P x 100 = 1288/ 200 0 x 100 = 64.4 %
εact = 2.0 x √ 64.4 (100 – 64 .4) / 200 0 = 2 .14 % (P=0.01)

CAAC – 18.3 : 7.6 = 2.4 (coefficient of activity of the alveolar cavity)

2) 28-32-week

Microphoto Sony	Points sony				Points common sony
	Rafac	Rhmca	Rahm	Ract	
1	57	34	23	84	200
2	62	36	25	88	
3	54	36	22	82	
4	54	39	25	81	
5	58	27	24	79	
6	61	29	24	84	
7	63	36	23	86	
8	55	38	25	82	
9	56	35	22	88	
10	54	38	23	88	
∑	574	348	236	842	2000

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M±m %	**28,7±2,02**	**17,4±1,68**	**11,8±1,44**	**42,1±2,2**	

Vafac= Px ab / P x 100 = 574 / 200 0 x 100 = 28.7 %,
εafac = 2.0 x √ 28.7 (100 – 28.7) / 200 0 = 2.02 % (P=0.05)
V hmca = P hmca / P x 100 = 348 / 200 0 x 100 = 17.4 %
ε hmca = 2.0 h √ 17.4 (100 – 17.4) / 200 0 = 1.68 % (R=0.05)
V ahm = R ahm /R h 100 = 236/ 2000 h 100 = 11.8 %
ε ahm = 2.0 h √ 11.8 (100 – 11.8) / 200 0 = 1.44 % (R=0.05)
V act = R act /R x 100 = 842/ 200 0 x 100 = 42.1 %
eact = 2.0 x √ 42.1 (100 – 42.1) / 200 0 = 2.2 % (R=0.01)

CAAC – 17.4 : 11.8 = 1.47 ↓ (coefficient of activity of the alveolar cavity)

3) 33-37 weeks

Photomicrograph number	Number of points				Total number of points
	Rafac	Rhmca	Rahm	Ract	
1	28	44	19	108	200
2	29	48	17	118	
3	31	42	21	102	
4	26	43	19	101	
5	28	47	18	109	
6	31	44	20	114	
7	33	42	17	106	
8	25	41	18	112	
9	28	45	22	108	
10	29	43	19	106	
∑	630	332	354	684	2000
M±m %	**31,5±2,07**	**16,6±1,61**	**17,7±1,70**	**34,2±2,12**	

Vafac= Px ab / P x 100 = 630 / 200 0 x 100 = 31.5 %,
εxab = 2.0 x √ 31.5 (100 – 31.5) / 200 0 = 2.07 % (P=0.05)
V hmca = P hmca / P x 100 = 332 / 200 0 x 100 = 16.6 %
ε hmca = 2.0 h √ 16.6 (100 – 16.6) / 200 0 = 1.61 % (R=0.05)
V ahm = R ahm /R h 100 = 354/ 2000 h 100 = 17.7 %
ε ahm = 2.0 h √ 17.7 (100 – 17.7) / 200 0 = 1.70 % (R = 0.05)
V act = P act /P x 100 = 684/ 200 0 x 100 = 3 4.2 %
εact = 2.0 x √ 34.2 (100 – 34.2) / 200 0 = 2.12 % (P=0.01)

CAAC – 16.6 : 17.7 = 0.93 ↓ (coefficient of activity of the alveolar cavity)

Qualitative indicators of lung disease with hyaline membrane "respiratory distress syndrome" are evaluated based on the color, size, degree of differentiation from lung tissue, whether they are filled with air or not. 3 periods of hyaline membrane development are distinguished by patho- and morphogenetic signs: I-period - the "light interval" period lasts several

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hours (4-6) and in it the general condition of the baby is manifested due to premature birth, but no breathing disorders are observed. During this period, the prematurely formed surfactant is used up and replaced by a hyaline membrane. **During this period, a protein substance in the form of a net appears in the space of the alveoli.**

Characteristic for the II period is the "manifestation of clinical manifestations", which lasts 48 hours and the following specific clinical symptoms appear: nervous system excitation and damage, tachypnea lasting 72 hours, the appearance of sound during exhalation, the involvement of additional muscles during breathing, acrocyanosis, cyanosis of the skin and the increase of this sign during the exacerbation of HMD, the appearance of apnea, the appearance of crepitation-friction and small moist strangulations on auscultation, spasm of peripheral vessels in the cardiovascular system, an increase in arterial pressure, tachycardia 180-220 per minute, the appearance of systolic noises, a decrease in diuresis , sometimes oliguria and anuria are observed, symptoms of DIC syndrome appear. **As a characteristic morphological sign of the second period, it is observed that eosiophil-stained fibrous protein appeared in the alveolar space.**

III - period - "recovery period" lasts 3-10 days. Symptoms of respiratory disorders disappear, changes in the central nervous system subside, and peripheral blood circulation is restored. This period can sometimes be in a "terminal" state, in which the child becomes weak, the skin becomes completely cyanotic, has a marble appearance, breathing becomes paradoxically apnoea and bradypnoea, and is severely disturbed. Wheezing and slight suffocation appear in the lungs on the basis of a decrease in breathing. Blood pressure drops, systolic murmur appears, bradycardia, cardiomegaly is observed. Deficiency of polyorgans and DIC syndrome, anuria develops. **In the III period, eosinophil-stained homogenous hyaline protein covering the alveolar wall appears in the alveolar cavity.**

The hyaline membranes that develop in the lungs of infants may be congenital or acquired during the early postnatal period. Their location has not been studied to the end, according to the data of our investigations, it was confirmed that hyaline membranes develop more in the upper seahments of the right lung and in the middle intermediate seahments of the left lung.

In our study, we performed morphometric examinations of premature babies into 3 groups according to gestation periods.

Table 1

Anthropometric indicators of premature babies, M±m

No	Group of premature babies	n	Average gestational age	Body weight, g	Height, cm
1	22-27 weeks	12	25.2±0.4	654±24.3	29.5±1.6
2	28-32 weeks	19	29.8±0.6*	1067±84.7*	38.4±4.6*
3	33-37 weeks	24	35.3±0.7**	1986±124.6**	43.2±8.5**

Appendix: * - R≤0.05 – gestation period, body weight and height in group 2 compared to group 1 reliability difference.

** - R≤0.05 – reliability difference of gestation period, body weight and height in group 3 compared to group 1.

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Table 2. Indicators of area occupied by lung tissue structural units, M±m % and coefficient of CAAC in premature children with hyaline membrane.

Groups	structural units , %				CA AC
	Chapter V	Chapter V	V ahm	V act	
Week 22-27	**18.3 ± 1.72**	**9.7 ± 1.32**	**7.6 ± 1.18**	**64.4 ± 2.14**	**2.24**
28-32 weeks	**28.7 ± 2.02***	**17.4 ± 1.68***	**11.8 ± 1.44***	**42.1 ± 2.2***	**1.47**
33-37 weeks	**31.5 ± 2.07****	**16.6 ± 1.61****	**17.7 ± 1.70****	**34.2 ± 2.12****	**0.93**

Addendum: * - P≤0.05 - reliability indicator compared to the control group
** - P≤0.01 - reliability indicator compared to the control group

Along with the assessment of any pathological process, including the hyaline membrane disease of the lungs, in terms of qualitative criteria, the criteria for evaluating pathological changes will have a higher level of reliability if they are assessed by their quantitative indicators. We calculated and analyzed the structural changes characteristic of the disease with hyaline membrane developed in the lungs, dividing them into 3 groups according to the gestation periods of premature babies. Group 1, the lungs of children who were born prematurely and died of respiratory failure at 22-27 weeks of gestation were taken. For morphometric calculation, the area occupied by the following structural units present and developed in the lung tissue was calculated by Avtandilov G.G. (1994) by the "point test" method. These were as follows: 1) Rafac - sign - space of alveoli where air entered, 2) Rhmca - sign - air filled space of alveoli where hyaline membrane appeared, 3) Rahm - sign - area occupied by hyaline membrane, 4) Ract - sign - alveoli range of tissue area. In group 1, it became clear that the area of the alveolar cavity occupied only 18.3±1.72 percent of the lung tissue. It was found that the area of the alveoli filled with air is relatively small, i.e. 9.7±1.32 percent. It was confirmed that the area occupied by hyaline membranes appeared in relatively few alveoli in this late gestational week and occupied a small area (7.6±1.18). In these early weeks of the gestational period, due to the immature development of the lung tissue, most of the alveoli have not yet opened and the lung tissue is in a dense state, it was confirmed that the area occupied by the interstitial tissue of the alveoli is large and occupies more space than all other structural units, i.e. it is equal to 64.4%.

In group 2, the percentages of all the structural units we studied differed from those in group 1. If we study each of them separately, it is observed that the space of the alveoli where the air has entered is 1.6 times larger compared to the 1st group. It is determined that the alveoli, where the hyaline membranes have appeared, have expanded, and the area of the space filled with air has also expanded, reaching 2 times, that is, 17.4%, compared to the previous group. It is observed that the area of hyaline membranes was 7.6% in group 1, while in group 2 it increased slightly and reached 11.8%. Due to the expansion of air-filled alveoli and alveoli with a hyaline membrane, it is determined that the area of interstitial tissue of alveoli has significantly decreased compared to group 1, occupying 42.1% of the area.

The 3rd group of our study was the 33-37th week of gestation, and in this group, all the structural units we studied increased compared to the previous groups. Of these, it was found that the space of alveoli filled with air increased 1.7 times compared to the first group, 1.1 times compared to the 2nd group and made up 31.5% of the area. It was found that the area occupied by

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hyaline membranes increased by 2.3 times compared to group 1 and 1.5 times compared to group 2, that is, it occupied 17.7% of the area. At the same time, it was observed that the air-filled cavity of the alveoli, where the hyaline membrane appeared, did not expand compared to the previous group. Due to the fact that the alveoli are relatively expanded and filled with air, it was observed that the area occupied by the interstitial tissue of the alveoli was significantly reduced, that is, it occupied 34.2% of the space, which is confirmed to be 2 times less than the 1st group and 1.5 times less than the 2nd group.

Summary

It was confirmed that the area of the air-filled alveolar cavity, which indicates the degree of lung tissue filling with air or respiration, morphometrically occupies 18.3% of the lung tissue, and the area of the alveolar interstitial tissue is 64.4%.

As the gestation period increases, the area occupied by the hyaline membranes in the lung tissue expands, and the area of the air-filled alveoli space also increases.

the activity coefficient of the alveolar space was 1.63 in the 22-27th week of gestation, and it decreased sharply in the later periods of gestation and was 1.47 and 0.93, respectively.

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ULUG‘BEK HAMDAM NASRIDA YOLG‘IZLIK MOTIVI
МОТИВ ОДИНОЧИЯ В ПРОЗЕ УЛУГБЕКА ХАМДАМА
THE MOTIF OF LONELINESS IN ULUGBEK HAMDAM’S PROSE

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Annotatsiya

Istiqlol davri qissachiligida Ulug’bek Hamdam “Yolg’izlik” qissasi bilan adabiy jamoatchilik va keng kitobxonlar ommasi e’tiboriga tushdi. Qissada insonning ruhiy olami, uning rango-rang tuyg’ularining tajassumini yoritish borasida katta yutuqlarga erishilganligi yaqqol namoyon bo’ladi. Ijodkor yolg’izlikni asar sarlavhasidan motiv darajasiga olib chiqqanligi asarda aks etgan.

Tayanch so‘z va iboralar: motiv, modernizm, qissa, ruhiyat, voqea, portret, monolog, dialog, tush, peyzaj, dialektika.

Аннотация

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В новелле периода независимости Улугбек Хамдам привлек внимание литературной общественности и широкой читательской аудитории повестью “Одиночество”. В повести ясно показано, что достигнуты большие успехи в выяснении духовного мира человека, воплощении его эмоций. В произведении отражено то, что одиночество художник вывел из названия произведения на уровень мотива.

Ключевые слова и вражения: Ключевые слова и фразы: мотив, модернизм, рассказ, психика, событие, портрет, монолог, диалог, мечта, пейзаж, диалектика.

Abstract

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In the short story of the independence period, Ulugbek Hamdam came to the attention of the literary community and a wide readership with the story "Loneliness". In the story, it is clearly shown that great progress has been made in elucidating the spiritual world of a person, the embodiment of his emotions. It is reflected in the work that the artist took loneliness from the title of the work to the level of motive.

Key words and word expressions: Key words and phrases: motive, modernism, story, psyche, event, portrait, monologue, dialogue, dream, landscape, dialectic.

INTRODUTION

Several studies have been conducted in world literature on the motif of "Loneliness". In particular, the works of scientists such as B. Massey, B. Middleton, A. Worsley, H. Gibson, P. Laslet were published. Psychologist Sigmund Freud explains the causes of alienation in human nature from a scientific point of view in his work "Civilization and Protests". Among the Uzbek scientists, the doctoral work of H.Umurov, A.Kholmurodov and P.Kenjayeva, Kilicheva Mehriniso's candidacy studies focused on the research of psychic charms. For example, Kilicheva Mehriniso in her candidacy research "The problem of literary influence in the interpretation of psychological situations in English and Uzbek literature" emphasizes that the motif of loneliness first met in F. Petrarch's work "The Life of Solitude". For the first time in Uzbek literature, it is stated that this motif is reflected in Yusuf Hos Hajib's work "Kutadgu Bilig" when Ozgurmish takes the path of solitude and realizes the reality of life alone. Also, in the literary studies of the 21st century, R. Saidova's treatise "Aql va ruh Bakhsi" contains comments on the interpretation of the motif of loneliness.

LITERATURE ANALYSIS AND METHODOLOGY

In Uzbek literature, from ancient times to examples of folklore, in the examples of modern literature, a strong sense of negative coloring towards loneliness can be felt. It is known that Allah created all living beings in pairs. Since ancient times, it has been said that there is goodness in living in pairs, and loneliness is characteristic of being alone. In our classical literature, the motif of loneliness is mainly used in the meanings of retreating to the bliss and purifying the soul. "The largest percentage of human sufferings are connected with invisible webs of abstract and ambiguous feelings, so that the human generation, busy with life's worries, does not even try to understand and understand the nature of such situations. Perhaps many people do not even try because they realize that this action is ineffective. But there is a category of people. They are doomed to think about a very complex and complicated process. This category is commonly referred to as the people of the pen and the people of creativity" [1;159]. Such masterpieces are created by such creative people. It is known that the artistic world of artists is formed on the basis of their life reality. U. Hamdam is one of our creators who was able to bring such reality into his artistic world. In the writer's short story "Loneliness", a diverse image of the human psyche is expressed from different angles. In our literature, the relationship between the spirit and the event is one of the primary features of the artistic work. The achievements of prose works, especially short stories, are being evaluated by the level of mental imagery, and it seems that the role of the epic narration has waned. In particular, in realistic stories, the epic narrative is primary, while in non-traditional stories, psychological analysis takes the main place. Although these two components are related to each other, one of them takes the lead in the image. The characteristic

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attitude of this situation is manifested by the priority of the psyche in the story “Loneliness” by U. Hamdam, which is the object of our research. B.Karim, Q.Yoldoshev, R.Rahmat, among our literary scholars, expressed their opinions about the work. For example, Kazoqboy Yoldoshev: In the story “Loneliness” exactly the chaos, not in reality, but the chaos in human imagination and experiences is depicted: Rather, it is the idea of giving an irregular and random flow of thoughts. looks at it as an artistic goal. It is known that there is no consistency and regularity in imagination. That’s why a person is guided by the imagination, not the imagination” [2:511]. B. Karimov agrees with Q. Yoldoshev: “Loneliness” is not dedicated to the artistic interpretation of a certain interesting event, it does not contain traditional images, images, landscapes, dialogues: it is a monologue story. In this sense, “Loneliness” appeared as a product of enthusiastic and depressed, thoughtful and thoughtless moods, nameless sufferings in the human psyche” [3;3].

RESULTS AND DISCUSSION

B.Karim, Q.Yoldoshev, R.Rahmat, among our literary scholars, expressed their opinions about the work. For example, Kazoqboy Yoldoshev: In the story “Loneliness”exactly the chaos, not in reality, but the chaos in human imagination and experiences is depicted: Rather, it is the idea of giving an irregular and random flow of thoughts. looks at it as an artistic goal. It is known that there is no consistency and regularity in imagination. That's why a person is guided by the imagination, not the imagination" [4:511]. B. Karimov agrees with Q. Yoldoshev: “Loneliness” is not dedicated to the artistic interpretation of a certain interesting event, it does not contain traditional images, images, landscapes, dialogues: it is a monologue story. In this sense, “Loneliness” appeared as a product of enthusiastic and depressed, thoughtful and thoughtless moods, nameless sufferings in the human psyche” [5;511].

CONCLUSION

In conclusion, it can be said that U. Hamdam is one of the creators who brought the motif of loneliness to the title level. Solitude reflected in the story “Loneliness” is reflected as a psychological state that purifies a person, invites him to enlightenment, helps him understand the essence of life, and encourages him to rise through contemplation. The artist skillfully used the elements of modernism and was able to reveal the image of the psyche on a large scale. Loneliness appears in the work as a motive that cleanses the human heart and leads to enlightenment.

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BOSHLANG'ICH SINF O'QUVCHILARINI MANTIQIY TAFAKKURINI RIVOJLANTIRISHDA MENTAL ARIFMETIKANING O'RNI
РОЛЬ МЕНТАЛЬНОЙ АРИФМЕТИКИ В РАЗВИТИИ ЛОГИЧЕСКОГО МЫШЛЕНИЯ МЛАДШИХ ШКОЛЬНИКОВ

THE ROLE OF MENTAL ARITHMETIC IN THE DEVELOPMENT OF LOGICAL THINKING OF ELEMENTARY STUDENTS

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Annotatsiya: Ushbu maqolada boshlang'ich sinf o'quvchilarini mantiqiy tafakkurini rivojlantirishda "Mental arifmetika"ning ahamiyati haqida ma'lumot keltirilgan.

Аннотация: В данной статье представлена информация о значении "ментальной арифметики"в развитии логического мышления младших школьников.

Annotation: this article presents information about the importance of "Mental arithmetic"in the development of logical thinking of elementary students.

Kalit so'zlar: Mantiqiy tafakkur, raqamli iqtisodiyot, mantiq, tasavvur qilish, analitik fikrlash, ijodiy fikrlash, o'quv vositasi, manfiy sonlar, iste'dod, rag'batlantirish, raqamlar yig'indisi.

Ключевые слова: логическое мышление, Цифровая экономика, логика, воображение, аналитическое мышление, творческое мышление, средство обучения, отрицательные числа, талант, стимулы, сумма чисел.

Keywords: logical thinking, digital economy, logic, imagination, analytical thinking, creative thinking, learning tool, negative numbers, talent, motivation, sum of numbers.

Bugungi kunda mamlakatimizda ta`lim tizimiga katta e`tibor qaratilmoqda. Xususan, xususiy maktablar ochilishiga ruxsat berilganligi hamda nodavlat ta`lim muassasalarining erkin faoliyat yuritilishiga keng yol ochilganligi ta`lim tizimida ham erkin raqobatning vujudga kelishiga olib keldi. Tabiiyki, raqobat bor joyda izlanish, yangilikka intilish, bu izlanishlarning natijasida yuqori sifatga erishiladi. "Mental arifmetika" kabi o`quvchilarning fikrlash qobilyatini rivojlantiruvchi, xotirasini mustahkamlovchi innovatsion dasturni olib kirilishi, endilikda ta`limda eski tizimda ishlab bo`lmasligini, ta`limga yuqoridagidek chet el tajribasida sinalgan innovatsion dasturlarni kiritish zarur ekanligi ko`rinib qoldi. Arifmetika (lotincha arithmos- son) - sonlar, sonli to`plamlarda berilgan amallar (qo`shish, ayrish, ko`paytirish va bo`lish)ni o`rganuvchi fan. Sonlar yordamida beriladigan misol va masalalar o`ziga xos sodda usullarda yechiladi.

Mental arifmetika dastlab Xitoy va yaponiyada o`ylab topilgan bo`lib, amalga joriy etilgan. Keyinchalik boshqa mamlakatlarga ham kirib kelgan. Ushbu dastur 4yoshdan 16 yoshgacha bo`lgan bolalarni abakus yordamida hayolda hisoblashga, hamda o`ng va chap qo`l barmoqlari bir vaqtda tez harakatlanishi miya o`ng va chap yarim sharlarining uyg`unlikda ishlashiga asoslangan aqlning rivojlantirishning o`ziga xos uslubidir. Mental arifmetika bilan shug`ullangan bolaning miyasida quyidagi jarayon sodir bo`ladi. Abakusda oddiy amal bajarish jarayonida miyaning chap qismi neyronlarda hisoblash amali bajarilishiga javob beradi, o`ng qismi

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esa motorika uchun,ya`ni qo`l harakatlarini boshqaradi. Miya o`rtasi esa raqamlarni eshtishni o`z boshqaruvi ostida ushlab turadi. Shu sababdan mental arifmetika bilan shug`ullangan bolalarda miyaning o`ng va chap yarim sharlari birgalikda faoliyat olib boradi. Bu mashg`ulot bilan shug`ullangan bolalar nafaqat matematika, balki boshqa fanlarni ham mukammal o`zlashtira boshlaydi. Ularning xotirasi mustahkamlanadi.

Mental arifmetikani o`rgatishda bir qancha o`quv qo`llanmalari mavjud bo`lib, ularda asosan bolaning yoshidan kelib chiqqan holda ishlab chiqilgan, ya`ni ular bosqichma – bosqich murakkablashib boradi. Avval turli xil shakillar bilan ifodalanadi, keyin esa raqamlar, formulalar aks etadi. Misol uchun: Artur Benjamin va Mixail Shermerlarning “Mental arifmetikaning sirlari” kitobi bunga yaqqol misol bo`la oladi.

Mental arifmetika dasturi bilan shug`ullangan bolalarda quyidagi qobilyatlar rivojlanadi:

- Diqqatni jamlay oladi;
- Ijodiy fikrlash qobilyati ortadi;
- Tasviriy xotira kuchayadi;
- Tinglash va kuzatuv shakllanadi;
- O`qish va anglash qobiliyati yaxshilanadi;

Hayolda qo`shish, ayirish, ko`paytirish va bo`lish amallarini tez oson va aniq bajara oladi;

- Xorijiy tillarni yaxshi o`zlashtiradi. “Yoshlikda olingan bilim-toshga o'yilgan naqsh kabidir’’.

Har bir mamlakatning rivojlanishi va taraqqiyotida ilmga chanqoq kelajagi porloq yosh avlodning o’rni beqiyos. Shunday ekan, bugungi kunda bolajonlarni maktabgacha ta’lim muassasasi yoshidan boshlab mustahkam bilimli, zamon bilan hamnafas va jahon olimpiadalarida ham o’zini yo’qotmay, ishonch bilan qatnasha oladigan ruhda tarbiyalashimiz zarur. Zero, Prezidentimiz Shavkat Mirziyoyev Miromonovich yosh avlodning tarbiyasi va kelajagi uchun alohida e’tibor qaratmoqdalar. Bunga misol qilib, kundan-kunga yangicha va jahon bilan raqobatbardosh qilib qurilayotgan va yuksak salohiyatli pedagoglarga ega maktabgacha ta’lim muassasalari, Prezident maktablarini olishimiz ham bejizga emas.

Hozirgi kunda zamon varaqlariga muhrlangan Alisher Navoiy, Al-Xorazmiy, Al-Beruniydek yuksak ilm va xotiraga ega yosh avlod o’zining qobiliyatlari bilan bizni lol qoldirmoqda. Hatto 5-6-yoshli bolaning matematik misollarni miyasida kalkulyator kabi hisoblashiga qoyil qolmay iloji yo’q. Buning imkoni yo’q deysizmi? Albatta har bir ishning chorasi topilganidek, buning ham iloji bor. Bizga yaqin yillikda kirib kelgan “Mental arifmetika” o’quvchilarda diqqatni, faollikni, tezkorlik qobiliyatlarni rivojlantiradi. Texnologiyalar rivoji va raqamli iqtisodiyotni chuqur isloh qilish davrida yashayotgan ekanmiz, har bir bolaga kelajak avlodga shu kabi xislatlarni shakllantirishimiz zarur.

Mental arifmetika bu - san’at, aql-idrokni shakllantiruvchi dasturdir. Bu dastur yordamida o’qishda muvaffaqiyatlarga erishish, hayotiy motivatsiyalar yaratish o’z maqsadlarini aniq qo’ya olish va olg’a intilish kabi qobiliyatlar shakllana boradi. Mental arifmetika o’zi nima - qisqa vaqt oralig’ida mental arifmetika ancha rivojlanayotgan bo’lsa-da, biroq hali ko’pchilikdan bir xil savolni eshitib qolamiz.

“Mental arifmetika” o’zi nima? Buni tushuntirishning oson yo’li shundaki, masalan sportning istalgan turini olib qaraydigan bo’lsak, barchasida eng avvalo tanani chiniqtirish mashqlari olib boriladi sportchi jismonan tayyor formaga ega bo’lishi kerak. Hamda muntazam ravishda sportchilar ana shunday chiniqtiruvchi mashqlarni olib boradi. Hattoki, chempionlar ham

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doimo sport formalarini saqlash ustida ishlashadi. Tinimsiz mashqlar va ko'nikmalar asl chempionning siri hisoblanadi. Intellektual yoshlar davrida ham miyamizni ishlatishimiz yuqori natijalarga erishishning muhim omili hisoblanadi. Buning uchun esa, miya faoliyatini rivojlantiruvchi effektiv mashqlar to'plami zarur. Mental arifmetikaning asosiy g'oyasi ham aynan bolalarda miya faoliyatini rivojlantirish, qobiliyatlarni paydo qilish, kreativlik ruhida kamol topishdan iboratdir.

Bir so'z bilan aytganda esa mental arifmetika - aqliy gimnastikaning tan olingan turidir. Mental arifmetika dasturi matematik amallarni miyada kalkulyatordan ham tezroq hisoblashni o'rgatadi. Shuningdek, bolada mantiq, tasavvur qilish analitik fikrlash, ijodiy fikrlash uchun keng imkoniyatlar yaratadi. Bu dastur 4 yoshdan 16 yoshgacha bo'lgan bolalarning miya faoliyatining rivojlanishiga juda ham yaxshi samara beradi. Shu yoshda bolalar xotirasi barcha darslar va yangiliklarni mukammal darajada saqlay oladi. Dasturda asosiy ishlatiladigan o'quv vositasi abakusdir. Bu vosita bilan ishlayotganda o'ng va chap barmoqlarimiz baravar ishlagan holda, miyamizning o'ng va chap yarimsharlari ham baravar ishlaydi. Natijada miya mushaklari chiniqadi va ma'lumotlarni tezda o'zlashtirib oladi.

Abakusning bolaga beradigan oltita ajoyib foydasi konsentratsiya darajasini oshiradi. Hisoblashda yordam beradigan va arifmetik misollarni tezkor hisoblash usulidir. Abakusda hisoblashda aniqlik zarur. Abakus yordamida oddiy arifmetik amallarni o'rganish oson. Bundan tashqari, maktabgacha yoshdagi bo'lgan bolalar mental arifmetika bilan muntazam ravishda shug'ullanib borishsa, maktab davrida ularda raqamlarni yozish sonlarni tushunish bo'yicha muammolar kuzatilmaydi va bu bolalarga matematika asoslari va boshqa fanlarni o'zlashtirishda juda katta yordam beradi. Ularning kundalik faoliyatlarida konsentratsiya darajasini oshiradi. Nafaqat bu, yanada yaxshi va tezroq hisoblash ko'nikmalarini oshirishga yordam beradi.

Ma'lumki, miyaning ikkita yarim sharlari bor: o'ng va chap. O'ng yarim shar tananing chap tomonini, chap yarim shari esa o'ng tomonini boshqaradi. Aksariyat odamlarda chap yarim shar til va nutqni tartibga soladi, o'ng yarim shar esa nonverbal, ijodiy qobilyatlarni boshqaradi. Xayolda ishlash usulida abakusni havoda tasavvur qilish metodikasi bolalarga miyadagi muammoning tasviriy ko'rinishini rivojlantirishga yordam beradi. Intensiv mashg'ulot orqali bu xotira quvvatini oshirishga yordam beradi. Bolalar abakus yordamida hisoblaganda ularning qo'llari, ko'zlari va miyalari birgalikda ishlaydi, miyalarida ko'rsatilgan harakatlarni eslab qolib, javobni qabul qilishda ikkilanmaydilar. Zero, zamon bilan hamnafas va mustahkam berilgan bilim yuksak marralar poydevoridir. Matematika fani bo'yicha o'quvchi, talaba va o'qituvchilar o'rtasida turli tanlovlar o'tkazib g'oliblarni munosib rag'batlantirish, olimpiada tizimini takomillashtirgan holda sovrindorlarga beriladigan mukofotlarni ko'paytirish muhimligi qayd etildi. O'qitish sifatini yangi bosqichga ko'tarish, matematika fanidan bilimlarni baholash bo'yicha milliy sertifikatlash tizimini joriy etish zarurligi aytildi. Bunday sertifikat egasiga oliy o'quv yurtiga o'qishga kirishda matematika fanidan maksimal ball beriladi.Yuqori malakali pedagoglar va ilmiy darajali kadrlar tayyorlash tizimi samarasini oshirish. Matematika insitutida ilmiy daraja beruvchi kengashga to'liq mustaqillik berish lozimligi ko'rsatib o'tildi.

Shuningdek, Matematika fanining tamal toshini Al-Xorazmiy, Ahmad Farg'oniy, Abu Rayhon Beruniy kabi ulug' bobolarimiz qo'ygan. Bu bizning qonimizda bor. Bugun matematikani fanini rivojlantirishdan maqsadimiz - matematika bo'yicha raqobat muhitini yaratish, sanoat, muhandislik yo'nalishlari bo'yicha yetuk kadrlar tayyorlash",- dedilar Prezidentimiz Shavkat Mirziyoyev Miromonovich. Mutaxassislarning ta'kidlashlaricha, matematikani yaxshi

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o’zlashtirgan o’quvchining tahliliy va mantiqiy fikrlash darajasi yuqori bo’ladi. U nafaqat misol va masalalar yechishda, balki hayotdagi turli vaziyatlarda ham tezkorlik bilan qaror qabul qilish, muhokama va muzokara olib borish, ishlarini bosqichma-bosqich bajarish qobiliyatlarini o’zida shakllantiradi. Matematiklarga xos fikrlash uni kelajakda amalga oshirmoqchi bo’lgan ishlar, tevarak-atrofda sodir bo’layotgan voqea- hodisalar rivojini bashorat qilish darajasiga olib chiqadi. Zero, matematikani yuksak cho’qqiga olib chiqish biz yoshlarning qo’limizdadir. Bejiz aytilmagan: “Matematika fanlar ichra shox-uning sirlaridan bo’lingiz ogoh”.

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МОДЕРНИЗАЦИЯ ИНФОРМАЦИОННО – МЕТОДИЧЕСКОГО СОПРОВОЖДЕНИЯ ПЕДАГОГОВ В ДОШКОЛЬНЫХ ОБРАЗОВАТЕЛЬНЫХ ОРГАНИЗАЦИЯХ

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Аннотация. В статье делается обзор научных исследований по вопросам информационно – методического сопровождения педагогов в дошкольных образовательных организациях в условиях цифровизации.

Ключевые слова: образование, педагогический процесс, информационно – методическое сопровождение, инновация, интеграция, цифровизация, цифровые ресурсы, дошкольные образовательные организации, современные цифровые технологии, повышение качества образования.

Abstract. The article provides an overview of scientific research on the issues of informational and methodological support for educators in preschool educational organizations in the context of digitalization.

Keywords: education, pedagogical process, informational and methodological support, innovation, integration, digitalization, digital resources, preschool educational organizations, modern digital technologies, quality improvement in education.

В глобальном контексте значимость интеграции цифровых технологий в научно-образовательные области обусловливает ускорение инновационного развития, повышение творческого потенциала педагогов дошкольной организации и их ориентацию на креативные подходы в работе с дошкольниками. Этот процесс влечёт за собой развитие активной профессиональной деятельности, укрепление компетенций и стимуляции нестандартного мышления среди квалифицированных специалистов. Особое внимание заслуживает инициатива ЮНЕСКО, в рамках которой проект «Bridging Innovation and Learning in TVET (BLIT)» выделяет ключевую роль новых социально-политических потребностей и требований для повышения качества образования в образовательных организациях, а также разработки инновационных способов обеспечения качества образования образовательных программ. В этой сфере актуальность обуславливают в совершенствовании методов информационно - методического сопровождения педагогов в дошкольных организациях, внедрении инновационных технологий в этот процесс, повышении качества образования и профессионального развития педагогов. Во всем мире проводятся научные исследования по преобразованию системы образования на основе инновационных идей, развитию творческих способностей педагогов и разработке методов и инструментов для оценки профессиональной деятельности. Эти исследования важны для развития навыков цифрового пользования, творческого сотрудничества, адаптивного дизайна, создания образовательной среды, основанной на инновационных подходах, и творческого интеллекта. Среди них сегодня ключевыми задачами декоммунизации являются определение компонентов информационно – методического сопровождения педагогов в цифровом обществе и совершенствование этапов, методологий и стандартов

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оценки развития компетентности в системе непрерывного профессионального роста педагогов дошкольной организации.

В рамках модернизации информационно – методического сопровождения педагогов в дошкольных образовательных организациях в Республике Узбекистан активно рассматриваются аспекты укрепления интенсификации учебных процессов, ориентированной на цифровые стратегические приоритеты, улучшение научно-методической базы для методического сопровождения и подготовки педагогических кадров по стандартам передовых образовательных подходов. Ключевые цели включают полное переоснащение цифровыми технологиями всех процессов дошкольных образовательных организации, внедрение системы мониторинга, а также интеграцию международных стандартов для комплексного оценивания качества образования и воспитательной работы. Президент Республики Узбекистан Шавкат Мирзиёев на видео селекторном совещании 5 февраля 2024 года, при обсуждении приоритетных задач в социальной сфере, отметил, что «… в рамках данной инициативы в 250 государственных дошкольных образовательных организации будет реализована цифровая трансформация» [8]. А также, на торжественной церемонии, посвященной 33-й годовщине независимости Республики Узбекистан, сказал, что «…формирование системы качественного образования, решение всех наших проблем, ответы на все вопросы – только в образовании. Ключ, открывающий все двери, – это образование и воспитание» [7]. В контексте этих мероприятий, приоритетным направлением становится создание эффективного информационно-коммуникационного пространства и обеспечение оперативной доступности данных о качестве образования для всех участников процесса.

Одним их важнейших направлений деятельности, в условиях модернизации в системе образования, является развитие кадрового потенциала. Приоритетность данного направления развития образования фиксируется в Указе Президента Республики Узбекистан №УП-152 от 30.09.2024 года «О дополнительных мерах по дальнейшему повышению качества и эффективности дошкольного образования» [1], № УП-98 от 02.07.2024 г. «О мерах по совершенствованию системы государственного управления в сфере дошкольного и школьного образования» [2], № УП-6079 от 5 октября 2020 года «Цифровое Утверждение стратегии «Узбекистан 2030» и мер по ее реализации» [3], Постановление Президента Республики Узбекистан № 426 от 2 августа 2022 года «О мерах по упрощению отношений государственно-частного партнерства в сфере дошкольного образования с помощью современных цифровых технологий» [4], в постановлениях Кабинета Министров № 802 от 22 декабря 2020 года «Об утверждении государственного стандарта дошкольного образования и воспитания» [5], № 487 от 11 июня 2019 года «О мерах по внедрению в систему дошкольного образования современных информационных и педагогических технологий» [6], а также в ряде других нормативно-правовых актов сферы.

Дошкольная образовательная организация представляет собой сложную социально-педагогическую структуру, где осуществление глобальных изменений охватывает все уровни и элементы системы – от конкретных подсистем до механизмов управления в целом. В результате таких инновационных преобразований неизбежно вовлекаются все участники образовательного процесса: воспитатели, руководители, административный персонал. Особенностью этих трансформаций выступает то обстоятельство, что наиболее значительная и ответственная доля изменений объективно возлагается на плечи

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методистам. Методистам дошкольных организаций приходится принимать ключевые решения по внедрению инноваций, обеспечивая их согласованность с текущими процессами и стратегическими задачами организации образовательного процесса. В настоящее время в системе дошкольного образования наблюдаются следующие тенденции в оказании методической помощи педагогам:

- активное совершенствование компетенций педагогов, что подразумевает как глубокое теоретическое изучение, так и практический рост мастерства;

- интеграция инновационных и цифровых технологий в образовательную практику для модернизации подготовки педагогов, оптимизации учебного процесса и повышения качества дошкольной воспитательной работы;

- систематическая методическая помощь педагогам с акцентом на улучшение их профессиональной эффективности и достижение выдающихся образовательных результатов;

- развитие у педагога способностей к адаптивному использованию передовых подходов в обучении, направленных непосредственно на успешное формирование личности ребенка дошкольного возраста.

Исследования, посвященные развитию сферы дошкольного образования, в республике осуществлены такими учеными, как Абдуллаева Н.Ш.[10], Абдурахимова Д.А., Азизова З.Ф., Бабаева Д.Р. [11], Бердалиева Г.А., Бердиева М.М., Джанпеисова Г.Е. [12], Ибрагимова Х.Н., Кодирова Ф.Р., Мирзиёева Ш.Ш. [13], Махмудова О.А., Муминова Н.С., Назирова Г.М., Режаметова Н.И., Рахимова С.С., Шаизакова Н.С., Содикова Ш.А., Туйчиева И.И., Хамдамова М.Т., Хушназарова М.Н., Хурвалиева Т.Л., Шин А.В. [14] Научные исследования, имеющие отношение к вопросам сущности и содержания современных концепций развития образовательных организаций республики, повышения качества подготовки кадров, интеграции, взаимосвязи и непрерывности в образовательном процессе, внедрения инноваций, информационно-коммуникационных технологий в образовательный процесс, отражены в работах таких отечественных ученых, как Бегимкулов У.[15], Закирова Ф.[16], Курбонов Ш., Мардонов Ш., Муслимов Н., Олимов К., Туракулов О. Х.[17], Ўразова М. Б.[18].

Вопросы, связанные с информационно-методическим сопровождением педагогов в дошкольно – образовательных организациях, выделенные в научных исследованиях известных ученых Содружества Независимых Государств (СНГ) и зарубежных стран, таких как Андреев А., Александрова Е.[20], Бережная С., Богданова С., Варганова И., Валюшина Н., Вербицкий А.[21], Вершловский С., Возгова З., Газман О., Гаврилов Н., Казакова Е., Кулюткин Е., Левкин Г., Малышева М., Найденова Н., Певзнер М., Пимонов Р., Постников П., Тарита Л., Фоменко С., Фрумина Е., которые в своих научных трудах уделяли внимание вопросам взаимодействия педагогов с детьми и важности профессиональной компетенции учителей. Зарубежные ученые Amadco A., Allen I., Combas A., Dougiamas M., Goldshmit B., Goldshmit M., Holmberg B., Kappel H., Keegan D., Keevy James [19], Kelly Shiohira, Lehmann B., Loeper J., Matlala Raymond, Maslou A., Molokwane Patrick, Polat Ye., Rassel J., Rodjers K., Seaman J., Taylor P., Yusyavichene P., Zeyer E. разработали научно-методические основы развития информационного методического сопровождения педагогов в образовательных организациях.

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Методическая поддержка представляет собой оперативное и стратегическое реагирование методиста на запросы и потребности педагогов, а также включает в себя организацию непрерывного профессионального образования и культурного развития педагогов, деятельность методических объединений и взаимодействие педагогического коллектива дошкольной образовательной организации

Разработка и предоставление информационно-методических ресурсов (включая аналитическую документацию) является ключевым направлением в создании интегрированной интеллектуальной среды для дошкольного образования. Методическая работа выступает как высший уровень профессиональной деятельности, стимулирующий прогресс педагогических знаний и умений через:

- формирование единого информационного поля
- подготовку аналитических обзоров
- развитие компетенций специалистов

В условиях модернизации образовательной сферы актуальной целью становится обеспечение условий для личностного роста педагогов, укрепление их профессионального потенциала через:

- воспитательные навыки
- коммуникативные умения
- организаторские способности
- исследовательскую активность
- проектировочные и конструктивные подходы

Таким образом, взаимодействие педагогов с методической службой становится неотъемлемым элементом системы непрерывного профессионального развития в современном образовательном процессе, тем самым становится очевидной потребность в формировании современного информационно-методического обеспечения, способного оперативно реагировать на изменяющиеся запросы педагогической среды в эпоху цифровизации образования. Эти инструменты предполагают разработать гибкие и инновационные методы, гармонично сочетающихся с международными образовательными реформами, которые будут способствовать глубокой профессионализации педагогов дошкольных образовательных организаций и общественному прогрессу качества дошкольного обучения. В контексте сегодняшних вызовов адаптация системы информационно – педагогического сопровождения педагогов дошкольного образования приобретает особую значимость, оно напрямую служит катализатором успешного развития компетенции педагогов, так и надлежащую подготовку для последующего этапа обучения детей дошкольного возраста.

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INTERPRETATION OF OUR NATIONAL VALUES IN THE "POSITION OF TEMUR".

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Annotation:

In the article we see that the teachings and works of Sahibkiran Amir Temur were created on the basis of the idea that the spiritual maturity of a person can only be achieved on the basis of possessing high morality and mastering science. The views of our great-grandfather Amir Temur on domestic cultural life are set out in his invaluable work "Tuzuklari Temur".

Keywords: national, entrepreneur, spirituality, state, great, personality, heritage, country, art.

The culture of the peoples of Central Asia is proud of its great thinkers who brought the culture of the peoples of the Middle Ages to the forefront of world culture. We always carefully study the spiritual and cultural heritage created as a result of the teachings, knowledge and experiences of our ancestors, and take a step into the future based on the noble ideas contained in them. After all, the thoughts expressed by our President Sh.M. Mirziyoyev show how important they are today. Our Head of State: We have a great history worthy of admiration. We have great ancestors worthy of admiration. We have incomparable wealth worthy of admiration. And I believe that if we are lucky, we will certainly have a great future worthy of admiration, great literature and art. [1; 482 p.]

Indeed, the rare works of our encyclopedic scientists play a huge role in the development of science and cultural life not only in our country, but also in the whole world. The peoples of the East have long produced many creators who have contributed to the treasury of world culture with their classic works. Bringing their heritage to the general public is extremely necessary for the prosperity of our culture. Today, there are many problems in the field of preserving and developing Uzbek national culture and spirituality, and it is important to preserve and determine its place in the upbringing of the younger generation. In this era of increasing technology and information flows, it is of course important to show the growing younger generation its place in determining the direction of progress towards perfection, relying on the cultural and spiritual heritage of their ancestors. The strong social policy being carried out in our country today has demonstrated significant aspects of this issue. During the years of independence, great work has been carried out and is being consistently continued to restore the ancient history and rich culture of our people, to comprehensively study and promote the scientific, religious and spiritual heritage of our great scholars and saints, to improve their holy places, and to educate the younger generation in the spirit of their noble traditions. In particular, if we consider the teachings and works of Sahibkiran Amir Temur, they are based on the assumption that a person's spiritual perfection can only be achieved through high morality and mastery of science. Our great ancestors Amir Temur's views on national

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cultural life were expressed in his invaluable work “Temur’s Regulations”. This work consists of 2 parts. The first part describes the biography, socio-political activities of Amir Temur, his acquisition of central power in Transoxiana, the elimination of political fragmentation, the establishment of a centralized state, his military campaigns, and how he treated various social classes in order to strengthen his vast empire, in a concise manner, using the language of the great Sahibkiran. The second part consists of the famous Jahangir's special testament, advice and teachings to his children. It mainly discusses who to rely on in governing the state, the attitude and duties of the crown and throne holders, the selection of ministers and army leaders, the organization of the army and the rules of warfare, the salary of soldiers, the procedure for governing the country, the duties and responsibilities of statesmen and army leaders, the way to reward emirs, ministers and other officials for their special services to the crown and throne, and others. [1; 482 p.] This work gives a person some kind of spiritual strength, enthusiasm and determination. One can often witness how vital the wise thoughts in the work are, which never get old and are still food for human spirituality today. For example, the words “I have seen in my experience that one person with firm determination, enterprise, alert, courageous and courageous is better than a thousand careless and indifferent people” cannot be denied how important they are spiritually even today.

It should be clear to all of us that where there is carelessness and indifference, where the most urgent issues are carelessly ignored, there spirituality becomes the weakest and weakest point. And on the contrary, where alertness and enthusiasm, high intelligence and thinking prevail, there spirituality becomes a powerful force.

It is also noteworthy that, despite being a strict and demanding head of state and a great commander, Amir Temur always valued scholars and talented people. “Whatever country I conquered, I held in high esteem the dignitaries of that land, I paid homage to and respected its sayyids, scholars, fuzalo and mashayhi, I gave them gifts, tasks and determined their salaries, I saw the great men of that region as my brothers and sisters, and their youth and children as my own children” [3; p. 94]. Indeed, history tells us that as the ruler of a great state, Amir Temur was a patron of religious leaders and spiritually mature intellectuals.

According to the great sahibqira, it is necessary to do good to every person who comes to him, wishing to be kind and compassionate to everyone. “Whoever comes to me from friend to enemy, I have treated my friends in such a way that their enmity has turned into friendship” [3; 63b.]. Wherever a righteous person acts with goodness, kindness and generosity, evil and enmity retreat from there. A person comes to someone with a thousand desires and hopes, seeking salvation through some work, and by easing his difficulty, he not only receives the desired satisfaction, but also does a good deed. This, in turn, creates qualities such as mutual respect, friendship, gratitude and loyalty among people.

It is unchanging that humanity has been fighting idea against idea, idea against idea, and ignorance against enlightenment. The above idea of our wise grandfather is a logical continuation of this philosophy and a summary of his own experience.

In conclusion, it can be said that the study of works such as "Temur's Regulations" plays an important role in instilling in young people not only respect for the heritage of their ancestors, but also the correct formation of their cultural and spiritual consciousness and the development of their human qualities. Through this work, Sahibkiran, with his mature political acumen, care for the representatives of science, art and literature, built a great and powerful empire and achieved a

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worthy and strong place in the history of world statehood as a patron of art and culture. After all, the spiritual heritage left by Amir Temur serves as a school of example in forming the ideas of honesty, purity, faith and patriotism in the hearts of the youth of our independent country.

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CHINESE PRESCHOOL EDUCATION SYSTEM
XITOY MAKTABGACHA TA'LIM TIZIMI.

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Annotatsiya: Ushbu maqola Xitoy davlatining ta'lim tizimi va tajribalarini o'rganish, tahlil qilishga qaratilgan shuningdek Xitoy maktabgacha ta'lim tizimi va tuzilishi haqida malumotlar keltirilgan.

Kalit so'zlar: Xitoy, talim tizimi, maktabgacha ta'lim, dastur, milliy ta'lim, maktabgacha yosh, rivojlanish.

КИТАЙСКАЯ СИСТЕМА ДОШКОЛЬНОГО ОБРАЗОВАНИЯ

Аннотация: Данная статья посвящена изучению и анализу системы образования и опыта китайского государства, а также предоставляет информацию о системе и структуре дошкольного образования в Китае.

Ключевые слова: Китай, система образования, дошкольное образование, программа, национальное образование, дошкольный возраст, развитие.

Abstract: This article focuses on the study and analysis of the education system and experiences of the Chinese state, as well as provides information on the Chinese preschool education system and structure.

Keywords: China, education system, preschool education, program, national education, preschool age, development.

Malumki har bir mamlakat o'zining milliy, etnik, ijtimoiy, madaniy, diniy qarashlariga egadir. Har bir davlat o'zi uchun rivojlanish tizimiga egadir. Rivojlanishning eng muhim bo'laklaridan biri ta'lim sohasi hisoblanadi. Hozirgi kunda hamma davlatlar bir-biridan qolishmaydigan ta'lim dasturlarini ishlab chiqmoqda. Bu sohada yetakchi davlar soni ko'plab topiladi bularga:Yaponiya, Xitoy, Janubiy Koreya, Germaniya, AQSH, Finlandiya, Niderlandiya, Buyuk Brutaniya, Polsha, Fransiya kabi davlatlar yetakchilardir. Xitoy, Yaponiya, Janubiy Koreya kabi davlatlarda ta'lim sohasida Konfutsiylik ta'limoti saqlanib qolgan hisoblanadi. Ushbu ta'limot hozirgi kunda qo'llanilmasa ham undagi ta'lim jarayonida tartib-intizom, hurmat, qattiyatlilik, masuliyat va bir qancha ko'nikmalar o'qitish sohalarida saqlanib qolgan. Bulardan Xitoy davlatini olib qaraydigan bo'lsak uning rivojlanishi uzoq davrlarga borib taqaladi. Ushbu davlatning ta'lim tizimi samarali tizimlardan biri hisoblanadi.

Xitoyda ta'limi, Ta'lim vazirligiga qarashli davlat ta'lim tizimi tomonidan boshqariladi. Barcha fuqarolar hukumat tomonidan moliyalashtiriladigan to'qqiz yillik majburiy ta'limda yani maktabda kamida to'qqiz yil o'qishlari kerak. Majburiy ta'lim olti yillik boshlang'ich ta'limni o'z ichiga oladi, odatda bu bosqich olti yoshda boshlanib, o'n ikki yoshda tugaydi, undan keyin

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esa uch yillik o‘rta ta’lim. Ko‘p odamlar o‘rta maktabni o‘rta maktabning butun 6 yili deb o‘ylashadi, lekin bu faqat birinchi 3 yil. O‘rta ta’limdan keyin uch yillik o‘rta maktab davom etadi, uning oxirida o‘rta ta’lim tugaydi. Xitoyda ta’lim tizimini tartibga soluvchi “Ilmiy darajalar to‘g‘risidagi nizom“, „Majburiy ta’lim to‘g‘risidagi qonun“, „O‘qituvchilar to‘g‘risidagi qonun“, „Ta’lim to‘g‘risidagi qonun“, „Kasb-hunar ta’limi to‘g‘risidagi qonun“ va „Oliy ta’lim to‘g‘risida“gi kabi qonunlar mavjuddir. Ushbu davlatning maktabgacha ta‘lim tizimi ham rivojlangan bo‘lib, ushbu tizim boshqa rivojlanayotgan davlatlar ham bu tajribalarini o‘zlarida qo‘llamoqda. Xitoy hukumati maktabgacha ta’limga katta e’tibor qaratib, bu sohani isloh qilmoqda. 2010-yilda qabul qilingan Milliy ta’lim islohoti va rivojlantirish rejasi (2010-2020) maktabgacha ta'limni yaxshilash uchun bir qator chora-tadbirlarni ko‘rsatdi. Shuningdek, Xitoyda ta’lim sifatini yaxshilash uchun davlat tomonidan subsidiyalar ajratiladi, lekin hali ham ko‘p joylarda maktabgacha ta’lim muassasalariga kirish imkoniyati cheklangan. Xitoyning maktabgacha ta'lim tizimi bolalarning umumiy rivojlanishiga e'tibor qaratadi, bu erda jismoniy rivojlanish, kognitiv ko'nikmalar, ijtimoiy va hissiy qobiliyatlar birgalikda rivojlantiriladi. Ta'lim dasturlari rasmiy qoidalar asosida ishlab chiqilgan bo‘lib, o‘yin orqali ta’lim berishga alohida e'tibor qaratiladi. Shuningdek, o‘qituvchilar malakasini oshirishga katta ahamiyat beriladi, ularning ko‘pchiligi pedagogika sohasida maxsus tayyorgarlikdan o‘tgan. Xitoyning maktabgacha ta’lim tizimi mamlakatning ta'lim tizimining muhim qismi hisoblanadi va asosan 3-6 yoshdagi bolalar uchun mo'ljallangan. Bu bosqich bolalarni maktabga tayyorlash, ularning bilim, ijtimoiy ko‘nikmalar va jismoniy rivojlanishini qo'llab-quvvatlashga qaratilgan. Xitoyda maktabgacha ta’lim bir necha turga bo‘linadi va ularning har biri turli yoshdagi bolalar uchun mo‘ljallangan hamda turli xil ta’lim shakllarini o‘z ichiga oladi. Ular quyidagilardan iborat hisoblanadi.

Davlat bolalar bog'chalari (Yòu' éryuán) Bu bolalar bog'chalari hukumat tomonidan moliyalashtiriladi va asosan yirik shaharlar va urban hududlarda mavjud. Ular 3 yoshdan 6 yoshgacha bo‘lgan bolalarga mo‘ljallangan. Davlat bog'chalari arzonroq va sifatli ta’lim xizmatlari ko‘rsatadi. Ular ko‘pincha yuqori talablarga ega bo‘lib, bolalarning intellektual, ijtimoiy, jismoniy va hissiy rivojlanishiga e'tibor qaratadi.

Xususiy bolalar bog'chalari. Xususiy bog'chalarning soni Xitoyda oxirgi yillarda keskin oshdi. Ular davlat bog‘chalariga qaraganda ko‘proq xizmatlar va imkoniyatlarni taklif qiladi, shu jumladan chet tillari, san’at va sport mashg‘ulotlari. Narxlari qimmat bo‘lishi mumkin, ayniqsa katta shaharlar yoki yuqori darajadagi bog‘chalarda. Ko‘plab xususiy bog‘chalar xalqaro standartlarga asoslangan dasturlarni ham taklif etadi.

Kunlik bolalar bog’chalarida qisqa muddatli ta’lim shakllari. Bu turdagi muassasalar bolalar uchun qisqa muddatli kunduzgi parvarish va ta’lim beradi. Ular asosan ota-onalari ishlayotgan vaqtda bolalarni parvarishlash maqsadida tashkil etilgan. Ushbu turdagi ta’lim muassasalari bolalarning asosan o‘yin va jismoniy faolliklarini qo‘llab-quvvatlaydi.

Chet tiliga asoslangan bog’chalar. Ko‘plab xususiy maktabgacha ta’lim muassasalari, ayniqsa, chet tilida o‘qitishni taklif qiladigan bog‘chalar tobora ommalashib bormoqda. Ingliz tili eng ko‘p o‘rgatiladigan til bo‘lib, bu bolalarni xalqaro maktablarga tayyorlashga yordam beradi. Xalqaro oilalar uchun yoki Xitoyda ishlovchi xorijiy fuqarolar farzandlari uchun maxsus xalqaro maktabgacha ta'lim muassasalari ham mavjud.

Qishloq bolalar bog'chalari. Xitoy qishloqlarida maktabgacha ta’lim imkoniyatlari shaharlardagidan farq qiladi. Davlat tomonidan subsidiya ajratilsa-da, qishloq joylarda bolalar

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bog'chalari soni kamroq va xizmatlar unchalik keng qamrovli emas. Bu hududlarda maktabgacha ta'limga kirish imkoniyati cheklangan bo'lib, qishloq aholisining ko‘p qismi xususiy bog‘chalarga borish imkoniyatiga ega emaslar.

Xitoyda bolalar bog’chasi katta bo’lib, o’rtacha 270 bola va 60 ta tarbiyachilar jamoasidan iborat. Guruhda 26 ta bola bo’lib, ularning bir qismi bog’chada kunduzgi soat 8:00 dan 18:00 gacha bo’ladilar va kechqurun uyga ketadilar. Bir qismi (5%) kechasi ham qoladilar. Chorshanba va shanba kunlari uyga ketadilar. Bog’chaga qabul soat 7:45da boshlanadi. Hozirgi kunda Xitoyda hususiy maktabgacha ta‘lim muassasalari ommaviylashgan bo‘lib ular umumiy maktabgacha ta‘lim muassasalarining 30 foizini tashkil etadi. Xitoy maktabgacha ta‘lim tizimida STEAM ta‘lim texnoligayisi joriy etilgan bo‘lib u orqali bolalarga har tomonlama individual bilimlar berib boriladi. Xitoy maktabgacha ta‘lim tizimi ushbu texnologiyani yanada rivojlantirishga etibor qaratmoqda.

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The Global Gig Economy: Opportunities and Challenges for Freelancers and Businesses

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Abstract

The gig economy has revamped work opportunities for the freelancers and the businesses that have seen a new change in the structure of labor markets. In this article, the author enlarges the possibilities related to furthering workers' independence and work scale on digital platforms along with the drawbacks comprising of income fluctuation and the absence of legal rights for people performing work on such platforms. By reviewing literature in the area, it outlines the policy approaches that should be adopted to meet the flexibility for efficiency and fairness in economic growth for gig workers and firms. Solutions are related to increasing worker remuneration, constructing and defining legal rights and responsibilities, and training to secure better employment and long-term labor mobility.

Key words: economy Gig, Freelancer, Digital tools (platform), work flexibility

1.Introduction

This paper aims to scrutinize the global gig economy, which has emerged as a popular phenomenon that rapidly pervaded every sphere of people's work and businesses. The gig economy is an environment that encompasses temporary flexible engagements and it entails those who make independent contracts as freelancers, temporary or 'gig' contractual employees and even platform-based workers in either cyber space or online work. Thus the transformation is no longer a fixed autocratic stance of employment paradigms and opens a brand new door to competent worker remuneration and manpower accommodation opportunities.

On the one hand, freelancers have control over selecting project and clients, working hours, whereas on the other hand, businesses are privileged to save money on maintaining employees, have options of expanding the business easily and experience experts from all around the world. The numbers of freelancers using and benefiting from online platforms such as Upwork, Fiverr, and Toptal where different businesses get access to skilled professionals are in millions. McKinsey said the gig economy contributed about $1.4tn to the US economy in 2023 with the exponential growth expected over the next few years across the world.

Nevertheless, the employment of the gig economy faces problems. Many freelancers suffer fluctuating income, no social protections, and job security issues; while many companies struggle with how to manage a dispersed and independent workforce. On the same note, there is legal question on whether the services provided deserve legal shield, taxation questions, as well as dependence of the sector on the platforms which remain hurdles towards the realization of sustainable growth of this sector.

The Gig economy in the modern society means a great prospect to outline the main changes and concerns of both freelancers and businesses. Therefore we are going to look at some of the benefits of this style of working and learn how to make the most of the economy in addition to its drawbacks.

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2.Literature review

Freelance marketplace platforms like Upwork, Fiverr as well as Task Rabbit have emerged and shifted mercado popular contracts' perception for they allow clients to access freelancers all over the world who possess deep and specialized knowledge in their respective fields. According to McKinsey, digital platforms have lowered the threshold for entry for organisations, providing SMEs access to professional help as and when required – for instance, for marketing initiatives, or app creation. To the freelancers, these platform bring flexibility with self-employment. Essentials of interstate survey by McKinsey called the American Opportunity Survey reveal that 25% of the independent workers chose freelancing due to flexibility while 32% attributed flexibility, autonomy and creativity as factors that motivated them to become freelancers.

However, there are certain difficulties in the framework of the gig economy. Most of the freelancers do have no access to some of the employment privileges that consist of medical care and retirement among others privileges that are mostly found in permanent employment. According to the McKinsey Global Institute, only 32% of the gig workers in the United States receive health insurance cover from their employers.

Another important problem relates to the income variability. There isn't a definitive answer whether gig economy workers earn significantly others but a large portion of high earners complain about unstable income and job instability. Freelancers are mostly on the mercy of not only previous clients but also working on algorithm of freelancing platforms they use.

3.Research Methodology The present article, adopting a secondary research approach, explores the prospects and issues arising from the worldwide gig economy. This approach gives a clear picture of gig economy's operations from the findings collected from other credible sources hence skipping the steps of data gathering from primary sources.

The study samples and analyses existing academic articles, industry reports, and case studies to investigate the main trends and concerns in the gig economy. Information from other websites including Upwork & Fiverr and journal articles including Harvard Business Review and the World Economic Forum has been used. That is, this approach focuses on such drivers which are more subjective in nature including freelancer's motivation and business models to manage the gig workers.

Industry reports, cross-sectional, and international research data sources like the International Labour Organization (ILO) and Pew incorporate prevalence rates of gig economy engagements, income earner's income, and the economic value added. For instance, the ILO provides information on freelancers' characteristics while the Pew Research provides information on gig worker satisfaction and income certainty.

4.Research Findings

Opportunities for Freelancers

For freelancers in particular, the gig economy provides a lot of freedom that is evident from the digital platforms. The ILO says that gig work lets employees integrate into global markets and develop multiple streams of income. Such flexibility is suitable for employees who are struggling to balance between family and career. Web sites such as Upwork and TaskRabbit generate employment experiences, project acquisitions, and appropriate payment plans.

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Also, according to the World Economic Forum's report, while explaining the benefits for workers, gig platforms are claimed to lower the entry hurdles for workers, suggesting that people with disparate educational and social backgrounds can get involved. This has resulted into improvement in employees' diversity, especially in the areas where there are few conventional employment openings.

Opportunities for Businesses

Small and medium enterprises include the use of independent workers because it is less costly to hire freelance workers than to train new staff to perform a particular task. As stated by the World Economic Forum, outsourcing freelance solves the problem of coping with an increased number of orders during the productive period without hiring full-time employees. For instance, in marketing communication strategies, most firms will hire gig workers to conduct campaigns, product launches, and marketing events as they are cheaper compared to other employees.

Challenges

While this form of employment is advantageous it does not provide stability and job security that full-time employment provides. Freelancers, on average, complain of fluctuating income, and job insecurity, and come with few employee privileges such as medical cover and retirement plans. According to the ILO, contract workers in developing areas experience low skill deployment and adverse job conditions.

Also, there is a strong reliance on the platform as well. Freelancers depend on algorithms in order to gain visibility and thus they are at the mercy of the platforms that they operate on, should this policy change or the fees associated with each platform be adjusted. According to the World Economic Forum that stresses fairness, freelancer cannot be protected from exploitation.

Organizing a decentralized gig workforce is a problem that every business encounters. Some challenges include; maintaining quality control, meeting local employment laws and regulations and the need to retain organizational unity. The World Economic Forum notes that there is a need for setting up coherent standards for politico-legal frameworks in relation to the rights of the workers, as well as preserving the citizens' freedom.

5.Discussion

The global gig economy can be classified as a new model of work organization and has both opportunities and risks for freelancers, and companies. This discussion goes deeper on this shift's emerging pattern, providing new perspectives to supplement the research conclusions.

The changing nature of work for freelancers

Of all economic entities, freelancers now enjoy unprecedented levels of power due to the gig economy. Services like Fiverr and Freelancer.com have redefined work since they have broken employment barriers allowing anyone who needs work, to engage the world in doing a skill that he is specialized in for a fee. But as a recent report from the International Labour Organization ILO states, a significant part of gig workers still stays underemployed with some of the workers being unable to find projects that suit their skill levels.

It has also brought independence to the working environment since workers can decide when to work and what project to take. However, this kind of freedom is characterized by instabilities where one will have to rely on hope of getting jobs for him or her to make earnings. Closing this split entails increased demand for support from the platforms in way of guaranteed minimum pay or minimum income insurance.

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Ways Business adapt to New Environments and grow.

For businesses the gig economy drives fast growth and cheap solutions. Large enterprises can obtain relatively short-term or specific work without hiring people as regular employees of the company. This flexibility is particularly useful for start-ups and SMEs who are aspiring to NGOs with more extensive organisations. But the use of gig workers adds extra challenges, like quality assurance, making sure they are in line with the company's vision and goals.

Companies that use gig work are also exploring new ways of working. Because of the flexibility and convenience that freelancers bring, said the World Economic Forum, firms are now applying technology to organize and execute theirs talent procurement and management solutions for the hiring of freelancers including onboarding as well as contracting and payment.

These policy and regulation children are some of the biggest challenges

Legal requirements to the gig economy are still inapplicable or unequal across territories, which incurs risks for both the workers and the employers. Worker categorization—whether gig workers are actual employees or contractors is not clear up to this date. Individual work-country relations have been complemented by transitional hybrid classifications that provide only partial pensions, and widespread acceptance of such reforms remains sluggish, as in Germany. Also, legal loopholes mean the freelancer cannot have benefits you and I enjoy today; health covers, sick days or even any form of retirement benefits. Elected to help remedy these discrepancies, the ILO supports portable benefit structures allowing gig workers to transfer their benefits between employers and platforms.

Future Prospects

Gig economy is likely to grow due to an upsurge in the rate of digitalization. AI, for instance, seems to solve some of the current problems through the improvements in payments and worker rating. However, integrating the gig economy in a way that affords both a better quality of life to its workers and conforms to the needs of the existing governmental and industrial regulatory frameworks will require some effort in furthering these technological advancements.

6.Conclusion and Recommendations

The popularity of summons of the gig economy imposes both remarkable benefits and risks to freelancers and enterprises as well. Independent workers enjoy increased versatility and a pool of talent from around the world, whereas companies must be able to expand their operations and decrease expenses at their offices. But there is still income insecurity, absence of entitlements, and legal uncertainties to limit the contribution of the gig workforce.

Also here, my recommendations:

1 Support Fair Compensation: Gig economy has mature features and should therefore have systems put in place to deal with pay and other benefits such as the income insurance and retirement for the gig workers.

2 Strengthen Legal Protections: This leaves governments and businesses to fashion better classifications of workers and social protection to freelancers.

3 Promote Training and Development: Platforms and businesses should support packages to enable the gig workers to gain new skills in order to enable long-term viability on the platforms.

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СРАВНИТЕЛЬНЫЙ АНАЛИЗ ПРОЧНОСТИ БЕТОНА С ИСПОЛЬЗОВАНИЕМ СУПЕРПЛАСТИФИКАТОРА И БЕЗ НЕГО

д.т.н. доц. Ахмедов К., магистр Авезова Н.

Аннотация

В статье представлены результаты сравнительного анализа прочности высокопрочного бетона с применением суперпластификатора на основе поликарбоксилатэфирной смолы и без его использования. Исследование показало, что добавка значительно увеличивает прочностные характеристики бетона, а также снижает себестоимость за счёт оптимизации водоцементного соотношения и уменьшения расхода цемента.

Ключевые слова: высокопрочный бетон, суперпластификатор, поликарбоксилатэфирная смола, водоцементное соотношение, прочность бетона

Введение

Высокопрочный бетон используется в строительстве объектов с повышенными требованиями к прочности и долговечности. Одним из способов повышения прочности бетона является применение химических добавок, в частности суперпластификаторов. Целью данной работы является анализ влияния суперпластификатора на основе поликарбоксилатэфирной смолы на прочностные характеристики бетона и оценка экономической эффективности его применения.

Методика исследования

Для проведения эксперимента использовался портландцемент марки ЦЕМ II/А-К (Ш-И) 42,5Н Extra cem 450+ производства ТОО «Шымкентцемент», Казахстан. Бетонные смеси были разделены на две группы:

1. Контрольная группа — бетон без добавки.
2. Экспериментальная группа — бетон с добавлением суперпластификатора.

Бетонные образцы (размером 100×100×100 мм) испытывались на сжатие в возрасте 7, 14 и 28 суток. Средние результаты прочности вычислялись на основании испытания 10 образцов из каждой группы.

Результаты и обсуждение

Результаты испытаний представлены в таблице 1.

Возраст образцов, сут	Средняя прочность бетона без добавки, кгс/м²	Средняя прочность бетона с добавкой, кгс/м²
7	338	427
14	343	448
28	356	495

Как видно из таблицы, применение суперпластификатора обеспечивает увеличение прочности бетона в среднем на 32%. Основная причина — улучшение структуры цементного камня за счёт равномерного распределения частиц цемента и снижения водоцементного соотношения.

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Параметр	Средняя вес с добавки, кг	Средняя вес с добавкой, кг
Цемент	427 кг	566 кг
Вода	190 кг	235 кг
Водоцементное соотношение	0.40	0.42

Кроме того, использование суперпластификатора позволяет уменьшить расход цемента в смеси на 10-15%, что снижает себестоимость 1 м³ бетона на 5-8% без потери эксплуатационных характеристик.

Выводы

1. Применение суперпластификатора на основе поликарбоксилатэфирной смолы повышает прочностные характеристики бетона на всех этапах его твердения.
2. Использование добавки способствует снижению себестоимости бетона благодаря уменьшению расхода цемента и оптимизации состава смеси.
3. Результаты исследования подтверждают целесообразность использования суперпластификаторов для производства высокопрочного бетона в строительной отрасли.

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LINGUOPOETICS OF THE EPIC OF ALPOMISH
ALPOMISH DOSTONI EPOSINING LINGVOPOETIKASI
ЛИНГВОПОЭТИКА ЭПОСА АЛПОМИШ

Xakimova Maxsudaxon G‘ofurjon qizi FarDU 2-bosqich tayanch doktoranti.

Annotatsiya

Maqolada Alpomish dostonining lingvopoetikasi, doston tili, arxaik so‘zlar, dostonda qoop‘llanilgan badiiy tasvir vositalari tahlilga tortilgan. Shuningdek, dostonda etimologik 0jihatdan ko‘proq o‘z qatlamga mansub lug‘aviy birliklar, shuningdek, o‘zlashgan qatlamga mansub lug‘aviy birliklarning o‘zaro ma’nodoshlik hosil qilganligi kuzatilgan.

Аннотация

В данной статье анализируются язык саги об Алпомиш, диалект саги, архаические слова, а также средства художественного изображения, использованные в саге. Также замечено, что в достане этимологически лексические единицы, относящиеся к своему слою, а также лексические единицы, принадлежащие к ассимилируемому слою, образуют взаимное значение.

Abstract

The article, the language of the Alpomish saga, the dialect of the saga, archaic words, and the means of artistic representation used in the saga are analyzed. Also, it was observed that in dostan etymologically, lexical units belonging to their own layer, as well as lexical units belonging to the assimilated layer, formed mutual meaning.

Kalit so‘zlar: Alpomish eposi tili, leksik va ma’noviy xususiyatlar, o‘z va o‘zlashgan qatlam leksemalari, Alpomish dostoni dialekti, arxaik so‘zlar, sinonim, antonim so‘zlar.

Ключевые слова: Язык эпоса Алпомиш, лексические и духовные особенности, лексемы собственного и приобретенного слоев, диалект эпоса Алпомиш, архаические слова, синонимы, антонимы.

Key words: The language of the Alpomish epic, lexical and spiritual features, lexemes of the own and acquired layers, the dialect of the Alpomish epic, archaic words, synonyms, antonyms.

O‘zbek xalqi o‘zining g‘oyat qadimiy madaniyati va serqirra ijodiy salohiyati bilan jahon tamadduni taraqqiyotiga ulkan hissa qo‘shib kelayotgan xalqlardan biri sanaladi. Xalq og‘zaki ijodi namunalari bebaho badiiy qadriyatlar silsilasi o‘laroq, milliy qadriyatlarimizning qadimiy, avloddan avlodga o‘tib, sayqallanib kelayotgan ijodiy jarayoni hisoblanadi. Xalq dostonlari qadimiy bebaho ma’naviy va ma’rifiy boylik sifatida davrlar osha shakl va mazmun jihatdan turli variantlarda ajdodlardan avlodlarga og‘zaki shaklda yetib kelayotgan til manbasidir.

“Alpomish” dostonining poetik xususiyatlarini tahlil qilar ekanmiz, avvalo, unda qo‘llangan so‘zlarning mazmun mohiyati asosiy o‘rinda turadi. Shuning uchun dostonda qo‘llangan so‘zlarning etimologik qatlamlarini belgilash ham muhim ahamiyatga ega. “Alpomish” dostoni leksikasini kuzatar ekanmiz, unda qo‘llangan so‘zlarning ko‘pchiligini bevosita umumturkiy so‘zlar, ya’ni o‘z qatlam leksemalar tashkil etgan.

“Alpomish” dostoni bir oila taqdiri tasviri misolida butun bir bashariyat uchun ibrat timsoli sifatida ardoqlanib kelmoqda. Shu o‘rinda birinchi prezidentimiz I.A.Karimovning nihoyatda

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purma'no so'zlarini eslash kifoyadir: "Aslida xalqimizning qadimiy va shonli tarixi tuganmas bir doston bo'lsa, "Alpomish" ana shu dostonning shohbaytidir. Bu mumtoz asarda tarix to'fonlaridan, hayot-mamot sinovlaridan omon chiqib, o'zligini yo'qotmagan xalqimizning bag'rikenglik, matonat, olijanoblik, kabi ezgu fazilatlari o'z ifodasini topgan". [1.78]

Malumki, tildagi ichki va tashqi omillar asosida yuz bergan o'zgarishlar, eng avvalo, tilning lug'at tarkibida aks etadi. Chunki leksika tilning eng tez o'zgaruvchan sohasidir. Har bir so'z millatning o'ziga xos belgilarini aks ettiradi. O'zbek eposshunosligida xalq dostonlarining poetikasi, tili va badiiy tadqiqi xususiyatlari yuzasidan ko'plab ilmiy tadqiqot ishlari olib borilgan. Jumladan, T.Mirzayev, X.Doniyorov, B.To'ychiboyev, S.Tursunov, Z.Xolmanova, Sh.Mahmadiyev, G.Jumanazarova, O.Safarov, H.T.Zarifov, B.Sarimsoqov, N.Mahmudov, Sh.Turdimov, S.Mirzayeva kabi filolog olimlarning bu borada olib borgan tadqiqotlari alohida tahsinga loyiq.

O'zbek tili Markaziy Osiyodagi qadimiy, mahalliy xalqlarning turkiy tillar tizimidagi tillardan biri bo'lib, uning lug'aviy tarkibi, grammatik qurilishi ham o'zining uzoq tarixiga ega. Hozirgi o'zbek tili leksikasi o'zining butun taraqqiyoti jarayonida shu tilning ichki va tashqi rivojlanish qonuniyatlari asosida boyib borgan, bu tilning so'z boyligi, leksik-semantik tizimi sifatida shakllangan yaxlit bir sistemadir.

"Alpomish" dostoni xalq og'zaki ijodining nodir yodgorligi sifatida ijtimoiy, siyosiy va axloqiy, ta'limiy qarashlarni badiiy jihatdan mujassamlashtiradi hamda tarix, adabiyot, etnografiya, tilshunoslik va boshqa sohalarga oid qimmatli ma'lumotlarni o'zida ifoda etgan nodir yodgorliklardan biri sanaladi.

Har qanday til, u qabila tili bo'ladimi, millat tili bo'ladimi, o'zining ma'lum miqdordagi so'z boyligi va til birliklariga ega bo'ladi. O'zbek tili lug'at tarkibining deyarli yarmini turkiy so'zlar tashkil etadi. Shu bilan bir qatorda tilimizda xitoycha, arabcha va fors-tojikcha o'zlashma so'zlar va til taraqqiyotining keyingi bosqichlarida yuz bergan siyosiy, ijtimoiy omillar ta'sirida yana boshqa turli tillardan so'zlar o'zlashish hisobiga boyidi. Shunga ko'ra o'zbek tili lug'at tarkibi tarixiy shakllanish jihatidan ikki qatlamga: o'z qatlam va o'zlashgan qatlamga ajratiladi.

"Alpomish" dostonida qo'llangan so'zlar etimologik jihatdan tahlil qilinganda shu narsa ma'lum bo'ldiki, dostonda turkiy, o'zbekcha so'zlar bilan bir qatorda ko'plab arabcha, fors-tojikcha, qisman bo'lsa-da, xitoycha so'zlar qo'llangan.[2.96]

O'z qatlamga mansub leksik birliklar: asarda qo'llangan o'z qatlam umumturkiy (o'zbekcha) so'zlar ko'p miqdorni tashkil etadi. O'z qatlamga oid so'zlarning tilda mavjudligi juda qadimiy bo'lib, u oltoy oilasidagi tilda so'zlashuvchi xalqlar hali ajralib ketmay turib, tillari bitta bo'lgan davrda yuzaga kela boshlagan. Bu so'zlar asrlar davomida turkiy tillar uchun yangi so'zlar yasash orqali leksikani boyitishda asos vazifasini o'tab kelgan. Umumturkiy so'zlarni ma'lum darajada barcha turkiy tillar uchun mushtarak deyish mumkin. Masalan, kel, men, sen, ol, qil, tur, bor, yot, o'yna, bir, ayt, tun, kun va boshqalar.

Tilimizning lug'at tarkibiga e'tibor bersak, u turli tarixiy taraqqiyot bosqichlarida turli sabablar, turli tarixiy jarayonlar ta'sirida boyib, taraqqiy etib kelganligini ko'ramiz. O'zbek tili lug'at tarkibining tashqi manbalar, ya'ni boshqa tillardan so'z o'zlashtirish hisobiga boyishi, kengayishi ham alohida ahamiyat kasb etadi.[3.98]

"Alpomish" dostonining leksik tarkibini tahlil qilar ekanmiz, asarda, asosan, umumturkiy qatlamga mansub so'z va iboralar miqdor jihatdan ko'pchilikni tashkil etsa-da, unda xitoycha,

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arabcha, fors-tojikcha o‘zlashma leksemalar, shuningdek, eskirgan so‘zlar hamda shevaga xos so‘zlar ham keng qo‘llangan.

Arxaik so‘zlar ehtiyoj talabiga ko‘ra, zamonaviy sinxronik nutqda ishlatiluvchi, ammo zamonaviy normaga kirmaydigan so‘zlardir. Dostonda bunday so‘zlar ham kam miqdorda bo‘lsa-da uchraydi. Masalan, sag‘ir (yetim), tumog‘ (bosh kiyim), mahshar (hisob-kitob kuni), tabib (shifokor), ko‘tohlik (ayb, gunoh), muzofot (hudud), manglay (peshona), pir (ustoz, aziz-avliyo).

“Alpomish” dostonida sinonim, antonim so‘zlar, iboralar, shuningdek, mubolag‘a, o‘xshatishli konstruksiyalar hamda metaforik birikmalar ham juda keng qo‘llangan. Bu kabi til vositalari, ayniqsa, xalq og‘zaki ijodi namunalari uchun muhim tasvir vositasi sifatida ahamiyatlidir. Dostonda qo‘llangan sinonim so‘zlarni o‘rganish orqali biz sinonim so‘zlarning tilning ichki va tashqi taraqqiyot qonuniyatlariga muvofiq asta – sekinlik bilan rivojlanganligini, doston tilini boyitishga, uslubining jozibador, mazmundor, va ta’sirchan bo‘lishiga xizmat qilganligini anglab yetdik. Misol: og‘a, aka, emikdosh; tangri, xudoy, haq, oblo, rabb; el, xalq, xaloyiq; qismat, taqdir; shoh, sulton. Shuningdek, dostonda antonim so‘zlar ham keng qo‘llangan. Dostonda insonning turli xususiyatlarini, ruhiy holatlarini anglatuvchi antonimik juftliklarni ko‘plab uchratish mumkin. Bu tabiiy, chunki badiiy asarning asosiy maqsadi ham inson ma’naviy olamini so‘z orqali ifodalash hamda tarbiyalashdan iborat. Masalan, dostonda qo‘llangan antonim so‘zlar barcha so‘z turkumlari orqali ifodalangan: Masalan, ot (yer-osmon, rost-yolgon, shoh-gado, do‘st-dushman, aka-uka),sifat (yaqin-uzoq, o‘lik-tirik, katta-kichik, yosh-qari, yaxshi-yomon), ravish (qish-yoz, erta-kech, oqshom-kunduz), fe’l (yashamoq-o‘lmoq).

Dostondan qo‘llangan mubolag‘ali tasvirlar o‘quvchini yoki tinglovchini turli vaziyatlar bilan bog‘liq holatlarda qahramonlarning alohida, o‘ziga xos sifatlarini, belgilarini idrok etishga, baholashga undaydi. Mubolag‘a shunchaki bo‘rttirish, kuchaytirishgina emas, aksincha bo‘rttirilayotgan belgilarning ham ma’lum maqsadga qaratilganligi nuqtai nazaridan ham xarakterlanadi. Demak, mubolag‘ali tasvirlar bo‘rttirish, kuchaytirish orqali o‘quvchini tasvirlanayotgan obrazlarning belgi-xususiyatlarini idrok etish va unga nisbatan emotsional munosabatini shakllantirishga xizmat qiladi.

Badiy adabiyot tilining tasviriy vositasi sanalgan o‘xshatish o‘zining obrazlilik, tasviriylik emotsional ekspressivlilik kabi xususiyatlari bilan badiy asar tilida yaqqol sezilib turadi u badiiy asarning barcha komponentlari: portret, ruhiy kechinma, peyzaj, xarakterlar tasvirida qo‘llaniladi va badiy asar yuzaga keladi. Birorta baddiy asar yo‘qki, unda o‘xshatish qatnashmagan bo‘lsa. Umuman, badiiy asarning badiiylik belgisi o‘xshatish, sifatlash, metofora, jonlantirish kabi tasviriy vositalar orqali ifodalanadi. “Alpomish” dostonining badiiyligini ta’minlovchi vositalar sirasida o‘xshatishlar alohida ahamiyatga ega. Dostonda qo‘llangan o‘xshatishlar epik qoliplar tarzida ko‘p holatda takror holda qo‘llanib, ma’noni kuchaytirishga hamda obrazlilikni ta’minlashga xizmat qilgan.

Xalq dostonlari tilida dialektizmlarning qo‘llanilishi yozma adabiyotdagidan ancha farq qiladi. Chunki yozma adabiyotda dialektizmlar, asosan, personajlar nutqida qo‘llanadi. Muallif nutqida esa juda kam ishlatiladi. Xalq dostonlari tilida esa muallif va qahramonlar nutqi bir-biridan keskin farq qilmaydi. Chunki uning ijodkori ham, shu xalq yoki ma’lum bir sheva vakili hisoblanadi. Dostonlar tilidagi dialektizmlar muayyan sabablar asosida qo‘llanadi va quyidagi vazifalarni bajarishga xizmat qiladi.[4.99]

Sinonim so‘zlar. Sinonim so‘zlar har qanday badiiy asarning emotsionalligini, uslubiy jihatdan ravonligini, mazmundorligini oshirishga xizmat qiladigan lug‘aviy birliklar sanaladi.

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Xususan, “Alpomish” dostonida ham sinonim so‘zlar juda o‘rinli qo‘llangan bo‘lib, aynan doston tilining jozibadorligini, musiqiyligini, rang-barangligini ta’minlashga xizmat qilgan. Dostonda quyidagi sinonimik qatorlarni keltirish mumkin: chog‘lanib, sozlanib; yolg‘iz, egiz; xalq, xaloqiy, el; xudo, yaratgan, oblo, haq, egam, rabb; shod, xurram; mol, dunyo; shoh, sulton; noiloj, nochor; chopar, arizachi; ota, bobo, qiblagoy; ko‘k, osmon, havo, falak; dushman, g‘anim; og‘a, aka, emikdosh; joy, mazgil; go‘riston, mozorot; sarson, sargardon; farmon, amr, buyruq; ayol, juvon, xotin; jabr, zulm, qismat, taqdir va hokazo.

Masalan:

Toychixon amriman jallod kelgandir [5.29]

Shunday bo‘ldi haqdan menga farmonlar [6.193]

Har na qismat yozilgandan bilaman,

Azaliy taqdirga nimish qilaman [7.11]

Qizu juvon bari yig‘ilib keladi.

Ayollari to‘qiz tovoq qiladi.

Antonim so‘zlar. Dostonlarda tazod badiiy san’atidan foydalanish so‘zlarning, badiiy nutqning ifodaliligi, ekspressivligi, tasirchanligini ta’minlashda qulay vositalardan biri sanaladi. Tazod asarning badiiy va tasviriy xususiyatlarini oshirishda muhim ahamiyat kasb etadi. Badiiy adabiyotda bu hodisa “antiteza” deb yuritiladi. Badiiy adabiyot tilidagi antiteza usuli (mumtoz adabiyotda bu usul tazod deb yuritiladi) bir-biriga nisbatan qarama-qarshi ma’nolarni beruvchi so‘zlarni, iboralarni bayonda yonma-yon qo‘llash orqali obrazlilikni keltirib chiqarishga asoslanadi.

Xulosa sifatida aytish mumkinki, dostonda o‘z va o‘zlashgan qatlamga mansub leksik birliklar hamda dialektal leksik birliklar ham faol qo‘llanganligi doston badiiy tilini yanada oshirgan. Shunga ko‘ra, avvalo, dostonda qo‘llangan so‘zlarni ikki qatlam, ya’ni o‘z qatlam va o‘zlashgan qatlamga ajratib tahlil qilish til uchun juda muhim aspektdir.

Dostondagi o‘z qatlam leksemalari bu hozirgi o‘zbek adabiy tili va shevalarida qo‘llanuvchi so‘zlar hisoblanib, qadimiy davrlardan bugunga qadar ishlatilib kelinayotgan so‘zlardir.

O‘zlashgan qatlam so‘zlar esa hozirgi o‘zbek tili lug‘at tarkibining tahminan yarmini turkiy so‘zlar tashkil qiladi. Xususan, dostonda ham o‘zlashgan qatlamga mansub so‘zlar ko‘plab qo‘llangan.

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SELECTION OF LONG-LENGTH PEASANT VARIETY SAMPLE FROM THE COLLECTION NURSERY

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Annotation. The article presents information about chickpea varieties with high and low pod heights above the ground, selected from a collection nursery.

Key words: chickpea, variety, plant height, pod height above ground.

Chickpea is an annual plant belonging to the genus Cicer of the Fabaceae family. Currently, there are 27 species of chickpea, of which only one species, Cicer arietinum L., is cultivated as a cultivated crop [5], [2], [7]. All varieties of this species are divided into 2 groups according to their use: food varieties - the grain of these varieties is light yellow and is used for food: fodder varieties - the grain is dark brown and is mainly used for animal feed [8].

The height of the food pea plant, the height of the lower pod above the ground, and the upright growth of the stem are of great importance for mechanized harvesting of the grain crop.

In legumes, including chickpea, the upper part of the stem of the above-ground organs does not end with a flower. Therefore, the pea plant can grow for a long time, not limited by favorable environmental conditions. In plants, under the influence of external environmental factors, namely, a decrease in soil moisture and an increase in air temperature, as well as with the onset of the generative period of plant development, the growth rate (speed) decreases significantly. The fact that light, heat and moisture have a greater effect on the growth rate of a plant than external environmental factors has been confirmed by many years of experiments.

Many scientists from many countries who conducted research on the creation of new varieties of pea plants, recognizing the importance of plant height, have always selected tall, densely located varietal specimens for the parent forms [5]. Rustamov S. noted in his scientific research that there is a positive correlation between tallness and late maturity of peas [6].

When studying pea varieties belonging to geographically different ecotypes (Asia, Mediterranean, Europe) in irrigated lands of Uzbekistan, the growth rates of plants belonging to these ecotypes varied during the growing season. The highest indicator was observed in the

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European ecotype, where its plant height reached 87 cm, or 21.3 cm higher than the Asian ecotype and 19.7 cm higher than the Mediterranean ecotype (Hamdamov I., Narzullaeva M., 2012).

Materials and methods. 204 pea varieties studied in the collection nursery of the Laboratory of Legume Selection and Seed Production of the Lalmikor Research Institute of Agriculture were considered experimental materials.

Experimental observations and analyses were analyzed according to the methodological manuals of the DDEITI Gallaorol ITS [1], the All-Union Institute of Plant Science [3], and the classifier of the former All-Union Research Institute of Plant Science (RODA CICER L.1980) [4].

According to the results of biometric analysis, pea varietal samples were divided into 5 groups according to height. Varietal samples with a height of <25 cm were classified as very short, 26-30 cm as short, 31-35 cm as medium, 36-40 cm as tall, and those with a height of more than 41 cm as very tall.

The classifier (RODA CICER L.1980) - methodological manual indicates the division of pea variety samples into groups according to the growth period: very early (ripening >5 days earlier than the standard), early (ripening 3-5 days earlier), medium (ripening up to 2 days earlier, ripening on the same day and up to two days later), late (ripening 3-7 days later), very late (7< days).

Research results. According to the results of biometric analysis, it was determined that 17 varieties belonged to the very short group, 87 to the short group, 66 to the medium group, 25 to the tall group, and 9 to the very tall group.

There were 15 cultivars with pods below 15 cm from the ground, and 181 cultivars with pods between 15 and 25 cm. 8 cultivars with pods above 25 cm from the ground were selected for further study in the selection process (Table 1).

1-Table.

Varietal samples selected according to plant height and pod height above the ground (Gallaorol, 2024))

№	Sample name	Plant height, cm	Height of the lower leg above the ground, cm	Growing season, days	Productivity, g/m²
1	Yulduz (and)	33,0	17,0	71	78,0
2	FLIP 10-182C	42,0	31,0	77	43,5
3	FLIP 10-196C	43,0	30,0	74	52,0

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4	FLIP 12-217C	42,0	32,0	76	46,0
5	FLIP 13-301C	42,0	30,0	77	76,0
6	FLIP 17-79C	46,0	38,0	77	38,0
7	FLIP 17-44C	42,0	36,0	74	39,0
8	FLIP 17-65C	44,0	35,0	76	69,0
9	ILC 3279	49,0	28,0	77	28,0
10	FLIP 17-68 C	45,0	27,0	76	74,0
Correlation between plant height and growth period				r = 0,79	
Correlation between plant height and grain yield					r = -0,55

The duration of the growing season of pea varieties in this agricultural year was 66-99 days. According to the results of phenological observations, there were 2 very early ripening varieties, 11 early ripening varieties, 86 mid-ripening varieties, 70 late ripening varieties, and 35 very late ripening varieties compared to the standard variety.

Conclusion. According to the results of observation and analysis, it was found that there is a strong positive correlation (r=0.79) between plant height and growth period.

A negative correlation (r= -0.55) was found between plant height and grain yield. Among the studied pea varieties, FLIP 13-301C (76 g/m²), FLIP 17-68C (74 g/m²) were selected for study as the initial source in the subsequent stages of the selection process, since their grain yield was close to the standard Yulduz variety (78.0 g/ m²).

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THE ROLE OF KHOREZM FOLK ART IN THE DEVELOPMENT OF UZBEKISTAN CULTURE

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Annotation

The article discusses the art of giving, halfa and dance of the Uzbek people, its role and significance in enhancing the spiritual culture of the Uzbek people. The issue of educating Khorezm folk art in the spirit of boundless respect for one's people, the Motherland, and national traditions by instilling it in the minds of young people is also covered.

Keywords

Khorezm folk art, folklore, musical art, bakhshi, epic, epic schools, bakhshi music, song, musician, hafiz, , Art, khalfa single singing and ansamble of khalfa singers, songsand dance.

INTRODUCTION. In studying the history of the Uzbek people, an objective scientific analysis of spiritual values is of great importance, the basis of which is mainly folk art: traditional epic poetry, bakhshi, halfa, dance and other types of art. The history of traditional folk art is closely connected with the deep world of social thought, the development of which has been formed over the centuries inextricably linked with the ethnic history of the people. That is why Uzbek folk art is distinguished by its immense richness and constant freshness. Folk art is an incomparable treasure, and its instillation in the minds of young people is of great importance in educating them in the spirit of unlimited respect for their people, homeland, and national traditions.

Every nation in the world attaches great importance to the fact that its national holidays and events, family ceremonies are rich and beautiful, held in a cheerful and joyful mood. The songs, epics, folk dances and national folk games performed at such events not only illuminate the life, history, ethnography, and religious beliefs of the Uzbek people, but also embody the worldview, realities of life, dreams, and aspirations, spiritual, cultural, and material world of the people [2,98].

In the territory of Khorezm, which has long been a center of culture and art, unique folk songs, halfa halfa, maqom (suvora) samples, bakhshi and dance art occupy a wide place. At the same time, there is a need to thoroughly study the history of bakhshi halfa and dance art, conduct fundamental research in this regard, and implement many more measures to collect and publish monuments of folk oral creativity.

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LITERATURE ANALYSIS AND METHODOLOGY. In ancient and medieval times, the sacred book of the Zoroastrian religion, the Avesta [1, Avesta], ancient Turkic scripts and Sogdian inscriptions [2, Ahmedov B.A.], Alpomish [3, Alpomish], and Abu Raykhan al-Beruni's works, "Relics of the Ancient Peoples" [4, Abu Raykhan Beruni], are of great importance in the study of intangible folk oral creativity. In the Soviet period, V.M. Zhirmunsky [5, Zhirmunsky V. M., 3arifov Kh. T], H. Zarifov [6 Zarifov H.], B. A. Karriev [7, Karriev B. A], T. Mirzaev [8, Mirzaev T], M. Murodov [9, Muradov M], B. Sarimsakov [10, Sarimsakov B] and others are of great importance. Also, during the Soviet period, a number of dissertations were defended on the traditions of Uzbek folk epics and the art of bakhshi. Among these studies, one can include the dissertations of A. Kahkhorov [11, Kahkhorov A], and N. Qurbanova [12, Qurbanova N]. In the field of folk oral creativity, scientific research has been conducted in a wide range of areas in the fields of folklore, literary studies, psychology and philosophy, but bakhshi, khalfa and dance art have not been studied comprehensively from an ethnological perspective.

DISCUSSION AND RESULTS. Based on this, the following work can be carried out to study this topic:

Firstly, written sources on the history of traditional folk art: studying manuscripts and documents and conducting field expeditionary research.

Secondly, studying the formation and types of bakhshi art, the role of folk epics in Khorezm bakhshi art, and the issue of the transformation of bakhshi art;

Thirdly, analyzing the formation of khalfaism in Khorezm and the Khorezm khalfas, their repertoires;

Fourthly, studying the peculiarities and transformation of dance art in Khorezm;

Fifthly, showing the importance of folk art in educating young people in the spirit of unlimited respect for the homeland and national traditions.

It serves to develop the art of bakhshi, khalfa and dance, further increase the role and significance of their creativity in Uzbek culture and art, as well as create educational and methodological literature, promote them in our country and abroad through the media and the Internet, provide material and spiritual support for the activities of master bakhshis, khalfas and dancers, scientists and specialists in the field, talented young bakhshis, khalfas and dancers, and educate the younger generation in the spirit of courage, honesty, national and universal values, and high loyalty to the homeland and the heritage of ancestors.

In our country, extensive work is being carried out to preserve and protect the masterpieces of intangible cultural heritage created on the basis of the high artistic creativity of our people during the years of independence, to restore the ancient traditions of folk oral creativity and consistently

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develop national values, and to promote the best examples of the creativity of bakhshis and khalfas in cooperation with creative associations. In particular, we can cite the resolutions of the President of the Republic of Uzbekistan dated May 24, 2017 No. PP-2995 “On measures to further improve the system of preservation, research and promotion of ancient written sources”, dated November 1, 2018 No. PP-3990 “On holding the International Festival of Bakhshi Art”, the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated October 7, 2010 No. VMQ No. 222 “On approval of the State Program for the protection, preservation, promotion and use of objects of intangible cultural heritage in 2010-2020”, dated April 24, 2018 No. 304 “On measures to further develop and improve the art of Bakhshi and epic poetry” and other regulatory legal acts related to this activity.

Conclusion. Musical genres used at weddings and ceremonies are still preserved in the life of our people, performed in their original form or in a revived, staged (folklore-ethnographic ensembles) interpretation, and have gained a certain importance in the process of developing socio-artistic thinking. Such efforts to restore and develop traditional dostan, bakhshi, halfa, dance and other arts and their examples, which are firmly embedded in the way of life of the Uzbek people, and at the same time to assimilate and revive them into the structure of ethnic traditions, serve as an important factor in preserving the mentality of the nation and strengthening its unique character.

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Влияние других языков на русский: Тюркские, финно-угорские, западноевропейские языки

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ЎзМу.

Аннотация: Влияние других языков на русский язык представляет собой многослойный и сложный процесс, который развивался на протяжении веков. В данной работе рассматриваются основные языковые группы, оказавшие значительное влияние на русский язык, включая тюркские, финно-угорские и западноевропейские языки. Тюркские языки внесли в русский лексический фонд множество заимствований, связанных с бытом, культурой и военным делом. Слова, такие как "кот", "табак" и "базар", демонстрируют влияние тюркских народов на развитие русского языка. Финно-угорские языки также оставили свой след в русском языке. Это влияние проявляется через заимствования в области топонимики и некоторых слов, связанных с природой и традициями. Например, слова "мокрый", "сугроб" имеют финно-угорское происхождение. Западноевропейские языки оказали огромное воздействие на русский язык начиная с Петровской эпохи. Заимствования из французского, немецкого и английского языков обогатили лексику русского языка в сферах науки, техники и культуры. Слова как "парашют", "бюро" и "компьютер" стали неотъемлемой частью современного русского языка. Таким образом, исследование влияния тюркских, финно-угорских и западноевропейских языков на русский язык позволяет лучше понять его динамичное развитие и многообразие. Работа подчеркивает важность межкультурных связей в формировании лексического богатства русского языка и его способности адаптироваться к изменениям в обществе.

Ключевые слова: Заимствования, Тюркские языки, Финно-угорские языки, Западноевропейские языки, Синтаксические структуры, Калькирование

Введение: Русский язык, как и любой другой живой язык, находится под постоянным влиянием других языков и культур. Это влияние формировалось на протяжении веков в результате исторических событий, миграций, торговли и культурного обмена. Одной из особенностей русского языка является его многогранность и способность впитывать элементы других языков, что обогащает его лексику и грамматику.

Тюркские, финно-угорские и западноевропейские языки внесли значительный вклад в развитие русского языка. Их влияние можно проследить в лексике, фонетике и даже синтаксисе. Эти заимствования часто отражают не только языковые контакты, но и культурные взаимосвязи между народами.

В данной работе мы рассмотрим влияние тюркских языков, таких как татарский и башкирский; финно-угорских языков, включая финский и эстонский; а также западноевропейских языков, таких как немецкий, французский и английский. Мы проанализируем примеры заимствований из этих языков, их функциональное значение в русском языке и культурные контексты их появления.

Важность изучения влияния других языков на русский язык заключается не только в лексическом обогащении, но и в понимании процессов межкультурной коммуникации. Это помогает глубже осознать многообразие русской культуры и её место в мировом контексте.

Основная часть: Влияние других языков на русский язык — это сложный и многогранный процесс, который происходил на протяжении многих веков. Русский язык, как и любой другой, не существует в вакууме и взаимодействует с другими языками и

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культурами. Рассмотрим влияние тюркских, финно-угорских и западноевропейских языков на русский.

Тюркские языки

Тюркские народы оказали значительное влияние на русский язык, особенно в периоды интенсивного взаимодействия, например, во время Золотой Орды и позже. Основные аспекты влияния:

1. Лексическое заимствование: В русском языке появилось множество слов тюркского происхождения. Например:
   - "базар" (рынок)
   - "чай" (напиток)
   - "караван" (группа путешествующих людей или товаров)
2. Топонимика: Многие географические названия в России имеют тюркские корни. Например: "Казан", "Татарстан".
3. Культура и быт: Тюркские элементы вошли в культуру русского народа через повседневные практики, такие как кулинарные традиции (например, блюда с использованием чая или плова).

Финно-угорские языки

Финно-угорские народы также оказали заметное влияние на русский язык, особенно в регионах, где эти народы проживали рядом с русскими.

1. Лексические заимствования: Некоторые слова финно-угорского происхождения вошли в русский язык:
   - "сауна" (баня)
   - "медведь" (возможно связано с финским словом "karhu")
2. Топонимика: Множество географических названий имеет финно-угорское происхождение, особенно в северных регионах России.
3. Культурное взаимодействие: Это влияние проявляется также в традициях и фольклоре тех регионов, где пересекаются русская и финно-угорская культуры.

Западноевропейские языки

С XVI века влияние западноевропейских языков на русский стало особенно заметным благодаря политическим и культурным связям с Европой.

1. Лексическое заимствование: Слова из немецкого, французского и английского языков активно входили в русский язык:
   - "ресторан" (французское)
   - "компьютер" (английское)
   - "инженер" (французское)
2. Научная терминология: Западные языки стали основными источниками новых научных терминов при развитии науки и техники в России.
3. Культура и искусство: Французский язык стал признаком образованности в XVIII-XIX веках; многие произведения литературы были переведены на русский из западных языков.

Таким образом, влияние других языков на русский язык — это результат исторического взаимодействия различных народов и культур. Это обогащает русскую лексику, усложняет её структуру и делает её более разнообразной и многослойной. Русский

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язык продолжает развиваться под воздействием глобализации и современных тенденций общения между культурами.

Влияние других языков на русский язык представляет собой обширную и многослойную тему, которая отражает сложные исторические, культурные и социальные взаимодействия. Рассмотрим влияние тюркских, финно-угорских и западноевропейских языков на русский язык.

1. Тюркские языки

Тюркские народы играли значительную роль в истории России и восточнославянских земель. В результате контактов между славянами и тюрками в языке появились заимствования, которые можно условно разделить на несколько категорий:

- Лексика: В русском языке можно встретить множество слов тюркского происхождения, особенно в областях, связанных с бытом, сельским хозяйством и военным делом. Например, слова «базар» (рынок), «чашка», «татар» имеют тюркское происхождение.

- Топонимы: Многие географические названия в России имеют тюркские корни. Например, реки Волга и Кама могут быть связаны с тюркскими терминами.

- Культура: Тюркские народы привнесли элементы своей культуры в русскую традицию, что также отразилось в языке через заимствованные термины и выражения.

2. Финно-угорские языки

Финно-угорские народы (например, мордва, марийцы, удмурты) также оказали влияние на русский язык:

- Лексика: В русском языке есть заимствованные слова из финно-угорских языков. Например, такие слова как «тундра», «пельмени», «каша» могут иметь финно-угорское происхождение или быть под влиянием этих языков.

- Топонимы: Как и в случае с тюркскими языками, многие географические названия имеют финно-угорские корни. Это связано с историческим соседством славян и финно-угрских народов.

3. Западноевропейские языки

Западноевропейские языки оказали значительное влияние на русский язык начиная с XVIII века:

- Французский язык: После Петровских реформ французский язык стал символом образованности и статуса среди русского дворянства. Словарный запас русского языка пополнился многочисленными заимствованиями из французского — такие слова как «ресторан», «бюро», «модный» стали привычными для русскоязычных.

- Немецкий язык: Немецкий также оказал заметное влияние на развитие научной и технической терминологии в русском языке. Множество терминов из области науки и техники пришло именно из немецкого языка — например, слова «машина», «фабрика».

Влияние других языков на русский является результатом многовекового взаимодействия народов. Заимствования обогащают лексический запас языка, расширяют возможности выражения идей и понятий. Эти процессы продолжаются до сих пор, делая русский язык динамичным и адаптивным к новым условиям существования общества.

Заключение: Влияние других языков на русский язык является многогранным и многослойным процессом, который происходил на протяжении всей истории его развития.

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Тюркские, финно-угорские и западноевропейские языки внесли свой вклад в формирование лексики, фонетики и грамматики русского языка.

Тюркское влияние

Тюркские языки оказали значительное влияние на русский язык, особенно в сфере военно-политического общения, торговли и быта. Многие тюркские слова вошли в русский обиход, касающиеся еды (например, "чечевица", "плов"), а также терминов, связанных с кочевой культурой (например, "татарин", "яланга"). Это влияние стало особенно заметным в период Золотой Орды и позже.

Финно-угорское влияние

Финно-угорские языки также внесли свой вклад в русский язык. Например, слова из коми и марийских языков появлялись в контексте природы и быта (например, "медведь", "сосна"). Это свидетельствует о взаимодействии славянских народов с финно-угорскими племенами на территории современного России.

Западноевропейское влияние

Западноевропейские языки оказали значительное влияние на русский язык начиная с Петра I, когда происходила интенсивная европеизация общества. Заимствования из немецкого, французского и английского языков затронули множество областей: науки, искусства, техники и моды. Это обогащение лексики привело к появлению новых терминов и понятий (например: "компьютер", "менеджмент").

Заключение

Таким образом, взаимодействие русского языка с тюркскими, финно-угорскими и западноевропейскими языками продемонстрировало его динамичность и способность к адаптации. Заимствования не только обогатили словарный запас русского языка, но и способствовали развитию культурной идентичности народа. Влияние этих языков продолжает ощущаться до сих пор, что подчеркивает многообразие исторического опыта России как перекрестка различных культур. Русский язык остается живым организмом, который продолжает эволюционировать под воздействием новых реалий современного мира.

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СОЛИҚ ИМТИЁЗЛАРИДАН ФОЙДАЛАНИШ САМАРАДОРЛИГИНИ БАҲОЛАШНТНГ ХОРИЖ ТАЖРИБАСИ.

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Термиз иқтисодиёт ва сервис университети 2- босқич магистранти

Аннотация:Мақолада солиқ имтиёзларидан фойдаланишнинг хориж тажрибаси, солиқ имтиёзларидан фойдаланиш сиёсати, инвестицияларни жалб этишда солиқ имтиёзлариниг ўрни, самарасиз имтиёзлар,солиқ имтиёзлари мониторинги, солиқ имтиёзларини мамлакат иқтисодиётини такомиллаштиришга доир таклиф ва тавсиялар берилган
Калит сўзлар: Солиқ, инвестицион сиёсат, имтиёз, иқтисодий ўсиш, мониторинг, самарадорлик, харажат
Аннотация: В статье рассмотрен зарубежный опыт использования налоговых льгот, политика их применения, роль налоговых льгот в привлечении инвестиций. Также обсуждаются вопросы неэффективных льгот, мониторинга налоговых льгот и представлены предложения и рекомендации по совершенствованию экономики страны через использование налоговых льгот.
Ключевые слова: Налоги, инвестиционная политика, льготы, экономический рост, мониторинг, эффективность, расходы
Annotation: The article examines international experience in the use of tax incentives, policies for their application, and the role of tax incentives in attracting investments. Issues related to ineffective incentives, monitoring of tax incentives, as well as proposals and recommendations for improving the country's economy through the use of tax incentives, are also discussed.
Keywords: Taxes, investment policy, incentives, economic growth, monitoring, efficiency, expenses

Маълумки бозор иқтисодиёти шароитида солиқ имтиёзлари давлатимиз томонидан олиб борилаётган иқтисодий ислоҳотларнинг муҳим таркибий қисми ҳисобланади. Солиқ имтиёзларидан иқтисодий инқирозларни оқибатларини бартараф этиш ва ижобий бозор ташқи таъсирини яратиш учун инвестицияларни рағбатлантириш воситаси сифатида фойдаланиш мумкин. Имтиёзлар ёрдамида хўжалик юритувчи субъектларниг инвестицион ва инновацион фаоллик даражасини тартибга солиш, шунингдек, аҳоли бандлигини таъминлаш кўрсаткичларини ошириш мумкин. Ҳукумат давлат ва хорижий инвестицияларни, инновацияларни рағбатлантириш ва солиқ сарфлари миқдорини тартибга солиш учун инвестиция муҳитини яхшилашдаги ролини ҳисобга олиши керак.
Ўзбекистон Республикаси Президентининг 2018 йил 29 июндаги “Ўзбекистон Республикасининг солиқ сиёсатини такомиллаштириш концепцияси тўғрисида”ги ПФ-5468-сон Фармонида “имтиёзларнинг самарадорлигини мониторинг ва назорат қилиш бўйича таъсирчан тизимнинг мавжуд эмаслиги сабабли соғлом рақобатни таъминлашга салбий таъсир кўрсатувчи, хўжалик юритувчи субъектларни солиқ ва божхона, шу

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жумладан индивидуал хусусиятга эга бўлган имтиёзлар ҳисобига қўллаб-қувватлаш амалиётининг кенг тарқалганлиги тизимли муаммоларни бартараф этиш вазифаси белгиланган.

“Солиқ имтиёзлари саноат ишлаб чиқаришни рағбатлантиришнинг машҳур сиёсат воситасига айланди. Улар ишлаб чиқариш фаолияти билан шуғулланадиган корхона харажатлари ҳажмига ёки ўсишига қараб солиқ юкини камайтиришни таклиф қиладилар. Ушбу воситанинг машҳурлиги шундаки, амалдаги солиқ тизимидан фойдаланиш жуда осон, бу ҳокимият ва корхоналар томонидан қўшимча маъмурий харажатлар камлигини англатади”[1].

Солиқ имтиёзларининг самарадорлиги тўғрисида аниқ ва тўғри маълумот олиш учун хориж мамлакатлар тажрибасини ўрганиш мақсадга мувофиқдир.

Иқтисодий ҳамкорлик ва тараққиёт ташкилотига аъзо давлатлар сонининг кўпайиши тижорат ташкилотларига илмий -тадқиқот ишларини олиб бориш учун солиқ имтиёзлари берганидан далолат беради. Масалан, 1995 йилда атиги 12 давлат солиқ имтиёзларини берган, 2004 йилда - аллақачон 18 давлат, 2015 йилда эса мамлакатлар сони 26 давлатга ошган.[2]

Солиқ имтиёзлари, шунингдек, Бразилия, Хитой, Ҳиндистон, Россия, Сингапур ва Жанубий Африкани ўз ичига ОЭСДга аъзо бўлмаган давлатлар томонидан тақдим этилади. Ишлаб чиқариши соҳасида солиқ имтиёзларидан фойдаланиш корхонага тегишли иш ҳажмига ёки кўпайишига қараб солиқ юкини камайтиришга имкон беради. Солиқ имтиёзлари - бу ҳукуматнинг грантлар ёки шартномалар орқали бизнес, тадқиқот ва ишланмаларни тўғридан-тўғри молиялаштиришидан фарқли ўлароқ, саноатни қўллаб-қувватлашнинг билвосита воситасидир. Саноат солиқ имтиёзлари ҳисобидан давлат томонидан молиялаштириш миқдори катта ва тўғридан-тўғри молиялаштиришга тенг бўлиши мумкин. Австралия, Австрия, Бельгия, Канада, Дания, Франция, Ирландия, Япония, Корея ва Нидерландия каби мамлакатларда солиқ имтиёзлари орқали билвосита қўллаб-қувватлаш тўғридан-тўғри молиялаштириш манбаларидан ошиб кетади. Саноатни давлат томонидан ҳар қандай қўллаб -қувватлашда бўлгани каби, тадбиркорлик субъектлари учун солиқ имтиёзларининг асосий иқтисодий асоси - тарқалишларнинг мавжудлигидир. Солиқ имтиёзларининг имтиёзлилик даражаси асосан солиқ имтиёзлари қийматини белгилайдиган солиқ тизимининг элементи ҳисобланади. Жаҳон амалиётида у имтиёзли тартиб даражасини белгиловчи иккита асосий элементни ажратиб кўрсатди: чегириб ташлаш мумкин бўлган харажатлар фоизи ва декларация қилиниши мумкин бўлган солиқ имтиёзларининг максимал миқдори. Бундан ташқари, солиқ имтиёзлари тизими фирма, тадқиқот ва ишлаб чиқиш, технология, минтақа ёки сектор турига кўра имтиёзлар даражасини фарқлаши мумкин. Саноат ишлаб чиқариши учун солиқ имтиёзларини жорий этишнинг мақсадга мувофиқлигини аниқлашда муҳим саволлар қуйидагилардан иборат. Солиқ имтиёзлари бўйича, солиқ солинадиган даромаддан чегириб ташланиши мумкин бўлган илмий-тадқиқот харажатлари мультипликаторини аниқлаш керак (масалан, 130%).

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[1] Tax Expendituresin OECD Countries OECD. 2010. / The official website of OECD // – Текст : электронный. – URL: http://www.sourceoecd.org/taxation (дата обращения: 26.10.2017).

[2] Rossiya Federatsiyasi Iqtisodiy rivojlanish vazirligining rasmiy veb-sayti / Rossiya Federatsiyasi Iqtisodiy rivojlanish vazirligi.– URL: http://www.economy.gov.ru (kirish sanasi: 07/13/2017).

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Буюк Британиядаги фирмалар). Иккинчи компонент бир йилда талаб қилиниши мумкин бўлган солиқ имтиёзларининг максимал миқдорига тааллуқлидир. Танланган «чегара» даражаси солиқ имтиёзларини баҳолашда марказий масала ҳисобланади. Иккала ўлчов ҳам чегаралар орқали боғланиши мумкин. Аксарият ҳолларда битта ташкилот чегарадан паст бўлган битта қийматни ҳисобга олиши мумкин бўлса, баъзи мамлакатларда бу чегара фоиз ставкасининг ўзгаришини билдиради. Бундай комбинацияга мисол Франция бўлиб, бу ерда фоиз ставкаси 100 млн евродан 30% паст ва 5% юқоридир.

Германия, Финляндия ва Швеция Ар-ГЕ учун солиқ имтиёзларини таклиф қилмасада, Франция ва Испания жуда сахий схемаларга амал қилишади. Кичик бизнесни рағбатлантирувчи мамлакатлар кам (Канада, Голландия, Буюк Британия ва Япония). Шу билан бирга, Буюк Британия, Канада, Япония каби давлатлар кичик бизнеснинг ривожланишини рағбатлантириш сиёсатини нафақат Ар-ГЕ каби воситалар, балки соддалаштирилган молиявий -кредит сиёсати орқали ҳам олиб бормоқда.

Ўрганишлар натижасида хориж мамлакатларида солиқ имтиёзларининг самарадорлиги турлича бўлиб, самарасиз имтиёзларнинг улуши юқорилиги қуйидаги жадвалда баён қилинган (1.1-жадвал).

1.1-жадвал

Хориж давлатларида солиқ имтиёзларининг самарадорлиги кўрсаткичларининг таққосламаси[3]

Т/Р	Кўрсаткичлар	Буюк Британия		Германия		Франция	
		сони	фоиз	сони	фоиз	сони	фоиз
1.	Баҳоланган солиқ имтиёзлари, жами	155	100,0	20	100,0	385	100,0
2.	Самарали солиқ имтиёзлари	54	34,8	5	25,0	72	18,7
3.	Етарлича самарали эмас деб тан олинган имтиёзлари	54	34,8	10	50,0	171	44,4
4.	Самарасиз солиқ имтиёзлари	47	30,2	5	25,0	142	36,9

1.1-жадвал маълумотларидан кўриниб турибдики, Буюк Британия, Германия ва Франция давлатларида ўрганилган солиқ имтиёзларининг мос равишда 34,8, 25,0 ва 18,7 фоизи самарали имтиёзлар деб тан олинган. Бу давлатларда берилган солиқ имтиёзларининг мос равишда 30,2, 25,0 ва 36,9 фоизи самарасиз эканлигини қайд этиш лозим. Самарасиз солиқ имтиёзларининг кўплиги жиҳатидан Франция ажралиб турибди.

Солиқ имтиёзларининг таъсири биринчи навбатда бюджет даромадларида акс этади. Чунки мамлакатда бюджет томонидан амалга ошириладиган барча харажатлар қопланиши давлат бюджетига тушадиган солиқ тушумларига асосланади. Шунинг

[3] Сравнение эффективности налоговых льгот в индустриально развитых странах http://council.gov.ru/media/files/41d4df1fc7427347f5a7.pdf. 02.10.2021.

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учун бугунги кунда солиқ имтиёзларининг самарадорлигини ва унинг берилиши аниқ асослантирилган бўлиши лозим.

Юқоридаги ьаълумотлардан хулоса қилган ҳолда айтиш мумкинки, агар ривожланган давлатлар тажрибасига суянган ҳолда солиқ имтиёзларининг самарадорлигини баҳолаш механизмлари ишлаб чиқилиб, улар меъёрий хужжатлар асосида мустаҳкамланиб, солиқ имтиёзлари ўз ўрнида ва белгиланган муддатларда бериладиган бўлса, улар ўз самарадорлигини кўрсата олади. Самарасиз солиқ имтиёзлари бюджет тақчилигига ва соғлом рақобат муҳитига ўз таъсирини кўрсаиб, иқтисодиётнинг ўз ўрнидан силжишига салбий таъсир қилади.

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КИЧИК БИЗНЕС СУБЪЕКТЛАРИНИ СОЛИҚҚА ТОРТИШ ТИЗИМИ

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Термиз иқтисодиёт ва сервис университети 2- босқич
магистранти

Аннотация: Мақолада Кичик бизнес субъектларини солиққа тортишнинг назарий асослари,тадбиркорлик муҳити, инвестицион муҳит, кичик бизнесни солиққа тортиш йўллари масалаларига алоҳида тўхталиб ўтилган.
Калит сўзлар: Кичик бизнес, ўрта бизнес, солиқ, бож, микрофирма, имтиёзлар.
Аннотация: В статье рассматриваются теоретические основы налогообложения субъектов малого бизнеса, уделяется особое внимание вопросам предпринимательской среды, инвестиционного климата и путям налогообложения малого бизнеса.
Ключевые слова: малый бизнес, средний бизнес, налоги, пошлины, микрофирмы, льготы.
Annotation: The article examines the theoretical foundations of taxation for small business entities, with a particular focus on issues related to the entrepreneurial environment, investment climate, and methods of taxing small businesses.
Keywords: small business, medium business, taxation, duties, micro-enterprises, benefits.

Мамлакатимизда иқтисодий ислоҳотларни амалга оширишда давлат барча иқтисодий усуллар, яъни пул-кредит, солиқ, бож, тариф ва айрим соҳаларда баҳони шакллантириш каби қатор механизмлардан кенг фойдаланади. Албатта, ушбу ўринда солиқларнинг муҳим молиявий дастак сифатида иқтисодий жараёнларга таъсирини ўрганиш муҳим аҳамият касб етади. Шу нуқтаи назардан иқтисодиётни ривожлантириш ва тартибга солишда солиқ механизмининг аҳамиятини тадқиқ қилиш долзарб масала ҳисобланади.

Кичик бизнесни давлат томонидан молиявий тартибга солишнинг самарали тизимини шакллантириш, кичик корхоналарнинг миллий молиявий-иқтисодий амалиётининг ўзига хос хусусиятларини ва ушбу соҳадаги мавжуд глобал тенденцияларни ҳисобга олган ҳолда, давлатга кичик бизнес фаолияти учун қулай шарт-шароитларни яратишга имкон беради, бу эса ўз навбатида кичик бизнес субъектларининг молиявий ҳолатини ва Ўзбекистон иқтисодиётининг рақобатбардошлиги ва динамикаси оширади. Хусусий мулк, тадбиркорлик, кичик ва ўрта бизнес манфаатларини ишончли ҳимоя қилиш бўйича бошланган тизимли ислоҳотларнинг давом эттирилиши 2022 йилда иқтисодиётнинг ушбу соҳасини жадал ривожлантиришга хизмат қилди. Давлат статистика қўмитаси маълумотларига кўра, “1 йил 2023 январ ҳолатига фаолият кўрсатаётган кичик корхона ва микрофирмаларнинг умумий сони 523 556 тани ташкил этди, шундан янги ташкил этилган — 90 177 тани ташкил этди. 2023 йил 1 январ ҳолатига вилоятлар бўйича энг кўп фаолият

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кўрсатаётган кичик корхона ва микрофирмалар сони Тошкент шаҳрида 106 071 тани қайд этилди, бу умумий соннинг 20,3 фоизини ташкил этади”[1].

Соҳани қўллаб-қувватлаш тизимини янада такомиллаштириш ва тадбиркорлик муҳитини янада яхшилаш бўйича кўрилаётган чора-тадбирлар натижасида Ўзбекистон Республикаси Президенти томонидан қабул қилинган қарор ва фармонлар ҳамда ушбу соҳага қаратилаётган эътибор асосида 2018-2023 йилларда 424 минг 073 кичик корхона ва микрофирма ташкил этилди. Бу янги субъектлари энг кўп савдо соҳасида 156 069 (ёки 36.8%), хизмат кўрсатиш соҳаси – 99 198 (ёки 23.4%), саноат – 84 830 (ёки 20.0%), қишлоқ хўжалиги, ўрмон ва балиқчилик – 51 752 (ёки 12.2%), қурилиш — — 32,224 (ёки 7,6%) ташкил этилганлигини таъкидлаш лозим.

1.2-Расм. 2018 — 2023 йилларда иқтисодий фаолият турлари бўйича янги ташкил этилган кичик ва ўрта тадбирокрлик субъектлари ва микрофирмалар сони (минг та)[2].

2023 йилда кичик бизнеснинг ЯИМдаги улуши 51,8% ни ташкил этди ва 2021 йилга нисбатан 2,3 пунктга камайди. Ушбу пасайишнинг асосий сабаби йирик тадбиркорлик субъектларида қўшилган қиймат ҳажмининг ошиши бўлди. Нафақат кичик, балки ўрта бизнесни ривожлантиришга қаратилган қулай солиқ муҳитини яратиш ҳар қандай давлатнинг асосий вазифаларидан бири бўлиб, у тегишли солиқ сиёсатини қабул қилиш доирасида амалга оширилиши керак. Мамлакатимизда ҳам бу борада кўплаб самарали ишлар олиб борилмоқда. Биринчидан, бу кичик ва ўрта бизнес субъектларини солиққа тортишнинг муқобил усули сифатида махсус солиқ режимларини жорий этишдир. Ўзгарувчан иқтисодий вазиятни ҳисобга олган ҳолда, махсус солиқ режимларини такомиллаштиришга қаратилган кўплаб ўзгаришлар ва тузатишлар киритилди. Кичик ва ўрта бизнес умумий солиқ режимидан фойдаланиши ва қонун билан белгиланган муайян имтиёзларни қўллаши мумкин. Товар айланмасига қараб солиқ тўловчиларнинг барча тоифалари учун 4% миқдорида ягона ставкага бирлаштирилган. 2023 йилдан бошлаб микробизнес учун айланмадан олинадиган солиқ ставкаси 4% жорий этилди. Кичик бизнесдан ўрта бизнесга ўтган корхоналар икки йил давомида атиги 50% даромад солиғини тўлайдилар. Ўзбекистонда микробизнес учун айланма солиқ жорий этилади. “Ўзбекистонда

[1] www.stat.uz. (Ўзбекистон Республикаси Президенти ҳузуридаги Статистика агентлиги)

[2] https://stat.uz/ru/press-tsentr/novosti-goskomstata/34155-o-zbekiston-respublikasida-kichik-tadbirkorlik-2022-yilyanvar-dekabr-2

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микробизнес учун айланма солиқ жорий этилади. Ўзбекистон ҳукумати соҳа вакилларини 5 та йўналишда қўллаб-қувватлаш бўйича ташаббусларни илгари сурди. Биринчи йўналиш-корхоналарни қўллаб-қувватлаш, уларни тоифаларга ажратишда алоҳида ёндашувни аниқлаш. Шу билан бирга, корхоналар йиллик айланмаси бўйича таснифланади (амалда ходимлар сони бўйича эди) ва қуйидаги тоифаларга тегишли:

- йиллик айланмаси 1 млрд. сўмгача бўлган субъектлар — микрофирмалар;
- йиллик айланмаси 10 млрд. сўмгача бўлган кичик тадбиркорлик субъектлари;
- йиллик айланмаси 100 миллиард сўмгача бўлган ўрта тадбиркорлик субъектлари.

Шунга асосланиб, 1 йил 2023 январдан бошлаб микробизнес учун амалдаги айланма 4% дан 25% гача солиқ ставкалари ўрнига 4% ягона солиқ ставкаси жорий этилди. Шу билан бирга, чекка ҳудудлар ва айрим тоифадаги тадбиркорлар учун жорий 1% ва 2% ставкалар сақланиб қолди.” [3]

Натижада, ўтказилган тадқиқотлар шуни кўрсатдики, баъзи кичик корхоналар учун солиқ режимини ўзгартириш самарали бўлади, чунки у компаниянинг молиявий кўрсаткичларини яхшилайди, ўз айланма маблағларига инвестиция қилиниши мумкин бўлган қўшимча молиявий ресурсларни чиқаришга ёрдам беради ва гарчи улар ушбу соҳада сезиларли ўзгаришларга олиб келмаса ҳам, қисқа муддатли, аммо ўрта муддатли истиқболда уларнинг молиявий ҳолатини мустаҳкамлашга ва унинг молиявий барқарорлигини оширишга ҳисса қўшишини кўришимиз мумкин.

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[3] www.lex.uz. Ўзбекистон Республикаси Президентининг Фармони, 10.02.2023 йилдаги ПФ-21-сон қарори.

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Ўзбекистонда Зиёрат туризмини ривожлантириш асослари
Fundamentals of developing pilgrimage tourism in Uzbekistan
Основы развития паломнической системы в Узбекистане

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АННОНТАТСИЯ

Мазкур мақолада Ўзбекистонда зиёрат туризмини ривожлантириш асослари таҳлил қилинади. Ўзбекистоннинг бой диний, тарихий ва маданий мерэоси, мамлакатни зиёрат туризми соҳасида жаҳон миқёсида танитиш имкониятларини яратади. Мақолада зиёрат туризмини ривожлантириш учун зарур бўлган инфратузилма, маркетинг стратегиялари, давлат ва хусусий сектор ҳамкорлиги, шунингдек, туристларга махсус хизматлар кўрсатиш масалалари кўриб чиқилади. Зиёрат жойларининг сақланиши, диний тадбирлар ташкил этилиши ва халқаро ҳамкорликни ривожлантириш каби аспектлар ҳам алоҳида эътибор қаратилган. Ўзбекистонда зиёрат туризмини ривожлантириш нафақат иқтисодий ўсишни таъминлаш, балки мамлакатнинг халқаро нуфузини оширишга ҳам хизмат қилади.

Abstract

This article analyzes the foundations of the development of pilgrimage tourism in Uzbekistan. The rich religious, historical and cultural heritage of Uzbekistan creates opportunities for the country to be recognized worldwide in the field of pilgrimage tourism. The article considers the infrastructure, marketing strategies, public and private sector cooperation, as well as the provision of special services to tourists necessary for the development of pilgrimage tourism. Particular attention is paid to aspects such as the preservation of pilgrimage sites, the organization of religious events, and the development of international cooperation. The development of pilgrimage tourism in Uzbekistan serves not only to ensure economic growth, but also to increase the country's international prestige.

Аннотация

В данной статье анализируются основы развития паломнического туризма в Узбекистане. Богатое религиозное, историческое и культурное наследие Узбекистана создает возможности для знакомства страны с миром в сфере паломнического туризма. В статье рассматриваются инфраструктура, маркетинговые стратегии, сотрудничество государственного и частного сектора, а также предоставление туристам специальных услуг, необходимых для развития паломнического туризма. Особое внимание также уделяется таким аспектам, как сохранение мест паломничества, организация религиозных мероприятий и развитие международного сотрудничества. Развитие паломнического туризма в Узбекистане служит не только обеспечению экономического роста, но и повышению международного престижа страны.

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Калит сўзлар: Зиёрат туризми**,** ўзбекистон туризми**,**диний обидалар**,** туризм инфратузилмаси**,** маркетинг**,** диний тадбирлар**,** зиёрат жойлари**,** халқаро ҳамкорлик**,** диний саёҳатлар**,** турист хизматлари

Keywords: Pilgrimage tourism, Uzbek tourism, religious monuments, tourism infrastructure, marketing, religious events, pilgrimage sites, international cooperation, religious tours, tourist services

Ключевые слова: Паломнический туризм, туризм Узбекистана, религиозные памятники, туристическая инфраструктура, маркетинг, религиозные мероприятия, места паломничества, международное сотрудничество, религиозные туры, туристические услуги.

Ўзбекистон зиёрат туризми учун қулай манзил ҳисобланади. Ислом оламида машҳур кўплаб уламолар юртимизда яшаб ижод қилган. Шу билан бирга, мамлакатимизда бошқа динларга эътиқод қилувчилар учун ҳам азиз бўлган тарихий қадамжолар бор. Ислом дунёсининг энг қимматбаҳо Қуръони карим намуналаридан бири – Халифа Усмон Қуръон китоби сақланувчи Ҳазрати Имом мажмуаси, буюк ислом имоми Муҳаммад Ал-Бухорий мақбараси, Нақшбандия тариқати издошлари мақбаралари ва шу каби кўплаб бошқа диниймарказлар мавжуд. Бундай тарихий ва муқаддас қадамжоларга зиёрат ва саёҳат қилиш учун ҳар йили дунёнинг турли бурчакларидан минглаб сайёҳлар Ўзбекистонга ташриф буюради. Мамлакатимиз Президенти Ш.Мирзиёев таъкидлаганидек, “Ўзбекистон ҳам саёҳат, ҳам зиёрат учун қулай мамлакат. Чунки она заминимизда бутун дунёга маълум ва машҳур бўлган аждодларимиз мангу қўним топган. Улар қолдирган бой маънавий-маданий меросга халқаро майдонда қизиқиш жуда катта. Соҳани янада ривожлантириш учун, аввало, зарур инфратузилмани такомиллаштириш шарт”.

Ўзбекистонда 7300 дан ортиқ маданий ёдгорликларнинг мавжудлиги ва уларнинг аксари ЮНЕСКО томонидан эътироф этилиши ҳам мамлакатимизнинг ушбу соҳани ривожлантириш борасида етарлича салоҳиятга эга эканини кўрсатиб беради.

Шуни алоҳида таъкидлаш лозимки, зиёрат амали инсон учун жисмонан хордиқ вазифасини бажариши билан бирга, маънавий ва руҳий озуқа манбаи ҳамда шахснинг маданий юксалиши омилларидан бири ҳисобланади. Зиёрат давомида инсонда бешта ҳақиқий кечинмалар мужассам бўлади ва уларни маънавий, маданий, экологик, дунёвий ҳамда маърифий деб аташимиз мумкин. Инсонлар учун бахт улар томонидан амалга ошириладиган ижобий хатти-ҳаракат ва ҳис-туйғулар омили бўлиши мумкин.

Ана шундай ҳис-туйғулар билан таъминлашга хизмат қиладиган тармоқлардан бири – зиёрат ҳисобланади. Сабаби шундаки, зиёрат туризми инсон хотирасида ижобий ва ҳаяжонли ҳис-туйғуларни уйғотиб, ҳаётга бўлган муҳаббатни оширишига хизмат қилади. Ўз навбатида, инсон саёҳат давомида ўз-ўзини ўрганиши, ўзини қайтадан ислоҳ қилиши ва шахсий ўзгаришларга олиб келиши мумкин бўлган жараёнларни кўздан кечиради.

Бугунги кунда зиёрат туризми, диний туризм, исломий туризм ва ҳалол туризм каби атамалар илмий адабиётларда ҳамда кундалик ҳаётда кенг қўлланилиб келинмоқда. Зиёрат туризми, диний туризм кенг қамровли тушунчалар бўлиб, турли хил дин вакилларининг диний мақсадлардаги саёҳатини англатса, ислом туризми айнан мусулмонларнинг саёҳатини қамраб олувчи тушунча ҳисобланади. Жумладан, илк бор исломий туризм атамаси 2000-йилда Ислом ҳамкорлик ташкилотининг йиғилишида муҳокама қилинган.

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Ушбу йиғилиш иштирокчилари исломий мамлакатлар бўйлаб даромад олиш ва мамлакатларни ривожлантириш мақсадида саёҳат қилиш ғоясини таклиф қилганлар.

Тадқиқотлар шуни кўрсатадики, инсоннинг муқаддас қадамжоларда ўзини ҳис қилиши, саёҳат давомида юзага келадиганкечинмалари бу – айнан зиёратчиларнинг муқаддас жойларга саёҳат қилишларининг бош мақсадларидан бири ҳисобланади. Қолаверса, бу ўринда диннинг ҳам ҳаётдан қониқиш ва бахт ҳиссини келтириб чиқариш имкониятини алоҳида таъкидлаб ўтиш зарур. Зиёратчилар ташриф буюрадиган масканлар, жумладан, пайғамбарлар, авлиёлар, уламо зотларнинг қабрларини зиёрат қилиш, диний аҳкомлар жорий қилинган ва дин йўлида қурилган тарихий обидалар, мадрасалар, масжидлар зиёратчиларруҳиятида бахтиёрлик, дунё ташвишларидан фориғ бўлишдек муҳитни яратиб беради.Зиёрат давомида инсонда шаклланадиган айрим ижобий хусусиятлар хақида тўхталиб, қуйидагиларни келитишмумкин:

Маънавий озуқага эга бўлиш. Зиёратга борадиган инсонда ҳали ушбу зиёратга чиқмасидан унда ўзини руҳан шу зиёратга боғлаш, қалб таскини ҳамда зиёрат асносида содир бўлиши мумкин бўлган ҳис туйғулар шаклланади. Тоза-озода кийиниш, ўзига оро беришдек инсоний фазилатларини намоён қилади. Имкон қадар борадиган зиёратгоҳ тарихи ва у ерда бирор ножўя ишларни қилмаслик учун ўзини тайёрлайди. Зиёрат инсондан ҳаётий зерикишлар, турли чарчоқлар ва асабий зўриқиш каби дардлардан енгил тортиш фурсатини бахш этади.

Ҳамкорликнинг йўлга қўйилиши. Одатда зиёратгоҳларда маҳаллий ҳиёратчилар билан бирга, хорижлик зиёратчилар ҳам бир вақтда бўлиши кутилган ҳолат ҳисобланади. Бошқа миллат ва элат олдида ўзини бошқариш, мулоқот ва шахсий одоб-ахлоққа эътиборни кучайтириш жойи келса йўл кўрсатиш, саволларга жавоб бериш каби ишларни амалга оширишга имкон яратади. Зиёрат давомида киши олган динйи ва дунёвий билимларини тажрибада қўллаш, турли халқ вакиллари билан муносабатга киришиш ва ҳамкорлик қилишдек имкониятлар учун замин ҳозирлайди.

Ўзини ўзи бошқариш. Зиёрат туризми давомида инсон маънавиятига ижобий таъсир қиладиган одатлар мавжуд. Жумладан, зёратгоҳлар ва маданий ёдгорлик атрофлари доимо тоза ва озода сақланлиги сабаб инсон покликка ва тозаликка эътиборли бўла бошлайди ҳамда атроф-муҳит билан ҳам шу тартибда муносабатда бўлишни ўзига одат қилиб олади. Ушбу масканларга ташриф буюрувчи сайёҳларга ҳам ҳудди шу тартибга амал қилишлари, маданий ёдгорликлар, зиёратгоҳ обидалар ҳамда муқаддас қадамжолар атрофларини тозаликда сақлаш, шахсий гигиена ва озодаликка эътибор қаратиш каби амалларга риоя қилишларини талаб қилади. Бу каби озодаликка чақирувчи амаллар зиёратчи учун келгуси ҳаётида ҳам нафи тегиши табиий ҳол. Бу эса зиёрат амалиинсон шахсини маънавий ўсиши ва ўз-ўзини бошқаришига сабаб бўлишини кўрсатади.

Меҳрибонлик, кенгфеъллликнинг шаклланиши. Бу зиёратчи сайёҳларнинг деярли барчасида учраши энг кўп кузатиладиган ижобий ҳолатлардан ҳисобланади. Зиёратга борган инсон қайси миллат ёки давлатдан бўлишидан қатъий назар бир бирларини яхши тушиниб, ўзаро алоқа қилиши ва ҳар қанақа усул билан, жумладан, моддий ёки маънавий ёрдам бериш билан ўзаро меҳрибонлик туйғусини шакллантиришади. Албатта, зиёрат давомида инсонда шаклланадиган бу каби ҳислатларни кўплаб келтиришимиз мумкин.

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Асосийси шундаки, зиёратдан қайтган сайёҳ учун ушбу ҳислатлар одат бўлиб, кейинги ҳаёти давомида ҳам давом этиши мумкин[1].

Ўзбекистон зиёрат туризм салоҳиятига эга давлат бўлишига қарамасдан зиёрат туризми тармоғидаги ривожланиш у қадар кенг илдиз отмаётир. Бизда зиёрат туризми асосан Тошкент, Самарқанд, Шаҳрисабз, Бухоро ва Хива шаҳарларида ривожланмоқда. Ҳар йили минглаб ватандошларимиз ҳаж ва умра зиёратини адо этиб келишяпти. Лекин, айнан зиёрат мақсади билан юртимизга хориждан келадиган сайёҳларнинг сони жуда кам. Агар кириш зиёрат туризмига янада кўпроқ эътибор берилса, у туристик хизматларнинг салмоқли экспорт йўналишига айланиб валюта тушумини кўпайтириш, янги иш ўринларни яратишҳамда аҳоли бандлигини таъминлашга хизмат қилади.Ўзбекистонда зиёрат туризмини қуйидаги инновацион йўлларда жадал ривожлантириш мумкин:

1. Зиёрат туризмининг таклифлар тизимини яратиш билан боғлиқ чора-тадбирлар режасини ишлаб чиқиш ва амалга ошириш;
2. Хорижий давлатлардан келаётган зиёратчилар орасида турли сўровномалар ўтказиш орқали зиёрат туризми хизматларига бўлган талабни шакллантириш;
3. Зиёрат туризми маршрутларини ишлаб чиқиш ва бу борадаги инфратузилмани ривожлантириш;
4. Зиёратчиларга зиёратгоҳларга яқин ҳудудда меҳмонхона, ҳалол ресторанлар, автотураргоҳ, автосервис, ёнилғи қуйиш шаҳобчаси, банкомат, дорихона ва мини маркетлар фаолиятини самарали ташкил этиш;
5. Меҳмонхоналарда аёл-қизлар учун алоҳида хоналар ва сузиш ҳавзалари, гардероблар ва болалар учун ўйин майдончалари ташкил этиш;
6. Мусулмон мамлакатлардан келаётган зиёратчилар орасида исломий билимлар соҳасига қараб ҳадисшунослар учун Самарқанд ва Сурхондарё вилоятларида Имом Бухорий, Имом Доримий ва Имом Термизий туризми, калом илмига қизиқувчилар учун Самарқанд ва Қарши шаҳрида Мотуридий ва Насафий туризми ҳамда тасаввуф илми қизиқувчилари учун Бухоро вилоятига Етти пир туристик маршрутларини ташкил этиш;
7. Ўзбекистон зиёрат туризми имкониятлари ҳақида батафсил маълумот берувчи сайт, илмий журнал, буклет, слайд ва тарқатма материаллар базасини яратиш ва кенг тарғиб қилиш;

Хулоса ўрнида шуни таъкидлаб ўтиў лозимки, соҳага оид илмларни ҳамда шарқ ва ғарб тилларини билган гид-таржимон кадрларни тайёрлаш ва малакаини ошириш бўйича доимий ишларни йўлга қўйилса юртимизда зиёрат туризми ривожланиб хорижий сайёҳлар оқими ортишига эришилади. Сўнгги пайтларда туризм хусусан, зиёрат туризми тушунчаси халқимиз онгидан кенг ўрин олмоқда. Олимларимиз томонидан туризмнинг ушбу турига турли таърифлар берилиб унинг маъно-мазмуни очиб берилди. Бир сўз билан айтганда “Зиёрат туризми” – турли дин вакилларининг ўзлари муқаддас деб билган шахс ё манзилни ўз диний эътиқоди ва шариъатига асосланган ҳолда зиёрат қилиши маъно-мазмунини англатади. Шу сабабдан туризм ва унинг муҳим йўналишларидан бири бўлган зиёрат туризмини ривожлантириш ва уни жаҳон миқёсига олиб чиқиш мақсадида Президентимизнинг тегишли фармон ва қарорлари эълон қилинмоқда. Шу асосда зиёрат туризмини ривожлантириш, хорижий тажрибани ўрганиш мақсадида турли халқаро

[1]Ж.Абдуқодиров. “Зиёрат туризми – Руҳий қувват ва маънавий озуқа”. Тошкент. 2022. Б.16.

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тадбирлар, илмий семинар ва конференциялар ташкил этилмоқда. Хорижий мамлакатларнинг туристик ташкилотлари билан кенг қамровли ҳамкорлик алоқалари йўлга қўйилмоқда. Туризмнинг кенг тарқалаётган "зиёрат туризми" тури охирги йилларда кўпчилик инсонларда қизиқиш пайдо қилаётгани ҳеч кимга сир эмас албатта. Бу эса ўз навбатида Ўзбекистонга, хусусан, анддаги зиёрат туризми объектларига зиёрат қилиш учун келаётган зиёратчилар сонининг сезиларли даражада ошишига олиб келади.

ФОЙДАЛАНИЛГАН АДАБИЁТЛАР ВА МАНБАЛАР:

1. Ўзбекистон Республикасининг Туризмни ривожлантиришга оид қонун ва қарорлари

Ўзбекистон Республикаси Президентининг туризмни ривожлантиришга оид фармон ва қарорлари. Бу ҳужжатлар мамлакатда туризм соҳасининг ривожланиши учун қабул қилинган стратегияларни ўз ичига олади.

2. "Ўзбекистон: туризм ва маданият" (2018), Ўзбекистон Республикаси Туризмни ривожлантириш давлат қўмитаси.

Мазкур нашрда Ўзбекистондаги туризм тармоқлари, жумладан, зиёрат туризми ҳақида батафсил маълумотлар ва ривожланиш истиқболлари келтирилган.

3. Шарифов, М. (2020). "Ўзбекистонда туризмни ривожлантиришнинг иқтисодий асослари."

Бу асар Ўзбекистондаги туризм соҳасининг иқтисодий аспектларини, шу жумладан зиёрат туризмини ривожлантиришнинг иқтисодий жиҳатларини таҳлил қилади.

4. Исломов, Н. (2019). "Ўзбекистоннинг диний туризми: истиқболлар ва муаммолар."

Диний туризмнинг Ўзбекистон учун аҳамияти, зиёрат туризми ривожланишининг имкониятлари ва муаммоларини ёритувчи илмий иш.

5. Жаҳонгир, А. (2021). "Туризм ва маданий мерэос."

Ўзбекистондаги тарихий ва диний ёдгорликларнинг аҳамияти, уларнинг зиёрат туризмига таъсири ҳақида ёзилган китоб.

6. "Зиёрат туризми: имкониятлар ва муаммолар" (2022). Ўзбекистон туризм ва маданий мерэосининг халқаро интегратсияцси.

Ўзбекистон зиёрат туризмини ривожлантиришда дуч келадиган қийинчиликлар ва имкониятлар ҳақида қаламга олинган илмий мақола.

7. Ўзбекистон Республикаси Вазирлар Маҳкамасининг туризмни ривожлантириш бўйича қарорлари (2020-2023).

Мамлакатда зиёрат туризмига оид расмий қарорлар, стратегиялар ва амалий чоралар.

8. "Ўзбекистондаги туризм инфратузилмасининг ривожланиш истиқболлари" (2021), Жаҳон туризми институти.

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Зиёрат туризмини ривожлантириш учун зарур бўлган инфратузилма ва транспорт соҳасидаги таклифлар.

9. Акрамов, У. (2020). "Туризмни ривожлантиришда замонавий маркетинг ва реклама усуллари."

Ўзбекистонда туризм соҳасидаги маркетинг стратегиялари ва реклама усулларини ўрганишга бағишланган илмий тадқиқот.

10. "Халқаро туризм ва Ўзбекистон" (2022), Ўзбекистон Миллий Университети.

11. Ўзбекистоннинг халқаро туризм бозоридаги ўрни, зиёрат туризмининг аҳамияти ва унинг ривожланиш истиқболлари.

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RESEARCH OF STOCK INDICES BASED ON ADAPTIVE WAVELET ANALYSIS METHODOLOGY FOR IMPLEMENTATION OF DIAGNOSTIC METHODS OF GLOBAL OIL MARKET

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ABSTRACT

The stock market plays an important role in the development of individual segments of the economy and society as a whole. However, among the individual areas of the stock market, a special place is occupied by the global oil market. This is due to its role not only in the energy sector, but also in the chemical industry, the production of various goods, which provides significant employment and economic stability. A comprehensive study of the dynamics of stock indices is important, which allows us to assess the functioning of the oil market, the directions of its development. In this aspect, it is also necessary to properly consider the possible conditions affecting the dynamics of quotations of such indices, which can be characterized as adaptive factors. Among such factors, the time horizon of data analysis stands out. Based on this, for the purposes of the study, the feasibility of using the adaptive wavelet methodology for the implementation of diagnostic methods for the global oil market is considered.

Keywords: Analysis, Futures, Diagnostics, Quotes, Dynamics, Methodology, Stock Market, Oil Market, Wavelet Coherence.

Introduction

Stock markets play an important role in the modern formation of pricing policy for a number of different goods, products, services, and raw materials. Such formation occurs under the influence of the balance of supply and demand, which is reflected in the dynamics of quotations for individual securities that are traded on the stock market [1]-[5].

Among the individual goods, products, services and raw materials that are quoted on the stock market, the energy group attracts special attention. In this group, the oil market should be singled out, the derivatives of which affect not only the provision of various types of energy resources, but also the development of the chemical industry [6]-[8]. This explains the increased interest in this area of research, its relevance and significance. At the same time, new studies expand the horizons of knowledge, understanding of the processes that occur on the stock market. This is also the basis for the development of improved methods for diagnosing the global oil market.

For the purposes of the corresponding analysis, it is advisable to use various stock market indicators, where stock indices should be singled out. Such indices are a reflection of quotations for individual securities and the trading directions for which they are responsible. By considering various horizons of stock index quotation dynamics or factors of their generalization, separate data sets are formed in the reflection of the adaptive conditions of their change. This expands the scope of the study, allowing to obtain new results for decision-making. For the purposes of analysis, various methods and approaches can be used here [9]-[27], among which the wavelet methodology should be especially highlighted [28]-[34].

Thus, the main objective of this article is to analyze stock indices for the implementation of diagnostic methods for the global oil market, where it is advisable to use adaptive data sets using wavelet methodology. For this purpose, it is advisable to consider related works, data sets of the global oil market regarding the conditions for conducting the corresponding analysis.

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Related work

Many different works are devoted to the study of the oil market and the dynamics of quotations for the corresponding securities. This is due to the importance that the global oil market occupies in the system of economic relations, the development of the economy as a whole, and its influence on human civilization.

F. Khan, S. Muhammadullah, A. Sharif and C. C. Lee analyze the dynamics of the green energy stock market to forecast the Chinese crude oil market [35]. For this purpose, the IIS approach and sparse regression models are used in the work. This allows us to estimate the profitability of the oil market in the context of green energy development using China as an example. It is shown that the IIS approach and sparse regression models are more effective than the standard model without changes, since they allow adaptive change of the data set to any time horizon [35]. However, this approach limits the mutual analysis of data taking into account the dynamics of change in the time horizon of the studied data set. Therefore, it is advisable to have various analysis tools to conduct appropriate adaptive studies.

P. Esmaeili, M. Rafei, M. Salari and D. Balsalobre-Lorente consider the issues of oil price shocks in the context of the dynamic impact of demand and supply shocks in the world market and clean energy development trends [36]. For this purpose, data are considered on the example of the recession caused by the US. The work uses structural VAR and time-varying VAR models. This allows us to separate the study of shocks in the world oil market, complementing and expanding previous studies of the relationship between oil prices and renewable energy consumption [36].

A. Escribano, M. W. Koczar, F. Jareño and C. Esparcia study the transmission of shocks between crude oil prices and stock markets [37]. The paper considers data from 01.2000 to 02.2023 using the Dynamic Conditional Correlation Skew Student Copula model and the Diebold and Yilmaz connectivity index [37]. The authors state that before the global financial crisis, stock markets were less dependent on crude oil prices than after the crisis. This is justified in terms of returns and volatility between crude oil prices and stock markets. The authors also note that the side effect of shocks and crises on the correlation between stock markets and crude oil prices is insignificant. This helps to choose the most effective trading strategy in the markets. However, in this aspect, it is also necessary to take into account the adaptive change of data sets.

Y. Zhang and M. Umair study the relationship of green finance based on dynamic spillovers between green bonds, renewable energy, and carbon markets [38]. The study examined data from 01.2010 to 12.2020. The analysis is based on vector autoregressive models and time-varying models, which allows for adaptive data changes. The paper notes spillovers between carbon markets and renewable energy stocks. This allows for the interdependence of green financial instruments and their role in promoting sustainable development [38].

R. K. Soni, T. Nandan and N. N. Chatnani analyze the relationships between oil prices, stock market shares and gold [39]. The paper uses a wavelet-based approach for the analysis. For this purpose, the relevant data from India covering the period from 11.2005 to 03.2022 are considered. The originality of this work lies in the study of the impact of EPU on such components of the economy as oil, stocks and gold. At the same time, the authors note that Indian buyers of crude oil do not need to take into account the Indian EPU in transactions in the short and medium term. It is also noted that gold is an indicator of economic imbalances and an accurate observer of inflation [39].

Thus, the topic under consideration is reflected in a number of different studies concerning the assessment of the oil market development, its interaction with the stock market. This allows determining the conditions of its functioning, the ability to withstand the crisis and shocks. Ensuring the proper profitability and liquidity of the relevant securities is also important. In general, it becomes possible to determine the time of entering the stock market in order to obtain the most effective result. At the same time, various methods and approaches are used to consider such research topics, where the key aspect is the consideration of adaptive data sets reflecting various conditions of the global oil market development.

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Wavelet coherence as a tool for adaptive data analysis

The need for adaptive data analysis is primarily due to the possibility of expanding research to different time horizons in order to consider possible situations and make the most effective decisions. This is fully facilitated by the use of wavelet ideology, where an approach based on the construction and study of wavelet coherence estimates is distinguished [40]-[43]. Such estimates allow direct analysis of data dynamics on different time horizons. At the same time, adaptive data transformation allows studying their dynamics in implicit conditions of development, and giving appropriate estimates for making the necessary decisions.

Let's consider two time series ($k(t)$ and $d(t)$), each of which reflects the dynamics of an indicator over time t, then we can determine the value of wavelet coherence between the following series of data using the following formula [44]-[46]:

$$S^2(a,h)=\frac{\left|\Psi(a^{-1}W_{k(t)d(t)}(a,h))\right|^2}{\Psi(a^{-1}\left|W_{k(t)}(a,h)\right|^2)\Psi(a^{-1}\left|W_{d(t)}(a,h)\right|^2)}, \quad (1)$$

where:

$W(a,h)$ – values of transverse wavelet spectra,

a,h – the scale and center of time localization that determine the scale of the wavelet transform,

$k(t)$, $d(t)$ – series of data that we study,

Ψ – smoothing operator,

$S^2(a,h)$ – square of the wavelet coherence coefficient. $0 \le S^2(a,h) \le 1$. If these values tend to zero, then we have a weak correlation. Otherwise we have a strong correlation [45].

If we apply adaptive change to the time series ($k(t)$ and $d(t)$), we will get some new estimate of wavelet coherence ($\widehat{S}^2(a,h)$).

In general, we can have a whole set of such estimates ($\left\{\widehat{S}^2(a,h)\right\}$). By comparing the estimates, we can make more effective decisions and confirm their validity or invalidity.

Some examples of data on global oil market quotes

Fig. 1 shows Brent oil futures quotes. All data from https://www.investing.com for the period from January 2021 to December 2024.

a) weekly averaging b) monthly averaging

Figure 1: Dynamics of Brent oil futures quotes in weekly and monthly averaging in the period 01.2021-12.2024

It should be noted that the data dynamics shown in Fig. 1 are inherited. This is due to the data displayed in Fig. 1a and Fig. 1b. It is worth noting the surge in Brent oil futures quotes at the beginning

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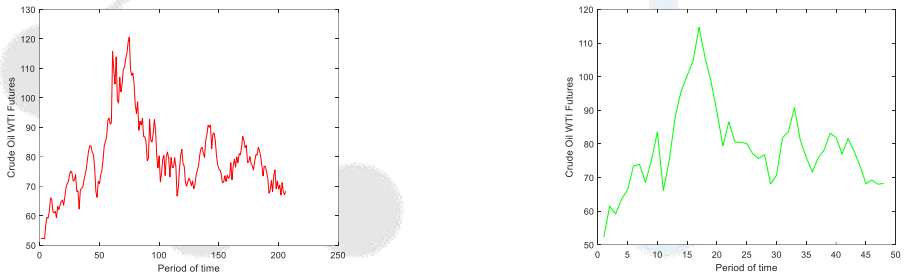
of the study period. The maximum values of Brent oil futures quotes fall on June 2022. Moreover, in the case of weekly averaging, such values are higher than in the monthly averaging of data. Then, a decrease in Brent oil futures quotes is observed.

However, such a decrease is not constant, since episodic surges in values for Brent oil futures can also be observed. At the same time, an important aspect of the analysis is to take into account all the features of the presented data, which is manifested in specific details.

Therefore, it is necessary to evaluate the data of the joint dynamics, and understand what information specific details of the data presentation contribute to such an assessment.

This is the general methodology of adaptive data analysis. For such an analysis, it is necessary to consider the corresponding dynamics of other data. Based on the logic of the study, such data also represent global oil market data.

Fig. 2, similar to the data in Fig. 1, shows the dynamics of crude oil WTI futures quotes.



a) weekly averaging b) monthly averaging

Figure 2: Dynamics of crude oil WTI futures quotes in weekly and monthly averaging in the period 01.2021-12.2024

The data in Fig. 2 also generally indicate the inheritance of the dynamics, which is reflected in the weekly and monthly display of crude oil WTI futures quotes. At the same time, the quote values presented in Fig. 2a are higher than the quote values presented in Fig. 2b. Here, too, the logical explanation is the same as in the previous case. This is either weekly averaging with a smaller amount of data, and therefore their variations or monthly averaging of data with a larger amount of data and possible variations. At the same time, given the inheritance of data memory for such a short period, the data cannot change sharply.

At the same time, we can talk about the identity of the dynamics of the data in Fig. 1 and Fig. 2. Thus, the maximum values of weekly quotes for Brent oil futures and crude oil WTI fall in May-June 2022. Then there is a decrease in such quotes with a slight increase in September 2023 and in March-April 2024. Then there is again a decrease in weekly quotes with minor variations. Similar mutual dynamics are observed in the monthly values of Brent oil futures and crude oil WTI quotes. This is explained by the fact that these are two types of crude oil.

Nevertheless, as noted earlier, it should be borne in mind that the dynamics of such reciprocity is fully manifested in the details. As can be seen from the data in Fig. 1 and Fig. 2, the corresponding figures differ in detail.

Therefore, to conduct the appropriate analysis, we will also consider a derivative product that is obtained from oil and is also traded in this segment of the stock market. In particular, for these purposes, we will consider the dynamics of gasoline RBOB futures quotes. Fig. 3 shows the dynamics of gasoline RBOB futures quotes on a weekly and monthly basis for the period 01.2021-12.2024.

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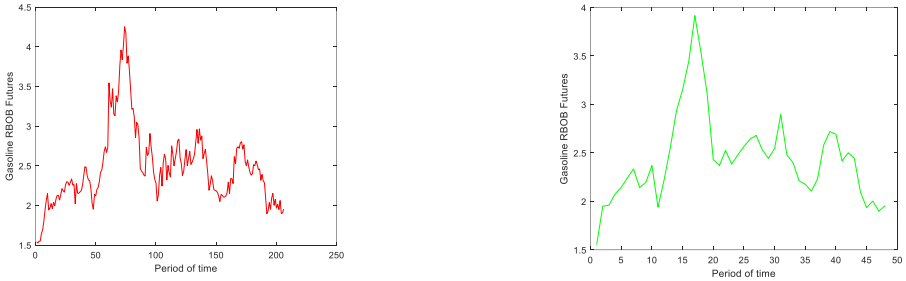


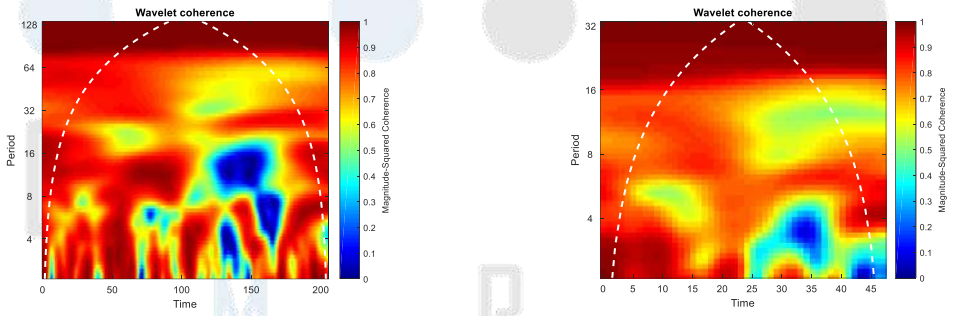
a) weekly averaging b) monthly averaging

Figure 3: Dynamics of gasoline RBOB futures quotes on a weekly and monthly basis in the period 01.2021-12.2024

As in the two cases presented above (Fig. 1 and Fig. 2), it is clear that the data in Fig. 3a and Fig. 3b display approximately the same dynamics of the corresponding gasoline RBOB futures quotes. This is also explainable, as in the previous examples. It is also worth noting the correlation between the general dynamics of gasoline RBOB futures quotes and quotes for futures of various grades of oil. In this case, gasoline RBOB is a derivative product of crude oil and this explains the close relationship in the dynamics of quotes for the corresponding futures. However, when comparing the data in all the figures, it is necessary to note significant differences in detail. A comparative assessment of the mutual dynamics of the data under consideration allows us to clarify such a detailed difference.

Comparative assessment of the mutual dynamics of the studied data

To conduct a comparative assessment of the mutual dynamics of the data under consideration, we will use the approach for determining wavelet coherence estimates, which was considered earlier and presented in the form of formula (1). First, we will consider the assessment of the mutual dynamics of Brent oil futures quotes and gasoline RBOB futures quotes (Fig. 4).



a) weekly averaging b) monthly averaging

Figure 4: Wavelet coherence estimates in the dynamics of Brent oil futures and gasoline RBOB futures quotes

First of all, it is necessary to note the differences in the presented estimates of the dynamics of Brent oil futures quotes and gasoline RBOB futures quotes in their weekly and monthly calculation. In general, such estimates are significant. At the same time, some coincidences can be observed among insignificant estimates (highlighted in blue and light blue). These coincidences correlate with their transformation from weekly data to monthly data.

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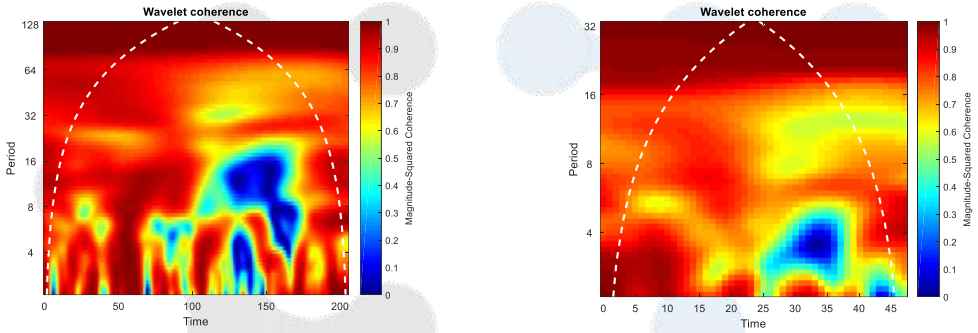
However, it should be noted that calculating the mutual dynamics of such data based on their monthly values is less expensive and faster. This allows for a general assessment of the development of the corresponding stock market segment. Estimating weekly values of mutual dynamics allows for a more detailed market diagnosis and an examination of the possibilities of entering and exiting with investments. In general, this allows for the implementation of a new methodology for the corresponding analysis.

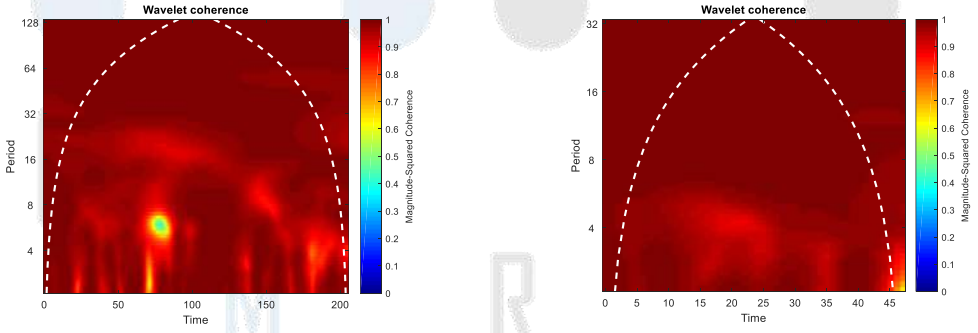
In a comparative aspect, Fig. 5 presents an assessment of the mutual dynamics of crude oil WTI futures quotes and gasoline RBOB futures quotes.



a) weekly averaging b) monthly averaging

Figure 5: Wavelet coherence estimates in the dynamics of crude oil WTI futures and gasoline RBOB futures quotes

In general, the data in Fig. 5 correlate with the data in Fig. 4 with minor variations. This is explained by the fact that there is a strong correlation in the dynamics of Brent oil futures and crude oil WTI futures quotes (Fig. 6).



a) weekly averaging b) monthly averaging

Figure 6: Wavelet coherence estimates in the dynamics of Brent oil futures and crude oil WTI futures quotes

However, the data in Fig. 5 also allow the implementation of a new approach for the purposes of studying individual segments of the stock market based on the adaptive wavelet analysis methodology, where such adaptation is specified by different data sets taking into account individual time horizons.

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It is also necessary to take into account the fact of strong mutual correlation in the study of the data group. Then it is possible to select certain parameters for entry and exit to the stock market, providing maximum efficiency to potential investors.

Conclusion

The article considers the issues of stock index analysis for the study and diagnostics of the global oil market. The importance and significance of studying this issue in the context of the transition to green energy is shown. Attention is paid to the time factor as an adaptive characteristic of the operating conditions of the stock market segment under consideration.

The dynamics of individual stock indices of the oil market such as: Brent oil futures, crude oil WTI futures and gasoline RBOB futures are considered. The corresponding data series are presented on different time horizons, which reflect the general ideology of the adaptive analysis.

For a detailed study of the possibility of implementing diagnostic methods for the global oil market, an adaptive wavelet methodology is used, which is based on wavelet coherence estimates for different time horizons of the data under consideration.

The feasibility of using wavelet coherence estimates for the analysis and diagnostics of the oil stock market based on the dynamics of individual stock indices is shown.

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ИННОВАЦИОННЫЙ ПОДХОД К ФОРМИРОВАНИЮ КОММУНИКАТИВНОЙ КОМПЕТЕНЦИИ В ОБУЧЕНИИ РУССКОМУ ЯЗЫКУ БУДУЩИХ СПЕЦИАЛИСТОВ ИНЖЕНЕРНОГО ПРОФИЛЯ.

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АННОТАЦИЯ: В данной статье описаны применения интерактивных методов обучения, а также наиболее эффективные современные подходы к образованию, уже показавшие свою эффективность, такие как внедрение геймификации в обучение, применение методики перевернутых классов, развитие цифровой инфраструктуры внутри высших учебных заведений.

КЛЮЧЕВЫЕ СЛОВА: интеграция игровых технологий, интерактивные методы, навыки soft-skills, метод «Перевернутые» классы, адаптивное обучение.

Мировая глобализация экономики и культуры, стремительное развитие научно-технических прогрессов на современном этапе развития общества требует всесторонне развитых специалистов владеющих современными образовательными и информационными технологиями. В современной образовательной практике на смену традиционным формам обучения приходят новые инновационные технологии. Содержательным аспектом образовательной деятельности становятся вопросы и способы повышения не только качества, но и результативности обучения.

Одним из эффективных способов решения данной задачи является интеграцию игровых технологий, использование интерактивных методов обучения с помощью инновационных технологий, которые позволяют вовлечь студентов в активный процесс познания, создать условия для их взаимодействия, обмена информацией и формированию коммуникативных компетенции. Интерактивные методы предполагают диалогический характер обучения, при котором преподаватель и студенты находятся в постоянном диалоге, обсуждают различные точки зрения, анализируют проблемы и совместно ищут пути их решения. Для формирования коммуникативной компетенции в обучении русскому языку могут быть использованы интерактивные методы такие как «Мозговой штурм», «Дискуссия», «Ролевые игры», которые способствуют развитию навыков устной и письменной речи, умения слушать собеседника, аргументировать и отстаивать свою точку зрения, работать в команде и решать коммуникативные задачи в реальных ситуациях.

Наряду с применением интерактивных методов можно использовать метод игровых технологии. Интеграция игровых технологии может помочь преобразовать процесс обучения, стимулировать интерес студентов к обучению и сделать процесс обучения не только эффективнее, но и интереснее. Игровое обучение может при меняться для различных образовательных результатов: приобретение знаний, развитие социальных навыков и soft-skills. «Перевернутые» классы относятся к педагогической модели, в которой типичные элементы лекции и домашние задания курса изменены, а обучение в

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аудитории выстраивается таким образом, чтобы обучающиеся все меньше обращались к пассивным формам обучения (конспектирование лекций) и все больше активно вовлекались в процесс. Концепция перевернутых классов напрямую связана с инфраструктурой и доступностью обучения, ведь для реализации этой концепции необходимо дать возможность студентам обращаться к элементам курса (видеолекциям, материалам, конспектам) в любое удобное для них время, а аудиторное время посвящать практическим упражнениям, дискуссиям, отработке навыков совместно с обучающимися, преподавателями и наставниками.

В Университете Британской Колумбии (The University of British Columbia) в Канаде был проведен эксперимент, подтверждающий успешность подхода «перевернутого класса». В качестве эксперимента один раздел курса был реализован «традиционно», а другой – с использованием перевернутого подхода. Результаты показали, что в «перевернутом» разделе вовлеченность обучающихся выросла вдвое, а посещаемость увеличилась на 20 %. Кроме того, учащиеся в «перевернутом» разделе курса показали результаты промежуточного тестирования вдвое выше, чем обучающиеся по традиционной технологии. Создание активной и вовлекающей обучающей среды происходит буквально автоматически при переворачивании класса, а с современными технологиями создания мультимедийных учебных материалов можно быть уверенным, что весь контент будет сохранен и доступен обучающимся.

Создание активной и вовлекающей обучающей среды происходит буквально автоматически при переворачивании класса, а с современными технологиями создания мультимедийных учебных материалов можно быть уверенным, что весь контент будет сохранен и доступен обучающимся. Адаптированное, или персонализованное, обучение – это технология обучения, основанная на построении индивидуальной образовательной траектории для обучающегося с учетом его текущих знаний, способностей, мотивации и других характеристик. Программы с использованием технологии адаптивного обучения предлагают персонализированный трек для каждого обучающегося, который перестраивается в режиме реального времени в ответ на его действия. В таком курсе собрано гораздо больше контента, но он разбит на небольшие фрагменты. Такой подход обеспечивает правильную дозировку знаний и более точную настройку на конкретного слушателя. Алгоритмы адаптивного обучения формируют из всей базы материалов нужный персонализированный плейлист. Таким образом, в отличие от линейных курсов, обучающийся изучает не весь материал, а только то, что ему нужно. Для реализации технологии адаптивного обучения необходимо применение новейших технологий, в том числе и искусственного интеллекта. Основной особенностью такого подхода также является то, что тесты становятся не методом выходного контроля, а текущей задачей платформы, для определения последующих блоков контента и определения изменений компетенций обучающегося.

Применение инновационных подходов к образованию не только стратегическая цель многих учебных заведений, это возможно здесь и сейчас. Термезский государственный университет инженерии и агротехнологий (ТГУИА) использует передовые инновационные подходы в образовании, на базе которого реализуются новые правила и принципы работы,

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внедряются образовательные решения, развиваются междисциплинарные проектные инициативы и научные исследования.

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ЦЕНТРАЛЬНОЕ РАСТЯЖЕНИЕ И СЖАТИЕ СТЕРЖНЕЙ

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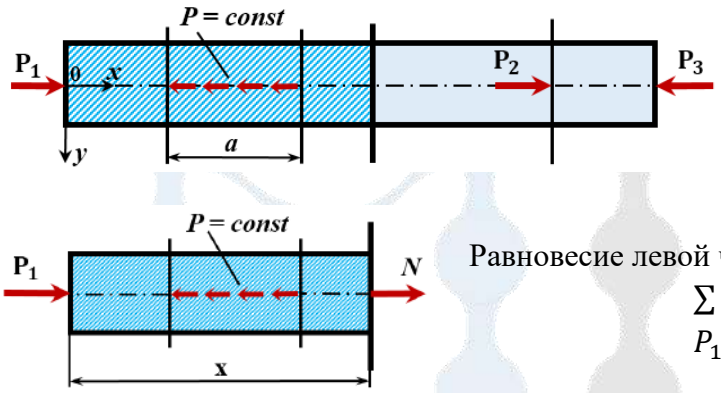
Центральное растяжение или сжатие бруса имеет место в том случае, когда все приложенные к брусу нагрузки или их равнодействующие направлены вдоль его оси (осевые нагрузки). При этом в поперечных сечениях бруса действуют только нормальные напряжения, которые можно привести к одному внутреннему усилию - продольной силе N. При известных нагрузках и опорных реакциях продольная сила в поперечных сечениях бруса может быть определена статически с помощью метода сечений (рис.1.1).



Равновесие левой части:

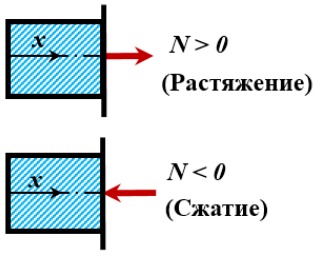
$$\sum x = 0$$

$$P_1 - Pa + N = 0$$

$$N = Pa - P_1$$

(Рис.1.1). Определение продольной силы

Таким образом, продольная силе в любом сечении бруса определяется как сумма проекций всех нагрузок, приложенных к одной з частей бруса, на его ось. Растягивающую продольную силу будем считать положительной, в сжимающую - отрицательной (рис.1.2).



(Рис.1.2). Знак продольной силы

Продольная сила в общем случае переменна по длине бруса. Между продольной силой и распределенной осевой нагрузкой существует следующее дифференциальное соотношение:

$$\frac{dN}{dx} = -P(x)$$

Это соотношение позволяет установить характер изменения продольной силы в зависимости от вида распределенной осевой нагрузки.

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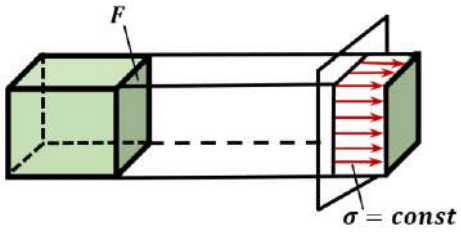
Нормальные напряжения в брусе при центральном растяжении и сжатии принимаются постоянными по поперечному сечению. Они определяются по формуле

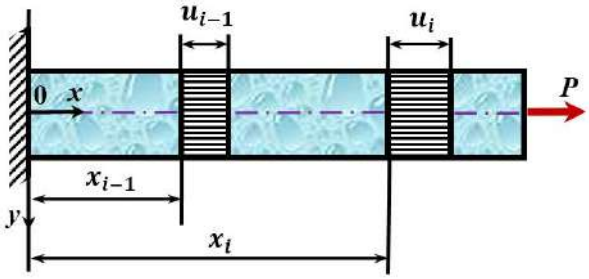
$$\sigma = \frac{N}{F}$$

где F - площадь поперечного сечения бруса (рис.1.3).



(Рис.1.3). Нормальные напряжения

Деформация бруса при центральном растяжении и сжатии характеризуется осевыми перемещениями поперечных сечений (рис.1.4), которые связаны между собой следующей формулой:



$$u_i = u_{i-1} + \Delta\ell_i \quad (1.3)$$

где $\Delta\ell_i$ - абсолютное удлинение или укорочение участка бруса между сечениями x_i и x_{i-1}.

(Рис.1.4). Осевые перемещения

Относительные линейные деформации продольных волокон бруса связаны с осевыми перемещениями формулой Коши:

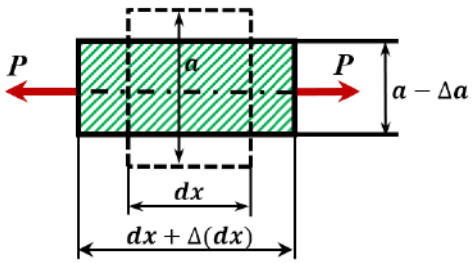
$$\varepsilon_x = \varepsilon = \frac{du}{dx} \quad (1.4)$$

Размеры поперечных сечений бруса при растяжении уменьшаются, а при сжатии - увеличиваются (рис.1.5). Это явление называется поперечной деформацией и характеризуется коэффициентом Пуассона:

$$\mu = \left|\frac{\varepsilon'}{\varepsilon}\right| \quad (1.5)$$

где ε' и ε - относительные линейные поперечные и продольные деформации;

$$\varepsilon' = \frac{\Delta a}{a}, \qquad \varepsilon = \frac{\Delta(dx)}{dx} \quad (1.6)$$



(Рис.1.5). Поперечная деформация

Деформации ε' и ε всегда имеют разные знаки. Коэффициент Пуассона определяется экспериментально и для различных материалов лежит в пределах

$$0 \le \mu \le 0{,}5$$

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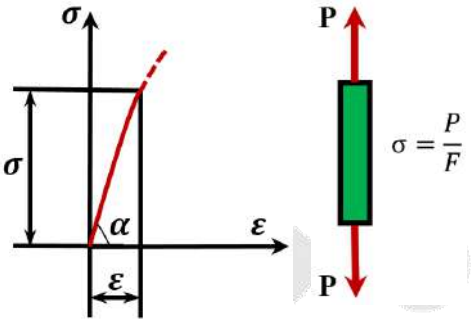
Для линейно - упругих материалов зависимость между σ и ε характеризуется законом Гука при растяжении - сжатии (рис.1.6):



$$\sigma = E \cdot \varepsilon \qquad (1.7)$$

где $E = tg\alpha$ - модуль упругости при растяжении - сжатии, определяемый экспериментально для каждого материала. Например, для стали он равен $E = (2 \div 2{,}1) \cdot 10^5$ МПа.

(Рис.1.6). Диаграмма растяжения - сжатия

Абсолютное удлинение или укорочение участка бруса длиной ℓ в общем случае определяется по формуле

$$\Delta\ell = \int_\ell \frac{N}{EF} dx \qquad (1.8)$$

где *EF* - жесткость бруса при растяжении – сжатие. При постоянных по длине бруса жесткости и продольной силе абсолютное удлинение или укорочение определяется по более простой формуле

При $EF = const$, $N = const$ $\quad \Delta\ell = \frac{N\ell}{EF} \qquad (1.9)$

Если продольная сила или жесткость переменны по длине бруса то при вычислении $\Delta\ell$ удобно использовать геометрический смысл определенного интеграла (1.8). Например, при $E = const$ формулу (1.8) можно представить в следующем виде:

$$\Delta\ell = \frac{1}{E}\int_\ell \frac{N}{F} dx = \frac{1}{E}\int_\ell \sigma dx = \frac{1}{E}\Omega_\sigma, \qquad (1.10)$$

где Ω_σ - площадь эпюры σ на данном участке, взятая с учетом знака напряжений.

При постоянной по длине жесткости бруса EF центральное растяжение и сжатие описывается следующим дифференциальным уравнением:

$$EFu''(x) = -p(x) \qquad (1.11)$$

Дифференциальное уравнение (1.11) и соотношение (1.1) позволяют установить характер изменения продольной силы и осевых перемещений по длине бруса в зависимости от вида осевой распределенной нагрузки ρ(x). Например, для двух наиболее распространенных случаев имеем:

1. На участках, где ρ = 0, $N = const$, U(x) - линейный закон.
2. На участках, где ρ = const, N - линейный закон, U(x) - квадратная парабола.

Потенциальная энергия деформации бруса длиной ℓ при центральном растяжении и сжатии в общем случае определяется по формуле

$$U = \int_\ell \frac{N^2}{2EF} dx \qquad (1.12)$$

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Брус, работающий на растяжение или сжатие, обычно называется стержнем. Расчетные формулы имеют следующий вид.

Условие прочности

$$\sigma = \frac{N_{\text{расч}}}{F} \leq \text{R} \qquad (1.13)$$

Формула подбора сечения

$$\text{F} \geq F_{\text{треб}} = \frac{N_{\text{расч}}}{R} \qquad (1.14)$$

Формула определения грузоподъемности

$$N_{\text{расч}} \leq N_{\text{пред}} = RF \qquad (1.15)$$

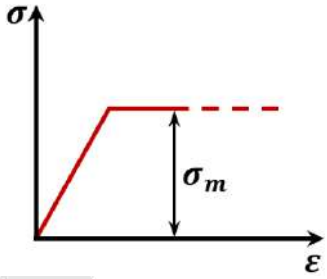
Здесь $N_{\text{расч}}$ – продольная сила в стержне, вычисленная от действия расчетных нагрузок;

$N_{\text{пред}}$ – предельная по условию прочности продольная сила;

R – расчетное сопротивление материала стержня на растяжение или сжатие.

При определении разрушающей нагрузки для конструкций из материалов с пластическими свойствами используется схематизированная диаграмма Прандтля (рис.1.7). В этом случае разрушающее усилие в стержне при растяжении-сжатии определяется по формуле

$$N_{\text{разр}} = \sigma_m \cdot F \qquad (1.16)$$



(Рис.1.7). Диаграмма Прандтля

Где σ_m - предел текучести материала.

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ГРАММАТИЧЕСКИЕ СЛОЖНОСТИ РУССКОГО ЯЗЫКА ДЛЯ ИЗУЧАЮЩИХ КАК ИНОСТРАННЫЙ

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Аннотация: Русский язык является одним из самых сложных для изучения иностранных студентов, и одной из главных причин этого является многослойная грамматическая структура языка. В статье рассмотрены основные грамматические слои русского языка, включая фонетику и орфографию, морфологию, синтаксис, лексику и пунктуацию. Обсуждаются особенности этих слоев, которые представляют трудности для изучающих русский язык как иностранный. Приводятся примеры типичных ошибок и основные принципы освоения грамматики русского языка. Также рассматривается, как эти слои взаимодействуют, создавая уникальную систему, требующую внимательного подхода для успешного овладения языком.

Ключевые слова: Русский язык, грамматические слои, морфология, синтаксис, фонетика, орфография, лексика, пунктуация, язык как иностранный, сложности изучения, грамматические особенности.

Русский язык — один из самых сложных и многогранных языков мира. Для изучающих его как иностранный это может быть непростой задачей. Язык состоит из множества грамматических слоев, каждый из которых имеет свои особенности и правила. Чтобы разобраться в этом многообразии, важно понимать, как различные грамматические явления взаимодействуют друг с другом и как правильно использовать их в речи. В этой статье мы рассмотрим основные грамматические слои русского языка, которые особенно важны для иностранных студентов.

1. Фонетика и орфография

Фонетика и орфография — это первый слой, с которым сталкивается каждый ученик. Фонетика занимается изучением звуков языка, а орфография — правил написания слов.

Фонетика: Для русскоязычных звук и буква часто не совпадают в силу существования ряда чередований (например, в словах "молоко" и "молочный"). У иностранцев могут возникать трудности с произношением определённых звуков, таких как «ы», «ш», «ж», а также с ударением в словах. Ударение в русском языке подвижное, что также требует внимания.

Орфография: Одна из самых сложных тем в русском языке. Правила написания слов зависят от фонетического состава, а также от синтаксической структуры. Например, написание «и» и «ы» в разных контекстах или использование мягкого знака.

2. Морфология

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Морфология русского языка — это раздел грамматики, который изучает строение слов и их изменения. В отличие от синтаксиса, который изучает, как слова объединяются в предложения, морфология сосредоточена на внутренней структуре слов и их форме в зависимости от различных грамматических категорий. Для изучающих русский язык как иностранный морфология представляет собой один из самых сложных аспектов, так как русский язык имеет богатую систему склонений, спряжений и словообразования.

Имя существительное

Имя существительное в русском языке изменяется по числу (единственное и множественное), падежу (шесть падежей) и роду (мужской, женский, средний). Каждый падеж отвечает на определённые вопросы и выполняет различные синтаксические функции. Например, слово "стол" в разных падежах будет иметь следующие формы:

- Именительный падеж: стол (кто? что?),
- Родительный падеж: стола (кого? чего?),
- Дательный падеж: столу (кому? чему?),
- Винительный падеж: стол (кого? что?),
- Творительный падеж: столом (кем? чем?),
- Предложный падеж: о столе (о ком? о чём?).

Для иностранцев трудность может представлять не только запоминание формы каждого падежа, но и правильное использование падежей в зависимости от контекста.

Имя прилагательное

Прилагательные в русском языке изменяются по родам, числам и падежам и согласуются с существительным, с которым они стоят. Например:

- красивый стол (мужской род, именительный падеж),
- красивая книга (женский род, именительный падеж),
- красивое дерево (средний род, именительный падеж),
- красивые столы (множественное число, именительный падеж).

Особенностью прилагательных является их возможность изменяться на краткие и полные формы, например, "красивый" — "красив" или "старый" — "стар".

Глагол

Глаголы в русском языке изменяются по лицам, числам, временам, наклонениям и родам. Русский язык имеет два вида глаголов — совершенный и несовершенный. Глаголы могут быть переходными или непереходными, возвратными и невозвратными.

- **Спряжение** — глаголы изменяются по лицам (я, ты, он), числам (единственное и множественное) и временам (настоящее, прошедшее, будущее). Например:
  - Я читаю (настоящее время, 1-е лицо, единственное число),
  - Он читал (прошедшее время, 3-е лицо, единственное число),
  - Мы будем читать (будущее время, 1-е лицо, множественное число).
- **Возвратные глаголы** образуются с помощью суффикса "-ся" или "-сь" и обозначают действия, направленные на субъект (например, "одеваться", "мыться"). Эти глаголы требуют внимания, так как в некоторых языках нет аналога возвратных форм.

3. Синтаксис

Синтаксис русского языка — это раздел грамматики, который изучает, как слова объединяются в предложения, а также как различные части предложения взаимодействуют

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для выражения смысла. Синтаксис помогает определить правильное строение предложений, правила согласования слов, использование различных типов предложений и их структурных элементов. Для иностранцев синтаксис русского языка может представлять значительные трудности из-за особенностей порядка слов, видов предложений и различных грамматических конструкций, характерных для русского языка.

Порядок слов: В русском языке порядок слов в предложении не всегда строгий, что связано с развитой системой падежей. Обычно основной порядок слов — подлежащее, сказуемое, дополнение (например, "Мальчик читает книгу"). Однако можно менять порядок для выражения различных акцентов (например, "Книгу читает мальчик").

Сложные предложения: Для иностранных студентов сложно осваивать различные типы сложных предложений, такие как сложносочинённые и сложноподчинённые, а также использование союзов и частиц для их связывания. Например, в сложноподчинённых предложениях важно различать типы придаточных предложений (временные, условные, причинные).

4. Лексика и словообразование

Лексика и словообразование русского языка являются важнейшими компонентами его грамматической структуры и имеют большое значение для изучающих русский как иностранный. Лексика включает в себя все слова языка, а словообразование изучает процессы создания новых слов и изменения существующих с помощью различных аффиксов и способов. Эти аспекты помогают не только расширить словарный запас, но и улучшить понимание структуры языка, что является необходимым для свободного общения.

Словообразование: В русском языке существуют многочисленные приставки, которые меняют значение основного слова (например, «сказать» — «передать», «услышать» — «переуслышать»). Для иностранцев важно научиться различать значения этих приставок и их влияние на слово.

Синонимы и омонимы: В русском языке много слов, которые имеют несколько значений, и знание контекста играет ключевую роль в их правильном употреблении. Например, слово «ключ» может обозначать как элемент замка, так и источник воды.

5. Пунктуация

Пунктуация в русском языке играет важную роль в организации мыслей и выражении интонации. Для иностранных студентов это может быть трудной темой, так как правила могут отличаться от тех, что существуют в их родных языках.

Запятые и другие знаки препинания: Использование запятой, точек с запятой, двоеточий и других знаков препинания в сложных предложениях часто вызывает трудности. Например, в предложении «Я подумал, что ты можешь помочь» запятая ставится, так как речь идет о придаточном предложении.

Заключение

Русский язык состоит из множества грамматических слоев, каждый из которых требует внимательного изучения. Для изучающих русский как иностранный особенно важны навыки работы с морфологией, синтаксисом и лексикой, а также знание фонетических и орфографических особенностей. Постепенно осваивая все эти аспекты,

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можно значительно улучшить навыки общения на русском языке, понимать его структуры и использовать их правильно в речи.

БИБЛИОГРАФИЯ

1. **Шмелёв, М. А.** (2003). *Русский язык для иностранных студентов*. Москва: Издательство МГУ.
Книга охватывает основные аспекты русского языка, включая грамматику, фонетику и синтаксис, с примерами и упражнениями для иностранцев.

2. **Иванова, С. П.** (2011). *Грамматические трудности русскоязычных и иностранцев: теория и практика*. Санкт-Петербург: Невский диалект.
Работа посвящена изучению трудностей, с которыми сталкиваются иностранцы при изучении грамматики русского языка, а также методам преодоления этих трудностей.

3. **Кучеренко, Н. И.** (2006). *Морфология и синтаксис русского языка*. Москва: Высшая школа.
Книга подробно рассматривает основные грамматические категории русского языка, включая склонение, спряжение, виды глаголов и т. д.

4. **Кубрякова, Е. С.** (2012). *Русский язык как иностранный: грамматические аспекты*. Москва: Академический проект.
В этом учебном пособии представлены детальные объяснения грамматических тем с фокусом на сложные моменты для иностранцев.

5. **Янчевская, Л. В.** (2015). *Русский язык для иностранных студентов: теория и практика*. Санкт-Петербург: Издательство РГУ.
Учебник включает теоретическую часть, которая объясняет структуру русского языка, и практическую, которая помогает иностранцам освоить грамматические темы.

6. **Леонтьева, А. И.** (2010). *Сложности изучения русского языка как иностранного: грамматика и лексика*. Москва: Просвещение.
Исследуются типичные ошибки иностранных студентов в грамматике и лексике, а также методы их устранения.

7. **Гусев, В. Н.** (2018). *Русский язык для начинающих: фонетика и орфография*. Москва: РГГУ.
Практическое пособие для изучающих русский язык, которое помогает иностранцам разобраться с фонетическими и орфографическими особенностями языка.

8. **Шварц, Н. И.** (2014). *Пунктуация и стиль русского языка*. Москва: Либроком.
В работе рассматриваются основные правила пунктуации в русском языке, которые часто создают трудности для иностранных студентов.

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IQTISODIY INFRATUZILMALARNING KLASSIFIKATSIYASI.

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Kirish: Iqtisodiy infratuzilma — bu iqtisodiyotning samarali faoliyatini ta'minlash uchun zarur bo‘lgan barcha asosiy tuzilmalar va tizimlar yig‘indisidir. U mamlakatlar va mintaqalar o‘rtasidagi iqtisodiy aloqalarni yaxshilash, ishlab chiqarish jarayonlarini qulaylashtirish va yashash sharoitlarini yaxshilashga xizmat qiladi. Iqtisodiy infratuzilma to‘liq va sifatli bo‘lishi kerak, chunki u nafaqat savdo, balki sog‘liqni saqlash, ta'lim, energetika va boshqa sohalarni ham o‘z ichiga oladi. Ushbu maqolada iqtisodiy infratuzilmaning klassifikatsiyasi, uning turli komponentlari va iqtisodiy rivojlanishdagi roli haqida so‘z yuritiladi. Iqtisodiyot infratuzilmasi (lotincha : *infra* — pastda, ostida + structura — tuzilma, joylashuv) — ishlab chiqarishga va butun iqtisodiyotga xizmat qiladigan, ular uchun go‘yoki umumiy poydevor, tayanch yaratadigan tarmoqlar va faoliyat turlari majmui. Iqtisodiyot infratuzilmasi transport va aloqa vositalari, omborxona, energiya va suv ta’minoti va boshqalarni o‘z ichiga oladi. Iqtisodiyot infratuzilmasi sifatida tasniflangan tarmoqlar doirasi turli mamlakatlarda turlicha belgilanadi. Ularning umumiy maqsadi sotuvchilar va xaridorlar o‘rtasidagi tovar va xizmatlar oqimini soddalashtirish va samaraliroq qilishdir. Ayrim mualliflar iqtisodiyotning infratuzilmasi sifatida fan, sog‘liqni saqlash va ta’lim tizimini ham kiritib, ularni iqtisodiyotning noishlab chiqarish (ijtimoiy) infratuzilmasi deb ataydilar.

Iqtisodiy infratuzilmani o‘rganish tarixi Infratuzilma masalalarini o‘rganish ancha uzoq tarixga ega bo‘lib, u mahalliy iqtisodiyot fanida D.I.Mendeleyev, A.I.Chuprov, shuningdek, sovet iqtisod fanida K.Myuller-Byulov, A.Yu.N. Xomyanskiy, S.S. Nosova nomlari bilan bog‘liq. Chet el iqtisodiyotida K. Marks, J. Marksning asarlarida infratuzilma muammolari muhokama qilindi.M. Keynes va A. Pesenti, P. N. Rosentstein-Rodana, X. V. Zinger, A. O. Xirshman, V. V. Rostou, P. Kutner, P. E. Samuelson, R. Nurks va R. Yohimsen.Shu bilan birga, xarakterli xususiyatni ta’kidlash kerakki, infratuzilma haqidagi g‘oyalar rivojlanishining dastlabki bosqichlarida olimlar asosan infratuzilmaning tarkibiy qismlaridan birini o‘rganishgan, masalan, A. VA. Chuprov infratuzilma masalalarini asosan temir yo‘l transporti misolida o‘rgandi.K.Marks infratuzilma, birinchi navbatda, transport va kommunikatsiyalar haqida gapirdi.

Kalit so‘zlar: Iqtisodiy infratuzilma, iqtisodiy infratuzilmalarning klassifikatsiyasi, Iqtisodiy infratuzilmani o‘rganish tarixi, Iqtisodiy infratuzilma iqtisodiy rivojlanishi

Dolzarbligi: Iqtisodiy infratuzilma iqtisodiy faoliyatni ta'minlashda muhim o‘rin tutadi. U davlat yoki mintaqaning iqtisodiy tizimini qo‘llab-quvvatlaydigan tizimlar to‘plamidan iborat. Iqtisodiy infratuzilma energiya ta'minoti, transport tizimlari, axborot-kommunikatsiya texnologiyalari, sog‘liqni saqlash, ta'lim va boshqa sohalarda ko‘rsatiladigan xizmatlar orqali jamiyatni rivojlantirishga yordam beradi. Samarali infratuzilma iqtisodiy o‘sishni tezlashtiradi, investitsiyalarni jalb qiladi va xalqning turmush darajasini oshiradi. Infratuzilmaga sarmoya kiritish bo‘yicha jahon yetakchisi Xitoy bo‘lib, u yalpi ichki mahsulotlarning o‘rtacha 8,5 foizini sarflaydi. Rossiya har yili yalpi ichki mahsulotlarning 3,2 foizini shu kabi maqsadlarga sarflaydi.

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2010-yilda infratuzilmaga investitsiyalar kiritildi: AQShda-yalpi ichki mahsulotning 1,0%, Xitoyda-yalpi ichki mahsulotning 10,9%, Germaniyada-yalpi ichki mahsulotning 1,3%. Ayrim muammolar ko‘pincha pul bo‘lmagan ekvivalentda o‘lchanadigan ushbu turdagi investitsiyalarga qaytishni baholashdir. Masalan, amerikalik ekspertlarning fikricha, AQSHda transport inshootlari qurilishiga 1 million dollarlik sarmoya kiritilishi 35 ming ish o‘rni yaratish imkonini berad

Asosiy qism: Iqtisodiy infratuzilma turli sohalar bo‘yicha o‘zaro bog‘langan tizimlardan iborat bo‘lib, ular quyidagi asosiy turlarga ajratilishi mumkin:

Transport infratuzilmasi. Yo‘l tizimi: Avtomobil yo‘llari, temir yo‘llar, ko‘priklar va tunnel tizimlari.

Aeroportlar va havo transporti tizimi: Havo limanlari, samolyotlar uchun inshootlar, havo qatnovi boshqaruvi.

Daryo transporti: Daryo portlari va yelkanli yoki motorkatlarni boshqarish tizimlari.

Energiya infratuzilmasi. **Elektr energiyasi**: Elektr stansiyalari, energiya tarmoqlari va elektr ta'minoti tizimlari.

Issiqlik ta'minoti: Markazlashtirilgan isitish tizimlari, issiqlik energiyasi ishlab chiqarish va tarqatish.

Qayta tiklanadigan energiya manbalari: Quyosh, shamol va gidroenergiya ishlab chiqarish tizimlari.

Axborot va kommunikatsiya infratuzilmasi (ICT). **Telekommunikatsiya tizimlari**: Telefon tarmoqlari, internet tarmoqlari, mobil aloqa va raqamli texnologiyalar.

Ma'lumotlar markazlari va bulutli texnologiyalar: Ma'lumotlarni saqlash va qayta ishlash, bulutli platformalar va texnologiyalar.

Elektron tijorat va raqamli savdo: Onlayn xizmatlar, elektron to'lov tizimlari, e-commerce infratuzilmasi.

Sog‘liqni saqlash infratuzilmasi. **Shifoxonalar va tibbiy muassasalar**: Tibbiy xizmatlarni ko‘rsatish, shifoxonalar, klinikalar va maxsus tibbiyot markazlari.

Sog‘liqni saqlash tarmoqlari: Poliklinikalar, apteka tarmoqlari, tibbiy ta'lim va tadqiqot markazlari.

Sog‘liqni saqlash texnologiyalari: Tibbiy asbob-uskunalar, diagnostika texnologiyalari va telemeditsina.

Ta'lim infratuzilmasi. **Ta'lim muassasalari**: Maktablar, kollejlar, universitetlar va ilmiy tadqiqot institutlari.

Ta'lim texnologiyalari: O‘quv dasturlari, onlayn ta'lim platformalari, elektron ta'lim tizimlari.

Kutubxonalar va ilmiy resurslar: Ilmiy tadqiqotlar, kitoblar, ilmiy jurnallar va ma'lumotlar bazalari.

Moliyaviy infratuzilma. **Bank tizimi**: Tijorat banklari, markaziy banklar, moliya institutlari va kredit tizimlari.

Kapital bozorlari: Aksiyalar va obligatsiyalar, investitsiya fondlari va boshqa moliyaviy instrumentlar.

Sug‘urta va pensiya tizimlari: Sug‘urta kompaniyalari, pensiya jamg‘armalari va ijtimoiy ta'minot.

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Sanoat infratuzilmasi. **Sanitar va chiqindilarni boshqarish tizimlari**: Kanalizatsiya tarmoqlari, chiqindilarni qayta ishlash va zararsizlantirish markazlari.

Qishloq xo‘jaligi infratuzilmasi: Sug‘orish tizimlari, qishloq xo‘jaligi texnikalari, fermer xo‘jaliklari.

Ijtiomoiy infratuzilma. **Uy-joy infratuzilmasi**: Shahar va qishloq hududlaridagi uy-joy qurilishi, kommunal xizmatlar.

Madaniyat va turizm infratuzilmasi: Madaniy markazlar, teatrlash, muzeylar, turizmni rivojlantirish.

Iqtisodiy infratuzilma iqtisodiy rivojlanishning poydevorini tashkil etadi. Samarali infratuzilma nafaqat iqtisodiy o‘sishni tezlashtiradi, balki ijtimoiy xizmatlar, savdo va transportni ham optimallashtiradi. Yaxshi rivojlangan infratuzilma hududlar o‘rtasidagi integratsiyani kuchaytiradi, yangi ish o‘rinlari yaratadi va investitsiyalarni jalb qiladi. Shuningdek, infratuzilma sanoat, savdo, ta'lim va sog‘liqni saqlash kabi sohalarning samarali ishlashini ta'minlashga yordam beradi.

Xulosa: Iqtisodiy infratuzilma har bir davlat yoki mintaqada iqtisodiy o‘sish va rivojlanishning asosi bo‘lib, uning samarali ishlashini ta'minlash davlat siyosati va boshqaruvning muhim jihatlaridan biridir. Iqtisodiy infratuzilmaning turli sohalari bir-birini to‘ldirib, jamiyatning barcha ehtiyojlarini qondiradi. Yangi texnologiyalarni joriy etish va infrastruktura ob'ektlarini modernizatsiya qilish iqtisodiy va ijtimoiy barqarorlikni saqlashda muhim o‘rin tutadi.

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ВЛИЯНИЕ ТВОРЧЕСТВА А.С. ПУШКИНА НА ПОЭЗИЮ КАРАКАЛПАКСКОГО ПОЭТА ИБРАГИМА ЮСУПОВА

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Аннотация. *В статье анализируется воздействие русской классической литературы на развитие каракалпакской поэзии. Особое внимание уделяется фигуре Ибрагима Юсупова, народного поэта Каракалпакии, который творчески переосмысливал пушкинские идеи, создавая синтез русских и восточных литературных традиций.*

Также следует отметить, что значимость работы заключается в раскрытии роли творчества А.С. Пушкина как источника вдохновения и инструмента культурного обмена, способствовавшего обогащению и развитию каракалпакской литературы. Исследование подчеркивает, как произведения Пушкина укрепили связи между русской и каракалпакской литературными традициями, а также выявляет вклад Ибрагима Юсупова в расширение эстетических горизонтов каракалпакской поэзии. Работа имеет важное значение для изучения межкультурного взаимодействия и сохранения национальной идентичности в контексте мирового литературного наследия.

Ключевые слова: *каракалпакская поэзия, поэтические связи Пушкина и Юсупова, творческое наследие Юсупова, художественные образы Юсупова.*

Введение. Исследование «Влияние творчества А.С. Пушкина на творчество каракалпакского поэта Ибрагима Юсупова» сосредоточено на анализе того, как русская классическая литература, особенно произведения А.С. Пушкина, оказала воздействие на развитие каракалпакской поэзии. В частности, внимание уделено И. Юсупову, который стал одной из выдающихся фигур в литературе каракалпакской поэзии.

Исследование выделяет несколько ключевых аспектов влияния А.С. Пушкина на творчество Юсупова: мотивы свободы, борьбы и любви в его поэзии; переводы пушкинских произведений, таких как «Я памятник себе

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воздвиг нерукотворный» и «Бахчисарайский фонтан»; создание новых художественных образов, как в поэме «Аллея Анны Керн», где соединяются национальная идентичность и универсальные литературные ценности.

Поэзия И. Юсупова во второй половине XX — начале XXI века значительно повлияла на развитие каракалпакской литературы, подняв ее на новый уровень. Он был одним из тех, кто способствовал культурному обмену и развитию каракалпакской литературы, создавая уникальное синтетическое пространство для творческого взаимодействия различных культур.

В данной статье влияние творчества А.С. Пушкина на поэзию Ибрагима Юсупова и каракалпакскую литературу в целом рассматривается через несколько ключевых аспектов.

Влияние Пушкина на поэзию Юсупова: Ибрагим Юсупов, как народный поэт Каракалпакии, активно заимствовал элементы пушкинского творчества, создавая новые художественные образы, которые отражают не только его личные переживания, но и дух русской литературы. В стихах Юсупова звучат мотивы свободы, борьбы, любви и эстетического восприятия мира, что также является наследием Пушкина:

Привил я скромный черенок к узлу больших ветвей.
Я – древа Пушкина росток. Бердах в крови моей.
И незабвенный Навои в моем сердцебиенье.
О ветер всех земных дорог, овей меня, овей [1, с. 5].

В этих строках Ибрагим Юсупов подчеркивает не только свою причастность к великой русской литературной традиции, но и к культурному наследию Востока, символизируемому великими поэтами Навои и Бердаха. Он воспринимает себя как «росток» Пушкина, который, несмотря на свою скромность, является продолжением мощного литературного древа. Упоминания Навои и Бердаха добавляет дополнительный пласт значимости, подчеркивая синтез восточных и западных влияний в творчестве И. Юсупова.

«Привил я скромный черенок к узлу больших ветвей» [1, с. 5] символизирует идею преемственности и роста. Черенок, будучи малым и скромным, находит поддержку в мощных ветвях дерева, что символизирует связь между поколениями, а также между личным творчеством поэта и великими культурными традициями.

Утверждение «Я – древа Пушкина росток» [1, с. 5] можно интерпретировать как осознание Ибрагимом Юсуповым своей роли в культурном контексте. Он не просто воспринимает Пушкина как великого русского поэта, но и ощущает себя частью этой великой традиции. Это

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утверждение символизирует влияние русской классики на его творчество, при этом оставаясь верным своей собственной культурной идентичности.

Включения имени Навои и Бердаха, великих поэтов Востока, подчеркивает не только синтез культур, но и утверждение поэтом своего места на пересечении двух миров — русского и восточного. Это отражает универсализм творчества Ибрагима Юсупова, который в своей поэзии стремится объединить лучшие традиции двух великих литератур.

«О ветер всех земных дорог, овей меня, овей» [1, с. 5] — этот образ обращает внимание на духовную свободу и стремление поэта быть вдохновленным всеми великими традициями, символизируя открытость к мировому культурному наследию. Ветер, овеявший поэта, становится метафорой вдохновения и движущей силы, которая направляет его творчество.

Таким образом, эти строки из стихотворения Ибрагима Юсупова — это поэтическое заявление о его глубоком уважении к русской и восточной поэзии, о наследии, которое он продолжает и развивает в своем творчестве.

Переводы произведений Пушкина: И. Юсупов не ограничивался только восприятием произведений Пушкина, но также занимался переводом его стихов, что позволяло глубже усваивать и интерпретировать пушкинские тексты. К примеру, И. Юсупов перевел такие произведения А.С. Пушкина, как «Я памятник себе воздвиг нерукотворный» («Ескерткиш»), «Во глубине Сибирских руд...» («Сибирьге хат»), «К Чаадаеву» («Чаадаевқа»), «Анчар» («Анчар»), «Талисман» («Мойтумар»), «Не пой, красавица, при мне» («Айтагөрме, гөззал, мениң алдымда»), поэма «Бахчисарайский фонтан» («Ески фонтан ертеги») и другие. Например, в стихотворении И. Юсупова «Ескерткиш» (перевод с русского на каракалпакский язык) представлена переработка известного произведения А.С. Пушкина «Я памятник себе воздвиг нерукотворный». И. Юсупов в своем переводе сохраняет основную идею и философию произведения, но адаптирует её в контексте своей родной культуры.

Мен өлмеймен, - мәзи мениң денемди
Топырақ басар, сөзим жасар бирақта.
Жалғыз шайыр қалса айлы әлемде,
Мен каларман бөленип даңқ-атаққа [3, с 48].

В переводе Ибрагима Юсупова из пушкинского стихотворения передана мысль, что поэт продолжит жить в сердцах людей через свое творчество, даже после смерти. Это явно отражена в строках «Мен өлмеймен, - мәзи мениң

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денемди» / «Топырақ басар, сөзим жасар бирақта» [3, с 48] («Я не умру — лишь тело моё уйдёт в землю, / Но слово моё будет жить»).

«Жалғыз шайыр қалса айлы әлемде» / «Мен каларман бөленип даңқ-атаққа» [3, с 48] (Если в этом светлом мире останется лишь один поэт, / Я останусь, украшенный славой и признанием), эти строки можно интерпретировать как размышление о вечности поэзии и значении творчества. Таким образом, Юсупов переносит пушкинскую концепцию бессмертия в свою культурную реальность, акцентируя внимание на неизменности роли поэта и на вкладе его слова в вечность.

Следует особо подчеркнуть, что Ибрагим Юсупов через переводы пушкинских стихотворений создал возможность для нашего народа узнать и понять русский литературный канон. Его переводы остаются ярким примером точности и художественного восприятия произведений Пушкина на каракалпакском языке.

Создание новых художественных образов: Вдохновленный Пушкиным, И. Юсупов создал собственные яркие художественные образы и метафоры, которые обогатили каракалпакскую поэзию. Он умело сочетал традиции своей родной литературы с новыми мотивами, заимствованными из русской классики. Ярким примером является небольшая поэма И. Юсупова «Аллея Анны Керн».

Поэма «Аллея Анны Керн» является реакцией И. Юсупова на знаменитое стихотворение «Я помню чудное мгновенье» А.С. Пушкина (о его любви к Анне Керн). Вдохновленным пушкинским «чудным мгновеньем», поэма Юсупова, передает тот же мотив любви и раздумий о счастье и воспоминаниях. Это также важный момент, когда каракалпакский поэт переосмысляет наследие великого русского литератора и привносит в свою поэзию личный взгляд на этот символ любви, свободы и вдохновения.

Я жалею поэта, пусть он и велик,
Если не пережил он, горя вдохновеньем,
Тот короткий, единственный, может быть, миг
На века остающийся чудным мгновеньем… — [1, с. 23]

Эти строки из поэмы И. Юсупова «Аллея Анны Керн» выражают глубочайшее сочувствие к поэту, который, несмотря на свою величину, поэту порой не суждено быть вместе с любимой, которой останется в памяти, мгновение, которое, возможно, стало бы его художественным достижением.

«Аллея» для поэта становится символом жизненного пути, который может быть извилистым, неопределенным, но все же полным внутреннего

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смысла и красоты. Также в поэме отражается соединение эпох Пушкина и Юсупова, когда обе эти фигуры становятся мостом между культурами и временем.

Поэт использует метафоры, символы, которые переплетают природные элементы (аллея, деревья, солнце) с внутренними переживаниями и историей, создавая богатую картину.

Сопоставление образа Анны с образом, созданным Пушкиным: Анна Керн, как мифический персонаж — это фигура, которая долгое время олицетворяла для русской литературы идеал женственности, т.е. поэтической музы. Для Пушкина она стала символом возвышенной любви, недостижимой и одновременно вечной. Образ Анны в стихах Пушкина вызывает идеализированное восприятие любви и боли, которая сопровождает невозможность быть вместе с этим идеалом.

В поэме И. Юсупова, хотя напрямую речь о самой Анне Керн не идет, её образ всё же влияет на восприятие темы любви и искания. И Юсупов, перенимая пушкинскую традицию, скорее находит свою Анну в образе общей вехи для поэзии, которая стремится к идеалу и счастью, но также встречает непреодолимые барьеры.

Поэма «Аллея Анны Керн» является ярким примером того, как творчество одного поэта может влиять на другого, пробуждать новые образы и идеи. Через эту поэму И. Юсупов продолжает традиции А.С. Пушкина, в то же время привнося свою уникальную культурную перспективу. Это произведение символизирует взаимодействие великих литературных традиций и культур:

Вечным гимном свободе, борьбе и любви,

Негасимо горит на снегу кровь поэта [1, с. 23].

Таким образом, «неугасимая кровь поэта на снегу» [1, с. 23] в стихах И. Юсупова становится ярким, мощным образом, который одновременно выражает боль, страдания, и, в то же время, символизирует вечную силу поэзии, которая не может быть уничтожена временем или смертью.

Роль А.С. Пушкина в развитии каракалпакской литературы: Пушкин для многих каракалпакских поэтов стал символом не только литературного величия, но и идеала свободы, справедливости, гармонии. Этот образ закрепился в творчестве И. Юсупова и других поэтов, таких как Д. Назбергенов, М. Касымов, Н. Жапаков, А. Бегимов.

Ярким примером являются слова Мусы Ташмухамедова — узбекского писателя, поэта и переводчика, известного под псевдонимом Айбек:

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«О, Пушкин! Ты звучишь на стольких языках,
И всё растёт твоя блистающая слава» [6].

Строки Мусы Ташмухамедова (Айбека) о Пушкине представляют собой яркое выражение восхищения и признания величия русского поэта. В этих словах заключены несколько ключевых идей, которые могут служить важным контекстом для понимания роли Пушкина в мировой литературе и особенно в контексте восточной, в частности, узбекской и каракалпакской поэзии.

Народный поэт Узбекистана Эркин Вахидов в 1999 году в статье «У каждого поколения есть свой Пушкин» писал: «Проходят годы, и каждое новое поколение читает Пушкина по-новому. Поэтому произведения таких гениев, как Пушкин, переводятся снова и снова» [7]. В высказывании Эркина Вахидова акцентируется внимание на то, что произведения Пушкина не теряют своей значимости с течением времени. Каждое поколение открывает для себя Пушкина заново, и именно поэтому его произведения переводятся вновь и вновь, что говорит о вечной ценности его творчества.

Национальная идентичность в контексте мирового влияния: Несмотря на сильное влияние русской классики, каракалпакская поэзия сохранила свою уникальную национальную идентичность, что наглядно проявляется в поэзии И. Юсупова. Он удачно сочетал традиционные образы и мотивы своей родной литературы с новыми эстетическими элементами, привнесенными из мировой и русской литературы.

Вклад И. Юсупова в развитие каракалпакской литературы: Поэзия Ибрагима Юсупова сыграла важную роль в культурном обмене между русской и каракалпакской литературой. Его переводы и оригинальные произведения обогатили каракалпакскую литературу, придав ей новые эстетические ориентиры.

Заключение: Исследование подтверждает, что творчество А.С. Пушкина оказало глубокое и многогранное влияние на развитие каракалпакской поэзии через фигуру Ибрагима Юсупова. Его произведения, в том числе переводы и новые образы, стали важной вехой в истории литературы, способствуя ее дальнейшему развитию и укреплению связей с русской литературной традицией.

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ПЕРЕХОДНОСТЬ И НЕПЕРЕХОДНОСТЬ ГЛАГОЛОВ: ОБЪЕКТНАЯ ВАЛЕНТНОСТЬ И ИХ СОПОСТАВЛЕНИЕ НА УЗБЕКСКИЙ ЯЗЫК.

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Аннотация: Статья посвящена анализу переходности и непереходности глаголов в русском и узбекском языках, а также объектной валентности этих глаголов. Рассматриваются особенности синтаксической структуры глаголов, их способность сочетаться с объектами, а также морфологические признаки, указывающие на переходность. Переходные глаголы, как правило, требуют наличия объекта действия, выраженного в винительном падеже, в то время как непереходные глаголы могут использовать другие падежи или не требовать объекта вовсе. В статье также обсуждается омонимия глаголов, где один и тот же глагол может быть как переходным, так и непереходным в зависимости от контекста. Особое внимание уделено объектной валентности глаголов, которая описывает способность глагола сочетаться с объектом, являющимся носителем действия или его результатом. В заключение подчеркивается, что объектная валентность и переходность глаголов играют важную роль в формировании синтаксической структуры предложений и семантических отношений в языке.

Ключевые слова: переходные глаголы, непереходные глаголы, русский язык, узбекский язык, объектная валентность, синтаксическая структура, морфология, омонимия глаголов, глагольная валентность.

Abstract: The article is dedicated to the analysis of transitive and intransitive verbs in Russian and Uzbek languages, as well as the object valency of these verbs. The paper examines the syntactic structure of verbs, their ability to combine with objects, and morphological features that indicate transitivity. Transitive verbs typically require an object of action expressed in the accusative case, while intransitive verbs may use other cases or not require an object at all. The article also discusses verb homonymy, where the same verb can be both transitive and intransitive depending on the context. Special attention is given to object valency, which describes the verb's ability to combine with an object that either carries out or results from the action. The conclusion emphasizes the important role of object valency and transitivity in forming the syntactic structure of sentences and semantic relations in the language.

Keywords: transitive verbs, intransitive verbs, Russian language, Uzbek language, object valency, syntactic structure, morphology, verb homonymy, verbal valency.

Глаголы в русском и узбекском языках делятся на переходные и непереходные, что связано с их значением и синтаксической функцией. Основное различие между ними заключается в наличии или отсутствии объекта действия. Объект действия, как правило, выражается существительным в винительном падеже в случае переходных глаголов, в то

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время как непереходные глаголы не требуют такого дополнения или используют другие падежи.

Переходные глаголы

Переходные глаголы обозначают действия, направленные на какой-то объект, изменяющие его или производящие изменения в нем. Эти глаголы требуют объекта, который обозначается в винительном падеже (в русском языке это обычно прямое дополнение). Например:

- читать книгу – kitobni o‘qimoq;
- испечь хлеб – non yopmoq;
- сшить платье – ko‘ylakni tikmoq.

В русском языке переходные глаголы могут также сочетаться с существительными в родительном падеже, что связано с выражением части объекта (например, выпить воды, купить хлеба) или с отрицанием (не читал газет, не получал зарплаты). В узбекском языке существительные всегда употребляются в винительном падеже, как в утвердительных, так и в отрицательных конструкциях: gazetani o‘qidi – gazetani o‘qimadi.

Непереходные глаголы

Непереходные глаголы не требуют прямого объекта и часто выражают действия, связанные с движением, состоянием или процессом. Примеры таких глаголов включают:

- лететь – uchmoq,
- болеть – og‘rimoq,
- стоять – turmoq,
- страдать – qayg‘urmoq.

Кроме того, непереходные глаголы в русском и узбекском языках могут сочетаться с дополнением, но обычно в косвенных падежах или с предлогами. Например:

- помогать – yordam bermoq (кому? чему?),
- любить – sevmoq (кого? что?).

Переходность и непереходность в морфологии

В русском языке переходность и непереходность глаголов часто проявляется через морфологические особенности, такие как суффиксы. Например, глаголы с аффиксом -ся (например, убедиться) являются непереходными, тогда как глаголы, образованные с помощью суффикса -и- (например, чернить, озеленить), чаще всего переходные. В некоторых случаях приставки могут превращать непереходные глаголы в переходные: обезвредить (кого? что?) – глагол переходный.

Омонимия глаголов

В обеих языках существуют омонимичные глаголы, которые могут быть как переходными, так и непереходными в зависимости от контекста. Например, в узбекском языке:

- chopmoq – бегать (непереходный),
- chopmoq – рубить (переходный).

Кроме того, переходность или непереходность может зависеть от состава глагола в парных словах:

- qo‘yib yubordi – отпустил (переходный),
- qichqirib yubordi – закричал (непереходный).

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Объектная валентность

Объектная валентность глагола — это способность глагола сочетаться с объектом, который обозначает лицо или предмет, на который направлено действие. Переходные глаголы всегда имеют объектную валентность, что делает их важной частью глагольного предиката. Ю.А. Лопашев отмечал, что объект — это предмет или лицо, на которое направлено действие. А.Гулямов уточнял, что объект может быть результатом действия. В этом контексте объектная валентность связана с действием, которое происходит в предложении.

Различия между переходными и непереходными глаголами в синтаксисе

Переходные глаголы, как правило, сочетаются с объектами в винительном падеже (например, читать книгу, писать письмо). Непереходные глаголы, напротив, не требуют такого объекта или требуют дополнения в других падежах или с предлогами, как в примере: помогать другу (кому?).

Согласно исследованию немецкого ученого Г.Вайнриха, структура предложений с глаголами часто выглядит как S+O+V (субъект + объект + глагол), что подтверждает важность объектной валентности глаголов в языке.

Заключение, основываясь на вышеизложенном, можно сформулировать следующим образом:

Таким образом, объектный участник переходных глаголов имеет особое свойство, заключающееся в способности быть не только объектом состояния, но и источником этого состояния для агента. Переходные глаголы характеризуются наличием валентности как для агента, так и для объекта, что напрямую связано с их семантической емкостью, или семантической валентностью. Эти глаголы требуют не только присутствия агента, но и объекта, что обуславливает их способность к проходимости. В узбекском языке актант объекта переходных глаголов выражается в словах, обозначающих различные объекты, и часто это сочетание происходит через добавление инфинитива, что создает определенную синтаксическую конструкцию. В результате, в предложении образуется глагольно-управляемое объектное соединение, характеризующееся сильным управлением, что является типичным для переходных глаголов. Эти языковые единицы не только выполняют синтаксическую функцию, но и становятся основой для формирования значений будущего времени и других семантических отношений в языке.

ЛИТЕРАТУРА

1.**Ю.А. Лопашев** — труды по синтаксису и объектной валентности.

2. А. Гулямов — исследования, посвященные объектной валентности в контексте тюркских языков, включая узбекский.

3.**Темы по глагольной валентности**: Литература по глагольной валентности, в том числе работы, которые касаются транситивности/интранситивности, таких как:

4.Шмидт В. Г. "Грамматика русского языка" — разделы, посвященные глагольной валентности.

5.В. А. Капанадзе "Синтаксис и морфология глаголов в русском и узбекском языках".

6.**Онлайн-ресурсы**: Веб-сайты научных журналов, таких как:

7.JSTOR, **SpringerLink** для доступа к международным и российским журналам по лингвистике.

8.Academia.edu — научные статьи и исследования по синтаксису и морфологии.

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РАСЧЕТ СТАТИЧЕСКИ ОПРЕДЕЛИМОЙ СТЕРЖНЕВОЙ СИСТЕМЫ

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Конструкция, состоящая из элементов большой жесткости и двух стальных стержней с расчетным сопротивлением материала R=210 МПа и модулем продольной упругости E = 210 ГПа, загружена согласно схеме (рис.1).

Требуется подобрать диаметр стержней, округлив их до большего значения с шагом 0,5 см, и выполнить проверочный расчет жесткости, если перемещение точки C не должно превышать 20 мм.

F = 20 кН
q = 12 кН/м
a = 1 м
b =1.5 м
$[\delta]$ = 20 мм

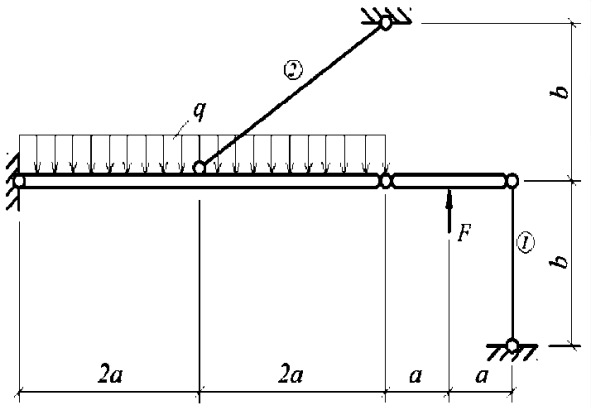

Рис 1. Схема стержневой системы

Определим усилия в стержнях, мысленно разделив стержневую систему на две составляющие. Рассмотрим жесткий элемент I (рис.2).

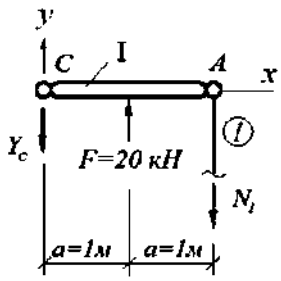

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Рис 2. Схема жесткого элемента I

Приложим к стержню 1 неизвестную растягивающую продольную силу N_1 и определим ее значение, составив уравнение равновесия:

$$\sum M_C = 0;\ N_1 \cdot 2a - F \cdot a = 0;\quad N_1 \cdot 2a = F \cdot a;$$

$$N_1 = \frac{20 \cdot 1}{2 \cdot 1} = 10 \text{ кН}$$

Определим реакцию в шарнире Y_C:

$$\sum Y = 0;\quad F - Y_C - N_1 = 0;\ Y_C = 20 - 10 = 10 \text{ кН}.$$

Рассмотрим жесткий элемент II (рис.3), приложив к нему реакцию Y_C, взятую с обратным знаком.

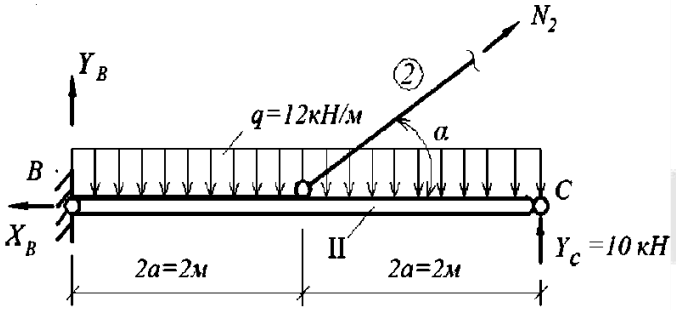

Рис 3. Схема жесткого элемента II

Рассекаем стержень 2 и прикладываем к нему растягивающее усилие N_2. Составим уравнение равновесия:

$$\sum M_B = 0;\ q \cdot 4a \cdot 2a - N_2 \cdot \sin a \cdot 2a - Y_C \cdot 4a = 0;$$

$$N_2 \cdot \sin\alpha = \frac{q \cdot 2a \cdot 4a - Y_C \cdot 4a}{2a} = \frac{12 \cdot 4 \cdot 2 - 10 \cdot 4}{2} = 28 \text{ кН}$$

$$\text{Sin}\alpha = \frac{b}{l_2} = \frac{1,5}{2,5} = 0,6;$$

$$l_2 = \sqrt{b^2 + (2a)^2} = \sqrt{1,5^2 + 2^2} = 2,5 \text{ м}$$

Тогда $N_2 = \frac{28}{0,6} = 46,67$ кН

Усилия N_1 и N_2 получились положительными, что говорит о том,

что оба стержня растягиваются.

Подберем диаметр сечения для стержней по расчетному сопротивлению R:

$$\sigma = \frac{N}{A} \le R \rightarrow \quad A \ge \frac{N}{R}$$

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Для первого стержня:

$$A_1 = \frac{N_1}{R} = \frac{10 \cdot 10^3}{210 \cdot 10^6} = 0{,}476 \cdot 10^{-4} = 0{,}476 \text{ см}^2$$

$$A = \pi \frac{d^2}{4} \rightarrow d = \sqrt{\frac{4 \cdot A}{\pi}};$$

$$d_1 = \sqrt{\frac{4 * 0{,}476}{3{,}14}} = 0{,}78 \approx 1 \text{ см}$$

Тогда

$$A_1 = \frac{3{,}14 \cdot 1^2}{4} = 0{,}79 \text{ см}^2$$

Для второго стержня:

$$A_2 = \frac{N_2}{R} = \frac{46{,}67 \cdot 10^3}{210 \cdot 10^6} = 2{,}22 \cdot 10^{-4} \text{ м}^2 = 2{,}22 \text{ см}^2$$

Определим опорные реакции X_B и Y_B, составив уравнения равновесия

$$\sum Y = 0; \quad Y_B - q \cdot 4a + N_2 \cdot \sin\alpha + Y_C = 0$$

$$Y_B = 12 \cdot 4 \cdot 1 - 46{,}67 \cdot 0{,}6 - 10 = 10 \text{ кН}$$

$$\sum X = 0; \quad -X_B + N_2 \cdot \cos\alpha = 0;$$

$$\cos\alpha = \sqrt{1 - \sin^2\alpha} = \sqrt{1 - 0{,}6^2} = 0{,}8;$$

$$X_B = 46{,}67 \cdot 0{,}8 = 37{,}34 \text{ кН}$$

Для выполнения расчета на жесткость рассмотрим схему перемещений системы (рис.4).

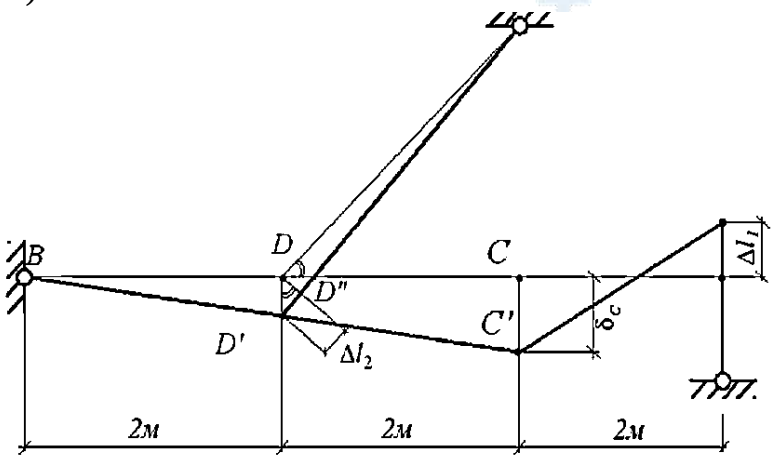

Рис 4. Схема перемещений стержневой системы

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Определим удлинение стержня 2, так как перемещение точки С определяется только удлинением этого стержня:

$$\Delta l_2 = \frac{N_2 \cdot l_2}{A_2 \cdot E} = \frac{46{,}67 \cdot 10^3 \cdot 2{,}5}{210 \cdot 10^9 \cdot 3{,}14 \cdot 10^{-4}} = 1{,}77 \cdot 10^{-3}\text{м} = 1{,}77 \text{ мм}$$

Из схемы перемещений системы запишем

$$D'D'' = \Delta l_2$$

$$DD' = \frac{\Delta l_2}{\sin\alpha} = \frac{1{,}77}{0{,}6} = 2{,}95 \text{ мм}$$

Из подобия треугольников BCC' и BDD'

$$\frac{CC'}{BC} = \frac{DD'}{BD};$$

$$CC' = \frac{BC * DD'}{BD} = \frac{4 * 2{,}95 * 10^{-3}}{2} = 5{,}9 * 10^{-3}\text{м} = 5{,}9 \text{ мм}$$

Перемещение точки С:

$$\delta_C = CC' = 5{,}9 \text{ мм} < [\delta] = 20 \text{ мм}$$

Жесткость конструкции обеспечена.

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EFFICIENT USE OF TRANSPORT VEHICLES IN OPEN-END MINING ENTERPRISES

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Abstract: The extremely large scale of mining operations, labor and capital requirements, as well as the increasing depth of mining operations, the complexity of excavation conditions and the increasing distance of rock transportation have a negative impact on the efficiency of the mining enterprise. This thesis considers the issue of the effective use of road transport in rock transportation.

Keywords: Dump truck, step, open pit mines, transport vehicles, rock.

The complexity of technological processes in mining requires the preparation and improvement of the equipment used in it based on special requirements. Along with the main mining machines used in mining enterprises, improving the mining transport system and reducing costs is one of the problems that exist in mines today. In order to implement these requirements, the scope of application of effective new technical equipment and devices is increasing today.

In world practice, new types of production transport are used not only for transporting minerals, but also for transporting building materials, and the transportation distance is up to 200 km, and in some places even longer.

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Figure 1. Direction of movement of road transport

Today, transporting rocks in open pit mines is becoming increasingly difficult. Because in the process of extracting rock in quarries, the mine is deepening. This in itself makes it difficult to use a transport vehicle to transport rock. When using road transport in such mines (Figure 1), the distance increases, fuel consumption and the working fleet of dump trucks also increase. That is, in the case shown by the red line in Figure 1, the dump truck travels a long distance.

General information for calculation

Annual productivity of the quarry, *t/y*	6200000
Density of transported mineral, *(t/m^3)*	2.6
Distance from Zaboy to the unloading point, *m*	4900

The maximum amount of traction force is limited by the condition of contact of the moving wheel with the road surface, i.e.:

$$F_{yukli1}=237\ kN;\ \ F_{yukli2}=186\ kN;\ \ F_{yukli3}=210\ kN;\ \ F_{yukli4}=195\ kN;$$

The maximum value of the pulling force must comply with the condition.

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$$F_{max}=F_{yukli1}\leq 1000\cdot M_{sp}\cdot g\cdot \psi$$

$$237000\leq 1000\cdot 157{,}5\cdot 9{,}81\cdot 0{,}5;$$

$$237000\leq 772538\ N;$$

Estimated fuel consumption.

$$E_{diz}=\frac{A_{Tr}}{4187\cdot q_{T.s.}\cdot \eta_{diz.}}=\frac{8{,}8\cdot 10^{8}}{4187\cdot 10000\cdot 0{,}43}=48{,}3\ kg;$$

Actual fuel consumption calculation.

$$E_f=E_{diz}\cdot K_{qish}\cdot K_m\cdot K_{g.eh.}=48{,}3\cdot 1{,}05\cdot 1{,}04\cdot 1{,}04=54{,}8\ kg;$$

Dump truck productivity during a shift.

$$Q_{\text{sm}}=\frac{60\cdot T_{sm}}{T_r-t_{qush}}\cdot q\cdot K_g=\frac{60\cdot 11}{40-2{,}2}\cdot 130\cdot 0{,}75=1702\ t/smena;$$

Determining the working and inventory fleet of dump trucks.

$$Q'_{sm}=\frac{A\cdot K_{n.r.}}{n_{ish.}\cdot n_{sm}}=\frac{6200000\cdot 1{,}1}{305\cdot 2}=11180\ t;$$

$$N_{ish}=K_{n.h..}\cdot \frac{Q'_{sm}}{Q_{sm}}=1{,}2\cdot \frac{11180}{1702}=8;$$

$$N_{in.}=\frac{N_{ish}}{K_g}=\frac{8}{0{,}75}=11$$

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Figure 2. Road traffic direction at close range

In such cases, if we continue the movement from the nearest steps in the quarry, we will be able to reduce the transportation distance. That is, if the dump truck moves in the position shown by the black line in Figure 2, we will be able to save significantly on both fuel and dump truck labor.

General information for calculation

Annual productivity of the quarry , *t/yil*	6200000
Density of transported mineral, (t/m^3)	2.6
Distance from Zaboy to the unloading point, *m*	4350

The maximum amount of traction force is limited by the condition of contact of the moving wheel with the road surface, i.e.:

F_{yukli1}=185,5 *kN;* F_{yukli2}=180 *kN;* F_{yukli3}=210 *kN;* F_{yukli4}=194,5 *kN;*

The maximum value of the pulling force must comply with the condition.

$$F_{max}=F_{yukli4}\leq 1000\cdot M_{sp}\cdot g\cdot \psi$$

$$210000\leq 1000\cdot 157{,}5\cdot 9{,}81\cdot 0{,}5;$$

$$210000\leq 772538\ N;$$

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Estimated fuel consumption.

$$E_{diz}=\frac{A_{Tr}}{4187\cdot q_{T.s.}\cdot\eta_{diz.}}=\frac{7{,}8\cdot10^{8}}{4187\cdot10000\cdot0{,}43}=43\ kg;$$

Estimated fuel consumption.

$$E_f=E_{diz}\cdot K_{qish}\cdot K_m\cdot K_{g.eh.}=43\cdot1{,}05\cdot1{,}04\cdot1{,}04=48\ kg;$$

Dump truck productivity during a shift.

$$Q_{\text{sm}}=\frac{60\cdot T_{sm}}{T_r-t_{qush}}\cdot q\cdot K_g=\frac{60\cdot11}{35-2{,}2}\cdot130\cdot0{,}75=1961\ t/smena;$$

Determining the working and inventory fleet of dump trucks.

$$Q'_{sm}=\frac{A\cdot K_{n.r.}}{n_{ish.}\cdot n_{sm}}=\frac{6200000\cdot1{,}1}{305\cdot2}=11180\ t;$$

$$N_{ish}=K_{n.h.}\cdot\frac{Q'_{sm}}{Q_{sm}}=1{,}2\cdot\frac{11180}{1961}=6;$$

$$N_{in.}=\frac{N_{ish}}{K_g}=\frac{6}{0{,}75}=8$$

Conclusion

In the work we have shown above, currently 11 dump trucks are transporting rock over a distance of 4.9 km, and each dump truck consumes 54 liters of fuel. If we continue to move from the nearest steps, the dump truck will cover a distance of 4.3 km, so we will need 8 dump trucks and each dump truck will consume 48 liters of fuel. It is clear from this that we can achieve economic efficiency by using the nearest steps.

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INCREASING THE ECONOMIC EFFICIENCY OF ELECTROMECHANICAL EQUIPMENT THROUGH DIAGNOSTICS OF ITS TECHNICAL CONDITION.

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Abstract: Today, improving the methods of diagnosing the technical condition of electric motors is an urgent task for the development of a system for their development prospects, as well as for solving problems that occur during the operation of high-power motors that drive the working mechanisms of electrical technological devices in industrial and mining enterprises of our Republic. Also, the methods of diagnosing electric motors based on their transient processes and related to their mechanical parts during their operating cycle were analyzed, and several proposals were made to develop existing methods. As a result, it was substantiated that it is necessary to regularly monitor the working processes of electric motors and diagnose their technical condition using new modern devices in a wide range. Because during the operation of electric motors, parts wear out over time due to the negative effects of operating time and the environment, and their parameters change due to natural wear of electric motor parts, which is why a number of malfunctions related to their electrical and mechanical indicators arise in the working processes of electric motors.

Keywords: Vibration, electric motor, range, sensor, diagnostics, frequency, system, mechanism, complex, converter, values of lower and upper reliability limits, probability of failure, electric current.

INTRODUCTION

Failure of electric motors leads to disruption of technological processes, reduction of product production times, increase in costs associated with unscheduled repairs and technological problems [2]. In addition, re-repair of electric motors requires a lot of time and money. Therefore, it is advisable to regularly diagnose the technical condition of electric motors when finding solutions to problems associated with their electrical, mechanical and thermal parameters. The purpose of diagnostic analysis and control of the technical condition of electric motors is to detect defects that arise during the operation of

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electric motors early, prevent their unscheduled repair, prevent disruption of technological processes, and predict the state in order to maintain electrical, mechanical and thermal indicators within the specified limits during their operation, save resources and make full use of them [3].

LITERATURE REVIEW AND METHODOLOGY

Today, the development of various methods for diagnosing the technical condition of electric motors and their implementation in practice is actively underway. Systems and methods for diagnosing electric motors can be divided into two main groups. The first group includes diagnostic methods that require the formation of artificial disturbances affecting the object under study: measuring resistance, the value of the consumed current, the internal resistance of the windings of the windings, the loss of the dielectric properties of the windings, etc. [4]. The second group includes operational diagnostic methods used for electrical equipment, which are a source of natural disturbances during operation [5]. Each group, in turn, is divided into two other groups - these are methods that allow you to detect malfunctions of electrical equipment and methods that identify a specific malfunction or defect [5]. The results of research conducted by scientists show that the introduction of diagnostic tools is one of the most important factors in increasing the economic efficiency of equipment use in industry [2]. Currently, there are the following methods for diagnosing the technical condition of electric motors: Diagnostics based on the analysis of rotor vibrations of an electric motor (vibrodiagnostics). Vibrodiagnostics methods are the most common in the diagnostic analysis of the technical condition of electric motors [6]. The essence of vibrodiagnostics methods is to analyze the vibration parameters of various points of electric motors [6]. Vibration diagnostics is the most common method of diagnosing the technical condition of electric motors, which is based on monitoring and analyzing the movement of vibration parameters and is generally carried out according to a non-destructive method of monitoring the technical condition of the motor or acoustic signals that appear during the operation of the device [7].

RESULTS

Vibration diagnostics allows you to study the vibration signal of the rotor of an electric motor in the time (oscillogram) and frequency (spectrum) domain. The most commonly used vibration sensors are piezoaccelerometers (vibration transducers).

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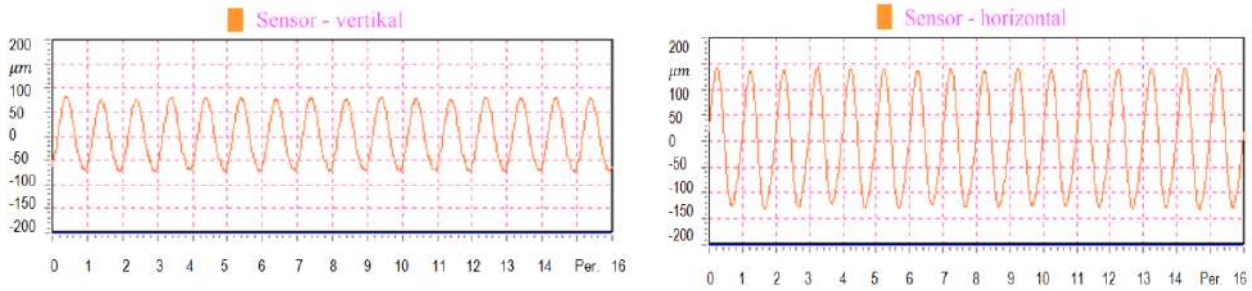

Figure 1 Vibration sensor

Figure 1 shows a typical structure of a stationary monitoring and diagnostic system that continuously monitors the operating modes of electric motors, which allows calculating the optimal and determining the timing of subsequent diagnostic checks of electric motors, depending on the type and timing of maintenance and repair. Stationary monitoring and diagnostic systems are most effective for electric drives of the same type with constant load and rotation speed - fans, compressors, and especially pumping stations. The essence of the method is based on the location of an electromagnetic sensor near the motor, which allows it to correct the external magnetic field generated around the motor, which during its operation and represents the echo of the multiplicative field in the magnetic cavity of the asynchronous motor [2]. The signal received from the sensor is digitized and transmitted to a personal computer and displayed in graphical form on the main computer screen (Figure 2). In addition, a spectral analysis of the received signal is performed and, based on certain features of the received image, the malfunction is identified [5]. However, the main disadvantages of vibrodiagnostics are: the need to use special vibroacoustic sensors, the complexity of their installation and the complexity of interpreting the results. Based on measuring and analyzing the temperature of individual elements of the machine. There are two methods for diagnosing the technical condition of electric motors based on temperature: temperature control of individual engine components and thermal imaging control[8]. Thermal imaging control of electric machines is based on the use of thermal imaging to detect defects in electrical equipment. Currently, temperature measuring devices, such as thermal imagers, infrared cameras, pyrometers, etc., are often used to control the technical condition of industrial equipment. In many cases, such devices allow monitoring all the necessary nodes[10]. Pyrometers determine the temperature at specific points of the object, while thermal imagers and infrared cameras provide a complete picture of the temperature distribution of the object. Temperature measurement for thermography

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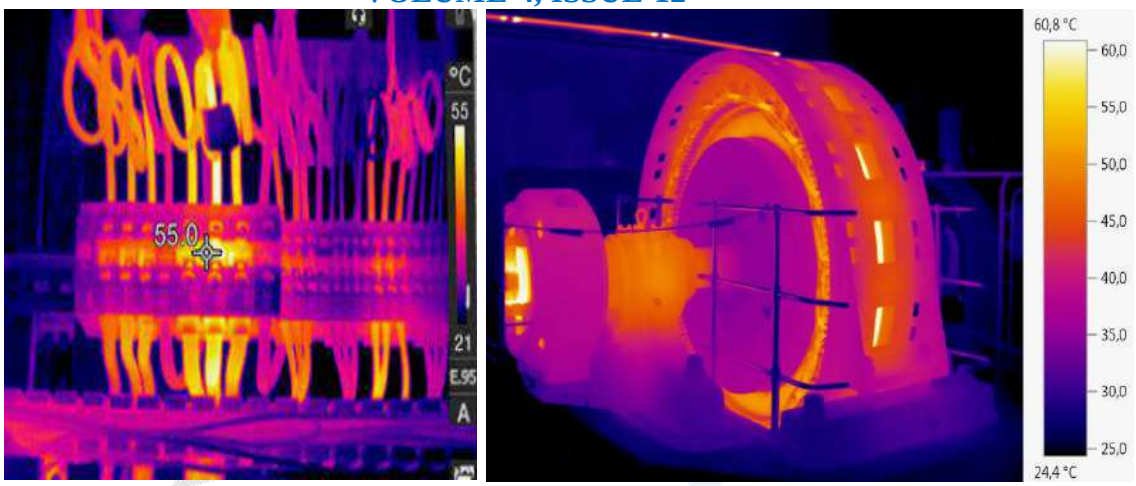

Figure 2: Temperature measuring device.

It consists of a central diagnostic station with a range from -50ºC to over 2000ºC. It consists of a computer with built-in boards for converting the signal into digital form and software packages for control, signal analysis, monitoring and diagnostics, displaying the state of the equipment, as well as external amplification and switching units, vibration and rotor speed sensors [7]. In strong electromagnetic fields, the operator must place the receiver at a convenient distance from the electric motor to obtain thermograms with a detailed image of the thermal field in the stator hole or on the surface of the frontal parts. Thermography of the electric motor is presented. The advantage of thermal imaging survey using a thermal imaging device is that the shooting is carried out remotely, in its operating conditions, under working loads.

Figure 3. Image of the obtained parameters on a computer monitor

Ua 241,6 В	Ub 237 В	Uc 244,5 В	Uab 414,4 В	Ubc 417 В	Uca 420,9 В	Ia 0,02 А
Ib 0,03 А	Ic 0,03 А	In 0,02 А	Pa 0 кВт	Pb 0,01 кВт	Pc 0,01 кВт	P 0,01 кВт
Qa 0 кВАр	Qb 0 кВАр	Qc 0 кВАр	Q 0,01 кВАр	Sa 0,01 кВА	Sb 0,01 кВА	Sc 0,01 кВА
S 0,02 кВА	PFa -0,84	PFb 0,84	PFc 0,83	PF 0,41	F 50,01 Гц	EP+ 0,07 кВт*ч
EP- 0 кВт*ч	EQ+ 0,07 кВАр*ч	EQ- 0,01 кВАр*ч	THDu A 4,57 %	THDu B 4,6 %	THDu C 5,52 %	THDi A 0 %
THDi B 0 %	THDi C 0 %	THDu A 3я 3,99 %	THDu B 3я 3,94 %	THDu C 3я 4,64 %	THDi A 3я 0 %	THDi B 3я 0 %

Table of obtained parameters

1	Ua	Phase A voltage

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2	Ub	Phase B voltage
3	Uc	Phase C voltage
4	Uab	C phase voltage AB line voltage
5	Ubc	BC line voltage
6	Uca	CA line voltage
7	Ia	Phase A current
8	Ib	Phase B current
9	Ic	Phase C current
10	In	Neutral current
11	Pa	Active power phase A
12	Pb	Active power phase B
13	Pc	Active power phase C
14	P	Total active power
15	Qa	Reactive power phase A
16	Qb	Reactive power phase B
17	Qc	Reactive power phase C
18	Q	Total reactive power
19	Sa	Full power of phase A
20	Sb	Full power of phase B
21	Sc	C phase full power
22	S	Total full power
23	PFa	Power factor of phase A
24	PFb	Power factor of phase B
25	PFc	Power factor of phase C
26	PF	Overall power factor
27	F	Network frequency
28	EP+	Active energy intake
29	EP-	Active energy return
30	EQ+	Reactive energy consumption
31	EQ-	Reactive energy return
32	THDu A	Total harmonics of the phase voltage
33	THDu B	Total harmonics of the phase voltage
34	THDu C	Total harmonics of the phase voltage

DISCUSSION

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Diagnostics of electric motor current consumption based on spectral analysis. Recently, methods for diagnosing the condition of electric motors based on monitoring the current consumption have become widespread, and special spectral analysis of the resulting signal continues to be carried out [6]. This allows you to determine the condition of various electric motor elements with a high degree of reliability. The presence of characteristic frequencies of a certain value in the current spectrum of the electric motor indicates damage to the electrical and mechanical parts of the electric motor. In addition, information about breakage of the windings, incorrect distribution of the current consumption in the stator, static or dynamic, short circuit of the stator windings, mechanical damage to the bearings can be determined using the current spectrum. However, the disadvantage of spectral analysis of the electric motor current is the complexity of evaluating the results obtained. In conclusion, it can be said that according to the analytical results of the above methods for diagnosing the technical condition of electric motors, each existing method has its own shortcomings, and in addition, based on these methods, it makes little contribution to the development of the technical condition of electric motors, and a separate device is required to apply each method in production practice, therefore, it is advisable to develop new modern methods and devices for comprehensive diagnostics of the technical condition of electric motors in a wide range, based on constant monitoring of the operating modes of electric motors and taking into account their energy and mechanical indicators [9].

CONCLUSION

In conclusion, it can be said that by introducing modern technologies into production processes, we can achieve not only greater efficiency and energy saving, but also full automation of the production process. The portable diagnostic equipment we offer allows you to perform a full and comprehensive diagnosis of electromechanical devices in a wide range, prevent the causes of breakdowns, test and achieve economic efficiency, while at the same time creating the opportunity to check and adjust the accuracy of electrical protection devices. Therefore, it is advisable to regularly diagnose the technical condition of electric motors when finding solutions to problems associated with their electrical, mechanical and thermal parameters. The purpose of diagnostic analysis and control of the technical condition of electric motors is to detect defects in the early stages of their operation, prevent their unplanned repair, prevent disruption of technological processes and predict the state in order to maintain electrical, mechanical and thermal indicators within the specified limits during their operation, save resources and make full use of them.

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PREGNANCY MANAGEMENT INWOMEN WITH CONGENITAL DEVELOPMENTAL FAULTS AND A HISTORY OF FROZEN PREGNANCY

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ANNOTATION

Prognostic risk factors for the development of congenital malformations and non-viable pregnancies are: heredity, consanguinity, complicated obstetric and somatic anamnesis, viral infection, inadequate antenatal care, hypercoagulation, low qualification of functional physicians, failure to comply with screening deadlines and examination methods. Prediction of congenital malformations of the fetus and non-viable pregnancies taking into account significant antenatal factors and proper pregravidarum preparation of women will prevent the development of fetal malformations, reduce unsatisfactory fetal and perinatal outcomes, which will have a positive effect on the health of the family and the whole society.

Keywords: congenital malformations of the fetus, non-viable pregnancy, folate metabolism.

Relevance. Currently, congenital malformations (CM) occupy an increasingly important place in the structure of childhood morbidity, disability and

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infant mortality, occurring in 4-6% of newborns and contributing more than 20% to the structure of infant mortality [2,5]. Most children with congenital malformations (CM) die in the first months and years of life, and most of the survivors require constant medical and social care [3,6]; according to WHO, congenital malformations occur in approximately 1 in 33 children, which corresponds to approximately 3.2 million congenital malformations with disability and about 270,000 neonatal deaths per year. (World Health Organization) [1,4]. It is well known that folic acid intake during the gestational cycle reduces the risk of primary and secondary neural tube defects of the fetus [7,8].

The goal the result of our study was an improvement in perinatal outcomes in women with congenital malformations and a history of non-viable pregnancies.

Materials and methods of research. To achieve the objective of the study, a total of 110 women aged 20 to 40 years with fetal defects and a history of non-viable pregnancy were examined in the maternity complex of the 2nd clinic of the Tashkent Medical Academy based on the developed clinical and laboratory criteria. The studies were conducted 2 months to 1 year after the previous pregnancy, which was complicated by congenital malformations of the fetus and non-viable pregnancy. All 110 women were divided into 2 groups. The first group consisted of 40 women with a history of fetal malformations, the second group included 70 women with a history of non-viable pregnancy. The control group included 75 women with a favorable obstetric/perinatal history. The diagnosis was established on the basis of: obstetric history, clinical manifestations, biochemical, and ultrasound data.

During the observation period, all pregnant women received treatment and preventive courses, as well as the necessary drug therapy, taking into account obstetric and somatic pathology.

Table 1

Obstetric history of the examined women

Anamnestic indicator	Control	1 group, (n=40)	Group 2, (n=70)

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	group (n=75)					
	abs.	%	abs.	%	abs.	%
Early miscarriage	3	4	12	30***	18	25.7***
Medical abortion	3	4	23	57.5***	31	44.2***
Non-viable pregnancy	0	0	20	50***	70	100***
Premature birth	2	2.6	6	15**	14	20***
Hypertensive disorders during pregnancy	3	4	10	25***	21	30***
Placental dysfunction	10	13.3	18	45***	27	38.5**
Premature detachment of a normally located placenta	0	0	5	12.5	10	14.2
Perinatal mortality - of which:	1	1.3	11	27.5**	15	21.4**
- antenatal	0	0	2	5	8	11.4
- postnatal	1	1.3	9	22.5***	7	10***

Note: *-differences relative to the control group data are significant (*-P<0.05, ***-P<0.001)

The analysis of the obstetric anamnesis showed that spontaneous miscarriages and abortions for medical reasons were common in both groups - 30; 25%, as well as 57.5%; 44.2%, respectively (Table 1). All the examined women in the 2nd group were diagnosed with a history of non-viable pregnancy - in 70 (100%) cases, while in the first group this indicator was detected 2 times less. In connection with the above, it is necessary to carefully collect anamnesis for timely prevention of possible complications during pregnancy.

We were interested in analyzing the most common complications associated with pregnancy. We found that the most common placental dysfunction was in

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both groups (45 and 38.5%), possibly associated with inadequate vascularization of extraembryonic structures responsible for the trophism of the embryo in the early stages of development, thereby forming pathology of placentation and fetoplacental circulation and, as a consequence, chronic hypoxia and fetal suffering.

Studying perinatal mortality revealed that postnatal mortality was 2.3 times more common in the 1st group (25%), while antenatal fetal death was more common in the second group of subjects – 11.4%. Considering that there was a disorder in the folate cycle in the women we examined and a possible disorder of hypertensive disorders associated with them – Hypertensive disorders were 3 times more common in the 2nd group, while this indicator was found in 25% of subjects in the first group. From the data presented, it is clear that premature birth was a common complication of pregnancy, which was more often observed in subjects in the second group – 14 (20%). These data indicate that in patients with early and late miscarriages, hyperhomocysteinemia is one of the main forms of thrombophilic disorders among pregnant women with hypertensive disorders and atpremature detachment of a normally located placentaand inThere is probably an important role for elevated homocysteine levels in the development of vascular disorders.

Reducing maternal and infant morbidity and mortality is one of the priority medical and social tasks, and the main way to solve it is the prevention of pregnancy complications and fetal malformations. Currently, folates are actively used as monodrugs, as part of vitamin complexes and even oral contraceptives [9]. In this case, two types of vitamin are used: synthetic FC and L-methylfolate. Synthetic FC (designated as FC in the annotations) is a proven method of folate subsidy. When entering the body, FC undergoes a series of enzymatic reactions, resulting in the formation of both depot forms and active forms. The intake of synthetic FC has a direct correlation with an increase in the level of folates in blood plasma and erythrocytes and an inverse correlation with the level of

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homocysteine [8]. All major studies of efficacy and safety were conducted on synthetic FC; toxic effects of FC have not been described.

The women in both groups we studied, who had a complicated obstetric-gynecological and perinatal history, were prescribed methylfolate at a dose of 800 mcg, and vitamin B12 (cyanocobalamin) 18 mcg per day, starting from planning and until the end of the entire pregnancy. The treatment was carried out jointly with a hematologist (according to the protocol, anticoagulants and antiplatelet agents were prescribed if necessary under the control of a hemostasiogram). After the prescription of methylfolate 800 mg, the level of homocysteine was studied dynamically. We found a significant decrease in this indicator in the blood, both in the first and in the second groups by 1.9 and 1.75 times, respectively, compared with the control group.

Analyzing pregnancy outcomes after treatment, we found that fetal congenital malformations were detected only in 2 (5%) patients of the first group, while in the other groups this indicator was not detected. These data confirm the correctness of the management tactics and the selected dose of methylfolate for the prevention of congenital malformations of the fetus. Non-developing pregnancy was in 7.5% of cases in the first group and in 5.71% of cases in the second group, perhaps due to a combination of other somatic pathologies. Pregnancies ended in term delivery in 85% and 92.8% of those examined in the first and second groups, respectively. When analyzing pregnancy complications, premature birth and hypertensive disorders were observed in group 1 6 times more often than in group 2. Placental dysfunction was observed more often in the second group (24.2%), while in the first group this indicator was 20%, in the control group it was not diagnosed. PONRP was diagnosed only in 1 case of the first group.(Table 2).

Table 2

Pregnancy outcomes in examined women after treatment

Anamnestic indicator	Control group, (n=75)	1 group of subjects	2nd group of subjects (n=70)

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			examined (n=40)			
	abs.	%	abs.	%	abs.	%
Pregnancy after treatment	75	100	38	95	69	98.5
VPR after treatment	0	0	2	5	0	0
Childbirth after treatment	75	100	34	85	65	92.85
Non-viable pregnancy	0	0	3	7.5	4	5.71
Premature birth	0	0	5	12.5***	2	2.85
Hypertensive disorders during pregnancy	1	1.33	5	12.5***	2	2.85
Placental dysfunction	0	0	8	20***	17	24.2***
Premature detachment of a normally located placenta	0	0	1	2.5	0	0

Note: *-differences relative to control group data are significant(*-P<0.05, ***-P<0.001)

Conclusion. Thus, hyperhomocysteinemia is important in the development of pregnancy complications dependent on microcirculation, starting with spontaneous abortion in the first trimester of pregnancy and ending with hypertensive disorders, premature placental abruption and antenatal death of the fetus. The consequences of folate cycle disorders at different levels can be congenital malformations of the fetus. The presented data are a reasonable conclusion for the need for further research of folate metabolism, taking into account genetic predisposition and other components. Unfortunately, pregnancy itself is a condition in which the risk of venous thrombosis increases by 5-6 times. As a result of the influence of hyperhomocysteinemia during pregnancy, blood clots are formed and microcirculation in tissues is disrupted, including in the uterine wall and placenta, which leads to a number of obstetric complications both

in the early stages of pregnancy (embryo implantation defects, habitual miscarriage) and in the later stages (placental dysfunction, fetal growth retardation, fetal death).

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ИСПОЛЬЗОВАНИЕ ФРАЗЕОЛОГИЗМОВ В ХУДОЖЕСТВЕННЫХ ПРОИЗВЕДЕНИЯХ И СРАВНИТЕЛЬНЫЙ АНАЛИЗ ИХ ПЕРЕВОДЫ НА УЗБЕКСКИЙ ЯЗЫК (В ПРИМЕРЕ ПРОИЗВЕДЕНИЯХ Ф.М. ДОСТОЕВСКОГО).

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Аннотация: Статья посвящена анализу фразеологизмов в романе Ф.М. Достоевского «Преступление и наказание» и их переводу на узбекский язык. Автор исследует роль фразеологических единиц в создании психологического портрета персонажей и их связи с социальной реальностью Петербурга XIX века. Рассматривается использование фразеологизмов как средства выразительности, раскрывающего внутренний мир героев, их сомнения, оправдания и манипуляции. Особое внимание уделено сопоставительному анализу фраз и выражений на русском и узбекском языках, а также проблемам перевода фразеологических единиц, в том числе методам адаптации, таким как калькирование, замена эквивалентами и парафраз. Примеры перевода показывают, как фразеологизмы, основанные на народной речи и культурных особенностях, могут быть адаптированы для сохранения смысла и атмосферы оригинала. Статья подчеркивает важность фразеологии в литературных текстах и демонстрирует сложности, связанные с передачей культурных и философских нюансов при переводе.

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Ключевые слова:фразеологизмы, роман Ф.М. Достоевского, *Преступление и наказание*, перевод, узбекский язык, психологический портрет, социальная реальность, Петербург XIX века, сравнительный анализ, адаптация, калькирование, эквиваленты, парафраз, народная речь, культурные особенности, литературный перевод, философские нюансы.

Abstract: The article is dedicated to the analysis of phraseological units in Fyodor Dostoevsky's novel *Crime and Punishment* and their translation into Uzbek. The author examines the role of phraseological expressions in creating psychological portraits of the characters and their connection to the social reality of 19th-century St. Petersburg. The use of phraseological units is considered as a means of expression that reveals the inner world of the characters, their doubts, justifications, and manipulations. Special attention is paid to the comparative analysis of phrases and expressions in Russian and Uzbek, as well as the challenges of translating phraseological units, including adaptation methods such as calque, substitution with equivalents, and paraphrasing. Translation examples demonstrate how phraseological expressions based on folk speech and cultural specifics can be adapted to preserve the meaning and atmosphere of the original. The article highlights the importance of phraseology in literary texts and illustrates the complexities involved in conveying cultural and philosophical nuances during translation.

Keywords: phraseological units, Fyodor Dostoevsky's novel, *Crime and Punishment*, translation, Uzbek language, psychological portrait, social reality, 19th-century St. Petersburg, comparative analysis, adaptation, calque, equivalents, paraphrasing, folk speech, cultural specifics, literary translation, philosophical nuances.

Фразеологизмы — это устойчивые сочетания слов, которые обладают особым значением и широко используются в повседневной речи, а также в

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литературных произведениях для придания тексту выразительности, живости и глубины.

Существует точка зрения, согласно которой после Шарля Балли, введшего термин фразеология в значении «раздел стилистики, изучающий связанные словосочетания», вопрос о фразеологии как лингвистической дисциплине был впервые поставлен выдающимся советским лингвистом проф. Е.Д. Поливановым[1, 8], Далее утверждается, что вслед за Е.Д. Поливановым вопросы о фразеологии как лингвистической дисциплине ставил В.В. Виноградов. Фундаментальные труды акад. В. В. Виноградова и его последователей, несомненно, способствовали появлению большого количества работ по фразеологии, написанных на материале различных языков, в том числе и узбекского. Теоретические проблемы узбекской фразеологии впервые были рассмотрены в работах Е.Д.Поливанова. [1, 4] Он рассмотрел фразеологию русского и некоторых языков Востока и на основе этого выдвинул мнение выделить фразеологию в качестве одного из разделов лингвистики. По мнению Е.Д.Поливанова, новый раздел лингвистики - фразеология - должен занимать такое же место, как синтаксис и морфология. Поливанов предложил назвать новый раздел лингвистики фразеологией или идиоматикой. В начале 50-х годов XX века появились первые труды, относящиеся к узбекской фразеологии. К числу таких работ можно отнести кандидатские диссертации Ш.Рахматуллаева, [1, 7] Я.Д.Пинхасова[1, 3], М.Хусаинова[1, 11].

Сопоставительное изучение языков представляет одно из ведущих направлений современной лингвистической науки. Сопоставление позволяет вскрыть сходства и специфические для каждого языка различия в выборе фонетических, лексических, грамматических средств, при описании одних и тех же фактов языковой действительности.

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Сопоставительное исследование языков требует не только применения, но и дальнейшей разработки методов и приемов изучения фактического материала сопоставляемых языков, так как некоторые вопросы сравнительно-сопоставительной лингвистики остаются дискуссионными, требующими своего дальнейшего решения.. Большой интерес для сопоставительного исследования лексических средств языка представляют фразеологизмы, в которых отражается национальное своеобразие истории, представлений, связанных с трудовой деятельностью, бытом и культурой народа.[1.2]

Данной статье мы сопоставляем некоторые фразеологизмы из романа Ф.М. Достоевского « Преступление и наказание». Роман Ф.М. Достоевского, продолжает оставаться одним из самых значимых произведений мировой литературы, в котором глубокая психологическая проработка персонажей сочетается с острыми социальными проблемами. Особенно интересным аспектом является то, как выражения и фразы, используемые персонажами, отражают не только их внутренний мир, но и социальные реалии Петербурга того времени. В его произведениях, таких как «Преступление и наказание», фразеологизмы играют важную роль, подчеркивая характеры персонажей, их внутреннее состояние и особенности их восприятия мира. Это особенно важно в контексте перевода, где необходимо сохранить не только смысл, но и атмосферу оригинала.

Почему мы выбрали именно Достоевского, потому произведения его наполнены фразеологизмами, часто основанными на народной речи, пословицах, поговорках, а также на особенностях петербургского диалекта. Эти выражения помогают создать живое и правдоподобное изображение действующих лиц, а также раскрывают внутренний мир персонажей. Рассмотрим некоторые ключевые фразы и выражения из текста романа, сравнив их с фразами на узбекском и русском языках, чтобы понять, как

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через слова персонажи раскрывают свои эмоции, отношения к жизни и окружающим.

Проблемы перевода фразеологизмов

Перевод фразеологизмов является одной из самых сложных задач для переводчика, поскольку фразеологизм не всегда имеет прямой эквивалент в языке перевода. В таких случаях переводчик может прибегать к следующим методам:

1. **Калькирование** — дословный перевод, при котором сохраняется структура фразеологизма, но иногда это может приводить к потерям в смысле или звучании.
2. **Замена эквивалентом** — использование фразеологизма, который в языке перевода имеет сходное значение и функции.
3. **Парафраз** — использование описательного выражения для передачи смысла фразеологизма.

Сравнительный анализ перевода фразеологизмов на узбекский язык

Перевод фразеологизмов с русского на узбекский язык представляет собой сложную задачу, так как фразеологические единицы часто имеют культурную и историческую обусловленность, которая может не иметь точных аналогов в языке перевода. Рассмотрим несколько примеров перевода фразеологизмов из «Преступления и наказания» и их адаптацию на узбекском языке.

Он бросился стремглав на топор (это был топор) и вытащил его из-под лавки, где он лежал между двумя поленами; тут же, не выходя, прикрепил его к петле, обе руки засунул в карманы и вышел из дворницкой;

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*никто не заметил! «**Не рассудок, так бес!**» подумал он, странно усмехаясь. Этот случай ободрил его чрезвычайно*.(стр 73)

U shitob bilan bolta yotgan yerga bordi(ha, bu boltaning o'zginasi edi) va uni ikki palyon orasidagi taxtaning tagidan tortib oldi; shu yerning o'zida uni paltosining ilgagiga mahkamladi, qo'llarini cho'ntaklariga tiqdi-da, hujradan chiqdi; hech kim ko'rmadi! „Ayol bilan bitmagan ish iblis bilan bitdi!"–deb o'yladi g'alati tirjayarkan. Bu hodisa uning ruhini hadddan ziyod ko'tarib yubordi. (Jinoyat va Jazo. 95-bet).

"Не рассудок, так бес!" — В данном контексте фраза выражает внутреннее состояние Раскольникова, его смятение, попытку оправдать свои поступки с помощью внутренней логики, которая на самом деле является логикой безумия.

"Не рассудок, так бес!" (стр. 73) — перевод на узбекский: " Ayol bilan bitmagan ish iblis bilan bitdi ". В этом случае русский фразеологизм был адаптирован с добавлением религиозного контекста, что подчеркивает демоническую природу действия Раскольникова, была адаптирована с учетом культурных и религиозных особенностей, а не переведена дословно. Это позволяет сохранить глубину и значение, при этом адаптируя фразу под специфический культурный контекст.

"Как курица с яйцом носиться!" — перевод на узбекский: **"Boshinggizga jindakkina savdo tushadigan bo'lsa, shu jindakkina dardingizni ezibichkiga aylantirib olasiz!"**. В переводе используется уникальное выражение "ezibichkiga aylantirib olasiz", которое, возможно, не является общеупотребимым, но эффективно передает значение беспокойства и чрезмерной озабоченности.

"Пеняйте на себя!" — перевод на узбекский: **"Pishirgan oshingizni o'zingiz iching"**. Этот перевод сохраняет основную идею, но в нем использована

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метафора, характерная для узбекского языка, что добавляет колорит и делает фразу более понятной для узбекского читателя.

"Не рассудок, так бес!" — В данном контексте фраза выражает внутреннее состояние Раскольникова, его смятение, попытку оправдать свои поступки с помощью внутренней логики, которая на самом деле является логикой безумия.

"Как курица с яйцом носиться!" — Здесь Разумихин использует фразеологизм, чтобы подчеркнуть чрезмерную озабоченность и чрезмерное внимание к несущественным вещам, что свойственно некоторым персонажам в произведении.

"Пеняйте на себя!" — Эта фраза выражает укор и обвинение, она используется для того, чтобы подчеркнуть, что человек сам виноват в своих бедах.

Фраза о "цветочках" и "фруктах"

Одной из ключевых фраз Раскольникова в романе является его размышление о том, что "это только цветочки, а настоящие фрукты впереди!" (43 стр.). Эта фраза, произнесённая главным героем, отражает его мрачные ожидания относительно будущего, связанным с его преступлением. Он осознаёт, что совершив убийство, он лишь вступил на путь, который приведёт к гораздо более серьёзным последствиям. Узбекистанский аналог этой фразы звучит как *"Yana bularning bari hali xamir uchidan patir, yug'on yug'oni keyin chiqadi!"* (ст.54), что буквально переводится как: "Всё это ещё только тесто, а главное выйдет потом!" Такая фраза в контексте романа подчёркивает ожидания Раскольникова от того, что его действия окажут огромное влияние на его жизнь и судьбу.

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Фраза не только раскрывает психологическое состояние героя, но и играет роль пророчества о том, что впереди его ждёт неизбежное наказание. Раскольников не понимает, что «настоящие фрукты» его жизни, возможно, будут заключаться не в успешном преступлении, а в его внутреннем уничтожении и покаянии.

Угроза и манипуляция через экономические вопросы

Когда Раскольников размышляет о матери, он задаётся вопросом: *"С чем она в Петербург-то явится? С тремя целковыми аль с двумя «билетиками», как говорит та старуха..."* (43 стр.). Это выражение раскрывает не только бедственное положение его матери, но и социальную и экономическую реальность тех времён. Он осознаёт, что его мать не имеет достаточных средств, чтобы справиться с жизнью в Петербурге, что подчеркивает её зависимость от сына и от его выбора.

Аналогичная фраза на узбекском языке звучит как: *"Peterburgga ikki qo'llarini burunlariga tiqib kelaverishadimi? Uch-to'rt tanga-yu, anavi Kampir aytganday ikkita 'pattacha' bilan kelishadimi?"* (54 стр), что также подчеркивает бедность и беспомощность его матери, которая сталкивается с нехваткой средств, чтобы выжить в большом городе. Раскольников же, со своей стороны, рассматривает это с презрением, обнажая свою внутреннюю боль и разочарование в том, что его мать по сути оказывается заложницей его собственного выбора.

Влияние внутреннего состояния Раскольникова на восприятие мира

Одним из ярких моментов в романе является сцена, когда Раскольников, после совершения преступления, чувствует облегчение. В этом состоянии, полный яростного восторга, он думает: *"Он вздрогнул от радости. Ему стало вдруг ужасно, невыразимо легко. Все с плеч слетело."*

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(стр. 96). В русском языке эта фраза подчеркивает противоречие между внешним выражением счастья и внутренним ощущением тревоги и одиночества.

На узбекском языке аналог этой фразы звучит так: *"U quvonganidan titrab ketdi. Birdan o'zini qushday yengil sezdi. Yelkasidan tog' ag'darilganday bo'ldi."* (124- бет). Здесь, как и в русском оригинале, внимание акцентируется на психическом состоянии Раскольникова. В обоих случаях фраза выражает его внутреннее напряжение, которое сменяется облегчением, но это облегчение носит фальшивый, даже болезненный характер.

Заключение

Фразеология романа *Преступление и наказание* является важнейшим инструментом, через который Достоевский раскрывает психологию своих персонажей и их внутренние противоречия. Персонажи, такие как Раскольников, через свои высказывания и фразы демонстрируют не только социальную реальность Петербурга XIX века, но и глубоко личные переживания, сомнения и оправдания, которые они используют для того, чтобы выжить в жестоком мире. Использование фразеологизмов в произведениях Ф. М. Достоевского играет важную роль в создании реалистичной и эмоционально насыщенной атмосферы. Перевод этих выражений на узбекский язык требует от переводчика не только знания языка, но и способности передать культурные и философские нюансы текста. Иногда необходимо выбирать между дословным переводом и адаптацией, чтобы сохранить эффект оригинала для читателя, не знакомого с русской культурой.

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THE IMPORTANCE OF TEACHING AND LEARNING ENGLISH BY VOCABULARY

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Annotation:

The growing interest in many parts of the world in Modern Methods of Teaching English brings with it the question of how it should be done – how curriculum, subject, matter, and methodology should differ from the familiar norms developed in the past. A lot has been written on traditional teaching English, and until recently, the demand for the information on modern methods of teaching English has been limited. As well as opportunities in foreign partnership helps to develop it.

Key words:

Methodology, curriculum, subject, matter, speech activity, traditional teaching English, vocabulary, listening, speaking, reading ,writing, magazines, newspapers

Nowadays, teachers take into consideration students' demands for watching real movie stories together with reading books, magazines and newspapers. Because, as it is known not only printed materials can serve as a great source of teaching but also songs and movies play a key role in learning foreign languages. The importance of teaching by vocabulary. Vocabulary is one of the aspects of the language to be taught in the institutes. In addition to learn new vocabulary, learner need to able to use strategies to cope with unknown vocabulary met in listening or reading text, to make up for gaps in productive vocabulary in speaking and writing to gain fluency in using known vocabulary and to learn new words in isolation.

Vocabulary learning is not on end in itself. A rich vocabulary makes to perform the skills of listening, speaking, reading and writing easier. By the type of teaching in traditional style is divided into several aspects such as speaking,

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analytic reading, reading at home, practice grammar, practical phonetics. As a result, 3-4 teachers teach students in variety styles and as a result the connection of aspects is not provided. Some students learn grammar well, but in speech they meet difficulties to pronounce words. On this way we meet some questions. Maybe it is right, but in the course all aspects of teaching by new style are carrying out parallel. Moreover, there are some methods to improve learning foreign language. Lessons are fully taught in English language based on all experiences, which are needed for lessons. That is to say students begin to understand by reading, by listening, practice of writing, improve speech and others. Students are become focal point of lessons, not teachers. The teacher only helps student to get knowledge. In this way the possibility of self-studying is got well. When lessons aren't traditional, tasks are divided into couple or small group of students due to the type of it, students work in groups or individually.

English communication skill teachers must be innovative, creative and resourceful with thorough knowledge of the subject and adopt new techniques to change social economic status of our country. Whatever may be the methods and approaches, the most pragmatic and the desirable thing seems to explore the possibility of using the under used and valuable materials which will definitely facilitate the learning and teaching of language skills. We need to have interactive teaching and this changing role of education is inevitable with the introduction of multimedia technology and the spawning of a technologically-savvy generation of youths[1].

All over the world, educational institutions implementing new ideas, methods, and technology based innovations to enhance the students' knowledge in the sphere of English. Basically, teaching must include two major components sending and receiving information. Ultimately, a teacher tries his best to impart knowledge as the way he understood it. The use of innovative methods in educational institutions has the potential not only to improve education, but also to empower

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people, strengthen governance. The biggest challenge any teacher faces is capturing the students' attention, and putting across ideas in such a way that it stays with them long after they have left the classroom. For this to happen, classroom experience should be redefined and innovative ideas that make teaching learning methods more effective should be implemented. Nowadays many books and articles are written to attract attention to this point. In planning curricular and methods it has been suggested that an understanding of students and their needs, interest, abilities, likes, dislikes, and developmental status should take precedence over other considerations. For instance: Dialogical speech – in this way students have a talk each other by creative approach. "Modern methodology of teaching English puts speaking in Dialogues in the first place for developing speaking skills. These skills can be trained with various teaching aids, including texts of fiction. Such dialogues give an opportunity to avoid traditional rendering of the texts and turn them into living English speech". More than that, all the vocabulary is remembered much better. In dialogues, students train in fluency, quick reaction, acting skills and, of course, grammatical correctness. Student reads the text himself and tells the meaning. Reading is interactive.

Reading short stories, novels and other literary works written by famous Uzbek, English and American writers is very important in language learning. As a teacher of English you may apply a variety of reading strategies, analyze literary elements use a variety of strategies to read unfamiliar words and build vocabulary, prepare, organize, and present literary interpretations. Understanding by listening – by these way students can improve speech skills. Listening is a receptive form of speech activity. Comprehension of speech while listening mainly based on auditory feelings. By perceiving, reproduce what we hear, in the form of inwardly speech. Listening comprehension is impossible without working of speech motor analyzer. Of course internal speaking requires ability to speak in this language. Understanding of sounding speech, in the moment of comprehension, is

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accompanied by intellectual activity, which includes recognizing of speech means and interpretation of the content. Learning English through the watching movies.

For instance, at the beginning of lesson teacher makes plan and shares news with students. Each student participates in this plan and shares news with each other's. As a result, mutual exchanging of knowledge is appeared and all students get to know the theme. Some exercises are done by couple or group of students. For working in the group students are given such tasks: organize debates, debate the theme with playing roles, and work with high techs. To work in couple they are given dialogues, grammar materials, and also reading. By these methods we can make all students to participate in lesson and teacher can help every student due to his or her demands. By using modern pedagogical and technological methods, and by the way introducing leading styles of teaching, teach growing generations, the system of speaking easily in these languages can be developed fully. As well as opportunities in foreign partnership helps to develop it. Known to us, using innovations and new pedagogical technologies are resulting well. Sometimes using same styles in teaching language may let go down interests of student to language. We advise some types of teaching in use, not to go down interest to foreign language.

To conclude it should be noted that, the teacher of 21 century should shed traditional concepts and techniques of classroom teaching and should adopt the recent and innovative teaching techniques.

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ABOUT THE NUCLEAR POWER PLANT

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Abstract: Nuclear power plants can operate with single-circuit, double-circuit and triple-circuit coolant. A single-circuit scheme is used in nuclear power plants with channel-type reactors. In such nuclear power plants, the coolant is also the working fluid. In them, the boiling reactor itself is a steam generator, therefore the entire scheme is radioactive. It is surrounded by biological protection.

Keywords: nuclear power plant, circuit, cooling system, working, station, reactor, steam, generator, scheme, radioactive, biological.

A nuclear power plant is a power plant that belongs to the thermal power plant type in terms of its technological scheme. While conventional thermal power plants (TPPs) burn coal, oil, fuel oil (fuel oil), and gas, a nuclear power plant uses uranium as fuel. The main part of a nuclear power plant is a nuclear boiler, that is, a nuclear reactor. In a nuclear power plant, most often, nuclear reactors. 4 types are used:

1) Water-water (in which ordinary water is used both as a moderator and as a heat carrier);

2) Graphite-water (water is a heat carrier, and graphite is a heat carrier);

3) Heavy water (ordinary water is a heat carrier, and heavy water is a heat carrier);

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4) Graphite-gas (gas is a heat carrier, graphite is a heat carrier).

Modern nuclear power mainly uses uranium-235. Its natural reserves are not very large, and it makes up only 10% of organic fuel. This amount cannot provide nuclear power with fuel for a long time. There are sufficient reserves of uranium-238 and thorium-232 in the earth's crust, which are raw materials for obtaining plutonium-239 and uranium-233, which are used as nuclear fuel. A double-circuit scheme is used in nuclear power plants with pressurized water reactors. In such nuclear power plants, water is supplied to the reactor core under pressure, which is heated. The energy of the coolant is used to create saturated steam in a steam generator. The primary circuit is radioactive and is surrounded by biological protection (except when an inert gas is used as a coolant). The second circuit is generally radiation-safe, since the working fluid and coolant of the first circuit do not come into contact. The three-circuit scheme is used in nuclear power plants with fast neutron reactors with sodium coolant. To prevent radioactive sodium from coming into contact with water, a second circuit is built with non-radioactive sodium. Thus, the scheme turns out to be three-circuit. A distinctive feature of nuclear power plants with fast neutron reactors is that, while generating electricity and heat, they simultaneously produce fissile isotopes suitable for use in thermal nuclear reactors.

Figure 1. The largest nuclear power plant in the world.

The advantages of nuclear power plants include:

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-electricity generation is cheap;

- a 1000 MW gas-fired thermal power plant emits 13 thousand tons of harmful substances into the atmosphere per year, and a coal-fired thermal power plant emits 165 thousand tons of harmful substances. A 1000 MW thermal power plant absorbs 8 million tons of oxygen per year. A nuclear power plant does not consume oxygen and does not emit harmful emissions as mentioned above;

- there is no need to build them near a large fuel source. Bringing coal and gas to a thermal power plant requires significant costs, while the uranium needed for a nuclear power plant can fit in one truck;

- spent fuel is reprocessed and used again as fuel;

- high power: the power of one power unit is 1000-1600 MW.

Nuclear power plants have the following disadvantages:

- irradiated fuel is dangerous, its processing and storage is a complex process and requires a lot of money;

- A large amount of money and a lot of water are needed to build a nuclear power plant;

- A nuclear power plant emits a large amount of radioactive waste and requires a large infrastructure to store it;

- The probability of an accident with a nuclear power plant is extremely low, but if one does happen, it can lead to serious consequences.

CONCLUSION

One of the advantages of nuclear power plants over conventional thermal power plants is their high environmental friendliness, which is maintained during the competent operation of nuclear reactors. Existing radiation safety barriers of nuclear power plants (fuel element cladding, nuclear reactor vessels, etc.) prevent

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contamination of the coolant with radioactive decay products. Nuclear power plants are almost always built near energy consumers. They are built on the lower side of the nearest settlement. A sanitary protection zone and a monitoring zone are being established around the plant, where the population is prohibited. Monitoring and measuring equipment are placed in the monitoring zone for continuous monitoring of the environment. The ability of nuclear power plants to operate for a long time without changing fuel allows them to be used even in remote areas. The operating life of a nuclear power plant is 25-30 years.

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MODERN APPROACHES TO FORMING A READING CULTURE

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Abstract: This article is dedicated to the significance of modern approaches in shaping the reading culture and their role in promoting reading among young people. The reading culture plays an essential role in the intellectual and spiritual development of society. The impact of modern technologies, internet platforms, the development of libraries and educational centers, targeted reading methods, and digital reading platforms are discussed. The article highlights the importance of these contemporary approaches in creating new opportunities for young people and shaping a modern reading culture.

Keywords: reading culture, modern approaches, internet platforms, digital books, libraries, educational centers, targeted reading, youth, reading habits, technology, interactive reading, books, activities.

Reading culture is an activity that focuses on reading books, education and enlightenment, which plays an important role in the spiritual and intellectual development of young people and society. In modern society, the need to implement new and effective approaches to the formation of a reading culture is always of great importance. Therefore, it is very important to study the importance of reading books, modern methods and approaches aimed at it.

Using the Internet and digital information sources: Today, the Internet and digital platforms and resources create new opportunities for the formation of a reading culture. Electronic books (e-books), audiobooks, podcasts and online courses increase the interest of young people in reading. These technologies not only make it easy to find books, but also make them read anywhere and at any time. Reading

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is not limited to books, but also includes videos, articles and even interactive materials.

Creating a spiritual and intellectual environment: The culture of reading depends on the spiritual environment in society. Modern approaches, especially in promoting reading, are aimed at creating a special environment for different segments of the population. For example, book clubs, projects held in libraries, activities on books and their discussion on social networks increase interest in reading among young people. In addition, they help to exchange news, ideas and experiences.

The impact of technological advances: For most modern young people, technology and digital innovations are new ways of reading books. For example, interactive books, that is, books enriched with multimedia elements, videos and graphics, make the reading process as interesting and enjoyable as necessary. Such books introduce the reader to new methods and encourage them to create a modern "reading" for themselves.

Purposeful and clearly focused reading: In modern approaches, the organization of purposeful reading systems for young people is important in forming a reading culture. Focused reading directions in accordance with the interests of young people in choosing books and sources will give them effective results. This approach ensures the formation of excellent knowledge and helps people search for the information they need.

Development of libraries and educational centers: Modern libraries are not only a place to store books, but also become an important center for communication, knowledge exchange and assistance for students. Seminars, lectures, book presentations organized in libraries and trainings held in educational centers are part of modern approaches aimed at forming a reading culture of young people, where opportunities for spiritual and intellectual enrichment are created for each person.

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Development of digital reading platforms: In recent years, the development of digital platforms in the reading habits of young people has increased significantly. These platforms provide opportunities for reading and discussing books, as well as getting acquainted with modern books and writers. In addition, the opportunity to directly communicate with authors and discuss books on some platforms also increases the interest of young people.

The social and secret function of the book: The modern approach to reading should not forget that the book has a social role. Books, in particular, bring confidence, inspiration and news to the reader. Discussions with young people, educators and other people in the social environment are of great importance in this regard. Therefore, reading books is not limited to personal development, but also contributes to social and cultural transformation.

Modern approaches play an important role in forming a reading culture. Many innovative methods, digital technologies, the development of libraries and educational centers increase interest in reading. For modern youth, reading books becomes an important factor not only in personal development, but also in improving social and cultural skills.

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INTERNATIONAL FINANCIAL REPORTING STANDARDS AND THEIR APPLICATION IN THE ECONOMY OF THE REPUBLIC OF UZBEKISTAN

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Abstract: The adoption of International Financial Reporting Standards (IFRS) plays a pivotal role in enhancing financial transparency, comparability, and credibility within the global economy. In the context of Uzbekistan, transitioning to IFRS aligns the country's financial practices with international standards, fostering investor confidence, facilitating access to global capital markets, and promoting sustainable economic growth. This paper explores the historical evolution of financial reporting in Uzbekistan, the challenges and benefits of IFRS implementation, and its implications for the nation's economic integration. While the adoption process presents obstacles such as resource limitations and alignment with local regulations, targeted policy measures and capacity-building initiatives are helping to overcome these challenges. The findings underline the transformative potential of IFRS in strengthening Uzbekistan’s financial system and accelerating its economic modernization.

Keywords: IFRS, financial reporting, Uzbekistan economy, transparency, economic integration, global standards, financial governance

In the globalized economy, financial transparency, accountability, and comparability have become fundamental to fostering investor confidence, attracting foreign direct investments, and promoting economic growth. International Financial Reporting Standards (IFRS), established by the International Accounting Standards Board (IASB), serve as the globally recognized framework for ensuring the uniformity of financial statements across borders. These standards aim to provide high-quality, understandable, and enforceable financial reporting that reflects economic realities, thus enabling stakeholders to make informed decisions. For emerging economies like the Republic of Uzbekistan, aligning with IFRS not only enhances global economic integration but also catalyzes structural economic reforms crucial for sustainable development. Uzbekistan, a country undergoing transformative economic changes, has recognized the significance of IFRS in its ongoing transition from a centrally planned to a market-oriented economy. The government’s adoption of IFRS is part of broader financial and economic reforms designed to modernize the nation's accounting and financial reporting systems. This shift aligns with Uzbekistan's strategy to create a more open and competitive economy, attract international investments, and strengthen its financial institutions. The application of IFRS offers several benefits, including enhanced credibility of financial data, improved access to international capital markets, and the establishment of a transparent financial environment conducive to sustainable economic development.

Historically, Uzbekistan's accounting practices were based on the Soviet-era system, which prioritized compliance with tax regulations over financial transparency and comparability. This legacy posed significant challenges for local enterprises and foreign investors, as the financial reporting standards were often inconsistent with global practices. With the country's increasing participation in global trade and financial markets, the need for convergence with international

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standards has become apparent. The adoption of IFRS represents a critical step in aligning Uzbekistan's financial reporting system with global norms and ensuring the country's competitiveness in the international arena. The transition to IFRS in Uzbekistan has been marked by a phased approach, reflecting the complexities of integrating global standards into a domestic framework. The government has introduced a series of legislative measures and regulatory reforms to support this transition. Notably, the Presidential Decree No. PD-4611, issued in 2020, mandated the phased adoption of IFRS by large and medium-sized enterprises, financial institutions, and state-owned enterprises. This decree underscores the government's commitment to fostering financial transparency and aligning with international best practices. However, the implementation process is not without challenges, including the need for capacity building, the availability of skilled professionals, and the adaptation of existing financial systems to meet IFRS requirements.

Despite these challenges, the adoption of IFRS has already yielded positive outcomes in Uzbekistan's economic landscape. Financial institutions and enterprises adopting IFRS have reported improved financial reporting quality, enhanced decision-making processes, and increased investor confidence. Moreover, compliance with IFRS has facilitated greater integration of Uzbek enterprises into global supply chains and financial markets, thereby boosting economic growth. These developments highlight the transformative potential of IFRS in fostering economic modernization and aligning Uzbekistan's financial practices with international standards. The application of IFRS in Uzbekistan also reflects broader trends in global economic governance, where transparency and harmonization of financial reporting are seen as critical for promoting fair competition and mitigating financial risks. In this context, Uzbekistan's experience offers valuable insights into the opportunities and challenges associated with implementing IFRS in emerging economies. The country's approach to integrating these standards, balancing global norms with local realities, and addressing the institutional and cultural dimensions of financial reporting reforms serves as a case study for other nations navigating similar transitions. This paper explores the significance, implementation, and impact of IFRS adoption in Uzbekistan, examining its role in promoting economic transparency, enhancing investor confidence, and fostering sustainable economic development. The discussion begins with an overview of the principles and objectives of IFRS, followed by an analysis of the historical evolution of Uzbekistan's financial reporting framework. It then delves into the practical aspects of IFRS implementation, highlighting key challenges, policy responses, and success stories. Finally, the paper evaluates the broader economic implications of IFRS adoption, providing recommendations for maximizing its benefits and addressing ongoing challenges.

Principles and Objectives of IFRS. International Financial Reporting Standards (IFRS) represent a globally accepted framework for the preparation and presentation of financial statements. Their primary objective is to ensure the consistency, comparability, and transparency of financial information across borders. IFRS focuses on providing a true and fair view of a company's financial performance, position, and cash flows. It emphasizes the importance of fair value measurement, accrual accounting, and disclosure requirements that align financial reporting with economic realities. By doing so, IFRS supports decision-making by investors, creditors, regulators, and other stakeholders. The principles of IFRS are underpinned by neutrality, relevance, and reliability, ensuring that financial information is free from bias and provides an accurate depiction of economic events. For Uzbekistan, the adoption of IFRS is closely tied to its broader economic objectives. As the country seeks to integrate more deeply into global markets,

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IFRS adoption plays a crucial role in harmonizing its financial reporting practices with international standards. This harmonization is essential for fostering investor trust, improving financial governance, and ensuring compliance with global financial regulations.

Historical Context of Financial Reporting in Uzbekistan. Uzbekistan's financial reporting practices have evolved significantly since its independence in 1991. During the Soviet era, accounting systems were designed primarily for centralized economic planning, with a focus on tax reporting and compliance. These systems lacked the flexibility and transparency required for a market-oriented economy. As Uzbekistan embarked on economic reforms, the limitations of its legacy accounting practices became apparent. In the early 2000s, Uzbekistan began taking steps to reform its financial reporting framework. The introduction of the Law on Accounting in 1996 laid the foundation for modernizing accounting practices. However, progress was slow due to institutional inertia, a lack of technical expertise, and limited awareness of global standards. The growing demand for foreign investment and international trade highlighted the need for a more transparent and standardized financial reporting system. This realization marked the beginning of Uzbekistan's gradual transition to IFRS.

Implementation of IFRS in Uzbekistan. The implementation of IFRS in Uzbekistan has been a phased and strategic process. Recognizing the complexities involved, the government has adopted a step-by-step approach to ensure a smooth transition. The Presidential Decree No. PD-4611, issued in 2020, represents a landmark in this journey. This decree mandated the adoption of IFRS by large and medium-sized enterprises, financial institutions, and state-owned enterprises by 2021. Smaller businesses and organizations were encouraged to adopt simplified standards derived from IFRS principles. One of the key aspects of IFRS implementation in Uzbekistan has been capacity building. The government has collaborated with international organizations, such as the World Bank and the International Monetary Fund (IMF), to provide technical assistance and training programs for accountants, auditors, and financial managers. These initiatives aim to equip professionals with the skills and knowledge required to apply IFRS effectively. Additionally, universities and professional institutions have introduced IFRS-related courses to develop a pipeline of qualified professionals. Despite these efforts, several challenges persist. The adoption of IFRS requires significant changes in organizational processes, information systems, and corporate culture. Many enterprises in Uzbekistan face resource constraints, including limited access to modern accounting software and a shortage of skilled personnel. Moreover, the transition to IFRS involves a steep learning curve, as organizations must familiarize themselves with complex standards and principles. Another challenge is the need to reconcile IFRS with local tax laws and regulations. In Uzbekistan, tax reporting often takes precedence over financial reporting, leading to potential conflicts between the two frameworks. To address this issue, the government has undertaken efforts to align tax legislation with IFRS principles, thereby reducing discrepancies and ensuring consistency.

Benefits of IFRS Adoption. The adoption of IFRS has brought several benefits to Uzbekistan's economy. First and foremost, it has enhanced the credibility and comparability of financial statements. By adhering to international standards, Uzbek enterprises can provide investors and creditors with reliable and transparent financial information. This transparency is critical for attracting foreign direct investment (FDI) and fostering economic growth. Second, IFRS adoption has improved access to international capital markets. Financial institutions and enterprises that comply with IFRS are better positioned to secure funding from global investors,

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as their financial statements are prepared in a format that is widely recognized and trusted. This access to capital is particularly important for Uzbekistan, given its ambitious infrastructure and development projects. Third, the adoption of IFRS has strengthened corporate governance and accountability. By requiring detailed disclosures and robust financial reporting practices, IFRS promotes greater transparency and reduces the risk of financial mismanagement. This, in turn, enhances stakeholder confidence and supports sustainable business practices. Finally, IFRS adoption has facilitated Uzbekistan's integration into the global economy. By aligning its financial reporting practices with international standards, Uzbekistan has signaled its commitment to economic modernization and global cooperation. This alignment not only boosts the country's competitiveness but also enhances its reputation as a reliable partner in international trade and investment.

Challenges and Policy Responses. While the benefits of IFRS adoption are evident, the transition process has not been without challenges. One of the major hurdles is the lack of awareness and understanding of IFRS among business leaders and financial professionals. To address this issue, the government has launched awareness campaigns and training programs to promote the importance of IFRS and build capacity within the accounting profession. Another challenge is the cost associated with implementing IFRS. Many enterprises, particularly small and medium-sized businesses, struggle to afford the necessary investments in training, software, and consulting services. To alleviate this burden, the government has introduced financial incentives and subsidies to support businesses in their transition to IFRS. The complexity of IFRS standards also poses a challenge, especially for enterprises with limited experience in international financial reporting. To simplify the adoption process, the government has developed localized guidelines and templates that align with IFRS principles while addressing the specific needs of Uzbek businesses.

Economic Implications of IFRS Adoption. The adoption of IFRS has far-reaching implications for Uzbekistan's economy. By enhancing financial transparency and accountability, IFRS strengthens the foundations of a market-oriented economy. This transparency is crucial for building investor confidence and attracting FDI, which, in turn, drives economic growth and job creation. Moreover, IFRS adoption supports the development of Uzbekistan’s financial sector. Banks and financial institutions that comply with IFRS are better equipped to assess credit risk, manage assets, and make informed lending decisions. This contributes to the stability and resilience of the financial system. In the long term, the adoption of IFRS is expected to facilitate Uzbekistan’s integration into global trade and investment networks. By aligning its financial reporting practices with international standards, Uzbekistan enhances its competitiveness and positions itself as an attractive destination for foreign investors.

In summary, the adoption of IFRS in Uzbekistan represents a significant milestone in the country’s economic modernization and global integration. While challenges remain, the benefits of enhanced financial transparency, improved access to capital, and stronger corporate governance underscore the importance of this initiative. By embracing IFRS, Uzbekistan is not only transforming its financial reporting practices but also laying the groundwork for sustainable economic growth and development.

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"COLLABORATIVE CLASSROOMS: BUILDING INCLUSIVE LEARNING ENVIRONMENTS"

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Abstract: An inclusive classroom, at its core, represents a transformative approach to education that ensures every student feels comfortable and part of the learning community, regardless of differences in abilities, identities, or backgrounds.

Instead of the usual one-size-fits-all education, the focus here is on giving each student the support they need. Inclusive classrooms aim to create a friendly and helpful learning space for everyone, breaking down barriers and giving every student equal opportunities in education.

What Is an Inclusive Classroom?

An inclusive classroom is a learning environment that caters to the unique needs of all students, creating a sense of belonging and active engagement.

Unlike traditional education models, inclusivity goes beyond learning accommodations. It promotes a non-segregated classroom that embraces diversity, focusing on helping each student in their own way.

Beyond promoting diversity, creating an inclusive classroom involves actively addressing and working to eliminate unhelpful attitudes or stereotypes based on learning style, gender, religion, race, or ethnicity.

Why an Inclusive Classroom Environment Matters

Ensuring every student feels like they belong, seeing them for who they truly are, and appreciating them as valuable individuals is crucial in the high school classroom. Inclusive classrooms empower teenagers to develop confidence and thrive, not just as students in the school system but as active citizens in their communities and the wider world.

Inclusive teaching and classrooms integrate special needs students with their peers to prepare them for adult life in an inclusive society where everyone is valued. Teachers strive to provide equal attention to every student using adaptation tools like accommodations and modifications so disability doesn't cause disruptions in the class.

These classrooms are friendly and support all students with different needs covering academic, social, emotional, and communication dimensions. With this approach, students who may have felt like they didn't quite fit in now feel welcomed as respected participants in the school community.

8 Benefits of Inclusive Classrooms

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Inclusion in classrooms offers many benefits, including:

1. Support for Diverse Learning Styles: Students learn differently, and inclusivity exposes them to various styles using specialized instruction and support, such as differentiated teaching and the Universal Design for Learning framework, to accommodate diverse learning styles.

2. Understanding Others: Interacting with all kinds of classmates cultivates empathy and understanding, making for a more compassionate outlook on life.

3. Normalization of Differences: By celebrating diversity, inclusiveness in classrooms promotes the idea that differences are a natural part of life, and this helps build long-term friendships.

4. Equal Learning Expectations: Inclusive classrooms align with academic standards, ensuring that students with Individualized Education Programs (IEPs) receive the same material as their peers. Differentiated instruction and co-teaching contribute to setting high expectations for all students.

5. Social Skills Development: Inclusive settings naturally develop social skills as students collaborate with classmates of varying strengths and challenges.

6. Real-World Readiness: Inclusive classrooms mirror real-world diversity, preparing students for life in an inclusive society.

7. Confidence Boost: Recognizing individual strengths in an inclusive environment enhances confidence and self-esteem for students.

8. Academic Excellence: Inclusivity tailors teaching methods to diverse needs, allowing every student the opportunity to do well in school.

Which Students Benefit from Inclusiveness in Classrooms?

Inclusivity in classrooms opens the door to a diverse and enriching educational experience for every student, including:

Students With Special Needs

Inclusivity provides tailored support for students with special needs, including those with learning disabilities, physical disabilities, or developmental challenges. It ensures that these students receive the necessary accommodations and thrive in the learning process.

Typically Developing Students

Inclusive classrooms benefit students with no identified disabilities or special needs by exposing them to diverse learning styles and encouraging empathy and understanding. As typically developing students interact with peers who have different abilities, it promotes their social skills and prepares them for the real-world diversity they will encounter beyond the classroom.

Gifted and Talented Students

For gifted and talented students, inclusiveness provides an opportunity to engage with diverse perspectives. These students can share their strengths and learn from their peers through collaborative learning, providing a more enriching educational experience.

Students Facing Academic Challenges

Inclusive practices in classrooms benefit students who may face academic challenges by offering a variety of teaching methods and additional support. Teachers can adapt their instruction to suit different learning styles, ensuring that all students have an opportunity to excel, regardless of their academic strengths or abilities.

7 Steps for Creating an Inclusive Classroom

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1. Get to Know Students

Building genuine connections with students is the foundation of inclusiveness. In addition to knowing students' backgrounds, teachers can create opportunities where students feel safe to share their unique perspectives and stories.

2. Understand How Each Student Learns

Identifying what motivates students and their preferred learning styles is key. Teachers can use questionnaires or discussions to gather insights and adapt lesson plans to cater to diverse student learning needs.

3. Utilize Various Learning Materials and Activities

Supporting diverse learning styles involves using a mix of materials and activities. Teachers can plan lessons that incorporate visual, auditory, and tactile assignments, reflecting various cultural perspectives and encouraging creative thinking.

4. Encourage a Positive Learning Environment

Collaboratively setting clear expectations and rules at the beginning of the school year helps create a positive student learning atmosphere. Actively involving students in creating rules fosters a sense of belonging and ensures accountability.

5. Promote Student Interaction

Encouraging student interaction creates stronger connections and makes classroom inclusion more robust. Group projects or collaborative games are some ways to encourage students to interact and foster a stronger sense of community.

6. Collaborate as a Community

True inclusivity involves collaboration among all members of the school community. Teachers, families, counselors, and administrators work together to consider the needs of each student, ensuring consistent and accessible academic instruction.

7. Offer Additional Support

Building inclusive classrooms requires providing academic and non-academic resources, such as extra tutoring outside official school hours or regular teacher-family meetings. Clear communication is important so students and families are aware of available support.

Tips for Maintaining an Inclusive Classroom

Teachers can sustain an inclusive classroom with the following proactive strategies:

• Set ground rules for respectful participation in all classroom interactions.

• Include multicultural perspectives in lectures, discussions, and assignments for a balanced representation.

• Acknowledge differences during controversial discussions to maintain a respectful environment.

• Foster non-competitive learning through cross-cultural group assignments.

• Pronounce names correctly, ask for preferred gender pronouns, and avoid assumptions about cultural identities.

• Teachers should be mindful of their language, avoiding exclusive terms and incorporating varied examples.

• Teachers can discuss their learning experiences and challenges when relevant and appropriate. Exploring these moments helps students reflect on different ways of thinking.

• Address offensive remarks and hold students accountable for their behavior.

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• Regularly assess teaching practices, utilizing inventories for reflection and continuous improvement.

CONCLUSION

Creating an inclusive classroom where every student is valued regardless of differences is an ongoing commitment. It entails offering equal opportunities, embracing differences, and empowering students to soar. To truly make this happen, teachers need support and resources.

That's where tools like Cardonex, the powerful master schedule software, can be highly valuable. This tool makes organizing teachers and students much easier, saving schools time and energy. Incorporating Cardonex is a step towards a more inclusive and efficient learning environment.

If your school is interested in new ways to improve the learning experience for children, you may also be interested in automating tasks and streamlining processes so that your teachers have more time to teach. Education Advanced offers a large suite of tools that may be able to help. For example, three of our most popular and effective tools are:

• Cardonex, our master schedule software, helps schools save time on building master schedules. Many schools used to spend weeks using whiteboards to organize the right students, teachers, and classrooms into the right order so that students could graduate on time and get their preferred classes. However, Cardonex can now be used to automate this task and deliver 90% of students' first-choice classes within a couple of days.

• Testhound, our test accommodation software, helps schools coordinate thousands of students across all state and local K-12 school assessments while taking into account dozens of accommodations (reading disabilities, physical disabilities, translations, etc.) for students.

• Pathways, our college and career readiness software, helps administrators and counselors create, track, and analyze graduation pathways to ensure secondary students are on track to graduate.

• Evaluation, our teacher evaluation software, which documents every step of the staff evaluation process, including walk-throughs, self-evaluations, supporting evidence, reporting, and performance analytics.

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PROSPECTS FOR PRODUCTION OF PRODUCTS USING SECONDARY FOOD RAW MATERIALS

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ABSTRACT. The article provides a brief overview of studies devoted to the extrusion of by-products of food and processing industries in the production of new generation snacks. The relevance of research in the field of developing snack products with specified quality characteristics that can meet the physiological needs of different groups of the population with an accelerated pace of life. In the conditions of modern production, characterized by complex processing of raw materials and modern processing methods, such as extrusion, recycling of by-products for the production of new snacks of a balanced composition provides an expansion of the raw material base while reducing production costs. An analysis of the research showed that the technologies currently being developed for the joint processing of starch-containing and secondary food raw materials by thermoplastic extrusion make it possible to produce safe, biologically valuable, high-quality snack products.

KEY WORDS: extrusion, secondary raw materials, snacks, resource conservation, product quality, nutritional value.

Thus, the development of new generation products, such as snacks, with specified quality characteristics that ensure the prevention of the most common non-communicable diseases is a priority task [1,2,3]. In recent years, due to the complex processing of raw materials and the development of modern processing methods, full-value food products have been obtained composition, possessing increased nutritional value, improved organoleptic and physicochemical indicators, which are achieved by enriching the recipes with valuable substances from by-products of processing industries [4,5,6]. As a result of technological processes of production of the food and processing industries, a wide range of by-products is formed in the amount of 138 thousand tons per year. However, more than 70% of the volume of secondary raw materials is used in animal husbandry for feed purposes. Such irrational use of secondary raw materials leads to the exclusion from the field of view of food producers of biologically valuable and cheap raw materials [7,8,9,10]. Recycling of such waste for the needs of the food industry ensures the expansion of the raw material base of the agro-industrial complex while reducing production costs. In terms of chemical composition, by-products of processing contain a small amount of fats and sugars and consist almost entirely of proteins and dietary fiber [11,12]. Thus, it is advisable to use by-products of processing in the development of functional products, the priority development of which is noted in the plan [13,14] until 2030. The disposal of food production waste requires solving a set of technological problems, among which the defining task is to create an energy-efficient and environmentally friendly technology for the integrated processing of waste from food and processing enterprises, the quality of the final product of which will not be inferior to the quality of a similar product from primary raw materials. One of the most technologically advanced and in-demand combined methods of processing secondary raw materials in recent years is extrusion.

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Extrusion technology allows processing starch-containing and protein food raw materials, as well as their mixture, to create a large number of products with different sizes, shapes, textures and tastes [15,16,17]. Over the past ten years, there has been a steady increase in demand for fast food products, including snacks. Thus, in In the conditions of a snack "on the go" it is possible to replenish the physiological needs of the body for nutrients by snack products of a balanced composition. In modern industrial production of snacks, extrusion plays a particularly important role. During the extrusion process, thermal and shear energies are applied to the raw material, causing structural and chemical changes, changes in the biological value of the product, such as gelatinization and destruction of starch, denaturation of proteins, oxidation of fats, destruction of vitamins, antioxidants, phytochemical compounds, formation of flavors, increase in mineral bioavailability and solubility of dietary fiber. Extruded snack products, as new generation products, are today one of the most promising options for improving their composition due to by-products of processing industries. Currently, a number of studies have already been conducted [18,19,20] aimed at developing snack extrudates, the improvement of the composition of which was carried out due to the addition of by-products of processing industries to the recipes, confirming the prospects and relevance of this direction. Thus, V. Stojceska, P. Ainsworth and others fortified a rice flour-based mixture with dietary fiber and protein using cauliflower by-products to produce ready-to-eat expanded snacks. The researchers found that the addition of cauliflower cake significantly increased the levels of dietary fiber and protein [21,22]. Extrusion of a mixture of rice flour with vegetable processing cake was also the subject of a study [23,24,25]. K. Navneet, B.C. Sarkar and H.K. Sharma developed rice flour-based snacks fortified with dehydrated carrot cake and a powdered mixture of legumes. In a study, expanded corn grits-based extrudates were fortified with dietary fiber using carrot and pumpkin pulp. It was found that the dough moisture content of 16% and the pulp mass fraction of 15% make it possible to obtain snack products with a high degree of swelling, crispy consistency, developed porosity with a clearly pronounced taste and aroma. The sticks were distinguished by their regular shape and bright yellow color [26,27,28]. S. Yagci and F. Gogus developed an extruded snack product based on partially defatted hazelnut flour, fruit waste and wholemeal flour in combination with rice grain. An increase in the content of partially defatted hazelnut flour led to an increase in bulk density and water solubility index, but a decrease in porosity and water absorption index of extruded snacks [29,30,31]. Z.D. Shoar, A.K. Hardacre and C.S. Brennan substantiated the improvement of the nutritional properties of starch extruded snack products when adding tomato pomace to the recipe by increasing the level of lycopene and dietary fiber in the finished product. The authors found that lycopene retention was higher in products containing tomato skin powder [32,33,34]. The possibility of producing an extruded product based on corn mixed with apple pomace was studied by E.L. Karkle et al. They found that hydration up to 17.2% by adding water to the extruder preconditioner was a key factor in determining the microstructure of the extruded snack, its texture and increasing digestibility [35]. The study [36,37] noted that the use of by-products of fish processing and sugar production as a source of protein and dietary fiber can significantly increase the biological value of extruded potato snacks without significantly increasing the cost of the finished product. In the course of the study [38,39], V.I. Stepanov et al. developed snacks from the "Grain Assortment" mixture containing 25% carrot pulp. The authors modified a standard extruder to produce a finished food concentrate enriched with dietary fiber and vitamins, with a standard

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moisture content of 8%, when processing a high-moisture formula mixture. A. Paul, P. Andrew, and others studied the effect of adding spent brewer's malt to ready-to-eat extruded snacks. They found that adding spent malt significantly increases the content of protein, phytic acid and bulk density of snacks, while reducing the expansion index, individual and total cell area [40,41]. In the study by F. Robin, C. Dubois and others, wheat was supplemented with wheat bran to achieve dietary fiber levels of 12.6% and 22.4%. Increasing the concentration of bran reduced sectional and volumetric expansions and increased longitudinal expansion [42,43]. Recently, our country has seen increased interest in the processing of substandard bread by thermoplastic extrusion. Thus, in the study by V.V. Vashin, E.A. Vashina and A.V. Erkaev, the possibility of processing by-products of bakery and cereal production (substandard bread and millet flour) into breadsticks by means of extrusion was proven. Scientists have established that the optimal ratio of bread crumbs and millet flour in the recipe mixture is considered to be 70:30 [44].

In the work of V.P. Popov and S.P. Vasilevskaya, a method for the combined processing of substandard bread and wine pomace for the production of semi-finished dry breakfasts and crackers that require further frying in oil was proposed. The authors found that with a content of 0-6% wine pomace to the weight of the recipe mixture, an intensification of the extrusion process and an improvement in the quality of the manufactured products are observed [45]. As a result of the study, a technology was developed for the production of airy crackers of increased nutritional and biological value, obtained by the method of warm extrusion based on flour and cereals of grain crops, bread and wafer crumbs with the addition of baker's yeast. O.V. Abramov developed bread sticks of high nutritional value. The crispy sticks included crumbs from stale and deformed Darnitsky bread and 3-5% beetroot-molasses powder semi-finished product, which is characterized by a high content of pectin and potassium. The obtained extrudates had high energy and nutritional value, were distinguished by good consumer properties and were recommended for everyday nutrition of school-age children [46].

Analysis of the conducted studies [1,7,8,17] showed that the technologies currently being developed for the joint utilization of waste from the food and processing industries make it possible to produce safe, biologically valuable, high-quality snack products. The technologies tested on the example of the obtained snack products can be further applied to the production of special-purpose products, the distinctive feature of which is maximum adaptation to the physiological needs of certain groups of the population.

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PRODUCTION OF PRODUCTS USING SECONDARY FOOD RAW MATERIALS

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ABSTRACT. The relevance of conducting research in the field of developing snack products with specified quality characteristics that can meet the physiological needs of different population groups with an accelerated pace of life is confirmed by the order. Analysis of the research showed that the technologies currently being developed for the joint processing of starch-containing and secondary food raw materials by thermoplastic extrusion make it possible to produce safe, biologically valuable, high-quality snack products.

KEY WORDS: extrusion, secondary raw materials, snacks, resource conservation, product quality, nutritional value.

The main goal of the food policy of our country is to ensure the quality of food products as the most important component of strengthening the health of the population.

Thus, the development of new generation products, such as snacks, with specified quality characteristics that ensure the prevention of the most common non-communicable diseases is a priority task [1,2,3,4]. In recent years, due to the complex processing of raw materials and the development of modern processing methods, food products of a complete composition have been obtained, which have increased nutritional value, improved organoleptic and physicochemical indicators, which are achieved by enriching the recipes with valuable substances from by-products of processing industries [5,6,7]. As a result of technological processes in the food and processing industries, a wide range of by-products is formed in the amount of 138 thousand tons per year. However, more than 70% of the volume of secondary raw materials is used in animal husbandry for feed goals. Such irrational use of secondary raw materials leads to the exclusion of biologically valuable and cheap raw materials from the field of view of food producers. Recycling of such waste for the needs of the food industry ensures the expansion of the raw material base of the agro-industrial complex while reducing production costs [8,9,10]. In terms of chemical composition, by-products of processing contain a small amount of fats and sugars and consist almost entirely of proteins and dietary fiber. Thus, by-products of processing are advisable to use in the development of functional products, the priority development of which is noted in the plan [11,12,13,14] until 2030. Disposal of food production waste requires solving a set of technological problems, among which the defining task is the creation of an energy-efficient and environmentally friendly technology for the comprehensive processing of waste from food and processing enterprises, the quality of the final product of which will not be inferior to the quality of a similar product from primary raw materials. One of the most technologically advanced and in-demand combined methods of processing secondary raw materials in recent years is extrusion. Extrusion technology allows processing starch-containing and protein-containing food raw materials, as well as their mixture, to create a large number of products with different sizes, shapes, textures and tastes [15,16,17,18]. Over the past ten years, there has been a steady increase in demand for fast food products, including snacks. Thus, in the conditions of a snack "on the go", it is possible to replenish

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the physiological needs of the body for nutrients with snack products of a balanced composition. In modern industrial production of snacks, extrusion plays a particularly important role. During the extrusion process, thermal and shear energies are applied to the raw material, causing structural and chemical changes, changes in the biological value of the product, such as gelatinization and destruction of starch, denaturation of proteins, oxidation of fats, destruction vitamins, antioxidants, phytochemicals, formation of flavors, increase in mineral bioavailability and solubility of dietary fiber. Extruded snack products, as new generation products, are today one of the most promising options for improving their composition due to by-products of processing industries. Currently, a number of studies have already been conducted [19,20,21,22] aimed at developing snack extrudates, the composition of which was improved by adding by-products of processing industries to the recipes, confirming the prospects and relevance of this direction. Thus, V. Stojceska, P. Ainsworth and others enriched a mixture based on rice flour with dietary fiber and proteins using by-products from cauliflower to obtain ready-made expanded snacks. The researchers found that the addition of cauliflower cake significantly increases the levels of dietary fiber and protein [23,24]. The extrusion of a mixture of rice flour with cake of vegetable processing industries is also devoted to a study [25,26]. K. Navneet, B.C. Sarkar, and H.K. Sharma developed rice flour-based snacks fortified with dehydrated carrot cake and a powdered legume mixture. In a study by V.V. Vanshin et al., expanded corn grits extrudates were enriched with dietary fiber using carrot and pumpkin pulp. It was found that dough moisture content of 16% and pulp mass fraction of 15% allow obtaining snack products with a high degree of swelling, crispy consistency, developed porosity with a pronounced taste and aroma. The sticks were characterized by a regular shape and bright yellow color [27,28,29]. S. Yagci and F. Gogus developed an extruded snack product based on partially defatted hazelnut flour, fruit waste, and wholemeal flour in combination with rice grain. Increasing the content of partially defatted hazelnut flour resulted in an increase in bulk density and water solubility index, but a decrease in porosity and water absorption index of extruded snacks [30,31,32]. Z.D. Shoar, A.K. Hardacre and C.S. Brennan substantiated the improvement of the nutritional properties of starch extruded snack products by adding tomato pulp to the recipe by increasing the level of lycopene and dietary fiber in the finished product. The authors found that lycopene retention was higher in products containing tomato skin powder [33,34]. The possibility of producing an extruded product based on corn mixed with apple pulp was studied by E.L. Karkle et al. They found that hydration up to 17.2% by adding water to the extruder preconditioner was a key factor in determining the microstructure of the extruded snack, its texture and increasing digestibility [35,36]. The study noted that the use of by-products of fish processing and sugar production as a source of protein and dietary fiber can significantly increase the biological value of extruded potato snacks without a significant increase in the cost of the finished product. In the course of the study [37,38], V.I. Stepanov et al. developed snacks from the "Grain Assortment" mixture containing 25% carrot pulp. The authors modernized a standard extruder, which allowed them to obtain a finished food concentrate enriched with dietary fiber and vitamins, with a standard moisture content of 8%, when processing a high-moisture recipe mixture. A. Paul, P. Andrew et al. studied the effect of adding spent brewing malt to ready-to-eat extruded snacks. They found that adding spent malt significantly increases the content of protein, phytic acid and bulk density of snacks, while reducing the expansion index, individual and total cell area [39,40]. In a study by F. Robin, C. Dubois and others, wheat was supplemented with wheat bran

to achieve dietary fiber levels of 12.6% and 22.4%. Increasing the bran concentration decreased sectional and volumetric expansions and increased longitudinal expansion [41,42]. Recently, there has been increased interest in the processing of substandard bread by thermoplastic extrusion. Thus, in the study by V.V. Vashin, E.A. Vashina and A.V. Erkaev, the possibility of processing by-products of bakery and cereal production (substandard bread and millet flour) into breadsticks by means of extrusion was proven. The scientists established that the optimal ratio of bread crumbs and millet flour in the recipe mixture is considered to be 70:30 [43].

In the work by V.P. Popov and S.P. Vasilevskaya, a method for the joint processing of substandard bread and wine pomace for the production of semi-finished dry breakfast products and crackers that require further frying in oil was proposed. The authors established that with a content of 0-6% wine pomace to the weight of the recipe mixture, an intensification of the extrusion process and an improvement in the quality of the manufactured products are observed [45]. As a result of the study [44], a technology was developed for the production of air crackers with increased nutritional and biological value obtained by the method of warm extrusion based on flour and cereal grains, bread and wafer crumbs with the addition of baker's yeast. O.V. Abramov developed bread sticks with high nutritional value. The composition of the crispy sticks included crumbs from stale and deformed "Darnitsky" bread and beetroot-molasses powder semi-finished product in the amount of 3-5%, which is distinguished by a high content of pectin and potassium. The obtained extrudates had high energy and nutritional value, were distinguished by good consumer properties and were recommended for everyday nutrition of school-age children [46]. Analysis of the conducted studies [3,7,27] showed that the technologies currently being developed for the joint utilization of waste from the food and processing industries make it possible to produce safe, biologically valuable, high-quality snack products. The technologies tested on the example of the obtained snack products can be further applied to the production of special-purpose products, the distinctive feature of which is maximum adaptation to the physiological needs of certain population groups.

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Insemination benefits of artificial breeding of cattle in the Republic of Karakalpakstan

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Аннотация:

В статье описаны сведения о продуктивном скотоводстве, со сравнительной оценкой по сравнению качественного и количественного покозателей местного и племенного скота. Выбор высокоэффктивных методов исскуственного осеминения коров с использованием современных методов ведущих стран мира по созданию племенного стада крупного рогатога скота.

Annotation:

The article describes information about productive cattle breeding, with a comparative assessment of the qualitative and quantitative indicators of local and pedigree livestock. The choice of highly efficient methods of artificial insemination of cows using modern methods of the leading countries of the world to create a breeding herd of cattle.

Key words: *domestic, purebred, heridity, Simmental, қора ола, Қозоқ оқ бош, Голштеин, chlamydia, brucellosis, trichomoniasis and campylobacteriosis.*

The Decree of the President of the Republic of Uzbekistan No. PF-5696 dated March 28, 2019 "On Measures to Radically Improve the State Administration System in the Field of Veterinary Medicine and Livestock" and Resolution No. PP-4576 dated January 29, 2020 "On Additional Measures to Support the Livestock Sector by the State" serve to develop the livestock sector.

In order to fulfill the tasks set out in these resolutions, pedigree cattle were imported from foreign countries to the Republic of Karakalpakstan in 2020-2021. In 2020, 1,013 heads of Simmental, Kara-Ola, Kazakh White, and Holstein cattle were imported, and in 2021, 189 heads of Simmental, Kara-Ola, Kazakh White, and Holstein cattle were imported. The pedigree cattle imported to the republic are mainly intended for meat and dairy production. Artificial insemination of these pedigree cattle is a type of reproductive technology, in which the sperm of a male animal is removed and placed in the female's reproductive organ at the appropriate time and without the participation of the male animal.

This technology is especially relevant in cattle farms specializing in breeding and dairy farming, creating the basis for a several-fold increase in animal productivity. The semen used for artificial insemination is obtained from bulls with high breeding performance and productivity. For example, the average annual milk yield of local cows is 1000-1500 kg (i.e. 3.5-6 kg per day), while that of purebred cattle is 9000-10000 kg (i.e. 40-45 kg per day). It is the male offspring of cattle of this breed that are most often used for artificial insemination. Artificial insemination allows you to plan the breed and productivity of the herd, since you can get acquainted with

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complete information about the offspring of various breeds and inseminate cows with the necessary semen. At the same time, by selecting and selecting in the herd, you can strengthen the beneficial properties of animals. As a result, it is possible to increase the productivity of cattle, improve herds, increase the production of livestock products and reduce their cost. Also, artificial insemination can prevent a number of infectious, non-infectious and parasitic diseases in animals, since some sexually transmitted diseases cause infertility in cows in the long term, causing great economic damage to the animal owner.

When using artificial insemination, there is no need to keep bulls of low breed and productivity, and they can be fattened and sold in a timely manner, while it becomes possible to use feed efficiently. If with natural insemination 40-80 calves are obtained from one bull per year, with artificial insemination 15-20 thousand calves can be obtained. Calves obtained by artificial insemination have advantages over calves obtained by natural methods in terms of rapid growth and resistance to diseases. Therefore, great attention is paid to artificial insemination in the Republic of Karakalpakstan. Almost all farms and veterinary and livestock development departments have artificial insemination stations equipped with frozen semen, insemination equipment and tools. The effective use of artificial insemination in cattle farms in the Republic of Karakalpakstan will lead to improved breeding performance of cattle and will allow for the further development of artificial insemination work.

❖ **Advantages of artificial insemination -** Artificial insemination has the following advantages over natural insemination:

❖ The main one is the ability to deliver the semen of one good bull to several farms. Usually, in natural methods, one bull serves only one farm's cattle.

❖ It is possible to carry out selection work on a large scale.

❖ The spread of infectious diseases such as chlamydia, brucellosis, trichomoniasis and campylobacteriosis is prevented.

❖ Through artificial insemination, thousands of purebred calves can be obtained from a purebred bull, while in the natural method, a local bull is able to sire only 50-60 cows per year, and the productivity of its offspring is lower than that of purebred calves.

❖ In livestock farms, it is not necessary to keep bulls to sire cows, because there are many worries associated with keeping a bull: buying feed, paying a salary to a breeder, trauma to other animals, etc.

❖ Livestock farms that use live bulls face the problem of finding and purchasing a new bull every two years, otherwise inbreeding (sexual mating of closely related animals) may increase on the farm.

❖ With artificial insemination, they could only choose the right bull from the list of the semen supplier.

❖ Cattle obtained through artificial insemination are distinguished by faster weight gain, growth, increased milk and meat productivity, and a large difference in their price when sold live on the market compared to cattle obtained through natural insemination.

❖ Through artificial insemination, highly productive and local animals that are thousands of kilometers apart can be easily mated.

❖ If the requirements of semen storage technology are not violated, it is possible to use even bull semen that has long passed away.

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❖ In private, personal and livestock farms, it is possible to use several bull semen to create diversity within a breed.

Analysis of advantages of local and bred cattle in the conditions of the Republic of Karakalpakstan.

1-table

№	Large horned cattle group	Local bulls			Breeding bulls		
		age	Live weight (кг)	Trade price (млн сум)	age	Live weight (кг)	Trade price (млн сум)
1	Dairy cows	5-7	210-240	10,71-12,24	5-7	450-500	27,7-30,9
2	Bulls	3	180-250	9,18-12,75	3	550-650	34,0-40,2
3	2 year old heifer	2,5	120-150	6,12-7,65	2,5	300-350	18,6-21,7
4	Heifer up to 2 years old	2,0	80-100	4,08-5,1	2,0	160-200	9,9-12,4
5.	Male body up to 1 year old	2,0	70-90	3,57-4,59	2,0	180-200	8,0-12,4
6	6 months old	6 ой	40-60	2,04-3,06	6- ой	90-130	5,6-8,4

Based on the results of artificial inbreeding, we witnessed that the following indicators were achieved when comparing the live weight and meat products of imported cattle from foreign countries to the live weight and meat products of local cattle..

Domestic dairy cows weigh 210-240 kg at the age of 5-7 years. The market price is 10.71-12.24 million soums. Breeding cows weigh 450-500 kg at 5-7 years of age. externalizes The price when sold in the market is on average 27.7-30.9 million soums.

The live weight of a local bull at the age of 3 is 180-250 kg. When sold in the market, the price is 9.18-12.75 million soums. At the age of 3 years, the weight of a purebred bull is 550-650 kg. externalizes The price when sold on the market is on average 34.0-40.2 million soums.

A local 2-year-old heifer is 2.5 years old, live weight 120-150 kg, the market price is 6.12-7.65 million soums. The live weight of a 2-year-old heifer is 300-350 kg, the market price is 18.6-21.7 million soums.

Local heifers up to 2 years old are 2.0 years old, live weight 80-100 kg, and the market price is 4.08-5.1 million soums. Pedigree heifers up to 2 years old are 160-200 kg, and the market price is 9.9-12.4 million soums.

Local male cattle up to 1 year old, live weight 70-90 kg, and the market price is 3.57-4.59 million soums. Pedigree heifers up to 1 year old are 180-200 kg, and the market price is 8.0-12.4 million soums.

A local 6-month-old male calf has a live weight of 40-60 kg and a market price of 2.04-3.06 million soums. A 6-month-old pedigree heifer has a live weight of 180-200 kg and a market price of 5.6-8.4 million soums.

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Compared to domestically bred cattle, the rapid growth of the organism, high live weight and productivity, and a large difference in market prices provide an economically effective result for the farm.

Artificial insemination methods - The technique of artificial insemination in cows is based on the peculiarities of the reproductive system of domestic cattle: they are a type of animal in which the semen is placed in the vagina.

That is, during natural insemination, the bull releases its semen into the cow's vagina, while in even-toed animals: horses, donkeys and zebras, the semen is placed directly into the uterus. Therefore, in previous methods of artificial insemination, the semen was placed in the vagina, as in natural conditions. This method only fulfills the function of replacing a live bull (bull semen is consumed more), but the task of using bull semen more efficiently is not realized. Because when placed in the vagina, the level of fertility of the semen is low and a large amount is required. The visocervical method of artificial insemination, that is, using a vaginal mirror, is easy to use, but its technological and sanitary-hygienic requirements are so complex that it is difficult to perform this method correctly. This method has been replaced by the rectocervical method.

In the rectocervical method, a disposable sterile sheath is the only device that touches the inner walls of the cow's reproductive organs, eliminating the risk of foreign harmful substances entering these delicate organs and ensuring the safe implementation of the artificial insemination process. This method should be performed slowly and gently.

The cow should not startle or jump from external influences, and since the uterine body is short, the syringe should not be inserted with excessive force, otherwise the catheter may pierce the uterine wall. A syringe-catheter covered with a disposable sheath is inserted into the cervix, and at this time the cervix is held with the other hand inserted through the rectum. The rectocervical method is more difficult to learn than the visocervical and monocervical methods, but this method is distinguished from other methods by its advantages**.**

Conclusion

The above methods were analyzed for the implementation of artificial insemination of cows. Of the methods listed, we considered the rectocervical and monocervical methods to be the most effective and give the best results in practice.

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EXPLORING THE IMPACT OF CROWNING AND MODIFICATIONS IN SPIRAL, PRESSURE AND TORSION ANGLES OF TEETH

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Abstract. Bevel gears are essential components in mechanical systems that require precise motion transmission and load distribution. However, under heavy loads, these gears can suffer from deformations and localized contact pressures that negatively affect their performance and longevity. This paper investigates the effect of crowning modifications on bevel gear teeth, particularly in relation to profile and flank adjustments, as well as changes in the spiral, pressure, and torsion angles. By examining these modifications, the study aims to improve the contact distribution, reduce localized stresses, and enhance the overall performance of bevel gears under load.

Аннотация. Конические зубчатые колеса являются важными компонентами в механических системах, которые требуют точной передачи движения и распределения нагрузки. Однако под тяжелыми нагрузками эти колеса могут подвергаться деформациям и локализованным контактным давлениям, что негативно влияет на их эксплуатационные характеристики и долговечность. В данной статье исследуется влияние модификаций профиля и фланцев на зубья конических колес, а также изменения углов спирали, давления и кручения. Изучив эти модификации, работа направлена на улучшение распределения контакта, уменьшение локализованных напряжений и повышение общей эффективности работы конических колес при нагрузке.

Keywords. Crowning, bevel gears, profile modifications, flank modifications, spiral angle, pressure angle, torsion angle, load distribution, contact pressures, gear performance.

Ключевые слова. Модификация профиля, конические зубчатые колеса, модификация фланцев, угол спирали, угол давления, угол кручения, распределение нагрузки, контактные давления.

Introduction. Bevel gears are widely used in mechanical systems for transferring rotational motion between intersecting shafts. However, bevel gears often face challenges related to load-induced deformations, which can lead to premature wear and efficiency loss. To mitigate these issues, engineers apply various corrective modifications to the gear teeth, such as crowning, to optimize their performance.

Crowning is a crucial modification that adjusts the tooth profile or flank to compensate for load-induced deformations and to control contact pressures between the pinion and the crown. Additionally, modifying the spiral, pressure, and torsion angles of the teeth plays a significant role in the effective distribution of forces and ensuring proper engagement. This paper explores the impact of these modifications on the geometry and performance of bevel gears.

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Materials and Methods. **The study utilizes theoretical models and computational simulations to evaluate the impact of crowning and angle modifications on bevel gear performance. The modifications considered in this study include:**

- **Profile Crowning:** Modification of the tooth profile to compensate for deformations caused by load.
- **Flank Crowning:** Adjustment of the tooth flank to localize the contact area and reduce edge contact.
- **Spiral Angle Modification:** Adjustment of the spiral angle to optimize the engagement and distribution of forces.
- **Pressure Angle Modification:** Modification of the pressure angle to ensure smooth contact and load distribution.
- **Torsion Angle Modification:** Adjustments to the torsion angle to enhance gear stiffness under load.

These modifications are implemented through theoretical calculations and finite element analysis (FEA) to model the effects of load and deformation on the gears.

Results. Crowning Modifications. Crowning modifications play a critical role in reducing localized contact pressures and improving the load distribution between the pinion and the crown. The profile crowning compensates for the flexing of the teeth under load by adjusting the theoretical tooth profile. As shown in Figure 1 a, b, the profile crowning focuses on concentrating the contact area at the center of the teeth, minimizing premature wear at the tip of the pinion tooth.

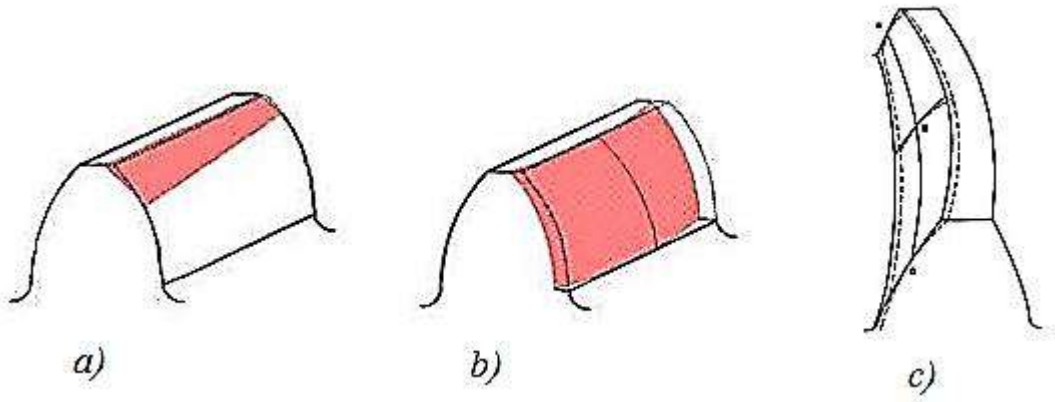

Figure 1. Profile modification

Similarly, flank crowning ensures that the contact area remains concentrated in the central region of the tooth, avoiding excessive stress at the tip or heel. The modifications also prevent edge contact, which can lead to wear and efficiency loss. Figure 1b illustrates the changes in tooth flank geometry due to flank crowning.

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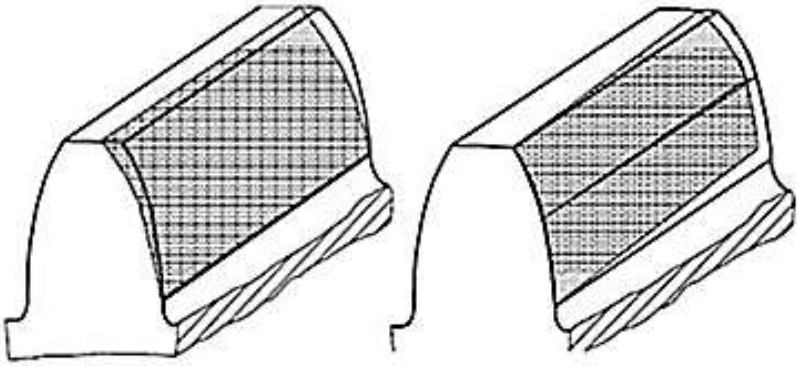
Spiral, Pressure, and Torsion Angle Modifications. ***The study also considers modifications to the spiral, pressure, and torsion angles. These angles significantly affect the meshing behavior and load distribution between bevel gears. The spiral angle modification, as***



shown in Figure 2, optimizes the gear's engagement and ensures smooth force transmission. By adjusting the spiral angle, the forces are distributed more evenly, reducing localized pressure points that could otherwise lead to gear failure.

Figure 2. Changes in the pressure and spiral angles

Similarly, modifying the pressure angle helps distribute the forces more effectively along the tooth profile. This modification reduces the risk of high localized contact pressures and minimizes wear. The torsion angle modification, although less commonly applied, provides additional stiffness to the gear teeth, preventing excessive deformation under heavy loads.

Discussion. **The results of this study highlight the importance of crowning and angle modifications in improving the performance of bevel gears. Profile crowning compensates for tooth flexing and helps maintain consistent contact during operation. Flank crowning ensures that the central region of the tooth carries the load, reducing the risk of edge contact and wear.**

Modifications to the spiral, pressure, and torsion angles also contribute to improved load distribution and smoother engagement of the gear teeth. These changes prevent localized contact stresses and help extend the service life of bevel gears. However, it is crucial to strike a balance between the extent of the modifications and the potential for increased curvature at the tooth flanks, which could lead to higher contact pressures if overdone.

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Conclusion. In conclusion, crowning modifications and adjustments to the spiral, pressure, and torsion angles of bevel gear teeth are essential for optimizing their performance under load. By carefully implementing these modifications, engineers can improve load distribution, reduce localized contact pressures, and enhance the overall durability and efficiency of bevel gears. Future research should focus on experimental validation of these modifications and further optimization techniques to ensure the reliability of bevel gears in high-load applications.

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VIEWS ON EDUCATION IN THE TIMES OF ABU NASR FARABI

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ABSTRACT

Abu Nasr al-Farabi, a renowned philosopher and thinker of his time, placed great emphasis on education and upbringing. He regarded knowledge as the cornerstone of societal development and highlighted the importance of moral values in shaping individuals. According to al-Farabi, education and upbringing serve as tools for holistic personal development. This article examines al-Farabi's perspectives on education and upbringing, highlighting their relevance to contemporary pedagogy.

Keywords: Abu Nasr Al-Farabi, Islamic philosopher, Education and upbringing, Philosophy and enlightenment, Knowledge and ethics, Human perfection, Spiritual education, Society and education, Reason and wisdom, Farabi's legacy, Eastern thinkers, Purpose of education, Moral values, Farabi and Aristotle, Development of science

АННОТАЦИЯ

Абу Наср Фараби, выдающийся философ и мыслитель своего времени, уделял особое внимание вопросам образования и воспитания. Он рассматривал знания как основу развития общества и придавал большое значение моральным нормам в формировании личности. По мнению Фараби, образование и воспитание служат инструментом всестороннего развития личности. В статье анализируются взгляды Фараби на образование и воспитание, а также их значение для современной педагогики.

Ключевые слова: Абу Наср Фараби, Исламский мыслитель, Образование и воспитание, Философия и просвещение, Знание и этика, Совершенствование человека, Духовное воспитание, Общество и образование, Разум и мудрость, Наследие Фараби, Восточные мыслители, Цель образования, Моральные ценности, Фараби и Аристотель, Развитие науки.

ANNOTATSIYA

Abu Nasr Forobiy o‘z davrining mashhur faylasufi va mutafakkiri bo‘lib, ta'lim va tarbiya masalalariga alohida e’tibor qaratgan. U jamiyatni rivojlantirishda bilimning asosiy o‘rni haqida fikr yuritgan va inson tarbiyasida axloqiy me’yorlarni muhim deb bilgan. Forobiy fikriga ko‘ra, ta'lim va tarbiya shaxsni har tomonlama kamolga yetkazish vositasi sifatida xizmat qiladi. Ushbu maqolada Forobiyning ta’lim-tarbiya sohasidagi qarashlari tahlil qilinib, ularning hozirgi zamon pedagogikasi uchun ahamiyati yoritilgan.

Kalit so’zlar: Abu Nasr Forobiy, Islom olimi, Ta’lim va tarbiya, Falsafa va ma’rifat, Bilim va axloq, Inson kamoloti, Ma’naviy tarbiya, Jamiyat va ta’lim, Aql va donishmandlik, Forobiy merosi, Sharq mutafakkirlari, Ta’limning maqsadi, Axloqiy qadriyatlar, Forobiy va Aristotel, Ilm-fan rivoji.

Abu Nasr Forobiy zamonida ta’lim va tarbiyaga qarashlar

Abu Nasr Forobiy (873–950) – buyuk musulmon olimi, faylasuf, musiqashunos va pedagog – o‘z davrida ta’lim va tarbiya sohasiga katta hissa qo‘shgan shaxsdir. U Sharq

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madaniyati va ilm-fanining rivojida beqiyos o‘rin egallab, “Ikkinchi muallim” (ya’ni Aristoteldan keyingi eng buyuk o‘qituvchi) sifatida tanilgan. Forobiyning ta’lim-tarbiya borasidagi qarashlari uning falsafiy va ilmiy asarlarida, xususan, “Fozil odamlar shahri” (“Al-Madina al-fazila”), “Aql ma’nolari haqida” va boshqa asarlarida aks etgan.

Ta’lim va tarbiyaning mohiyati

Forobiyning fikricha, ta’lim va tarbiya jamiyatni rivojlantirishning asosiy vositasi bo‘lib, har bir insonning intellektual va ma’naviy barkamollikka erishishi uchun xizmat qiladi. U ta’limni ikki asosiy qismga bo‘ladi:

1. Nazariy bilimlar – insonning aqliy salohiyatini rivojlantirishga yo‘naltirilgan bilimlar, jumladan, falsafa, matematika va tabiiy fanlar.

2. Amaliy bilimlar – axloqiy qadriyatlar va kundalik hayotda zarur bo‘lgan ko‘nikmalar.

Forobiy nazarida, ta’lim shaxsni faqat bilim olish bilan chegaralanmaydi, balki uni odob-axloq, insonparvarlik va jamiyat oldidagi mas’uliyatni tushunishga o‘rgatishi kerak. Bu esa ta’lim va tarbiyaning bir-biridan ajralmas ekanini ko‘rsatadi.

Ta’limning maqsadi

Forobiy ta’limning asosiy maqsadi sifatida insonning “fozil shaxs”ga aylanishini ko‘radi. Fozil shaxs – bu nafaqat ilmli, balki axloqan pok, odobli va o‘z qobiliyatlarini jamiyat manfaatlariga yo‘naltira oladigan insondir. Forobiy jamiyatning farovonligi ana shunday fozil shaxslarning yetishib chiqishiga bog‘liq deb hisoblaydi.

Axloq va tarbiyaning o‘rni

Forobiy axloqni inson tarbiyasining poydevori sifatida ko‘radi. Uning fikricha, yaxshi axloq – insonning ichki qobiliyatlari va tashqi muhit o‘rtasidagi uyg‘unlikning natijasidir. Forobiy bu borada quyidagilarni ta’kidlaydi:

1.Axloqiy tarbiya insonni oila, jamiyat va davlatga munosib shaxs qilib tarbiyalashda hal qiluvchi ahamiyatga ega.

2.Axloqiy qadriyatlar nafaqat o‘qituvchi va murabbiylar tomonidan, balki jamiyatning barcha a’zolari tomonidan targ‘ib qilinishi kerak.

Fozil jamiyat konsepsiyasi

Forobiy “Fozil odamlar shahri” asarida fozil jamiyatni ta’riflab, unda ta’lim va tarbiyaning muhimligini alohida ta’kidlaydi. Uning fikricha, fozil jamiyat quyidagi tamoyillar asosida shakllanadi:

1. Adolat – barcha a’zolar uchun teng huquq va imkoniyatlarning ta’minlanishi.
2. Ilm-ma’rifatga intilish – jamiyat a’zolarining ilm olishga bo‘lgan qiziqishini qo‘llab-quvvatlash.
3. Axloqiy barkamollik – har bir fuqaroning ma’naviy-axloqiy jihatdan yetuk bo‘lishi.

Forobiy nazarida, fozil jamiyatni boshqaruvchi shaxs (fozil rahbar) chuqur bilimga ega, axloqiy jihatdan pok va insonlarni tarbiyalashda yetakchi rol o‘ynaydigan inson bo‘lishi kerak.

Ta’lim-tarbiyaning metodlari

Forobiy ta’lim jarayonida quyidagi metodlarni muhim deb hisoblaydi:

- Mantiq va mulohaza qilish – o‘quvchilarni mustaqil fikrlash va muammolarni hal qilishga o‘rgatish.
- Dialog – savol-javob orqali bilimlarni oshirish.
- Amaliy mashqlar – nazariy bilimlarni amaliyotda qo‘llash orqali mustahkamlash.

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Abu Nasr Forobiy va uning ta'lim-tarbiyaga qarashlari

Abu Nasr Forobiy (Γσλαν ἀραβικός; 870–949) – mashhur musulmon faylasufi, matematik, musiqa nazariyotchisi va pedagog bo'lib, u Sharq falsafasi va ilm-fanining rivojlanishiga ulkan hissa qo'shgan shaxslardan biridir. U ta'lim-tarbiya, axloq va jamiyat haqidagi qarashlari bilan keng tanilgan. Forobiy asarlarida insonni kamolotga yetkazuvchi bilim va ma'naviyatning ahamiyati asosiy mavzulardan biri sifatida tilga olinadi.

Ta'lim-tarbiya haqidagi qarashlari

Forobiy ta'lim va tarbiyani bir-biri bilan uzviy bog'liq jarayon deb hisoblagan. Uning fikricha, inson faqat ta'lim olish bilangina emas, balki tarbiya orqali ham barkamol shaxsga aylanishi mumkin. U jamiyatni rivojlantirish va farovon qilish uchun bilim va ma'rifatga ega bo'lgan odamlarning zarurligini ta'kidlagan.

Forobiyning asosiy g'oyalari quyidagicha umumlashtirilishi mumkin:

1. Bilim va axloqning uyg'unligi: Forobiy ta'limning asosiy maqsadi shaxsning ma'naviy va axloqiy barkamollikka erishishini ta'minlashdan iborat ekanini aytadi. Uningcha, bilim insonni ezgulikka undaydi va bu orqali jamiyatni yaxshilaydi.
2. Ta'limda amaliyot va nazariyaning muvozanati: Forobiy ta'lim jarayonida nazariy bilimlarni amaliy faoliyat bilan birgalikda rivojlantirish kerakligini ta'kidlagan. Bu shaxsning amaliy hayotga tayyorlanishiga yordam beradi.
3. Yaxshi jamiyat konsepsiyasi: Forobiy o'zining "Fozil odamlar shahri" (مدينة الفاضلة) asarida ta'limning jamiyatni rivojlantirishdagi o'rnini ko'rsatib bergan. Uning fikricha, yaxshi jamiyat faqat ma'rifatli, odobli va axloqli fuqarolar orqali shakllanishi mumkin.
4. Ta'limning uzluksizligi: Forobiy bilim olish jarayoni uzluksiz bo'lishi kerakligini aytadi. Bu jarayon nafaqat bolalik yoki yoshlik davriga, balki hayotning barcha bosqichlariga tegishlidir.
5. O'qituvchi va shogird munosabatlari: Forobiy o'qituvchini oliyjanob shaxs sifatida tasvirlab, uning shogirdlar bilan bo'lgan munosabatlarida mehribon va adolatli bo'lishi kerakligini ta'kidlagan.

Forobiyning ta'lim-tarbiya sohasidagi asarlari

Forobiy turli fanlarga oid ko'plab asarlar yozib qoldirgan. Uning "Fozil odamlar shahri", "Ilmlarning kelib chiqishi", "Baxtga erishish haqida" kabi asarlari ta'lim va tarbiya masalalariga bag'ishlangan. Bu asarlarda u insonning baxtli hayot kechirishi uchun zarur bo'lgan bilim va tarbiya prinsiplari haqida so'laydi.

Forobiy qarashlarining zamonaviy ahamiyati

Bugungi kunda Forobiyning ta'lim-tarbiya haqidagi qarashlari o'z dolzarbligini yo'qotmagan. Ta'limning inson hayoti va jamiyat rivojlanishidagi o'rni borasidagi g'oyalari XXI asr pedagogikasida ham qo'llaniladi. Forobiyning bilim va ma'rifatga asoslangan jamiyat qurish haqidagi g'oyalari globallashuv sharoitida yanada muhimdir.

Forobiyning qarashlarini o'rganish orqali biz zamonaviy ta'lim-tarbiya jarayonlarini boyitishimiz va yanada samarali tizimlar yaratishimiz mumkin.

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SPECIFIC FEATURES OF ENSURING FOOD SAFETY IN THE REPUBLIC OF UZBEKISTAN

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ANNOTATION

The assessment of the current food safety system in Uzbekistan begins with a comprehensive review of existing policies, laws, and regulations that govern food safety practices. This includes analyzing the legal framework for food safety, quality standards, inspection protocols, and traceability systems to ensure that food products are safe from production to consumption.

Key words: hygiene standards, retailers, food safety, microorganisms, WHO, FAO, EU.

Identifying the key stakeholders in the food safety system is essential for understanding the roles and responsibilities of those involved in ensuring food safety across various stages of the food supply chain. Government agencies such as the Ministry of Health, the State Sanitary and Epidemiological Service, and the Ministry of Agriculture are responsible for creating and enforcing food safety laws and regulations. Food producers, including farmers, livestock breeders, and food manufacturers, play a central role in adhering to safety standards during production. Retailers, distributors, and exporters also contribute by maintaining proper storage and handling procedures. Consumers must be educated about food safety practices to minimize risks associated with improper handling and consumption. Understanding how these stakeholders interact and coordinate with each other is vital for strengthening the overall food safety system in Uzbekistan.

Strengthening the regulatory frameworks and legislation surrounding food safety in Uzbekistan is essential to ensure the health and well-being of the population. One of the first steps in this process is harmonizing national food safety laws and regulations with international standards, such as those set by the Codex Alimentarius. The Codex Alimentarius provides globally recognized food safety and quality standards that help protect consumer health and ensure fair practices in food trade. By aligning local laws with these international norms, Uzbekistan can enhance food safety practices, promote public health, and facilitate trade with international markets. This alignment should encompass aspects like food labeling, contamination limits, food additives, pesticide residues, and hygiene standards.

In addition to aligning with international standards, it is critical to strengthen the enforcement of food safety regulations. This involves improving the capacity of government agencies responsible for monitoring and inspecting food safety across the entire food supply chain, from producers to retailers. These agencies should be equipped with the necessary resources, trained personnel, and technologies to conduct thorough and effective inspections. Enhanced enforcement will ensure that food safety standards are followed and that violations, such as the use of harmful chemicals or unsanitary practices in food production, are promptly addressed. Moreover, stricter penalties for non-compliance will act as a deterrent, encouraging food producers, processors, and distributors to adhere to safety regulations.

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Additionally, mandatory food safety audits should be introduced for food production facilities, food processors, and importers. These audits would be designed to assess whether businesses are following the required food safety standards and protocols. Audits would include reviews of production processes, storage conditions, hygiene practices, and record-keeping for traceability purposes. Regular and thorough audits will ensure ongoing compliance with safety regulations, identify areas for improvement, and prevent potential hazards from reaching consumers. By making food safety audits a standard requirement, Uzbekistan can further mitigate the risks associated with unsafe food products and maintain high levels of consumer confidence in the food supply system.

Improving food safety infrastructure is a crucial step in ensuring the health and well-being of the population, as well as fostering consumer confidence in the food supply. One of the primary areas of focus should be the enhancement of inspection and monitoring systems. Modernizing food safety monitoring infrastructure involves investing in advanced technologies and laboratory facilities that are capable of effectively testing food products for contaminants, pathogens, and other safety hazards. This includes setting up high-standard laboratories for the detection of harmful substances such as pesticides, heavy metals, and microorganisms that can cause foodborne illnesses. With improved facilities, authorities will be better equipped to identify unsafe products before they reach consumers, ensuring that only safe food enters the market.

In addition, upgrading food storage facilities is essential to reducing contamination risks and enhancing food safety standards. Modernizing storage facilities involves implementing advanced technologies that control temperature, humidity, and cleanliness to create an optimal environment for food storage. Improved storage conditions will not only help prevent spoilage but also reduce the likelihood of contamination from pests, bacteria, or chemicals. Upgraded facilities will also enhance the overall efficiency of the food storage process, ensuring that food remains safe, fresh, and of high quality until it reaches consumers. By modernizing both storage facilities and the broader food safety infrastructure, Uzbekistan can establish a more resilient and reliable food safety system that meets international standards and protects public health.

Training and capacity building are essential components of strengthening food safety in Uzbekistan. A key element in this process is the development and implementation of training programs for food producers and workers throughout the supply chain. These programs should target farmers, food processors, distributors, and retailers, educating them on best practices for food safety, hygiene, and the safe use of pesticides and other chemicals. By equipping workers with the knowledge and skills needed to follow safe food handling and processing techniques, the risk of contamination and foodborne diseases can be significantly reduced. The training should cover a wide range of topics, including proper sanitation, the importance of temperature control, safe pesticide use, and the principles of food safety in both production and distribution environments. Such initiatives can contribute to creating a culture of food safety among all stakeholders involved in food production and handling.

Another important element in building a robust food safety system is the professional development of skilled individuals in the field of food safety management. Encouraging the development of qualified professionals who specialize in food safety, quality assurance, and risk management can help ensure that food safety standards are maintained and continually improved. Offering certifications and specialized training programs will provide workers with the expertise

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they need to identify risks, implement safety protocols, and manage food safety systems effectively. Moreover, fostering a network of food safety professionals will create a pool of expertise that can support the food industry in adhering to both national and international standards. Such efforts to improve the skills and knowledge of the workforce are essential for enhancing food safety at all levels of the food supply chain.

Improving irrigation practices is another important aspect of ensuring food safety. Water is a vital resource for agricultural production, and the quality of irrigation water directly impacts the safety of crops. It is essential to promote safe and efficient irrigation techniques that prevent contamination of water sources. Implementing practices like proper drainage systems, maintaining water quality, and using clean water for irrigation will ensure that food grown using irrigated water remains safe and free from harmful contaminants. Additionally, educating farmers on the proper management of water resources will help prevent overuse and safeguard water quality for both agricultural and domestic purposes.

Additionally, providing consumers with easy access to information is another critical step in strengthening consumer protection. Establishing platforms—whether through websites, mobile applications, or other public channels—will allow consumers to access information about food safety practices, certification standards, and any potential food recalls. These platforms should be user-friendly and regularly updated to provide real-time data on the safety of food products, helping consumers stay informed about the products they purchase. Information about food safety regulations, certifications, and the status of food recalls will enable consumers to make well-informed decisions and avoid unsafe food items. These platforms could also include educational resources about proper food handling, hygiene, and storage practices to further promote public health.

Collaboration with international organizations is an essential strategy for improving food safety in Uzbekistan. Establishing partnerships with global food safety networks, such as the World Health Organization (WHO), the Food and Agriculture Organization (FAO), and the European Union (EU), will provide valuable opportunities for knowledge exchange and capacity building. These partnerships can help Uzbekistan align its food safety standards with internationally recognized guidelines and best practices. By engaging with these organizations, Uzbekistan can access expertise on the latest food safety technologies, risk management approaches, and regulatory frameworks. Additionally, collaboration with global food safety networks will allow for the sharing of information on emerging foodborne hazards and provide support in addressing food safety challenges, ensuring that Uzbekistan's food safety system remains robust and up to date with global standards.

Participating in regional food safety initiatives is another effective way for Uzbekistan to enhance its food safety measures. By joining regional initiatives in Central Asia, Uzbekistan can collaborate with neighboring countries to strengthen food safety policies, share best practices, and improve the overall safety of food traded within the region. Such regional cooperation can lead to harmonized regulations, facilitating smoother trade and reducing barriers to cross-border food products. Working together, Central Asian countries can collectively address common food safety risks, such as pesticide residues, contamination during transportation, and cross-border outbreaks of foodborne diseases. This cooperation will not only enhance food safety in Uzbekistan but also contribute to the overall improvement of food safety standards across the region, ensuring the safe

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movement of food products and promoting public health. Through international and regional collaboration, Uzbekistan can gain access to new resources, tools, and frameworks that will help build a more effective, sustainable, and responsive food safety system.

Continuous evaluation is equally important for maintaining the effectiveness of food safety systems. Periodic assessments should be conducted to evaluate the performance of food safety regulations, policies, and enforcement mechanisms. These evaluations will help identify strengths and weaknesses in the system, allowing for timely improvements. They will also ensure that food safety standards are aligned with evolving international standards, making it possible for Uzbekistan to adapt to global food safety challenges and technological advances. The findings of such evaluations can guide the revision of food safety protocols, update training programs, and inform the development of new regulations or infrastructure improvements. Continuous evaluation helps maintain a proactive approach to food safety, ensuring that the system remains resilient to new risks and challenges.

Strengthening trade and export food safety standards is critical for ensuring that Uzbekistan's food products meet the requirements of international markets and are competitive on a global scale. To achieve this, Uzbekistan must ensure that its domestic food safety systems align with international standards. By meeting these standards, Uzbek food products can gain access to foreign markets and enhance their competitiveness. This involves revising national regulations, improving food production processes, and ensuring that food safety practices are consistent with those of major export destinations. Adopting international standards, such as those set by the Codex Alimentarius and the World Trade Organization (WTO), will help ensure that Uzbek food products are safe, quality-assured, and trusted by consumers worldwide.

In addition to aligning food safety systems with international standards, Uzbekistan should promote food safety certifications for exporters. Certifications, such as HACCP (Hazard Analysis and Critical Control Points) or ISO 22000, are globally recognized standards for food safety management. Obtaining these certifications demonstrates a commitment to high food safety standards and provides assurance to international buyers that the products meet health and safety requirements. By encouraging food producers and exporters to pursue these certifications, Uzbekistan can improve the marketability of its food products and open up new export opportunities. Certifications also provide a competitive edge by ensuring that food products are produced and processed with the highest regard for consumer health and safety. Promoting these certifications will not only enhance the quality of Uzbek food exports but also foster consumer confidence in the country's food industry, benefiting both domestic producers and international consumers. Ensuring compliance with international food safety standards is crucial for Uzbekistan's competitiveness in global markets. To successfully engage in international trade, Uzbekistan's food safety system must meet the stringent requirements of target export markets. This includes aligning with international standards set by organizations such as the Codex Alimentarius, which establishes food safety guidelines for trade.

CONCLUSION

Certifications for export play a key role in validating the safety and quality of products for international markets. Promoting and obtaining internationally recognized food safety certifications, such as ISO 22000 or Global G.A.P., will provide reassurance to foreign buyers about the safety and quality of Uzbekistan's food products. These certifications will demonstrate

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a commitment to high standards of food safety and help Uzbekistan's products stand out in competitive global markets. By supporting exporters in achieving these certifications, the government can facilitate smoother market access, open new trade opportunities, and improve the overall safety and quality of products entering the global supply chain.

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MODERN TRENDS OF ENSURING SAFETY OF MEDICAL SUPPLY IN THE REPUBLIC OF UZBEKISTAN

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ANNOTATION

This document outlines a comprehensive plan for improving food safety in the Republic of Uzbekistan, focusing on regulatory reforms, infrastructure upgrades, capacity building, and international collaboration. It proposes a phased approach to address food safety challenges, beginning with short-term actions such as reviewing current laws, establishing a National Food Safety Authority, and initiating food safety education programs.

Key words: WHO, FAO, food safety, HACCP, healthcare facilities, foodborne illnesses, pesticides, chemicals, and fertilizers.

The first step in improving food safety in Uzbekistan is conducting a thorough review of existing food safety laws, regulations, and policies. This process will help identify areas where enforcement is weak, where food traceability is insufficient, and where there may be gaps in quality control mechanisms. It is essential to ensure that food safety laws are comprehensive, up-to-date, and reflective of modern risks, such as new foodborne pathogens or emerging supply chain vulnerabilities. An important aspect of food safety is understanding the roles and responsibilities of all key stakeholders involved in the food supply chain. This includes government agencies, food producers, manufacturers, importers, retailers, and consumers. By mapping out these stakeholders, it becomes easier to understand how food safety is currently managed and where there is potential for improved coordination, collaboration, and accountability across the entire food safety ecosystem.

It is critical to conduct regular risk assessments that focus on identifying foodborne diseases, contamination sources, and safety hazards in food production, processing, and distribution. This will help prioritize actions, direct resources towards high-risk areas, and support the development of appropriate intervention strategies. Special attention should be paid to emerging threats, such as new pathogens or changing food safety risks due to climate change or shifting trade patterns.

In order to improve the food safety system, Uzbekistan should work towards aligning its food safety laws with international standards, such as those set by the Codex Alimentarius, the World Health Organization (WHO), and the Food and Agriculture Organization (FAO). This would involve updating regulations to meet global best practices in food quality, hygiene, and safety. Aligning with international standards ensures that Uzbekistan's food products can meet export requirements and enhances the overall safety of the food supply within the country. Strengthening the enforcement of food safety standards is critical to ensuring compliance across the entire food chain. This can be achieved by improving the capacity of regulatory bodies, such as the State Sanitary and Epidemiological Service and Uzbekistan's State Inspectorate for the Protection of Consumer Rights, to conduct regular inspections, enforce rules, and apply penalties where necessary. Building stronger enforcement mechanisms will improve overall adherence to

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food safety standards and reduce violations, particularly among small and medium-sized enterprises.

To enhance the management of food safety, Uzbekistan could establish an independent National Food Safety Authority tasked with overseeing food safety regulations, conducting inspections, and ensuring consistent application of food safety protocols. This independent body could operate alongside existing governmental institutions and work to centralize efforts related to food quality control, inspections, certifications, and policy enforcement. Regular audits should be mandatory for food production facilities, processors, and importers to ensure they comply with food safety standards. These audits will provide an objective assessment of their practices, identify weaknesses, and recommend improvements. The audits should focus on key issues such as hygiene, contamination control, proper labeling, and compliance with food storage requirements. Regular audits will improve accountability and increase confidence in the safety of food products on the market. To better detect potential food safety risks, Uzbekistan should invest in the modernization of its food safety inspection and monitoring infrastructure. This includes upgrading food safety laboratories to improve the ability to test food products for contaminants and pathogens. Additionally, implementing advanced monitoring technologies, such as rapid testing kits and mobile laboratories, will help authorities conduct more effective inspections and respond more quickly to emerging threats.

A robust traceability system will improve transparency across the food supply chain, ensuring that food products can be traced from farm to table. The implementation of modern traceability tools, such as RFID tags and QR codes, will allow consumers and regulators to track the origins of products and monitor safety throughout the entire distribution process. This will also help identify the source of contamination quickly in the event of a foodborne outbreak, enabling faster, more targeted responses and recalls if necessary.

Improving cold chain logistics is essential for maintaining the safety of perishable food products such as fruits, vegetables, dairy, and meat. Investments should be made in temperature-controlled storage and transportation systems, ensuring that products are kept at the correct temperature throughout the supply chain. This includes providing refrigerated transport vehicles, modern cold storage warehouses, and continuous temperature monitoring systems to minimize spoilage and contamination risks.

Modernizing food storage facilities is key to reducing contamination risks and improving food safety standards. These facilities should be designed to meet international safety standards, with features such as proper segregation of food types, adequate ventilation, and systems for monitoring expiration dates. These improvements will help extend the shelf life of products, reduce the risk of contamination, and ensure that only safe products reach consumers. Regular audits and inspections of storage facilities are necessary to ensure ongoing compliance with safety protocols.

By focusing on these key areas — regulatory improvement, infrastructure development, and modern technologies — Uzbekistan can establish a more robust and effective food safety system, ultimately leading to safer food products, a more reliable supply chain, and better protection of public health.

Professional Development Encouraging the development of skilled professionals in food safety management is essential for improving the overall safety standards in the food industry.

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Offering specialized certifications and training programs in food safety, quality assurance, and risk management will ensure that professionals have the expertise to monitor and enforce safety protocols. Additionally, ongoing professional development opportunities should be provided to keep workers up-to-date with the latest safety standards, technological innovations, and regulatory changes in the food industry. Promoting sustainable farming practices is crucial for reducing the negative environmental and health impacts of agriculture. Organic farming methods that minimize the use of harmful pesticides, chemicals, and fertilizers should be encouraged. These practices not only reduce the risk of pesticide residue on food but also protect the ecosystem and improve soil health. Supporting farmers in adopting these practices can lead to healthier food production systems and a more sustainable agricultural sector.

It is essential to establish stricter regulations and monitoring systems for pesticide and chemical use in agriculture. This includes setting clear safety thresholds for chemical residues in food products and ensuring that all pesticides used in the farming process are registered, approved, and applied according to safety guidelines. Regular inspections and testing should be conducted to ensure that producers comply with safety regulations, protecting both consumers and the environment from potential harm caused by improper pesticide use.

Safe and efficient irrigation practices are necessary to prevent contamination of water sources and to ensure the availability of clean water for agricultural purposes. Educating farmers about the importance of using clean water for irrigation, maintaining proper water management systems, and preventing the runoff of pesticides and fertilizers into water bodies will help protect both food safety and the environment. Promoting modern irrigation techniques, such as drip irrigation, can also improve water efficiency and reduce the risk of contamination.

Clear and accurate labeling is a fundamental part of consumer protection. Enforcing labeling laws ensures that food products provide essential information about ingredients, allergens, origin, expiration dates, and proper storage instructions. This transparency allows consumers to make informed choices about the products they purchase, minimizing the risks of allergic reactions or the consumption of expired or improperly stored food. The enforcement of clear labeling practices also encourages producers to adhere to higher safety standards.

Developing a national food recall system is essential for responding quickly to food safety issues, such as contamination, spoilage, or the presence of hazardous ingredients. A well-established complaint and recall system would allow consumers and businesses to report safety concerns and would ensure that contaminated or unsafe products are quickly identified and removed from the market. This system should include clear communication channels, rapid response protocols, and mechanisms for compensating affected consumers. Ensuring that the recall system is efficient and transparent will help maintain consumer confidence in the food safety system. To enhance food safety standards in Uzbekistan, it is essential to establish partnerships with key international organizations like the World Health Organization (WHO), the Food and Agriculture Organization (FAO), and the European Union (EU). These partnerships will enable Uzbekistan to adopt best practices in food safety and gain access to global knowledge and expertise. Through collaboration, Uzbekistan can implement international food safety standards, improve regulatory frameworks, and stay updated on global food safety trends. This will also open avenues for training, knowledge exchange, and technical assistance from these organizations, ultimately strengthening Uzbekistan’s food safety system.

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Uzbekistan should actively participate in regional food safety initiatives within Central Asia. By collaborating with neighboring countries, Uzbekistan can share best practices, address common challenges, and align food safety policies. Regional cooperation can help create a unified approach to food safety that can address cross-border issues such as foodborne diseases, pest management, and product traceability. Joint programs, workshops, and training initiatives will also allow Uzbekistan to leverage the strengths of its regional partners, fostering a collective commitment to improving food safety across Central Asia.

Establishing a robust system for the collection, analysis, and dissemination of food safety data is critical to improving food safety in Uzbekistan. A comprehensive database should be created to track foodborne illnesses, contamination reports, and other critical food safety indicators. This data can be used to monitor trends, identify emerging risks, and prioritize intervention efforts. Regular data collection from a variety of sources, including healthcare facilities, food producers, and distributors, will provide valuable insights into the effectiveness of existing food safety policies and practices.

To enhance Uzbekistan's competitiveness in global markets, it is vital to ensure that food safety systems meet the standards required by international markets, particularly for food exports. This includes adopting international quality control and safety measures that align with the standards of major trading partners. By complying with these requirements, Uzbekistan can access a broader market, improve export opportunities, and ensure that its food products are recognized for their quality and safety. This may involve aligning food safety regulations with international agreements, such as the World Trade Organization (WTO) rules, and meeting the certification requirements of foreign markets.

Promoting food safety certifications for food exporters is another key strategy for ensuring the quality and safety of food products destined for international markets. These certifications, such as ISO 22000 or HACCP (Hazard Analysis and Critical Control Points), serve as proof that the products meet the rigorous health and safety standards of foreign countries. By encouraging food producers to pursue these certifications, Uzbekistan can increase its food exports and improve the reputation of its products globally. Certification also enhances consumer confidence in the safety of Uzbek food exports, fostering trust in international markets and encouraging greater demand for Uzbek goods.

In the short term, the focus will be on laying the foundation for improving food safety in Uzbekistan. This includes conducting an immediate review of existing food safety laws, regulations, and policies to identify gaps and areas for improvement. Based on this review, necessary amendments will be made to align the regulations with international standards. Another critical short-term action is the establishment of the National Food Safety Authority, which will serve as the central body responsible for overseeing food safety regulations, conducting inspections, and implementing food safety protocols.

Conclusion

Uzbekistan will focus on achieving full alignment with international food safety standards, including those set by the Codex Alimentarius and other relevant global organizations. This will involve harmonizing national regulations with international norms, ensuring that Uzbekistan's food safety framework meets or exceeds global requirements. A national food safety inspection system will be fully developed and implemented, allowing for routine inspections and audits across

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the entire food supply chain. Additionally, continuous monitoring and evaluation systems will be established to regularly assess the effectiveness of food safety policies and make necessary adjustments based on new risks or challenges. Over time, the country's food safety policies will evolve to incorporate the latest scientific research, technologies, and best practices from around the world.

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PECULIARITIES OF SUPPLY OF FUEL AND LUBRICANT PRODUCTS IN THE REPUBLIC OF UZBEKISTAN

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ANNOTATION

Fuel types and sources in Uzbekistan play a crucial role in driving the country's energy sector, supporting various industries, and meeting the needs of its growing population. Petrol and diesel are the most widely used fuels, especially in the transport and industrial sectors. These products are essential for vehicles, machinery, and equipment that power daily operations across the country. While Uzbekistan produces some of its own refined fuels, the country still imports significant amounts to meet demand, as domestic refining capacity is somewhat limited. This reliance on both local and imported petrol and diesel underscores the importance of a stable and efficient supply chain to maintain consistency in delivery.

Key words: fuel, natural gas, lubricants, transportation, Uzbekneftegaz, engines, emissions.

Natural gas, on the other hand, is abundant in Uzbekistan due to the country's vast reserves. It is widely used across the nation for heating, electricity generation, and as a fuel for transportation in some sectors. The preference for natural gas is largely driven by its availability, cost-effectiveness, and environmental benefits, as it produces lower carbon emissions compared to other fossil fuels. Domestic consumption remains the focus, with the government prioritizing its use in residential and industrial applications, particularly for power generation. Lubricants are also an essential category of fuel products, utilized in a wide range of industries, including automotive, manufacturing, and machinery. They are crucial for ensuring the smooth operation of engines and mechanical components by reducing friction, wear, and tear. With the growing demand for automobiles, industrial machinery, and agricultural equipment, the need for high-quality lubricants has risen. However, much of the lubricant supply is still imported, with limited local production, leading to a reliance on international markets for both basic and specialized lubricants.

Uzbekneftegaz, the state-owned oil and gas company, is the most significant player in the sector. As a major state enterprise, it is responsible for the extraction, refining, and distribution of fuel products, including natural gas, petrol, and diesel. The company operates a number of refineries and gas processing plants across the country and manages the infrastructure required for fuel storage and transportation. Uzbekneftegaz also plays a central role in meeting domestic energy demand and ensuring the reliability of the fuel supply, particularly in times of seasonal demand fluctuations. Government agencies also hold a pivotal role in regulating and overseeing the fuel and lubricant sector. Ministries such as the Ministry of Energy, Ministry of Finance, and Ministry of Economy are tasked with creating and enforcing policies that govern fuel supply, pricing, and environmental standards. These agencies regulate fuel prices, which are sometimes controlled by the state to ensure affordability for consumers, particularly for key sectors like transportation and agriculture. They also monitor the quality of fuel and lubricants to ensure compliance with environmental and safety regulations. Additionally, the government works to create long-term

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strategies for energy security, developing policies that promote diversification of energy sources and sustainable fuel use. These agencies collaborate with other stakeholders, both public and private, to maintain the stability of the fuel supply system and align it with national economic and environmental goals.

Uzbekistan's energy sector relies heavily on domestic natural gas production, thanks to the country's substantial reserves of this resource. However, when it comes to petroleum products like gasoline and diesel, Uzbekistan faces a significant dependency on imports. The country does have some refining capacity, but it is not sufficient to meet the full demand for refined oil products. As a result, refined fuel products must be imported to fill the gap between domestic production and consumption. This reliance on imported fuels exposes Uzbekistan to fluctuations in global oil prices and shifts in the international supply chain, which can impact fuel availability and cost stability. The government of Uzbekistan plays a key role in regulating fuel prices, aiming to keep them affordable for consumers and businesses. To achieve this, the government occasionally provides subsidies for essential products such as diesel and petrol. These subsidies are intended to shield the public from the volatility of global oil prices and to ensure that fuel remains accessible to key sectors of the economy, such as transportation and agriculture. However, the price regulation system, while beneficial in some respects, can create discrepancies between market prices and the actual supply-demand equilibrium. By artificially keeping prices low, the government may inadvertently discourage efficient fuel use, leading to overconsumption and potential inefficiencies in distribution. In some cases, the pricing system may result in fuel shortages, as the artificially low prices do not reflect the true cost of production, importation, and distribution, making it difficult for suppliers to sustain operations.

Seasonal fluctuations in fuel demand are a significant factor in Uzbekistan's energy landscape. During the winter months, the country experiences a notable increase in fuel consumption due to the heightened need for heating, particularly in residential and industrial sectors. This surge in demand can lead to potential shortages if the supply chain is not adequately prepared to handle the higher consumption levels. The reliance on fuel for heating also places additional pressure on storage facilities and distribution networks, which may struggle to keep up with the increased demand during the colder months.

Technological advancements, particularly in the areas of automation and fuel quality monitoring, are crucial to improving the efficiency of fuel storage and distribution. However, the adoption of modern technologies in Uzbekistan has been slower compared to global standards. Automation systems that can streamline the distribution process and reduce human error are not yet widely implemented. Similarly, more advanced technologies for monitoring fuel quality are not yet in place across all sectors, which limits the country's ability to ensure consistent fuel standards and respond to quality issues in real time. To compete in the global market and meet growing domestic demand, Uzbekistan will need to accelerate the adoption of these technologies and invest in infrastructure improvements that can support modernized fuel supply chains.

The fuel and lubricant supply chain in Uzbekistan faces several challenges that hinder its efficiency and reliability. One of the most significant obstacles is logistical issues, particularly inefficiencies in the transportation and distribution infrastructure. The network of pipelines, railways, and roads that facilitate the movement of fuel is not as developed as it needs to be, which creates bottlenecks and delays in getting fuel from production sites to consumers. Limited

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pipelines and underdeveloped railways make it difficult to transport large quantities of fuel quickly and reliably across the country. This problem is exacerbated in rural and remote areas, where access to fuel supply networks is more limited. These regions often experience inconsistent fuel deliveries, leading to shortages or delays, especially during periods of increased demand or supply chain disruptions. Another challenge is Uzbekistan's limited domestic refining capacity. Although the country produces substantial amounts of natural gas and crude oil, its refining capacity is not enough to fully meet the domestic demand for gasoline, diesel, and other refined products. As a result, Uzbekistan is forced to import refined fuels to cover the shortfall. This dependence on imports exposes the country to the risks of fluctuations in global oil prices, changes in trade dynamics, and potential supply chain disruptions from international sources. The reliance on external markets makes the fuel supply in Uzbekistan vulnerable to external factors beyond the country's control, such as geopolitical instability, trade barriers, or changes in global energy demand.

These challenges create inefficiencies in fuel distribution and increase the cost of fuel products for consumers and businesses. They also complicate efforts to ensure a steady, reliable supply of fuels and lubricants across the entire country, from major urban centers to remote rural areas. To address these issues, Uzbekistan will need to invest in improving its transportation infrastructure, expanding its refining capacity, and reducing its reliance on imported fuels to ensure more stability and efficiency in the fuel supply system. Quality control and standards in Uzbekistan's fuel and lubricant supply chain pose significant challenges. The lack of stringent quality standards can result in the distribution of subpar products, which can lead to engine damage and operational inefficiencies. This issue is particularly concerning with imported fuels and lubricants, as they may not always meet the specific needs of local machinery, vehicles, and equipment. Inconsistent fuel quality can cause long-term damage to engines, reduce performance, and increase maintenance costs. Furthermore, the limited domestic production of high-quality lubricants exacerbates this problem. As a result, Uzbekistan is often reliant on imports for specialized lubricants, which may not always meet the desired quality standards required for optimal performance in various industries.

Technological innovation will also play a critical role in improving the efficiency of Uzbekistan's fuel and lubricant supply chain. Implementing smart monitoring systems that track fuel quality, stock levels, and logistics in real time can significantly optimize supply chain management. These systems will provide valuable data that can help anticipate demand surges, monitor the condition of fuel stocks, and ensure that only high-quality products reach consumers. By improving transparency and responsiveness in the supply chain, Uzbekistan can enhance efficiency, reduce waste, and improve the reliability of fuel deliveries.

Public awareness and education are key to optimizing the use of fuel and lubricants, driving both economic and environmental benefits. Promoting consumer awareness about the advantages of using high-quality lubricants and fuels can lead to more efficient energy consumption and a reduction in environmental impact. Through targeted campaigns, consumers can be educated on how choosing better quality fuels and lubricants improves vehicle performance, reduces emissions, and extends the lifespan of engines and machinery. Such awareness will not only foster smarter purchasing decisions but also encourage responsible consumption that benefits both the economy and the environment.

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Equally important is investing in industry training to develop a highly skilled workforce within the oil, gas, and lubricant sectors. Training programs designed to improve quality control, safety, and operational standards will ensure that personnel across all stages of the supply chain—from production to distribution—are equipped with the knowledge and skills to maintain high standards. With a focus on best practices, quality assurance, and efficient operations, these programs will help elevate the overall performance of the sector, ensuring that fuels and lubricants meet required specifications and safety standards. Proper training will also promote innovation and improvements in the industry, leading to more effective and sustainable practices.

Conclusion

Investment in infrastructure is a critical first step. Upgrading and expanding the country's pipeline networks, refining capacity, and fuel storage facilities will significantly improve the delivery and availability of fuel, reducing dependency on imports and minimizing logistical inefficiencies. By modernizing transport systems and decentralizing storage capabilities, Uzbekistan can ensure a more stable and equitable supply of fuel, particularly in underserved regions. By addressing these core challenges through a combination of infrastructure investment, regulatory improvements, and technological innovation, Uzbekistan can build a fuel and lubricant supply system that not only meets the needs of its growing economy but also contributes to environmental sustainability. This will enable the country to maintain a steady energy supply while preparing for future challenges, ultimately supporting both economic development and the transition to a cleaner, more efficient energy future.

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IMPROVING FUEL STORAGE CAPABILITIES

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ANNOTATION

Fuel storage plays a critical role across various sectors, including energy, transportation, and industry, by ensuring a reliable and continuous supply of fuel for operations. It provides the necessary infrastructure to store large quantities of fuels such as oil, gas, and biofuels, which are essential for powering vehicles, generating electricity, and supporting industrial processes. Effective fuel storage is crucial for maintaining energy security and preventing disruptions in supply chains.

Key words: Fuel storage, gas emission, urban area, EPA, ISO, renewable energy, sustainable energy, biofuels, hydrogen.

Current fuel storage systems face numerous challenges, including safety concerns such as the risk of fires, explosions, and contamination. Efficiency issues, like maintaining optimal fuel quality and minimizing wastage, also persist. Additionally, the environmental impact of fuel storage facilities-such as leaks, spills, and greenhouse gas emissions-remains a significant concern. These challenges highlight the need for innovation and improvements in fuel storage technologies to ensure safer, more efficient, and environmentally friendly operations.

With increasing global energy demand and the shift toward cleaner energy solutions, the need for more efficient and sustainable fuel storage is growing. Innovations in fuel storage can help meet the demand for energy while reducing environmental footprints and enhancing safety. Improvements in storage technology are not only essential for energy security but also for contributing to sustainability by optimizing energy use, reducing emissions, and enabling the transition to renewable energy sources. Advancing fuel storage technologies is key to ensuring a reliable, safe, and sustainable energy future. Efficient fuel storage reduces costs by streamlining the supply chain and energy production processes. By improving storage capacity and reducing inefficiencies, businesses can minimize fuel wastage and ensure more consistent fuel distribution. This enhances overall operational efficiency, leading to cost savings across various industries that depend on fuel.

Improving fuel storage systems helps minimize leaks and spills, reducing the risk of environmental contamination. Better storage technologies also support cleaner energy alternatives by providing safer and more efficient storage options for renewable fuels like biofuels and hydrogen. This shift not only reduces environmental harm but also facilitates the transition to sustainable energy sources. Safety in fuel storage is critical to prevent accidents such as fires, explosions, or contamination, which pose significant risks to both people and the environment. Modernizing storage infrastructure with advanced technologies helps mitigate these risks and ensures that fuel is stored in a way that protects human life and the surrounding area from potential hazards. Safe storage practices are essential to maintaining operational stability and protecting public health.

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Many existing fuel storage facilities are outdated and no longer meet the growing demands of modern energy systems. Aging tanks and pipelines often suffer from wear and tear, leading to inefficiencies, safety risks, and costly repairs. There is a pressing need for infrastructure modernization to accommodate increasing fuel demand and ensure that storage systems are both safe and reliable. Fuel contamination is a significant issue in storage systems, where water, bacteria, or other impurities can mix with stored fuel. This contamination can degrade fuel quality, affecting combustion efficiency and engine performance. Maintaining proper fuel quality is essential for ensuring the longevity and effectiveness of fuel used in various applications, from transportation to power generation.

Urban and industrial areas often face challenges with limited space for large-scale fuel storage facilities. This limitation makes it difficult to scale up storage capacity to meet growing demands. Innovative solutions, such as vertical storage tanks or modular systems, are required to optimize storage capacity without taking up valuable land or resources in crowded areas. Fuel storage is subject to a variety of stringent regulations to ensure safety and environmental protection. Navigating these regulations can be complex, as standards vary across regions and may be updated regularly. Compliance with safety standards, environmental guidelines, and operational best practices requires constant monitoring and adaptation, presenting a challenge for companies in the fuel storage industry.

New materials, such as composite tanks and corrosion-resistant alloys, are being introduced to improve fuel storage systems. These materials offer superior resistance to environmental factors like corrosion, reducing the risk of leaks and extending the lifespan of storage tanks. As a result, maintenance costs are lowered, and the overall safety and efficiency of fuel storage are enhanced.

The use of IoT sensors in fuel storage systems allows for continuous monitoring of fuel quality, temperature, and tank conditions. These sensors provide real-time data, enabling better decision-making and proactive maintenance. Automated systems can manage inventory and issue alerts for maintenance, ensuring that tanks are operating efficiently and safely at all times. The demand for alternative fuels, such as hydrogen, biofuels, and natural gas, has driven the development of specialized storage technologies. These fuels require unique handling and storage solutions due to their distinct properties. Innovations in storage systems are addressing challenges such as pressure control, temperature regulation, and material compatibility to safely store these non-traditional fuels.

Modular and scalable fuel storage systems offer flexibility to meet the dynamic needs of various industries. These systems can be easily expanded or reconfigured as demand increases, reducing setup costs and improving efficiency. This adaptability is particularly valuable in areas with fluctuating fuel needs or space constraints. To reduce the carbon footprint of fuel storage systems, eco-friendly solutions are being implemented, such as solar-powered fuel stations that harness renewable energy to power operations. Additionally, there is growing emphasis on recycling and reusing materials used in fuel storage infrastructure, such as tanks and pipelines, which helps minimize waste and the environmental impact of production and disposal.

Advanced technologies are being developed for early leak detection in fuel storage systems, using sensors and monitoring systems to identify potential issues before they escalate. These systems help prevent fuel loss, reduce environmental damage, and increase safety. Case studies have shown that the implementation of leak detection systems significantly reduces the

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risk of spills and contamination, proving to be an effective strategy in maintaining safe and sustainable storage operations. Fuel storage facilities are increasingly being designed with energy recovery systems, such as utilizing heat from tanks or pressure systems to generate additional power. These systems can improve overall energy efficiency and reduce the need for external energy sources. Additionally, energy-efficient design improvements in storage tanks and infrastructure are helping to optimize fuel storage operations, reducing energy consumption and supporting sustainability goals.

International regulations, such as those from OSHA, EPA, and ISO, provide critical guidelines for the safe and environmentally responsible storage of fuel. These regulations ensure that fuel storage facilities operate with safety and sustainability in mind, reducing the risk of accidents and environmental harm. Regulatory frameworks also drive technological innovation, as companies are compelled to adopt new technologies and practices to meet increasingly stringent standards. Governments can play a pivotal role in modernizing fuel storage systems by offering policy incentives, such as tax credits or subsidies, to encourage investment in advanced storage technologies. Additionally, governments can support the transition to cleaner and safer fuel storage by providing funding for research and development, implementing stricter environmental standards, and promoting the adoption of renewable energy solutions within the storage industry. This proactive support accelerates the shift toward more efficient, sustainable, and secure fuel storage practices.

Research is uncovering new possibilities for fuel storage, including developments in fuel cell storage and innovative chemical storage methods that could improve energy density and efficiency. Additionally, artificial intelligence and machine learning are poised to play a key role in optimizing fuel storage systems by enabling real-time data analysis, predictive maintenance, and efficient inventory management, thereby enhancing overall performance and safety. In the next 10-20 years, fuel storage is expected to evolve with greater integration of renewable energy sources. Next-generation storage tanks and technologies will likely focus on sustainability, efficiency, and safety, supporting the transition to cleaner energy systems. Additionally, decentralized energy grids and micro-storage solutions could become more prevalent, allowing for localized storage and distribution, which would increase energy resilience and reduce dependency on centralized infrastructure.

Conclusion

Improving fuel storage capabilities is crucial for ensuring reliable energy supply, enhancing efficiency, and supporting environmental sustainability. Key strategies discussed include adopting advanced materials, implementing smart storage solutions, and developing innovative technologies for alternative fuel storage. Additionally, addressing challenges such as aging infrastructure, fuel contamination, and regulatory compliance is vital for optimizing fuel storage systems and ensuring safety. The future of fuel storage holds promising advancements in technology, with innovations driving greater efficiency, safety, and sustainability. As global energy needs continue to evolve, investment in next-generation fuel storage solutions will play a key role in supporting cleaner energy transitions and improving energy security. A collective effort from businesses, governments, and individuals is necessary to foster continuous innovation and support the development of safer, more sustainable fuel storage systems. By working together, we can ensure a resilient and efficient energy future that meets both current and future demands.

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СИСТЕМА ТЫЛОВОГО ОБЕСПЕЧЕНИЯ ВООРУЖЕННЫХ СИЛ РЕСПУБЛИКИ УЗБЕКИСТАН И ПЕРСПЕКТИВНЫЕ НАПРАВЛЕНИЯ РАЗВИТИЯ

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В данной статье раскрыта система тылового обеспечения Вооруженных Сил Республики Узбекистан и перспективные направления развития системы тылового обеспечения, внедрение автоматизированной системы управления тылом, автоматизация учета наличия и движения материальных средств на всех уровнях, широкое использование возможностей экономической базы всех форм собственности в интересах обеспечения Вооруженных Сил, освоение перспективных способов обеспечения войск путем внедрения высокотехнологичных методик и оснащения, интеграция подсистем тылового обеспечения в рамках военной организации государства.

Ключевые слова: военно-политическая ситуация, технический прогресс, совершенствовать, противодействия, военная безопасность, военная политика, система обеспечения, организация, деятельность, построение, адекватно, материальные средства, законадательные акты, концептуальный, достижение, обобщения, военный конфликт, ответственность, промышленно-экономического комплекс, интеграция, воинские формировании, автоматизация, форм собственности, оснащения, силовые ведомства, экономический анализ, инфраструктуры, техническая оснащенность.

Ushbu maqolada O‘zbekiston Respublikasi Qurolli Kuchlarini moddiy-texnik ta’minlash tizimi hamda moddiy-texnik ta’minot tizimini rivojlantirishning istiqbolli yo‘nalishlari, orqani boshqarishning avtomatlashtirilgan tizimini joriy etish, barcha darajadagi moddiy-texnika vositalarining mavjudligi va harakatlanishini hisobga olishni avtomatlashtirish yoritilgan. , Qurolli Kuchlarni ta’minlash manfaatlari yo‘lida mulkchilikning barcha shakllarining iqtisodiy bazasi imkoniyatlaridan keng foydalanish, yuqori texnologiyali usullar va jihozlarni joriy etish orqali qo‘shinlarni ta’minlashning istiqbolli usullarini ishlab chiqish, harbiy-texnik ta’minot tizimi doirasida moddiy-texnik ta’minot quyi tizimlarini integratsiyalash. Davlat harbiy tashkilotining asoslari.

Kalit so’zlar: harbiy-siyosiy vaziyat, texnik taraqqiyot, takomillashtirish, qarshi choralar, harbiy xavfsizlik, harbiy siyosat, qo’llab-quvvatlash tizimi, tashkil etish, faoliyat, qurilish, etarli darajada, moddiy vositalar, qonun hujjatlari, kontseptual, yutuq, umumlashtirish, harbiy mojaro. Mas’uliyat, ishlab chiqarish-xo’jalik kompleksi, integratsiya, harbiy tuzilmalar, avtomatlashtirish, mulkchilik shakllari, jihozlar, huquqni muhofaza qilish organlari, iqtisodiy tahlil, infratuzilma, texnik jihozlar.

This article discloses the logistic support system of the Armed Forces of the Republic of Uzbekistan and promising areas for the development of the logistic support system, the introduction of an automated rear management system, automation of accounting for the

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availability and movement of materiel at all levels, the widespread use of the possibilities of the economic base of all forms of ownership in the interests of providing the Armed Forces, development of promising methods of providing troops through the introduction of high-tech methods and equipment, integration of logistic support subsystems within the framework of the military organization of the state.

Key words: military-political situation, technical progress, improve, countermeasures, military security, military policy, support system, organization, activity, construction, adequately, material means, legislative acts, conceptual, achievement, generalizations, military conflict. Responsibility, industrial and economic complex, integration, military formations, automation, forms of ownership, equipment, law enforcement agencies, economic analysis, infrastructure, technical equipment.

На фоне обострения военно-политической ситуации в мире и в регионе, технического прогресса, совершенствования форм и способов ведения вооруженной борьбы необходимо постоянное повышение эффективности военной организации государства для противодействия современным угрозам военной безопасности, что требует корректировки военной политики государства и дальнейшего развития системы обеспечения военной безопасности [1, с. 5].

Построение сильной современной армии с учетом реалий военно-политической обстановки, способной адекватно реагировать на возможные угрозы военной безопасности государства, является необходимым условием сохранения обороноспособности страны на уровне, отвечающей вызовам современности.

Разнообразие условий, изменение задач, форм и способов действий соединений и частей Вооруженных Сил Республики Узбекистан в военных конфликтах различной интенсивности, дает нам направление работы по совершенствованию теории дальнейшего развития тыла войск в бою и операции и в частности в военных конфликтах низкой и средней интенсивности.

В ходе определения концептуальных положений и формирования перспективного облика Вооруженных Сил главным направлением совершенствования системы тылового обеспечения видится достижение качественно нового уровня ее состояния, позволяющего гарантированно обеспечить потребности Вооруженных Сил в мирное и военное время, эффективность ее функционирования с опорой на возможности промышленно-экономического комплекса государства в условиях интеграции систем обеспечения других войск и воинских формирований Республики Узбекистан.

Перспективными направлениями развития системы тылового обеспечения считаю внедрение автоматизированной системы управления тылом, автоматизация учета наличия и движения материальных средств на всех уровнях, широкое использование возможностей экономической базы всех форм собственности в интересах обеспечения Вооруженных Сил, освоение перспективных способов обеспечения войск путем внедрения высокотехнологичных методик и оснащения, интеграция подсистем тылового обеспечения в рамках военной организации государства.

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В настоящее время необходимо создавать новые территориальные системы экономического обеспечения силовых ведомств. Это требует, по моему мнению, решения следующих задач:

- выявления на основе экономического анализа направлений интеграции систем тылового обеспечения войск;
- совершенствования существующей нормативноправовой базы функционирования тыловых служб военной структуры силовых ведомств;
- формирования единых органов управления отдельными территориальными системами обеспечения войск и уточнения их функций и компетенции;
- создания организационно-экономического механизма для взаимодействия служб тыла Вооруженных Сил, других войск, воинских формирований, местных органов власти и управления, частных предприятий и организаций;
- организации единой системы служб тыла и технического обеспечения различной ведомственной принадлежности с общими запасами материальных средств, системой отчетности и контроля;
- объединения на территориальной основе складской, транспортной, медицинской и другой инфраструктуры.

Предстоит трудная и кропотливая работа по приведению состава сил и средств тыла различных уровней в соответствие объему выполняемых задач, их техническому оснащению.

Проанализировав состояние подразделений тылового обеспечения войскового звена, можно из опыта сделать вывод, в связи с тем, что имеющаяся техника 1960-1990 г.г. изготовления (морально и технически устарела), отсутствуют запасные части, затраты на ремонт и модернизацию не целесообразны. Опыт тылового обеспечения войск в ходе боевых действий на Афганистане, Северном Кавказе высветил ряд проблем, оказывающих серьезное влияние на деятельность служб тыла.

Автомобили с карбюраторными двигателями типа ЗИЛ, ГАЗ, используемые под монтаж технологического оборудования, оказались непригодными для условий высокогорья, неспособными преодолевать горные перевалы.

В настоящее время существует потребность в переоснащении и модернизации имеющегося парка техники тыла по следующим направлениям:

- плановая замена устаревших технических средств, путем закупа современных образцов специальной техники тыла;
- модернизация имеющихся образцов;
- техническое обслуживание и ремонт техники тыла.

Что позволит существенно повысить мобильность и автономность выполнения задач.

На современном этапе, требуется создание и использование бронированной техники тыла - автотопливо-заправщиков, санитарных автомобилей, чтобы технические средства тыла могли успешно действовать в боевых порядках батальонов, обладать проходимостью и маневренностью равнозначной боевой технике и иметь противопульную и противоосколочную броню.

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Считается перспективным направлением построение тыла по модульному принципу, но для его внедрения в практику войск необходима соответствующая техническая база автомобильной промышленности Республики Узбекистан.

Оснащение частей и подразделений материального обеспечения современной модульной, бронированной техникой тыла является одним из условий успешного решения задач тылового обеспечения войск в бою и операции.

В настоящее время взаимодействие Вооруженных Сил Республики Узбекистан с другими войсками и воинскими формированиями по вопросам тыла и технического обеспечения организовано по отдельным вопросам, таким как оказание взаимопомощи в материальном обеспечении, разработке совместных нормативно-правовых актов, отдельных случаев совместного использования инфраструктуры и в вопросах подготовки офицерских кадров. Более тесное взаимодействие в вопросах эффективности функционирования систем тылового обеспечения не организовано. Одной из причин отсутствия более тесного взаимодействия, является различия в системах тылового обеспечения, такие как несоответствие организационной структуры, отсутствие оперативного и стратегического звеньев тыла и другие.

На сегодня, каждое министерство и ведомство, в которых предусмотрена воинская служба, финансируется из Республиканского бюджета самостоятельно, отдельно хранит и закупает в целом однотипные материальные средства, готовит кадры тыла, осуществляет воинские перевозки. Для решения этих задач в каждом ведомстве имеются соответствующие органы управления, склады, базы и другие структуры тыла, которые зачастую, дублируют друг-друга, имеют загруженность менее 50% от возможностей. Кроме того, как свидетельствует опыт последних локальных войн и вооруженных конфликтов на Северном Кавказе и в других регионах мира, к решению боевых задач привлекаются не только группировки войск Вооруженных Сил, но и силы и средства других войск и воинских формирований, сводимых в объединенную группировку войск – обеспечение которых организуется централизовано, под единым началом и руководством.

Ожидаемые масштабы, формы и способы ведения боевых действий объединенных группировок войск выдвигают в качестве важнейшей задачи обеспечение эффективности системы тылового обеспечения, которая должна надежно функционировать с учетом экономических возможностей страны, наличия запасов материальных средств, техники и имущества тыла, а также информационных связей между ее элементами. Это возможно лишь при комплексном использовании имеющихся сил и средств Тыла Вооруженных Сил, других войск и воинских формировании.

Стандартизация и унификация штатов подразделений тыла необходимо проводить при отработке штатов воинских частей на мирное время и на особый период. Стандартизация позволит осуществлять контроль за деятельностью служб тыла в целом. Пересмотр программ специальной и тактикоспециальной подготовки младших специалистов тыла повысит готовность служб тыла для обеспечения задач по предназначению.

Если же говорить о переходе к межведомственной (сопряженной) унифицированной системе тылового обеспечения в целом, то в ней целесообразно, на мой взгляд, в обязательном порядке предусмотреть: формирование единого оборонного заказа,

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унификацию бюджетного планирования, введение единых нормативов, определение и совершенствование организационно-экономического механизма взаимодействия разноведомственных служб тыла. Это предполагает также разработку и совершенствование правовых основ создания и функционирования межведомственной унифицированной системы тылового обеспечения; координацию программ и планов строительства тыла всех составляющих силового компонента военной организации; формирование органов управления. Чтобы она хорошо действовала, необходимо осуществить интеграцию разноведомственных служб обеспечения, создать требуемые запасы материальных средств, установить единый порядок обеспечения всех войск (сил), контроля, учета и отчетности.

В основу разработки организационно-штатных структур тыла и вооружения положены результаты анализа и обобщения опыта технического и тылового обеспечения различных стран в войнах и вооруженных конфликтах. Следует учесть, что задачи стоящие перед системами тылового и технического обеспечения разнотипные и стали более масштабными в связи с изменениями в составе обеспечивающих систем. Даже, в условиях, не усложненных боевой обстановкой, их выполнение требует огромной организации, основанной на профессионализме органов управления. Выход в решении этих задач ВС видят во взаимодействии с гражданскими структурами [2]. Известно, что большая часть расходуемых войсками материальных средств приходится на боеприпасы и горюче-смазочные материалы (ГСМ) [5]. Каким образом гражданские структуры могут организовать их доставку и хранение в различных условиях боевой обстановки и в условиях воздействия сил специальных операций противника. Нельзя теоретически облегчать свои задачи и упрощать условия их выполнения. Это чревато срывом выполнения задач, стоящих перед войсками и тылом.

При этом, аналитические материалы должны быть подтверждены и обоснованы многочисленными фактическими и цифровыми данными, показывающими тенденции в развитии систем тылового обеспечения Вооруженных сил и позволяющими делать важные теоретические и практические выводы.

Апробации единой системы материально-технического обеспечения и его возможностей в Вооруженных силах Республики Узбекистан, позволили более полно оценить потенциал в обстановке, приближенной к боевой и сделать положительные выводы.

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ҮЎТ: 631.1:332.2:631

MELIORATIVE MONITORING ORGANIZING MELIORATIVE LAND MONITORING ON THE BASE OF GEOINFORMATION SYSTEM

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ABSTRACT

The article presents the role and importance of modern digital technologies in the effective use of agricultural land and monitoring of agricultural land reclamation, the correct organization of land reclamation and crop control based on Geoinformation System data, the development of necessary, rapid measures based on the collected data, and scientifically based analytical materials, conclusions, and recommendations by researchers who have conducted scientific research in this area.

Keywords: monitoring, reclamation lands, ArcGIS program, "R-GIS" portal geodatabase, remote sensing, salinity, leachate.

INTRODUCTION:

In the world, work is being carried out to monitor agricultural lands and enter land information into geodatabases based on innovative methods, obtain land information using online platforms, and integrate field research into geodatabases. In this regard, special attention is paid to scientific research aimed at obtaining timely information about the land and forming a single geodatabase on land and land users.

In our republic, systematic measures are being implemented in connection with the rational and effective use of land resources, the proper organization of land formation and land monitoring, in particular, the digitalization of all information collected on the basis of land monitoring, the development of the agricultural land control system, and specific results are being achieved on this basis. The Decree of the President of the Republic of Uzbekistan No. PF-60 dated January 28, 2022 "On the Development Strategy of the New Uzbekistan for 2022-2026" sets out important tasks for "...developing an electronic database for inventory and monitoring their implementation." In implementing these tasks, it is important to conduct scientific research on the formation of a geodatabase through monitoring agricultural lands and land accounting using modern methods.

This research work will to a certain extent serve to implement the tasks set out in the Resolution of the President of the Republic of Uzbekistan No. PQ-5006 dated February 24, 2021 "On additional measures to improve the system of use and protection of agricultural lands", the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 22 dated January 14, 2022 "On approval of regulatory legal acts regulating monitoring work on agricultural lands, land protection and land development activities", and other regulatory legal acts related to this activity.

LITERATURE ANALYSIS AND METHODOLOGY.

Many scientists in our republic have been at the center of studying socio-economic issues in the national economy and the rational use of land and water resources in agriculture using modern methods. Scientific research on monitoring agricultural lands based on remote sensing data has been carried out by R.A. Turaev, E.Yu. Safarov, M.I. Ruzmetov, O.U. Davronov, R.N.

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Sharopov, Zh.S. Usmonov, B.Yu. Makhsudov, H.Kh. Tashbaeva, S.S. Ibrokhimov and others using modern digitized methods.

Through the Land Information System portal, created in 2021 by R.A. Turaev, PhD, the borders of administrative territorial units - regions, districts, massifs, neighborhoods and the borders of agricultural producers, as well as the contours of land plots and land areas in our Republic, are digitized, changes in them are introduced and improved in a timely manner. This portal ensures the identification of the activities of land users and the online updating of newly established land use boundaries and complete information about them, the display of the results of the agricultural crop placement plan and its implementation monitoring on the "Land Information System" portal. (R.A. Turaev. Improving the methodology for monitoring irrigated lands: PhD ...dissertation.-Tashkent, 2021.-167 p.)

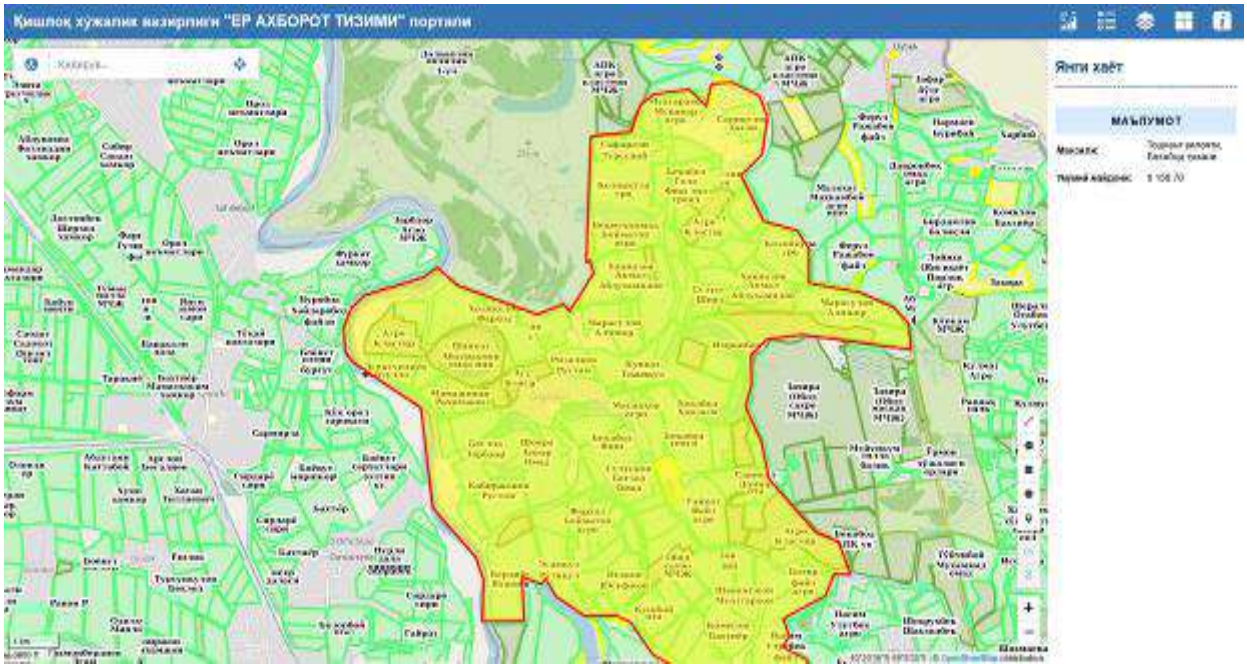

Figure 1. View of the "Land Information System" portal.

Developed by PhD S.S.Ibrokhimov, M.T.Abdullaeva. The “R-GIS” portal was based on the high human factor in monitoring agricultural crops, in this regard, the use of the sequence mechanism of the following: agricultural crop placement plan > ArcGIS program > traditional monitoring > Field Map mobile application > space image (Sentinel 2 NDVI) > ArcGIS program > “R-GIS” portal allowed to provide complex information to land users and provide interactive services to agricultural specialists through rapid and effective data collection and storage for the correct placement of agricultural crops.

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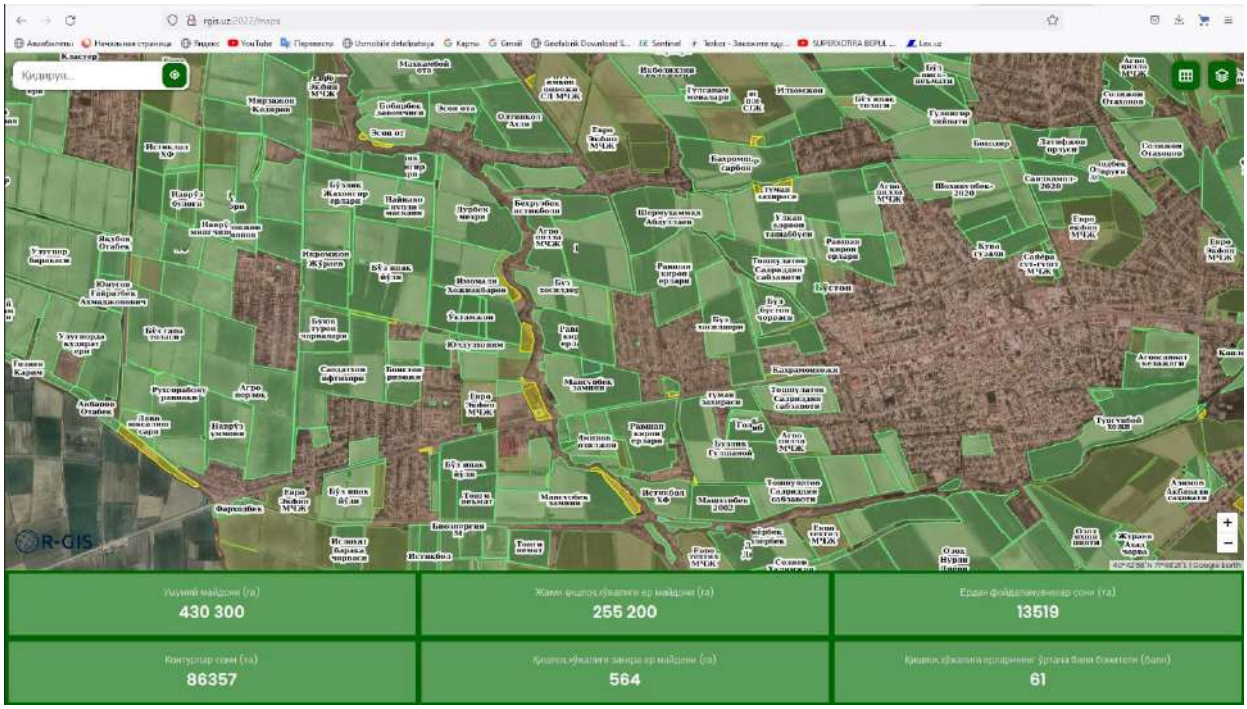

Figure 2. Working window of "R-GIS" (Real Geoinformation system) portal.

Research results and their discussion. The portal "Land Reclamation Monitoring Geoinformation System" developed by us currently contains electronic data on the borders of the republic and regions, as well as the borders of districts and cities. This portal contains real-time information and a description of the layers of all administrative-territorial units of the republic. The portal data is regularly updated. (Figure 3).

Specifically, data (Figure 3):

- Regions;
- Districts;
- Total undeveloped land area;
- Lands that will be restored as a result of improving their condition;
- Lands in poor condition;
- Lands whose reclamation condition has deteriorated as a result of the rise of underground seepage waters;
- Lands with a high level of salinity and secondary saline lands;
- Lands with insufficient water supply and irrigation facilities that have become unusable;
- Lands that have failed due to non-operation of melioration systems;
- Lands with very rocky and gypsum layers;
- Due to the rise of river waters, lands along the coast were washed away by agricultural land;
- Lands where spring waters have dried up and are not being used;
- Lands that have become unusable due to non-planting of agricultural crops;
- Lands that have become gray without use;
- Lands where agricultural crops are grown;
- Lands that have been chronically unused since 2000.

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Figure 3. A view of the main page of the melioration monitoring geoinformation system.

The developed geoportal side window displays information on the selected district. For example, the data on the land with poor reclamation status in the Konimekh district of the Navoi region is presented (Fig. 4). Including:

- total identified bad lands (ha);
- Lands whose amelioration condition has worsened as a result of the rise of underground seepage waters (ha);
- land(s) with a high level of salinity;
- land(s) where water supply is insufficient and irrigation facilities have become unusable;
- a general information window is created in the section of land user types (Fig. 4).

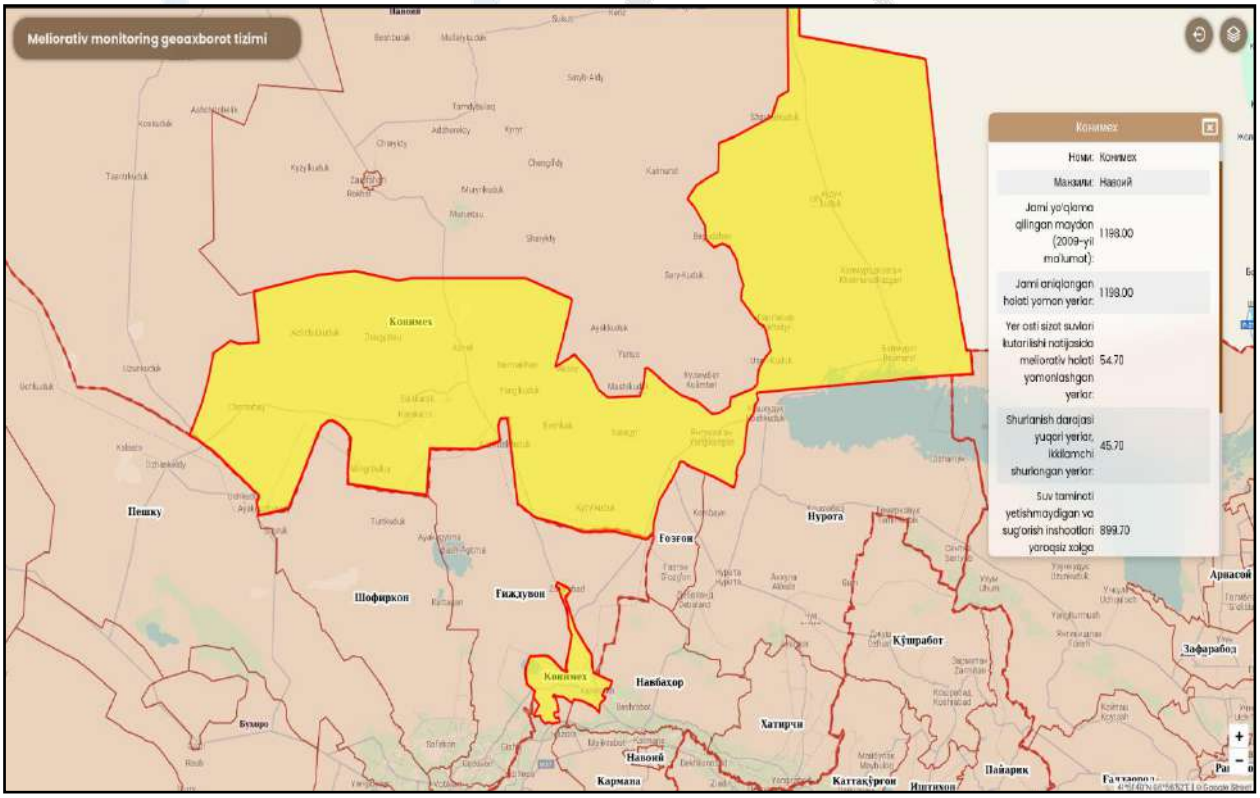

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Figure 4. Reclamation condition of agricultural lands of Konimekh district, Navoi region.

In the same way, the next layer of the program will reflect the currently approved information in the section of the relevant massif and MFY (OFY, QFY) regions of the district (Fig. 5).

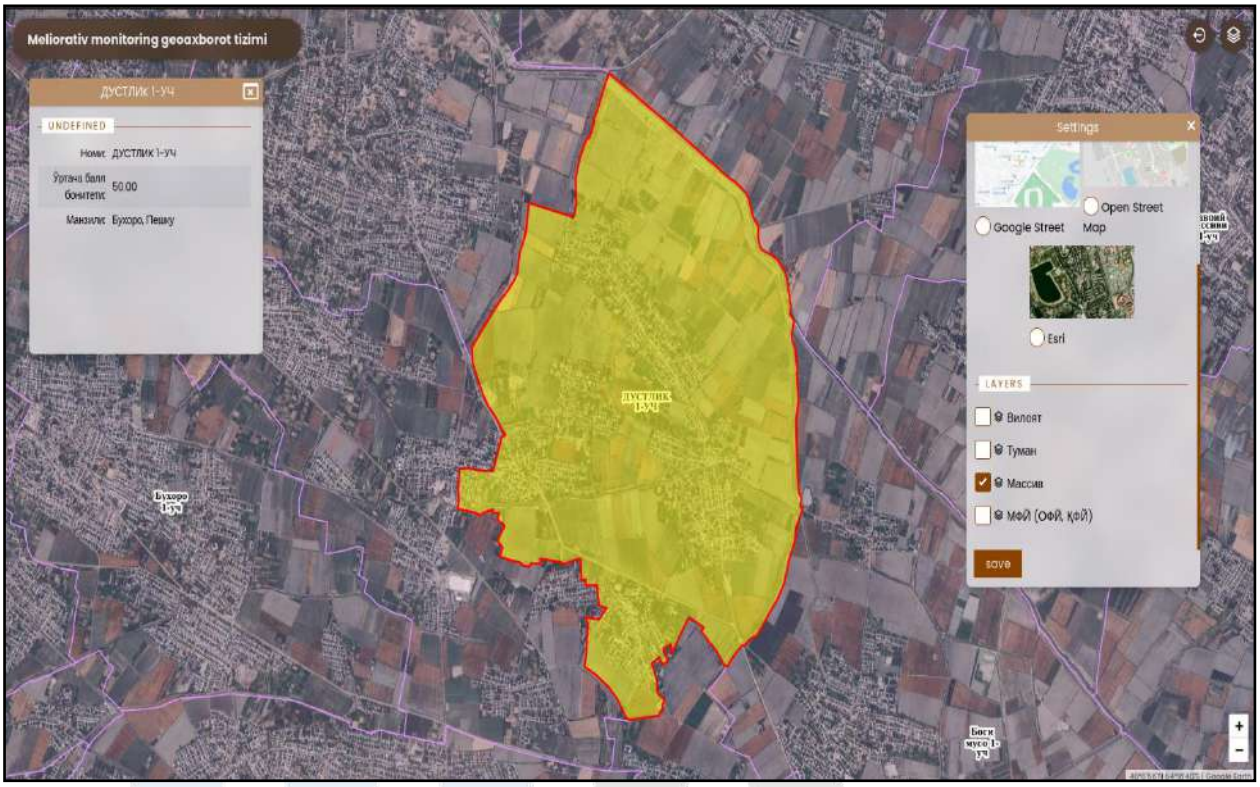

Figure 5. Reclamation status of agricultural land areas of "Dostlik" massif, Peshku district, Bukhara region.

The program has the ability to activate the required layer by accessing the layer panel from the main menu (Figure 3.3.7).

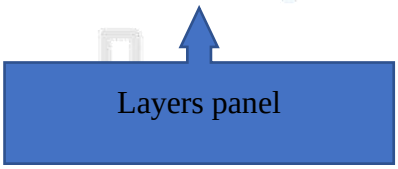

Figure 6. Layers panel access window.

After selecting the necessary region, district, massif, and municipal data from the program, it is possible to automatically download tabular data from the system in Excel format.

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Farg‘ona viloyatidagi sug‘oriladigan yerlarning meliorativ xolatini yo‘qlama (inventarizasiya)dan o‘tkazish ishlarini yakuni to‘g‘risida Ma’lumot															
T/r	Viloyatlar nomi	Jami yo‘qlama qilingan maydon	Shu jumladan												
			Holatini yaxshilash natijasida qayta tiklangan yerlar	Jami aniqlangan holati yomon yerlar	Shundan									Foydalanishning axvoli	
					Yer osti sizot suvlari kutarilishi natijasida meliorativ holati yomonlashgan yerlar	Shurlanish darajasi yuqori yerlar, ikkilamchi shurlangan yerlar	Suv taminoti yetishmaydigan va sug‘orish inshootlari yaroqsiz xolga kelgan yerlar	Meliorativ tizimlari ishlamasligi oqibatida ishdan chiqqan yerlar	Uta toshloq va gips qatlami mavjud yerlar	Daryo suvlarining ko‘tarilishi oqibatida, qir‘oq buyi ekin yerlari yuvilib ketgan yerlar	Buloq suvlari qurib qolib foydalanilmayotgan yerlar	Qishloq xo‘jalik ekinlari ekilmasligi oqibatida yaroqsiz xolatga tushgan yerlar	Foydalanilmasdan bo‘z xolatiga aylangan yerlar	Qishloq xo‘jalikekinlari ekilib kelinayotgan yerlar	Surunkali ravishda 2000-yildan buyon foydalanilmayotgan yerlar
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Beshariq														
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5	Yozyovon														
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9	Rishton														
10	Toshloq														
11	O‘zbekiston														
12	Uchko‘prik														
13	Farg‘ona														
14	Furqat														
15	Farg‘ona shahri														
16	Quvasoy shahri														
	Jami viloyat bo‘yicha														

Figure 7. Access window to the panel of layers of reclamation of agricultural land.

The main page of the reclamation monitoring geoinformation system has a Settings section, where you can change the working window to one of the following: Fon, Google Earth, Google Street, Open Street Map, and Esri open raster maps (Figure 8).

Figure 8. One of the OpenStreetMap, Google Earth, Google Street, and Esri open maps located on a map layer

Here:

OpenStreetMap is an online project that allows you to create and use free and open maps of the world. OSM users can add their own data to the maps, which helps to keep the maps constantly updated. OpenStreetMap maps are freely available to anyone and are used in many

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different areas, such as navigation, geolocation services, geographic analysis and other applications.

Google Earth is a free software that allows you to work with 3D maps and images of the world. Google Earth allows users to virtually explore the Earth, identify geographical locations, or travel to different places. The program displays the surface of the Earth, cities, mountains, rivers and other geographical features using 3D models.

Conclusions, suggestions and recommendations. The creation of the "Land reclamation monitoring geoinformation system" portal is an important step in the effective study of land resources management and land reclamation work. This portal provides an opportunity to monitor the land reclamation situation, obtain accurate and timely information, and control land reclamation work. With the help of a geoinformation system, various types of information are visualized, which simplifies the decision-making process and creates the opportunity for the effective use of agricultural land. At the same time, it is an important basis for the correct assessment and recording of the land reclamation situation, the introduction of early warning systems, and the effective use of natural resources. This portal also serves to coordinate scientific research and practical work, and to strengthen cooperation between the public and private sectors.

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ENHANCING THE TECHNOLOGY OF MARGARINE PRODUCTION USING FAT REPLACERS

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Abstract. *In recent years, the increasing health concerns regarding trans fats have driven the food industry to explore healthier alternatives in margarine production. This study investigates the use of natural fat replacers to optimize margarine technology, aiming to improve both its nutritional value and sensory attributes. Various fat replacers were tested to reduce trans fats while maintaining desirable properties such as spreadability, taste, and shelf stability. The findings demonstrate that fat replacers can be effectively incorporated into margarine formulations, providing healthier options without compromising quality.*

Keywords: Margarine production, fat replacers, trans fats, inulin, emulsifiers, food technology, nutrition, functional food, hydrocolloids, sustainable food production.

Introduction. Margarine has been a staple in households since its invention in the late 19th century, offering an economical and versatile alternative to butter. Traditionally, margarine was produced through the hydrogenation of vegetable oils, a process that unfortunately generated trans fats. These trans fats have been scientifically proven to increase the risk of cardiovascular diseases, obesity, and inflammation, leading to heightened consumer awareness and regulatory pressure on food manufacturers.[1]

Fat replacers such as hydrocolloids, plant-based oils, and fibers are increasingly being used to produce margarine that aligns with modern dietary guidelines. This paper explores the use of various fat replacers in margarine production, focusing on optimizing its nutritional profile, sensory properties, and technological process. By integrating fat replacers, we can enhance health benefits while also aligning with sustainability trends in the food industry.

Materials and Methods.The study utilized a combination of natural fat replacers to enhance the quality of margarine. The main ingredients included palm oil, sunflower oil, water, and fat replacers like inulin, pectin, and lecithin. The methods used are detailed below: Raw Materials: Oils (palm, sunflower) and fat replacers (inulin, pectin, lecithin). Production Process: Emulsification using a high-shear mixer, followed by cooling and crystallization. [2]

Analytical Techniques: Texture analysis, sensory evaluation, and stability testing.

Nutritional and Sensory Analysis

Ingredient	**Traditional Margarine (g/100g)**	**Margarine with Fat Replacers (g/100g)**
Total Fat	80	65
Trans Fats	3.5	<0.5
Saturated Fats	20	10
Unsaturated Fats	55	45
Dietary Fiber	0	5

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Table 1: Comparison of nutritional content between traditional margarine and margarine with fat replacers.

From Table 1, it is clear that margarine with fat replacers has a significantly lower trans fat content while increasing dietary fiber, making it a healthier alternative.

The texture of margarine samples was measured using a penetrometer. The results are shown below:

Margarine with fat replacers exhibited a softer texture at lower temperatures, which improves spreadability. [3]

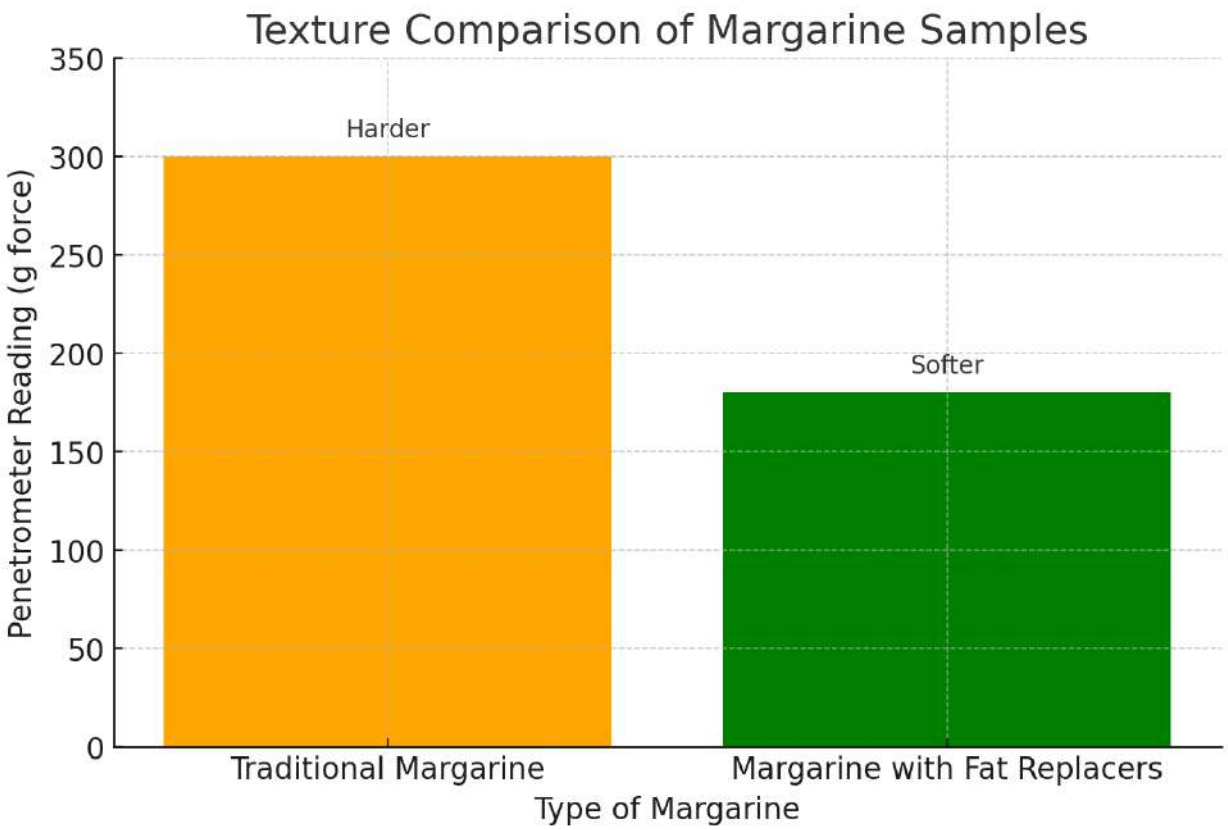

Figure 1: Texture comparison of margarine with and without fat replacers (measured at 10°C).

Figure 1: The bar chart compares the texture of traditional margarine and margarine with fat replacers. The lower penetrometer reading for margarine with fat replacers indicates a softer, more spreadable consistency, which is preferable for consumer use, especially at refrigeration temperatures.

The stability of the margarine samples was assessed by storing them at different temperatures and measuring phase separation over time. The results are presented in Figure 2 below.

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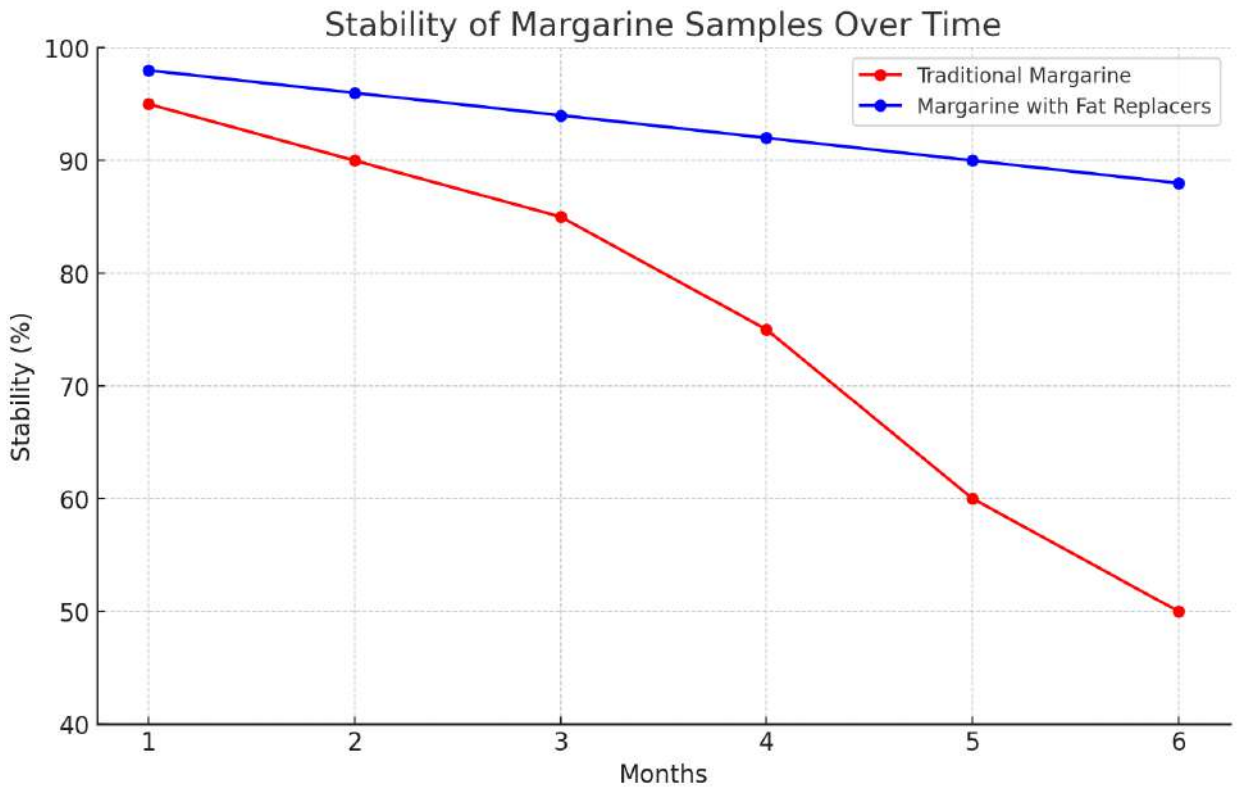

Figure 2: The stability of margarine samples over a 6-month period. Margarine with fat replacers maintained higher stability compared to traditional margarine, showing less phase separation and retaining its texture and quality for a longer duration. [3]

Discussion. The findings from this study indicate that the use of fat replacers can significantly improve the nutritional profile of margarine without compromising its sensory qualities. The reduced trans fat levels and increased fiber content offer clear health benefits, making the product more suitable for modern consumers seeking healthier alternatives. The texture analysis (Figure 1) shows that incorporating fat replacers results in a softer, more spreadable product, enhancing consumer satisfaction. Additionally, the stability tests (Figure 2) reveal that margarine with fat replacers has better emulsion stability, making it suitable for longer shelf life. The use of ingredients like inulin and lecithin not only enhances nutritional content but also aligns with sustainable production practices. This approach can help manufacturers reduce costs by partially replacing oils with functional fat replacers. [4]

Conclusion. The study confirms that fat replacers are a viable alternative for enhancing margarine production. The optimized formulation reduces trans fats, increases fiber content, and improves both texture and shelf life. This research can guide food manufacturers in developing healthier margarine products that align with consumer demands for nutritional and sustainable food options. Further studies should explore additional natural fat replacers to assess their effects on other functional properties, such as antioxidant activity and flavor stability.

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ОСНОВНЫЕ МОТИВЫ РУССКОГО УСТНОГО НАРОДНОГО ТВОРЧЕСТВА

Негосударственное образовательное учреждедие Каршинский международный университет. Старший преподаватель

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Аннотация: в данной статье рассматривается понятие фольклора, фольклорных мотивов, а также влияние и функции фольклора в жизни общества того времени. Приводится анализ сказки из устного народного творчества.

Ключевые слова: фольклор, мотив, основной мотив, народный герой, сказка.

The main motives of Russian oral folk art

Abstract: this article examines the concept of folklore, folklore motifs, as well as the influence and functions of folklore in the life of society at that time. An analysis of a fairy tale from oral folklore is provided.

Key words: folklore, motif, main motif, folk hero, fairy tale.

Фольклор – это художественное творчество народа, отражающее его жизнь и взгляды. Фольклор - это устное народное творчество предшественник литературы. В прошлом не существовало строгого разделения между различными видами искусства, но в качестве народного искусства использовалось сочетание различных видов искусства, таких как музыка, драма, литература и танец. Поскольку фольклор зародился в дописьменную эпоху, этот вид творчества традиционно передавался исключительно устно (устная передача). Невозможно выделить какого-то одного автора фольклорного произведения. Процесс создания фольклора основывался на повторении уже известных произведений (сказок, песен, загадок, пословиц ит. д.). Повторяя фольклорное произведение, люди вносили в него изменения, опуская детали или придумывая новые. В результате фольклорные произведения дошли до нас в самых разных формах. Было бы несправедливо однозначно утверждать, какой из существующих вариантов каждого фольклорного произведения является правильным.

Фольклорные мотивы в русской литературе не только поддерживают связь с историко-культурным наследием, но и придают произведениям глубину и насыщенность. Это позволяет читателям и зрителям лучше понять русскую культуру и духовность, насладиться красотой и волшебством народных сказок и песен.

Фольклорные мотивы в русской литературе также способствуют сохранению национальной самобытности и уникальности. Они являются частью культурного наследия и помогают передавать традиции из поколения в поколение. Важно отметить, что фольклорные мотивы не ограничиваются только национальным контекстом, но и пересекаются с другими культурами и традициями, что обогащает литературное наследие.

Фольклор также является источником вдохновения для современных писателей и художников. Многие современные писатели и художники находят богатый материал для

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своего творчества в народных сказках и мифах. Они пересматривают и переосмысливают эти мотивы, создавая современные интерпретации народных сказок.

Интересно, что мотивы народных сказок могут иметь универсальный смысл и быть понятными читателям и зрителям из разных культур. Их уникальная сила заключается в способности затрагивать общечеловеческие темы, такие как любовь, смерть, добро и зло, что делает их актуальными для всех.

В литературоведении понятие «мотив» использовалось для характеристики компонентов повествования еще Гете и Шиллером. Мотив-термин, перешедший из музыковедения в литературоведение. Это наименьшая самостоятельная единица музыкальной формы. Развитие достигается за счет многократного повторения мотива, трансформаций и введения контрастных мотивов.Структурамотивавоплощаетлогическиесвязивстроениипроизведени.

Мотивы выступают как аспекты отдельных произведений или их циклов, как звенья их композиции, как свойства творчества автора в целом или даже целого жанра, направления, литературного периода или мировой литературы. В этих отдельных аспектах они составляют один из важнейших предметов исторической поэтики.

Основным мотивом фольклорных произведений является герой романтик, соответствующий всем требованиям общества, герой исключительный и с хорошими человеческими качествами.

Например, в сказке «Иван царевич и серы волк», герой передает образ глуповатого парнишку с веселым характером и жизнерадостными чувствами. Также в сказке существуют волшебные существа: жар-птица, златогривый конь, живая вода, яблоня с золотыми яблоками, говорящий волк, колодец, который ведет в ту сторону земного шара. В сказках всегда побеждает добро над злом, неправда проигрывает и честность всегда отблагодаривается достойно.

Фольклор выступает в качестве маяка, который служит путеводителем для простого народа. Народ при помощи мотивов использованных в произведениях устного народного творчества осознает, что и как устроено в жизни.

Фольклор имеет множество функций, которые помогают читатели ориентироваться в той или иной направленности. Из также можно назвать элементами. Ценностно-ориентирующий элемент направлен на принятие традиционных ценностей народа, народной культуры, на формирование системы ценностей подрастающего поколения, принятие опыта нравственного поведения в обществе. Кроме этого фольклор выполняет воспитательную и мировоззренческую функцию.

Эмоциональный элемент обеспечивает положительное восприятие персонажей народных фольклорных произведений, направлен на чувственное восприятие элементов народной культуры, формирование эмоционально положительного восприятия национальных ценностей.

Коммуникативный элемент обеспечивает формирование опыта социального взаимодействия на основе народной культуры, развивает коммуникативные умения и навыки у учащихся.

Указанные элементы характеризуют фольклор как воспитательное средство, способное оказывать влияние на различные сферы социального и личностного развития

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учащегося. Использование фольклора никогда не будет устаревшим, поскольку народная мудрость несет в себе сильный нравственно-ценностный потенциал, который выступает основой взаимодействия в обществе.

Воспитательная функция заключается в том, что читатель, прочитав или услышав определенный текст устного народного творчества, делает для себя выводы по поводу данной темы о прочитанном или услышанном.

Таким образов влияние текстов устного народного творчества определяется не популярностью текстов фольклора, но по содержательным качествам. Мотивы, использованные, в фольклорных текстах всегда было отражением реальных событий в жизни определенного народа.

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How AI affects students ‘s performance and mark at university

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ABSTRACT

Artificial intelligence is increasingly advancing in higher education and training in a variety of ways, and the demands will bring various changes to the way we learn. In addition, it affects academic results. This article examines and analyzes the impact of artificial intelligence (AI) on the way universities and higher education institutions operate and evaluate. It also assesses the benefits of AI in education. Based on primary and secondary research surveys and interviews, the research suggests that AI can improve personalized learning and improve academic performance, improve efficiency in academic approaches, and address potential problems among students. supports. Also discussed are the processes of artificial intelligence overuse and overconfidence. The results of this research showed that 60 percent of university professors stated that artificial intelligence would be of great benefit to the students in helping them to better master the assignments and textbooks. The remaining 40 percent disagreed, saying they were concerned that AI would undermine students' ability to think independently and make decisions for themselves. According to the statistical result, we observed that many students mainly use Chatgpt tool more. It has been observed that Ai is currently working well for them and providing them with good benefits for finding and researching information.

АННОТАЦИЯ

Искусственный интеллект все больше развивается в сфере высшего образования и обучения различными способами, и эти требования приведут к различным изменениям в способах нашего обучения. Кроме того, это влияет на академические результаты. В этой статье рассматривается и анализируется влияние искусственного интеллекта (ИИ) на работу и оценку университетов и высших учебных заведений. В нем также оцениваются преимущества ИИ в образовании. Основываясь на первичных и вторичных опросах и интервью, исследование показывает, что ИИ может улучшить персонализированное обучение и улучшить академическую успеваемость, повысить эффективность академических подходов и решить потенциальные проблемы среди студентов. поддерживает. Также обсуждаются процессы чрезмерного использования искусственного интеллекта и чрезмерной самоуверенности. Эта статья завершается рекомендациями и навыками, необходимыми для использования и оптимизации ИИ в образовании. Результаты этого исследования показали, что 60 процентов профессоров университетов заявили, что искусственный интеллект принесет студентам большую пользу, помогая им лучше усваивать задания и учебники. Остальные 40 процентов не согласились, заявив, что они обеспокоены тем, что ИИ подорвет способность студентов мыслить независимо и принимать решения самостоятельно. Согласно статистическим результатам, мы заметили, что многие студенты в основном больше используют инструмент Chatgpt. Было замечено, что а

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й в настоящее время хорошо работает на них и предоставляет им хорошие преимущества для поиска и исследования информации.

ANNOTATSIYA

Sun'iy intellekt turli yo'llar bilan oliy ta'lim va kadrlar tayyorlashda tobora rivojlanib bormoqda va talablar biz o'rganish uslubimizga turli o'zgarishlar olib keladi. Bundan tashqari, bu akademik natijalarga ta'sir qiladi. Ushbu maqolada sun'iy intellektning (AI) universitetlar va oliy ta'lim muassasalari faoliyati va baholashiga ta'siri ko'rib chiqiladi va tahlil qilinadi. Shuningdek, u AIning ta'limdagi afzalliklarini baholaydi. Boshlang'ich va ikkinchi darajali tadqiqot so'rovlari va intervyularga asoslanib, tadqiqot AI shaxsiylashtirilgan ta'limni yaxshilashi va akademik ish faoliyatini yaxshilashi, akademik yondashuvlarda samaradorlikni oshirishi va talabalar o'rtasidagi potentsial muammolarni hal qilishi mumkinligini ko'rsatadi. qo'llab-quvvatlaydi. Shuningdek, sun'iy intellektdan haddan tashqari foydalanish va haddan tashqari o'ziga ishonch jarayonlari muhokama qilinadi. Ushbu maqola ta'limda AIdan qanday foydalanish va optimallashtirish bo'yicha zarur tavsiyalar va ko'nikmalar bilan yakunlanadi. Ushbu tadqiqot natijalari shuni ko'rsatdiki, universitet professorlarining 60 foizi sun'iy intellekt talabalarga topshiriq va darsliklarni yaxshiroq o'zlashtirishda katta foyda keltirishini ta'kidladi. Qolgan 40 foizi esa bu fikrga qo‘shilmagan va sun’iy intellekt o‘quvchilarning mustaqil fikrlash va o‘zlari qaror qabul qilish qobiliyatiga putur yetkazishidan xavotirda ekanliklarini aytishgan. Statistik natijaga ko'ra, ko'pchilik talabalar asosan Chatgpt vositasidan ko'proq foydalanishlarini kuzatdik. Ayni paytda Ai ular uchun yaxshi ishlayotgani va ma'lumotni topish va tadqiq qilish uchun yaxshi imtiyozlar berayotgani kuzatildi.

Key words: AI and personalized learning, risky processes of artificial intelligence, benefits of Ai in skill development, primary research results, usage of Ai tools, impacting performance, discussion results

Kalit so’zlar: AI va shaxsiylashtirilgan o’rganish, suniy intellektning xavfli jarayonlari, ko’nikmalarni rivojlantirishda sun’iy intellektning avfzalliklari, birlamchi tadqiqod natijalari, suniy intellektdan foydalanish usullari, ishlashga tasir qilishi, muhokama natiajalari.

Ключевые слова: ИИ и персонализированное обучение, рискованные процессы искусственного интеллекта, преимущества ИИ в развитии навыков, первичные результаты исследований, использование инструментов искусственного интеллекта, влияние на производительность, результаты обсуждения.

1.Introduction

According to the changes of recent years, artificial intelligence has gained the main place in higher education institutions, and in some sense, changes in the form of education have been made through this intelligence. From tutoring systems to automated assessment platforms, this artificial intelligence has been designed to deliver personalized learning and thus become an effective solution for engaging students in the classroom through additional systems. Although AI is improving the academic performance of the education system in particular, it also faces many critical situations. This is causing a lot of speculation that it could lead to over-reliance on

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technology and criticism of AI. This article examines different approaches to studying the role of artificial intelligence in education, including its impact on student academic performance, and addresses the associated benefits and challenges. It provides insights into how AI will impact teaching and learning experiences among teachers and students and what skills to use.

2.Literature review

Ai and personalized learning

AI is today's global integration and is increasingly being used to make learning and teaching processes more efficient in many contexts. Personalized learning in Coursera's flexible learning system adapts to students' learning styles and provides fast, efficient access. It's AI-powered personalized learning. Khan Academy's learning recommendations empower students and learners to focus and enrich them with enough information at the right time to achieve their best academic results. It is Course's adaptive learning algorithm that trains the AI to use personalized data and provides ample opportunities. (Chassignol et al., 2018) [1]

Risky processes of Artificial intelligence

Many sources describe situations like addiction and overindulgence in AI tools as dangerous. An example of this is that students mainly have tasks solved by AI or continuous use of platforms that depend on AI, which leads to dependence on artificial intelligence. As a result, there are negative aspects of this, for example, critical thinking, inability to solve problems by oneself, and a decrease in the need for scientific resources are observed. (Gulson and Witzenberger, 2020) [2]. In addition, this article suggests that the growing digital divide and the fact that all educational processes and students do not have equal access to AI technologies are among the main reasons for increasing educational inequality.

Benefits of Ai in skill development

Improving the types of use of artificial intelligence, reducing inflexibility in course selection, enabling students to improve their results. These processes have successfully classified 2,900 examples but have proven to have an error rate of 37.5 percent. Decisions trained on the data were classified with 63.5 percent. This article provides clear and positive information on this information and decisions. (Shannaq and Al-Zeidi, 2024) [3]

3.Research Methodology

This study further illuminates the topic with qualitative insights and exchanges of quantitative data from surveys of university students and university professors. The primary study was created by surveying about 110 students on how they use AI and how it affects their academic performance and processes. In addition, information was obtained from university professors and lecturers about how artificial intelligence affects the student education system and how well it can help the evaluation process.

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Information was provided based on scientific articles, studies, and findings related to the subject of secondary research. All of this research provides insight into how AI can affect student performance at university, in what ways AI can be used, and how well it can influence their assessment system. Both studies are researched in a way that is related to each other, and the results of the primary study are confirmed by the secondary study. How artificial intelligence affects the education system; its good and bad points are presented.

Primary research

Based on the topic of this article, research conducted a survey of 110 students with questions based on artificial intelligence. Creating 8 survey questions with a basic set of questions and 5 options for each. Through this primary research, research into how AI will impact their education and training systems and what benefits are needed has resulted. This topic, "How AI affects students' performance and marks at university," caused a lot of discussion among students, because it was observed that AI is mainly used for university and textbooks.

Purpose: Collect data from students on how important AI is and how it affects their performance.

Survey questions

1.How often do you use AI tools (Grammarly, Turnitun, Chatgpt)

2. Which AI tools do you always use for academic purposes?

3. Do you think using AI can improve your academic performance (learning efficiency, understanding, grades)

4. In which situation AI has the most positive impact on your studies?

5.Have AI tools helped you identify your disadvantages which you need to improve academically?

6. Do you rely on Ai tools to complete assignments or prepare your exams?

7. Do you agree that Ai tools can disturb critical thinking and problem-solving by making you too dependent on them?

8. In general, how satisfied are you with the use of AI tools your learning experience?

In addition, research conducted short interviews with university professors and lecturers, and survey results has been satisfied. Almost 65% of students reported positive results. They noted that AI has greatly simplified assessment criteria and has had a positive impact on ensuring more active participation of students in the learning process and making the necessary textbooks more comprehensible. Nevertheless, some professors also mentioned its negative aspects, for example, students get used to using excessive AI, it has a negative effect on the development of their personal thoughts and it destroys their decision-making and independent thinking. They said that they are planning to make several capacities.

Secondary research

This secondary research explores the perspectives and insights of various sources and articles on how AI is being used, the challenges it poses, and how it is benefiting students and the

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education system today. It is known that artificial intelligence is gaining ground in many aspects, and AI in particular is advancing the learning process, and it is expected that there will be both benefits and harms. All such information can be found from relevant sources and research theories.

1.As artificial intelligence continues to advance, there are many advancements with the curriculum from year to year. Accordingly, McKinsey's report found that student achievement increased by 10-12 percent and cited reasons for this. (McKinsey & Company, 2022) [4]

2. AI focuses on improving the learning process and providing better understanding to students and learners. Regulates the educational process, teaches research on assignments and projects, and explains to students in depth. This article goes into more detail on such information and can provide me with a lot of information. (Leovigildo Lito Mallillin and D Mallillin, 2024) [5]

3.There are sources that say the use of AI can always raise ethical concerns when performing scientific works or evaluation algorithms and subjective tasks. Also, based on secondary research, it produces numerical differences, i.e., paid forms of artificial intelligence work well among students among their peers. It is assumed that they cannot use artificial intelligence equally due to their income. (Huang and Rust, 2021) [6]

4.Research findings

Figure 1

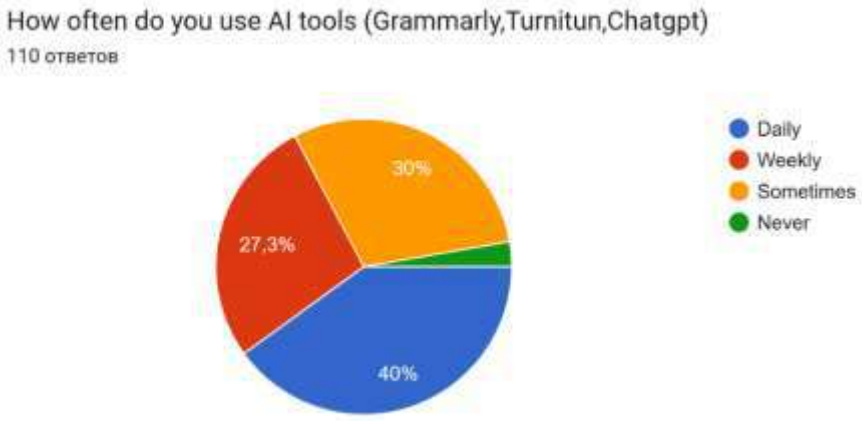

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Figure 2

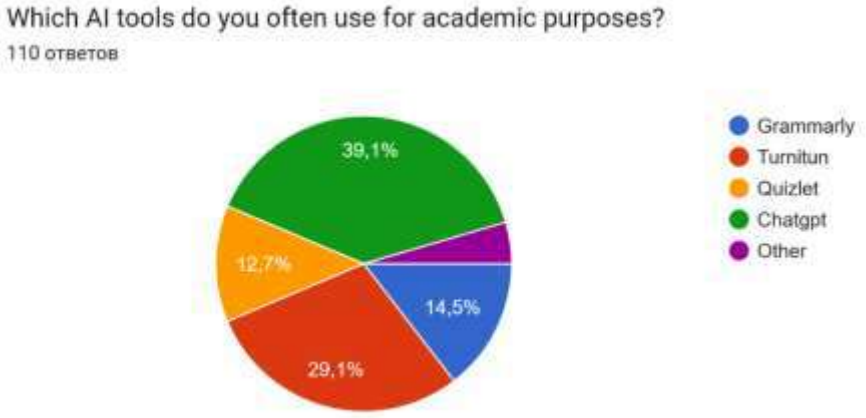

Figure 3

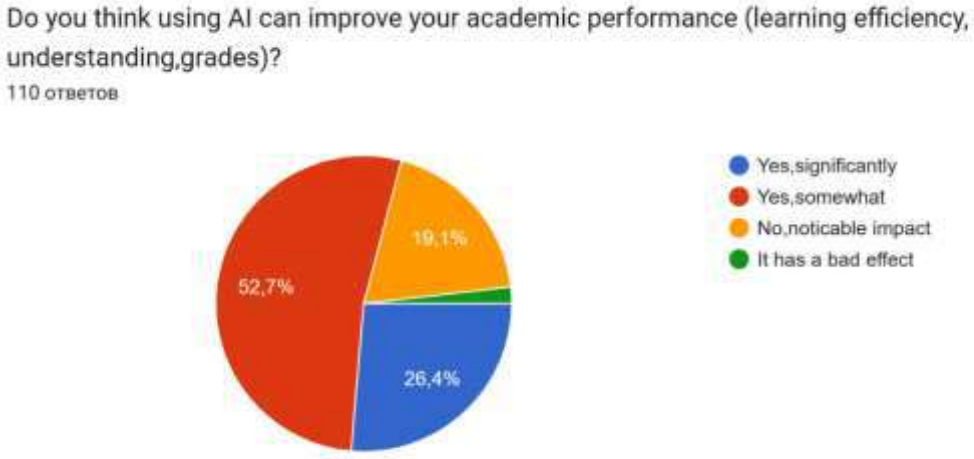

Figure 4

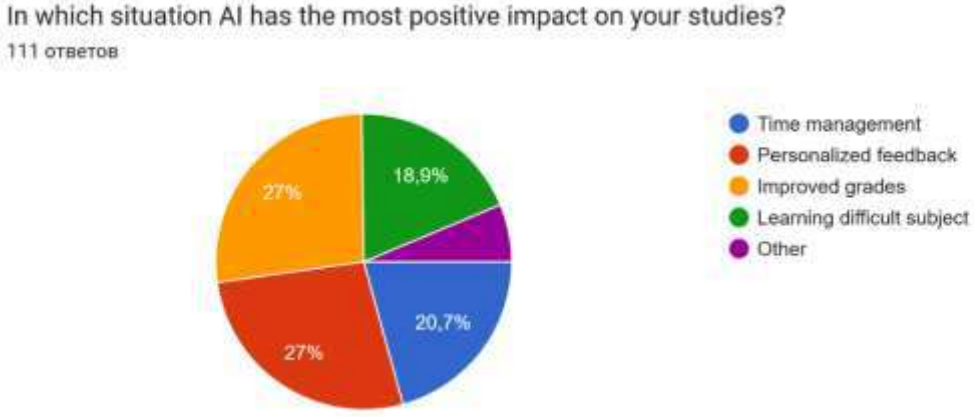

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Figure 5

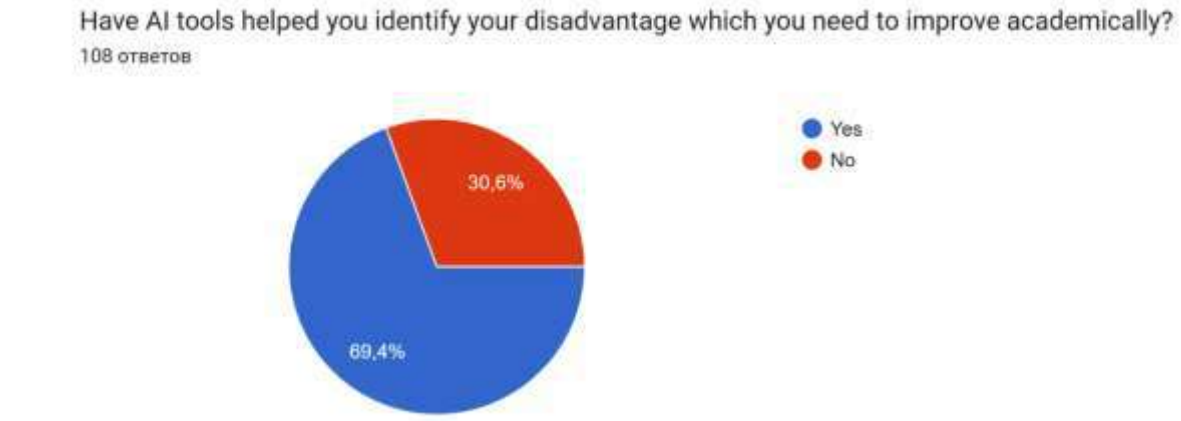

Figure 6

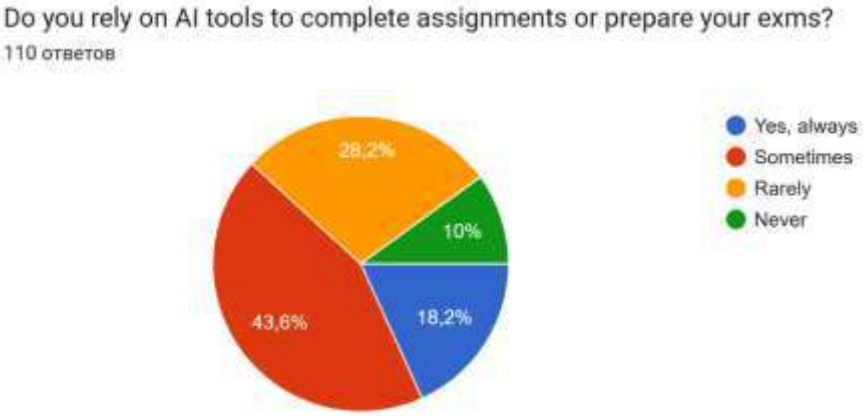

Figure 7

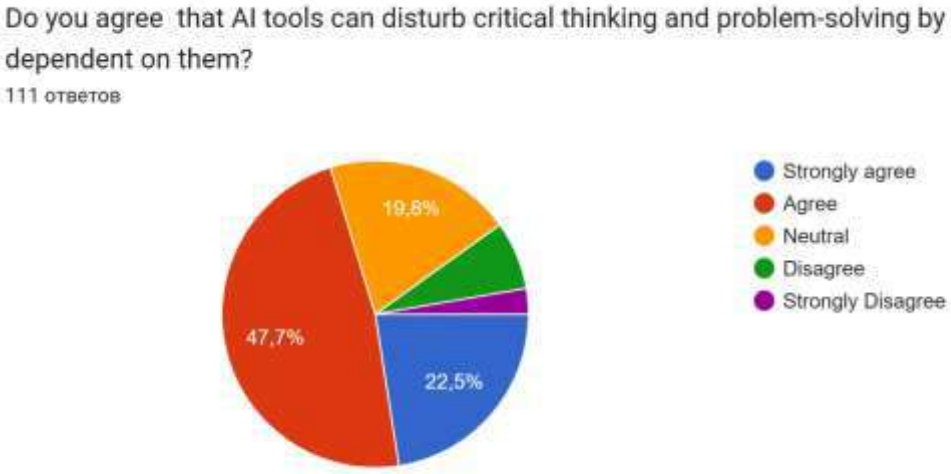

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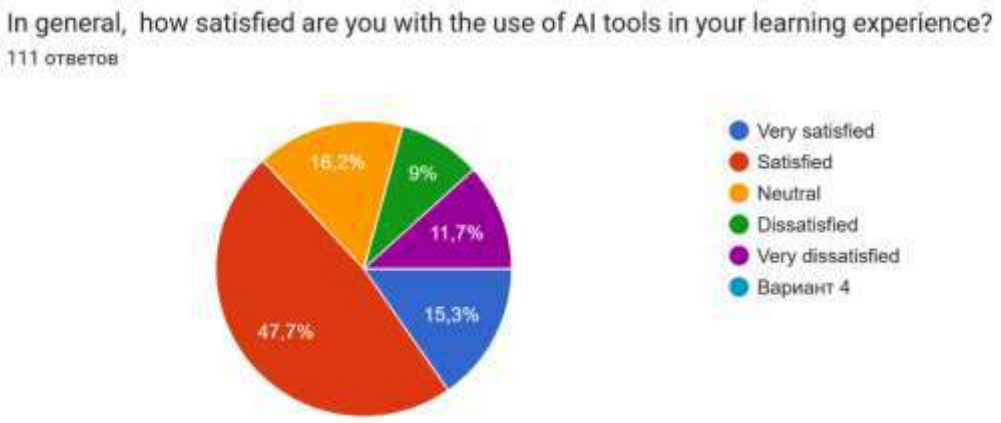
Figure 8



5.Data analysis

Utilization of AI tools: The results of this question showed that 40 percent of students were observed to use artificial intelligence tools regularly. The most popular tools include ChatGPT, Turnitin, Grammarly, and Quizlet from various platforms. In particular, the most used platform among students is ChatGPT, which showed 39.1 percent; Turnitin took 29.1 percent, which is mainly used for coursework and assignments. Quizlet platform is popular with 12.7 percent. The remaining percentage is added to the use of Grammarly and other platforms, with students mainly using the above tools more.

Affecting on performance: This result showed that many students responded yes to AI improving their performance in some way with 52.7 percent. The remaining 26.4 percent answered that it will affect significantly. I think this is a good result because most of them are not too used to artificial intelligence. The remaining 19.1 percent stated that they do not provide much benefit. From this it can be concluded that AI does not develop them much for academic performance.

Impact on studies: The results indicate that AI has the same impact on student learning as personalized feedback and improving grades, with 27 percent proving it. Almost identical indicators for learning difficult subject and time management showed 18.9 and 20.7 percent. It often has a positive effect on improving students' grades. Also, 69.4 percent of students agreed that artificial intelligence should help students develop academic aspects. Except for the remaining 30.6 percent.

Effecting tasks: 43.6 percent of students answered that they did not use AI for their homework and exam work, but sometimes. 28.2 percent indicated for rarely completing tasks. It can be concluded that students use the help of artificial intelligence to complete their assignments.

Impacting problem-solving and critical thinking: A 47.7 percent result showed that AI affects students' critical thinking and problem-solving abilities, confirming that it can be overwhelming for many students. The remaining 22.5 percent of students strongly agree,

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indicating that many students are affected by these skills. However, many of the results show that 47.7 percent are consistently satisfied with the use of AI. It can be seen from this that artificial intelligence has proven to be effective for many people through statistical analysis.

6.Discussion

- **Primary research methodology**

According to the answers of the primary research, we can observe that the use of artificial intelligence is widespread in various fields. It can believe that students are using various tools of AI almost every day, and it is growing worldwide. The fact that artificial intelligence has contributed to the development of education in various fields, providing students with necessary instructions for academic purposes and creating understandable resources for educational processes, is another impetus for development. ChatGPT is a popular tool among students and has become their friend. Personally, it can be said that if we can use artificial intelligence properly, it can give us a lot of knowledge and skills. In particular, the fact that artificial intelligence has a positive effect on student performance is almost 70 percent, which means that the information provided by AI is based on real-life experience and proves to be very intelligent. All 110 students left positive impressions about artificial intelligence. In this experiment, the university professors are also satisfied that the AI evaluation system works properly in their answers, and it has been effective for them and has created many educational resources. Almost 60% of teachers have proven that AI has a positive impact on their learning style.

- **Negative impacts of using AI**

There are certainly many positives to using artificial intelligence, but there are also negatives. It will be a good helper for the student on the survey, except for teachers and professors. Continuous use of artificial intelligence prevents students from concentrating their thoughts, lacks positive thoughts in decision-making, over-relies on artificial intelligence, and the completion of given tasks only with the help of AI may cause a lack of experienced and qualified personnel in the future. Because it would be appropriate for me to point out to them that AI is not human-like and cannot do tasks that humans can do. The remaining 40 percent of teachers worry that too much use of artificial intelligence will lead to exactly the above problems. It follows that artificial intelligence may not always have a good effect, and university professors are planning to develop a new project about this. It is precisely the creation of various restrictions and limits that aim to produce a new system of using AI only when necessary.

- **Secondary research methodology**

Usage of artificial intelligence

According to the sources found, many results on the use of artificial intelligence are presented in the data. According to statistics, it was shown that AI students' mastery of lessons increased by 10-12 percent. Based on this, it can be said that AI is developing and becoming smarter day by day, which ensures that it provides many benefits to people and effectively helps them achieve their goals. Based on this information, we can discuss that the creation of AI and its benefits are created based on the perception of people's thoughts will take the fact that these indicators are growing more and more indicates that the technology is developing further.

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Education processes

Another piece of information that should be discussed is that the impact of AI on the educational process and the use of artificial intelligence to provide students and teachers with a good mastery of the subject is another success. brings its results according to assignments and projects. Students can benefit from this tool with proper instruction to be more active in their curriculum. The information given in the teaching system at the university, various presentations, and slides will motivate the student to learn better, and artificial intelligence can contribute to the convincingness of the various tasks controlled by the teacher.

Exceptions of Ai tools

Another source of secondary research suggests that artificial intelligence raises ethical concerns. Using this tool is platinum; most sorted data works after payment. It can make numerical differences among students. What effect does this have? However, a wealthy person can use it, and the poor have to rely on their own strength. In other words, it leads to differences among peers and changes in grades. Therefore, the university should create criteria. During a serious assignment or exam, it is advisable to create restrictions to ensure that everyone is equal-minded and has the same responsibility. Sources believe that they cannot use AI because of their income. It can be said that it is correct in one account, but I do not agree with this opinion, because the human mind and perception are stronger than any means. This man-made artificial intelligence can work in every field, but it cannot create feelings and hypotheses like thinking and feeling like humans, so it was considered permissible to create necessary measures and restrictions on its use in education and other fields.

7.Conclusion

In this article, researches have presented my findings based on data and research. The article begins with an introduction, in this part it is mainly introduced what the article is about. The next part is the literature review part, in which have cited clips from the research conducted on artificial intelligence. This will help to improve the quality of the article. This part is followed by the research methodology in which is present information about the interviews and surveys conducted with students and university teachers. Secondary research provides information about what other people think about the topic and what background information they have collected. In the data analysis part, statistical information is presented precisely through the conducted surveys and interviews. In Discussion, all these collected primary and secondary studies are discussed and general insights are given and information is generated in the form of their discussion. All of the collected data and research are fully presented on how AI will affect education, how students and teachers view it, and the ways in which they use assessment systems. All secondary data found are provided with references and citations to prove the reference base. I hope this article and the research conducted will be useful.

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Developmental Focus: A Strategic Educational Framework for Guiding Students Through Critical Transitional Phases, Providing Mediation and Support to Overcome Developmental Challenges

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Abstract. The article discusses the operationalization of a number of ideas on the structure and dynamics of an event. The event itself is presented as a conjugation of transitions from the current state to another, different from what is and functions stereotypically, and, at the same time, from reality as an obvious given to an idea in which the meaning and cultural significance of reality are revealed. This dual transition presupposes overcoming the functional fixity of previous experience, habitual modes of action. A trial action is assumed as a method of overcoming. For an educational event as an act of cultural transmission, this is a trial of a new cultural form, an attempt to reproduce it in one's own action.

Key words: educational event, cultural form, transition, explanatory reading, experience, hope, functional fixation, overcoming, mediation

Today's pedagogical science and practice contain many different-scale innovations, and so quickly changing each other that there is not enough time and means to assess their effectiveness. One of the innovative ideas is the organization and implementation of educational events (EE). An educational event is usually understood as an event that concentrates the creative efforts of teachers and students and provides a breakthrough effect in understanding subject, interdisciplinary and meta-subject content. The methods of designing and conducting, as well as the achievements of such events are described so vaguely that it is impossible to be sure how educational they really are, i.e., how they correspond to the main mission of education - to ensure cultural transmission.

Since any descriptions and references to OS declare its developmental character, when considering OS, we were guided by the ideas about the act of cultural development that are significant for us. According to these ideas, an event is a situation in which a student's encounter with a scientific or aesthetic idea that defines the basis of some field of science or art has come true. The result of such an encounter is understanding and active involvement.

Almost every modern subject in higher education is distinguished by the content disunity of sections and topics. External, of course, since for a specialist all these topics are, of course, connected at least by the unity of the subject and method; but for a student (and often for a teacher) the subject is broken down into discrete, isolated parts, "living on their own". Traditionally, each subject (for example, "General Psychology") is studied as an independent unit, not connected in any way with other fragments of psychological knowledge, "esoteric", without any obvious and effective applied need. It is assumed that it is of special value and is capable of independently

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ensuring the development of thinking of a future specialist, however, the lack of correlation with the entire structure of psychological knowledge and the hidden inclusion of the subject in professional activity, the loss of the internal (for students) basis of "need" for them "here and now" are obvious, since nothing specific is required of them in terms of a long-term, life result. The educational tasks, for the sake of mastering the means of solving which, in fact, each course is conducted, are simplified and emasculated to such an extent that they do not bear any imprint of the real tasks (problems) of the given subject. As a result, they are solved by students using the latest of the "formulas" that they received from the teacher in a ready-made form in the last (penultimate) lesson.

Just as the famous literary character happily learned that he had been speaking prose all his life, so education will be pleasantly surprised by the fact that throughout its history, in one way or another, in its best examples and attributes, it has quite successfully sought to develop (build) the activity of modeling with the hands and heads of its students. True, it almost never specifically reflected on this circumstance, considering it a logical stage in improving teaching methods. Now, for the successful reform of psychological education, the task is to cultivate this valuable achievement, providing it with the necessary means and organizing an experimental test under psychological support.

In our understanding, the idea of modeling brings (can bring) decisive heuristics to psychological education (in practical terms, the article is about training psychologists at Surgut State University) in the following way. At first implicit, but as it is included in the modeling activity, acquiring more and more definite outlines (including with the expansion of the range of objects of various nature involved, with the acquisition of experience in solving contrasting problems, etc.), the subject of analysis of future psychologists becomes the "problematic pair": the subject and method of research. Reflection on the subject and method, as well as the means of solving current problems (for example, the obviously coinciding in time beginning and educational correspondence of "General Psychology" and "General Psychology Workshop") constitutes the necessary background for problematization for the development of this course. The tasks and the "super-task" (coursework) set for solution must simultaneously meet the educational and cognitive needs of students. The supertask must be large enough (calculated for a long-term solution - for one or two semesters), since for qualitative transitions "in knowledge" a certain spatial (meaning a significant expansion of the studied conceptual area in comparison with traditional training) and temporal (associated with the development of new forms of research activities, group work, etc.) run-up is necessary.

A new form of conducting classes, which we called a project-based one, must also meet this task. With this form of educational interaction, the goal of joint activity with the teacher and classmates becomes the final product - a solved problem. The personal decentration necessary for the professionalization of a psychologist - overcoming the egocentrism of a philistine position, going beyond the limitations of "countertransference" usually inherent in beginning psychologists, etc. - is a consequence of the psychological atmosphere, which is cultivated mainly by the conditions of cooperation and freedom of choice of the trajectory of educational and professional movement - attributes so atypical for the modern educational situation. At the same time, the means of such decentralization are psychological knowledge itself (this, apparently, is the decisive

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advantage of psychology as an academic subject over other disciplines), consistently derived from the research (theoretical and experimental) activities of students.

Problematization of the entire field of psychological knowledge is a necessary condition for the formation of psychological thinking of future specialists. There are no once and for all established truths either in theory or in the practice of a psychologist. Any manifestation of professionalism, from our point of view, is realized primarily in the research nature of psychological work, be it an examination, correction or issuance of specific recommendations. Problematization cannot be delayed in the process of training and dissemination, and not in its result.

The creation of anthologies on various branches of psychology significantly lags behind the development of psychological education, moreover, the anthologies mainly include fragments of purely theoretical views of the authors, and their research, experimental "kitchen" remains beyond the capabilities and attention of the compilers. Because of this, it seems to us, many interesting studies, theoretical constructs and facts are gradually disappearing from psychological use, which significantly impoverishes the learning process and makes practically unattainable that broad erudition that is inherent in all without exception psychological “masters” of the past.

In the course of study offered to students, they, apparently, for the first time have to face a peculiar understanding of science, the tasks of psychology, its history and today's practice. Usually, school and university subjects present "settled" and time-tested truths, if one can say so - the yesterday of science, its tried and tested and generally accepted foundations. The community of psychologists is in a different situation. The crisis in defining the subject and method of our science is, perhaps, already the main and stable background of our daily work - in a scientific laboratory or at an enterprise, in a psychological consultation or at school. The theory and practice of psychology are still not far from introspection, stimulus-reactivity and speculativeness in research and transformation of reality, therefore yesterday continues for us today. At the same time, just as every person witnesses the birth, rise and fall of "absolute" truths throughout his life, and along with worldly wisdom comes to him a sense of the relativity of our knowledge of the world, so the professional movement in any of the human activities, including psychology, inevitably faces the need to revise the relevant fundamentals.

Scientific knowledge does not age, it changes, like everything else on this earth. Scientific priorities, social tasks, research tools change, and this process is continuous. A beginner enters a new profession as if into a running stream, and in order not to remain on the shore and first acquire the speed of the stream, and then surpass it, he should be oriented not only in the known truths, but also in the current circumstances and problems of scientific knowledge, as well as in the future, still poorly understood, still only at the tip of the pen - new tasks and new means of solving them.

In our course of problems we try to move away from traditional didacticism and reveal (emphasize) the relativity of psychological knowledge, give a taste of contradictions and understand the tendencies of movements of theoretical and practical programs. For psychology, perhaps, as for other disciplines of human studies and humanitarian knowledge, there is no past. The ideas of Antiquity and the Renaissance are as relevant and modern today as a computer experiment. Revealing them as "new", we realize that such a presentation has its "pluses" and "minuses". Fresh scientific data are less well structured, they have not yet filtered out externally interfering, but in fact significantly clarifying the picture, subjective and objective circumstances.

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However, a widely disclosed palette of psychological worldview gives incomparably more specific and natural images of the ideas dominating in the scientific community, research rules and stereotypes, directions of scientific and pseudo-scientific polemics. This generally reflects the emerging and dominant practice of psychological research, when the scheme of the experiment, since the time of the criticized and rejected introspection, gravitates toward the positivist model of reducing the conditions and content of the psychological world of man, toward the superposition of dependent and independent variables. At the same time, already on the material of biology (physiology), such a mechanistic understanding of the process and technique of studying the organism is unproductive and does not accommodate the evolutionarily variable and orienting-researching essence of the latter.

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Combating corruption serves as the critical cornerstone for driving meaningful societal advancement

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Abstract. The fight against corruption remains one of the most pressing issues of today in the world. The fight against this evil covers many countries of the world. The Republic of Uzbekistan is also contributing to the fight against corruption. Currently, a number of programs have been adopted in our republic within the framework of the fight against corruption, and extensive work is being carried out on them. Within the framework of the fight against corruption, the Ministry of Justice has also developed a number of action plans, in which departments and institutions of the justice system are actively participating.

Key words: Corruption, civil society, UN Convention, tolerance

Abu Nasr Al-Farabi, in his work “The City of Virtuous People,” noted that one of the problems that hinders the development of civil society is corruption. Corruption is a cruel obstacle to the development of the market economy system, bilateral and multilateral cooperation between countries, business and investment. These “invisible hands” lie behind the opening and closing of dozens of joint ventures every year. It seems that the real reasons for the decrease in foreign investment in a country with a high level of corruption should be sought in this dangerous vice. As this issue deepens, first in the West, and then in Asian countries, and the area, scale and level of the “disease” in society are increasing, the constant question arises: what should be done? What can be done to reduce the scope of the impact of such a scourge that has taken over the world and is crippling the economies of countries?!

Corruption is a broad concept, and it is impossible to ignore the fact that it has become an everyday activity of certain layers, categories, and groups of society, interconnected and intertwined. Researchers have long been writing about the need for law enforcement agencies of the state to be more vigilant and astute in this "delicate", "complex" issue, as well as the need for non-governmental organizations, various commissions, journalists, and the independent judicial system to work more actively. Politicians, sociologists, psychologists, historians, state and public bodies, political parties, and most importantly, practitioners should analyze the issue and find a solution.

In recent years, articles on ways to combat corruption have begun to appear in the foreign press, including in the CIS countries. Analysis of studies conducted in the CIS member states shows that, despite the fact that thirty years have passed since we got rid of the Soviet system, the judiciary has still become an obedient organ of state power. The head of our state emphasizes this social weakness, a vicious vice in almost every speech. When we consider organizational issues at regional sessions, we first of all come across this issue. Bribery and corruption are hindering the

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development of Uzbek society in every way, in particular, the process of democratic renewal and modernization. Despite the fact that this issue has been highlighted for many years and the "caught" officials have been shown on television and in the press, the vestiges of feudalism, greed, and bureaucracy that have seeped into the blood of the judiciary, prosecutor's office, heads of departments, and ordinary citizens are not disappearing from the life of our society. Corruption, firstly, leads to injustice, inequality and discontent of the population in society, which cannot but negatively affect the results of reforms in all areas; secondly, the insufficient level of legal awareness and legal culture among our citizens, their inability to protect their rights, increases the violation of the criterion of justice in society; thirdly, the democratic criterion in the form of political institutions and public organizations, although similar to the Western model, lags behind the requirements of the times in terms of content and essence, and this shortcoming prevents us from moving forward.

In our opinion, the role of one organization in this regard - the judicial authorities - should be strengthened and its privileges should increase. It is also the need of the hour for the newly established Anti-Corruption Agency to carry out all work together with the Ministry of Justice, fully ensuring the rule of law.

In accordance with Article 81 of the Law of the Republic of Uzbekistan "On Combating Corruption", the Anti-Corruption Agency (hereinafter referred to as the Agency) is tasked with formulating and implementing state policy in the field of preventing and combating corruption.

Within the framework of this task, the Agency coordinates the activities of ministries and departments in the field of preventing and combating corruption and organizes their joint and effective operation.

The Agency performs the following tasks in the field of implementing state policy in the field of combating corruption:

– develops and ensures the implementation of strategies and state programs to combat corruption;

– develops draft regulatory legal acts aimed at strengthening the legal framework for combating corruption;

– provides a systematic analysis of the state of corruption in the country, as well as studies areas with high corruption risks and the causes and conditions for committing corruption offenses;

– Ensures the implementation of the requirements of the UN Convention against Corruption, as well as implements systematic measures to develop international cooperation in this area, strengthen the country's image and increase its position in international rankings.

– Prepares an annual national report on the fight against corruption in the Republic of Uzbekistan.

– Supports the activities of civil society institutions, the media and other representatives of the non-governmental sector in establishing public control over corruption.

Based on the analysis of the problems related to the human mind and worldview in the state and society, we still have a long way to go in the fight against the evil of corruption inherited from the former Soviet Union. The reason is that the hierarchical system, which works strictly from top to bottom, similar to that of China and Singapore, has not yet fully come into play. However, this natural process should not be artificially slowed down or "stopped" under pressure from certain

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forces. In this regard, it is necessary to make good use of the rich experience of developed countries. For example, in the USA, reporter-journalists have established the most effective public control in the fight against corruption. In the CIS, including Uzbekistan, investigative journalism is in a shallow state and lags behind the needs of today. To be more precise, the defense of selfless journalists who conduct independent investigations, trying to expose the “dirt” of criminals, will not work. Even more regrettable, even if an article proving the secret wealth of a leader is published in the press, no firm measures are taken against it, and the situation does not change. For example, once upon a time, if a feuilleton was published about a leader, they would be expelled from the party, imprisoned, and that is why officials were afraid of the "fourth power."

So, if the activities of two or three powerful periodicals like "Mushtum" were supported and special programs were broadcast on television almost every day (whether there was a case of big or small greed), it is clear that many people would wake up. We believe that it is necessary to instill in the minds of citizens that there can be no development without criticism.The problem of instilling tolerance in the minds of adolescents and young people studying in the education system, a priority area in society, is looming before us. The idea that “the evil of corruption in society cannot be overcome” has been formed in the minds of young people (why it has not been formed in the minds of Japanese or Chinese citizens is a separate issue) is our biggest shortcoming.

If we do not make progress in this regard, the evil of corruption will continue to cast a shadow over the reputation of our nation. Unless we carry out more educational and propaganda work in the minds and souls of our sons and daughters in the family, kindergarten, and school that greed and bribery are not only a bad vice, but also the cause of the decline of our society and the backwardness of our economy, it will be difficult for us to achieve our goal. In recent years, the great idea that the state should serve the people, put forward by our President, has given civil society institutions the opportunity to develop systems and programs. However, for some reason, non-governmental non-profit organizations and political parties are delaying the implementation of initiatives and organizational work in this regard. True, recently, in particular, since 2017, the terms “parliamentary control” and “public control” have been introduced into our country, and the first laws on this issue have been adopted. So, we need to quickly create a functioning system in this area, taking into account the national mentality, and apply the advanced experience of Southeast Asian countries. Without public control, it is impossible to implement reforms of the political system in Uzbekistan. In particular, modernization, renewal, reforms and corruption do not “blend”, there will be a constant struggle between supporters of innovation and old-fashionedness, science, innovation, creative thinkers and the old generation of bureaucracy.

First of all, the fight against corruption should start from the family. We believe that women have a great role in this regard. If our women can investigate the root cause of theft or bribery and speak their minds openly, then their husbands will undoubtedly start looking for honest livelihoods and find prosperity, peace and tranquility in their work and family. Corruption is the height of greed. To fight it, political will is required from officials. The way out of this situation is, first of all, to reduce the size of the state bureaucratic apparatus as much as possible, to minimize state interference in the personal lives and economic activities of citizens, and to eliminate monopolies.

True, the fight against corruption manifests itself differently in different countries. However, only two recipes are recognized in the world to avoid theft in the civil service: 1. Switzerland - reduce time. Of course, in our country, drastic measures are being taken to combat this vice.

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Studies show that the most effective way to eliminate any evil is to fight its cause, not the evil itself. In our opinion, it is recommended to start the fight against this evil evil by solving the following problems: the agency should review the laws that are part of the corruption component; establish public control over state institutions (openness index); approve governors and ministers by the parliament and local councils; transfer all state services to the "Single Window" centers, strengthen the independence of the judiciary; social protection of civil servants, and ensure that the salaries of officials are 2-3 times higher than those in similar businesses (Georgian experience).

This requires the creation of independent commissions and centers, a serious study of the real situation, and the rapid start of work of a single center that will regularly collect all research and information. Because the work and tasks to be done will last for decades. It is worth recognizing that those involved in corruption in the public procurement, investment, banking, tax, customs, markets, and construction systems make good money. The extreme "weakness", "weakness", and even benevolence of legislative practice and law enforcement agencies in confronting them hinder our work, and as a result, there are more and more cases of people owning luxurious villas abroad in exchange for the appropriation of the underground and surface wealth of the people and the state.

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IMPORTANCE OF EXCURSION CLASSES IN ELEMENTARY EDUCATION NATURAL SCIENCES

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Abstract: Excursion classes in elementary education play a crucial role in teaching natural sciences by providing experiential and hands-on learning opportunities. These outdoor activities enhance students' understanding of scientific concepts through direct observation and real-world engagement, catering to diverse learning styles. Excursions inspire curiosity, promote critical thinking, and develop environmental awareness, fostering responsible citizenship and a love for nature. They also strengthen teamwork, teacher-student relationships, and interdisciplinary learning while improving students' physical and mental well-being. By bridging the gap between theoretical knowledge and practical experiences, excursion classes create a dynamic and holistic educational environment that nurtures future scientists and environmentally conscious individuals.

Keywords: Excursion classes, natural sciences, experiential learning, environmental awareness, critical thinking, elementary education.

Excursion classes have long been recognized as one of the most effective teaching strategies, particularly in the natural sciences. Elementary education plays a foundational role in shaping the learning habits and curiosity of young minds, and it is during this stage that children begin to explore and connect with the natural world. Natural sciences, which encompass biology, ecology, geology, and environmental studies, are best understood through direct interaction and observation. Excursion classes provide this opportunity by taking learning beyond the traditional classroom setting. These field trips allow students to experience real-life environments, fostering a deeper understanding of scientific concepts, inspiring curiosity, and promoting environmental stewardship. One of the primary benefits of excursion classes in natural sciences is that they make learning experiential. The traditional classroom often relies on textbooks, diagrams, and lectures to teach concepts like the life cycle of plants, ecosystems, or the water cycle. While these methods are valuable, they can fail to provide a concrete, hands-on experience. Excursions bridge this gap by enabling students to see, touch, and engage with the subjects they are studying. For instance, a lesson on plant diversity becomes far more impactful when children visit a botanical garden, where they can observe different plant species, learn about their characteristics, and even interact with expert guides. Such experiences are likely to be remembered more vividly than lessons taught solely within the confines of four walls.

Furthermore, excursion classes cater to diverse learning styles. Every child learns differently; some students excel with auditory explanations, others with visual aids, and many through kinesthetic, or hands-on, experiences. In natural sciences, a subject that often requires observation and practical understanding, excursions provide a platform for kinesthetic and visual learners to thrive. Observing a butterfly's metamorphosis at a nature reserve, testing the pH of a river's water, or identifying soil layers during a field visit appeals to students who struggle with traditional modes of teaching. This inclusivity ensures that no child is left behind and that all students develop a meaningful understanding of scientific concepts. Excursions also enhance

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students' critical thinking and problem-solving skills. Field trips present real-world scenarios that require students to observe, analyze, and draw conclusions. For example, visiting a wetland allows students to observe an ecosystem in action—interactions between plants, animals, and their environment. Teachers can guide students to identify how human activities might impact this ecosystem, prompting them to think critically about conservation. Similarly, field trips to geological sites or science centers can challenge students to apply their classroom knowledge to interpret what they observe. Such activities encourage analytical thinking and problem-solving, which are critical skills for future scientific learning.

In addition to fostering cognitive skills, excursions in natural sciences inspire curiosity and a sense of wonder. Natural science is inherently fascinating because it explains the world around us—from the smallest insects to the vastness of ecosystems. However, this wonder can sometimes be diminished when students are limited to textbooks and indoor teaching. Excursion classes reawaken a child's innate curiosity by immersing them in the wonders of nature. A trip to a forest, for example, exposes students to wildlife, plants, and natural phenomena that spark endless questions and observations. "Why do birds migrate?" "What role do insects play in pollination?" "How do trees grow so tall?" Such questions lead to a deeper interest in science and encourage students to seek answers, fostering a lifelong passion for learning. Environmental awareness and stewardship are additional critical benefits of incorporating excursions into natural science education. In an era where environmental challenges such as climate change, deforestation, and pollution are becoming increasingly significant, it is crucial to teach children the importance of protecting the natural world. Excursions connect students to nature on a personal level, helping them develop empathy for the environment. When children visit a polluted river or observe deforestation in a local area, they are more likely to understand the consequences of human actions and feel compelled to act. They begin to see the relevance of concepts such as conservation, recycling, and sustainability. This awareness plants the seeds for responsible citizenship and environmental stewardship at an early age.

Excursions also help strengthen the teacher-student relationship and foster collaborative learning among peers. The informal and engaging atmosphere of field trips allows teachers to interact with students on a more personal level, which can create stronger bonds of trust and encouragement. Students, too, learn the importance of teamwork and cooperation. Activities such as collecting samples, conducting group experiments, or working together to identify species require students to collaborate and communicate effectively. These skills are not only essential for science education but are also invaluable for personal and professional development later in life. Another often overlooked advantage of excursions in natural sciences is their ability to improve students' physical and mental well-being. Spending time outdoors has been shown to reduce stress, improve mood, and enhance focus. Elementary school students, in particular, benefit from time spent in nature because it breaks the monotony of the classroom routine and encourages physical activity. Activities such as walking through a forest trail, climbing small hills, or exploring a shoreline promote healthy movement while engaging the mind. Moreover, the excitement and enjoyment associated with excursions help students associate science with fun and exploration, leading to a positive attitude toward the subject.

Excursion classes also support the development of interdisciplinary learning. Natural sciences are not isolated subjects but are closely linked to mathematics, social studies, and even

art. For example, a field trip to study a river system may involve measuring water levels (mathematics), understanding its historical significance for local communities (social studies), or sketching the landscape (art). By integrating multiple disciplines, excursions help students see the interconnectedness of knowledge, fostering a holistic approach to education. In conclusion, excursion classes are invaluable in elementary education for natural sciences. They transform abstract classroom lessons into meaningful, hands-on experiences, cater to diverse learning styles, and encourage critical thinking, curiosity, and environmental stewardship. Excursions allow children to connect deeply with the natural world, inspiring a lifelong love for science and nature. At a time when environmental awareness is crucial, field trips play an essential role in shaping responsible citizens who understand and appreciate their environment. Moreover, these outdoor learning experiences promote teamwork, physical well-being, and interdisciplinary connections, making them an integral part of a well-rounded education. To fully realize the benefits of excursion classes, schools and educators must prioritize and integrate them as a regular component of natural science education. By doing so, they can foster a generation of curious, thoughtful, and environmentally conscious individuals.

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THE SADLY TASTE OF THINKING
(About the Theater of the Absurd)

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In this article, the concepts of absurd drama, absurd theater, are the conditional name of the current in dramaturgy. In the 50s and 60s of the last century, proponents of the movement argued that human life was meaningless and abstract. According to them, man cannot even understand why he is living. He is constantly talking about being a victim of false duty, false morals, false relationships.

Keywords: theater, absurd, paradox theater, tragedy, catharsis, grotesque, actor.

ТАФАККУРНИНГ МАҲЗУН ЛАЗЗАТИ

(*Абсурд театри хусусида)*

Мазкур мақолада абсурд драма, абсурд театр тушунчалари драматургиядаги оқимнинг шартли номи. Ўтган асрнинг 50-60 йилларида оқим тарафдорлари томонидан инсон ҳаёти маъносиз, мавҳум деган нуқтаи назар илгари сурилади. Уларнинг фикрича, инсон ҳатто нима учун яшаётганини ҳам англаб етолмайди. У доимо ёлғон бурч, ёлғон ахлоқ, ёлғон муносабатлар қурбони бўлавериши ҳусусида сўз боради .

Калит сўзлар: Театр,абсурд, парадокс театри, трагедя, катарсис, гротеск, актиёр.

ГРУСТНЫЙ ЦВЕТОК МЫШЛЕНИЯ
(О Театре абсурда)

В данной статье понятия драмы абсурда, театра абсурда являются условным названием течения в драматургии. В 50-х и 60-х годах прошлого века сторонники движения утверждали, что человеческая жизнь бессмысленна и абстрактна. По их мнению, человек даже не может понять, зачем он живет. Он постоянно говорит о том, что стал жертвой ложного долга, ложной морали, ложных отношений.

Ключевые слова: театр, абсурд, парадоксальный театр, трагедия, катарсис, гротеск, актер.

Театр санъати пайдо бўлибдики, унинг туб негизи ўша-ўша. Ижодкорликни намоён қилишнинг бир шакли сифатида инсоният маданий-эстетик ҳаётида ўз ўрнига эга. Саҳна санъати бошқа ижод шакллари сингари тараққиёт диалектикасида ўз табиатини сақлаб келаётган бўлса-да, унинг мазмун-моҳияти, борлиқ ва инсонни ифода этиш усуллари

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бетиним тардрижийликда ўзгаришларни босиб ўтди ва бу янгиланишлар театрнинг инсониятнинг ўзидан ўрганиб, ўзига қайтарган хитобида акс этди. Антик даврдан то бугунги кунга қадар театр субъект-инсон тарафида туриб, унинг тақдир-инсон, табиат-инсон, дин ва инсон, жамият ва инсон, инсон ва инсон ва ниҳоят инсоннинг ўзи билан ўзи аро курашларини турли жанрлар ва оқимлар бадииятида ифодалаб келмоқда. Сўнгги жараён – инсоният ўзини ўзи ким ёки нима эканлигини, мавжудлигини баҳолашга киришгани “абсурд драмаси”, “парадокс театри” деб аталувчи адабий- саҳнавий ижод шаклида ўз аксини топди. Абсурд театри дунёни, одамзот ҳаётини бадиий идрок қилишнинг бир шакли сифатида, ҳаққониятни рационал ахтариш тарзини бошлади. Олам ва одам мантиғининг чексиз жумбоқларини салмоқлаб кўришга ўтди.

Бугун дунёда абсурд драмаларининг қиймати баланд, уни ўрганиш бўйича ҳам театр танқидчилигида изланишлар илғор давом этмоқда. Эътироф этиш керакки, бу шаклдаги театр ва драманинг бешиги Европа. Бу оқим ва унинг ёркин намуналари Европада пайдо бўлгани, унинг шаклланиши ва такомил топиш даври XIX асрнинг иккинчи ярми билан белгиланиши маълум. Йирик театр билимдони Мартин Эсслен “абсурд театри” деб номлаган бу турдаги замонавий театр ва шу типдаги асарларда ифодаланган инсон ҳаётидан мантиқ-маъно ахтариш, одамнинг бошқа объектлар билан конфлектини эмас, айнан ўзига ўзининг онгли муросасизлигида томошабинга эстетик завқ бериш, насиҳат қилиш, ниманидир исботлаб, яна нималаргадир даъват қилиш вазифасидан воз кечилади. Аксинча, борлиқни умумий ҳолда, рационал кузатиш ва тафаккур этишга имкон беради. Мартин Эсслеининг таъбирига кўра “*Театрнинг бу мақомини ҳали кўпгина театршунослар англаб етганларича йўқ. Лекин театр замонга таъсирини ўтказиб бормоқда*.”

Абсурдга адабий оқим, жанр деб қаралганда, унинг семантикаси ва шаклий хусусиятлари мутлақо йўқдан пайдо бўлмагани ва бошқа жанрлардан “кўмак” оладиган эклектик характерга эгалигини кўриш мумкин. Агар ҳар қандай санъатнинг марказида бош мавзу бўлиб инсон омили турадиган бўлса, бу турдаги театр ҳам айнан шунинг атрофида баҳс юритади. Энди бир савол: инсон учун маъносизлик қаердан келиб чиқади? Албатта бу [https://kinosanati.uz]

саволга турли вазиятлардан келиб чиқиб, ҳар хил ракурсдан қараб жавоб бериш мумкиндир. Лекин, энг умумийси шуки, инсон учун мантиқ узилган жойдан маънисизлик бошланади. Мантиқ эса инсон ақли ҳазм қила оладиган ҳамма нарсадир. Тафаккур табиатига зид нарсалар, унинг ҳаётидан маънони ўчиради. Абсурд ижод намуналаридаги умумий руҳ, уни ифода этиш табиати худди шундайдир. Бу жараён индивидуал хусусиятга эга бўлиб, муаллифлар буни ўзига хос аспектларда намоён қиладилар. Инсон ҳаётининг худди Сизиф қисмати каби бемаънилиги, Калигула сингари аянчли, Годони кутишдек бефойдалиги турли муаллифларнинг асарларида турлича акс эттирилган. Уларнинг ҳар бирида муайян ўзига хослик бўлиши табиий, бироқ, бу уларнинг моҳиятидаги умумийликка дахл қилолмайди. Абсурд драмасининг йирик намояндалари саналган Эжен Ионеско, Самуэл Беккет, Артур Адамов, Албер Камю, Ф.Дюренматт, Словомир Мрожек, Фернандо Аррабаллар адабиётда, хусусан, драмада инсон ҳаётига худди бир предметни қўлда тутиб, унинг ҳар тарафини кўриб кузатиб, аслида у қандай буюмлигини айтиб берган каби холис баҳолашни афзал кўрди. Бу ижод шакли муаллифдан тафаккур объективлигини

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талаб қилади. Ёзувчининг инсон омилига эмоциядан ҳоли қараб, уни бадиий ифодалашда ҳам хусусийликка берилмаслиги муҳимдир. Абсурд театрининг табиати шундай.

Театрнинг бундай шаклида ижод қилган муаллифлар инсон омилига исталган жиҳатдан ёндошиши мумкин. Масалан, С. Беккет “Сизиф ҳақида миф”, “Годони кутиш” асарларида одам қисматини космогоник асосини қамраб олган бўлса, С.Мрожекнинг “Чегара устидаги уй” асарига социал ёндашув бор. Ионесконинг “Стуллар” асари психологик асосда бўлиб, ундаги икки қариянинг маъносиз ҳаёти эса худди “эшик тирқиши”дан қараб, ёки узоқдаги баланд уй деразасидан дурбин орқали кузатилган каби таассурот қолдиради. Инсоннинг буюмлардан ҳам заифроқ, аслида одам жуда ёлғиз ва беқадр эканлигини муаллиф ўзига ҳам худди уларнинг бир вакили сифатида қараб, тасвирини чизиб беради. Уларнинг ҳаммаси боғлаб турувчи метафизик бирлик фожиавийлик ва ёки фожиани бартарф этишнинг иложсизлигини англашдан кейин туғилувчи тушуниксиз, тутуриқсиз, манисиз жараёндир.

Юқорида абсурд драмаси жанр жиҳатдан бошқа жанрлар билан эклектик хусусиятга эга эканлини айтиб ўтган эдик. Бу биринчи навбатда мазмунга эмас ифодалаш услубида, тилида кўриниши мумкин. Ионеско абсурднинг жанр сифатидаги хусусиятига “на комик, на жиддий” деб таъриф беради. Чунки, унда бошқа жанр унсурларидан унумли фойдаланилади, бироқ, бундан мақсад кулдириш ё куйдириш бўлмайди. Абсурд уларни аниқ ғоя –чинакам реалликни излашда восита сифатида қўллайди.

Иккинчи жаҳон урушидан кейин бу оқим тарафдорлари фаоллашгани маълум. Бу даврда экпрессионистик (инсонлар бошига уруш келтирган кулфатлар акс эттириладиган) оқим абсурд билан уйғунлашиб кетди. Урушдан кейинги тушкун кайфият абсурд йўналишининг яна ҳам авж олишига сабаб бўлди. Бу каби асарларда инсоният нега уришади, уруш нега керак, деган жумбоқлар асарларда аксини топди. Айни шу муаммо ифодаланган абсурд асарлардан бири драматург Фернандо Арабалнинг «Пик-ник» («Дала сайли») абсурд комедиясидир. Бу пъесанинг қисқача мазмуни шундай: Жанг майдонида Сапо ва Сепо исмли икки душман тарафнинг аскарлари бир-бири билан дўстлашиб қолади. Уларнинг ҳеч бир-бирларини отиб ўлдиришга кўзлари қиймайди. Бир куни Сапонинг кекса ота-онаси уруш майдонига тугун тугиб, худди дала сайлига келгандек, ўғилларини кўргани келадилар. Душман аскар Сепони тутиб олиб, расмиятчилик учун қўлини рўмолча билан боғлаб қўйишади ва дастурхон атрофида овқатланиб, суҳбатлашади. Ҳарбий фельдшерлар эса командир буюргани учун ўликлар ва жароҳатланганларни қидириб келади. Ҳатто улардан кимнидир отиб беришларини, бўлмаса ўз вазифаларини бажармаётган сифатида айбланишлари мумкинлигини айтадилар. Икки аскар нима учун уришаётганликларини ҳам билмайди, командир буюргани учун шу ерда турганликларини биладилар, холос. Суҳбат чоғида қирувчи самолёт мина ташлайди ва тўрталаси ҳам қирилиб кетади. Мана шундай урушнинг мантиқсизлиги, инсон ҳаётини маъносизлиги Аррабал ифодасида комедик, гротеск характерига эга.

Абсурд ҳаётда фожиалардан кейин туғилади, абсурд асарларда эса инсоннинг айни шу ҳолати тасвир этилади. Жанр сифатида фожиа (трагедия) ва абсурд бир биридан тубдан фарқ қилса-да, улар орасида матиқан узвийлик бўлади. Трагедияда (фожиа) воқеликни акс эттиришда муаллиф персонажга муайян йўл кўрсатиши ва ўқувчи ёки томошабинга муайян хулоса чиқаришга имкон қолдира олади. Абсурднинг абсурдлиги шундаки, унда фақат

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мавҳумот, жавобсиз сўроқлар бўлади. Абсурд инсон руҳининг фожиадан кейинги жараёнини, ҳаётининг маънодан айро қисмини ифодалайди. Тассавур қилиш мумкин: Бордию Ҳамлет асар сўнгида ўлмай қолган бўсаю, қотил амакисини ўлдириб, хиёнаткор онасини зиндонга ташлаганда нима бўлар эди? Унинг кўнгли жойига тушиб, тинчирди, деган жавобга ишониш қийин албатта. Чунки, Ҳамлетнинг мақсади биринчидан бу эмас, иккинчидан, унга на тахт қизиқ, на ўз тақдири. Унинг учун ягона мақсад ҳақиқат. У хиёнатни фош этди, ўзи омон қолган тақдирда ҳам ҳақиқатни қарор топдира олмасди. Хўш, Ҳамлет учун кейинги ҳаётнинг маъноси нима бўлиши мумкин? Ўлим уни ана шу абсурддан қутқариб қолган. Эҳтимол, у бир кун келиб "Калигула"га айланиши ва унинг дахшатли куйига тушиши мумкин эди.

Абсурдда ифодаланган инсон ҳаёти маънисиз ва мантиқсиз , бироқ, абсурд театри янгича томоша усули сифатида ғоят аниқ ва мантиқий мазмунга эга. Айни пайтда бадиий тафаккурнинг жуда юқори чўққисидадир. Унда муаллиф бирор саҳна ёки сўзни шунчаки, мантиқдан айро, сабабсиз қўллаши мумкин эмас.

Бизда санъат турлари орасида тасвирий санъатда дунёни бадиий идрок этишнинг аванганд шакллари жадал ривожланиш жараёнини бошдан кечирмоқда. Адабаётда эса наср ва айниқса, назмда бундай янгиланиш жараёни мавжудлигини кузатиш мумкин. Бироқ, драматургияда сон жиҳатдан саҳна учун асарлар ёзилиб келинаётган бўлса-да, улар орасида мутлақо янги мазмундаги, авангард саҳна асарларини учратиш мушкул. Айрим мутахассислар абсурднинг оммалашмаслигининг сабабини миллат характери, менталитети билан боғлашади. Бу ҳам парадоксиал ёндашув аслида.

Инсон ўз зотига ачиниш ҳисси ва жумбоқнинг кўринмас ечими бор ёки йўқлиги устида ўйга толади. Бундай асарлар кишига эстетик завқ бермайди, балки тафаккур қилишнинг маҳзун лаззатини беради. Бундай тафаккур тарзи инсонни сергаклантириши лозим. Абсурд драмаларнинг киши руҳига таъсир жараёни қандайдир тадрижий хусусиятга эга. Бу таъсир кишида дастлаб писсимистик кайфият пайдо қилса, кейин совуққон тафаккур уйғотади. Бу тафаккур жараёнида инсон ўз ўзи билан шундай қарама- қарши фикрлар баҳсига киришадики, чексиз жумбоқ гирдобига тушади. Охир-оқибат ҳорғинлик сезиб изтироб чекади, ўзининг нақадар ожизлинини, дунёда ҳеч нарсани ўзгартира олмаслини ва ҳатто нима учун яшаётганлигини англолмайди. Абсурд театри ғоявий юксаклиги эвазига томошавийлик тамойилларини бир қадар четлаб ўтади, адабиёт сифатида ўқиш ҳам ундан кам бўлмаган жиддий жараён ҳисобланади. Уни фақат англамоқ лаззатли бўлиши мумкин. Айни шу ҳолатнинг кечиши абсурд содир этадиган "катарсис" дир.

Ўзбекистон театрлари саҳнасига ҳам абсурд драмалар кириб келган. Ўзбекистон санъат арбоби Бахтиёр Тўраев, атоқли режиссёр Олимжон Салимов ва бошқалар томонидан жаҳон абсурд драмалари саҳналаштирган. Ҳозирги пайтда жаҳонда ривож топган парадокс театри ўзбек театрларида ривожланмагани ва драматургиямизда абсурд оқимидаги асарларнинг шаклланмагани масаласига келсак, бу халқнинг эстетик қарашлари, бадиий тафаккури ва менталитет хусусиятлари билан боғлиқ. [6,27]

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The Role of Sustainable Business Practices in Achieving Long-Term Success

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Abstract

The success of stability in the emerging globe market is largely dependent on our long-term operations. The effect of sustainable business practices on consumer behavior, brand reputation, and long-term profitability is examined in this article. The public's view and the industrial benefits of sustainability are analyzed using key ideas from primary survey data and secondary research. Through extensive research and practice, it has been found that businesses that implement sustainable practices attract loyal customers and continue to achieve long-term success, and these businesses also gain an edge over their competitors.

Keywords: Sustainable Business Practices, Long-term Success, Consumer Behavior, Brand Reputation, Renewable Energy, Corporate Social Responsibility.

1. Introduction

For the sustainable development of the company, it is necessary to carry out continuous practices and work on itself, which will help businesses to develop and grow in the long term. The more experience businesses have, the more successful they are and the easier it is to attract investors. In this article, a primary survey of the public is asked for their personal opinions about the continuous use of business practices, and at the same time research and analytical practices are conducted based on specific data.

2. Literature Review

Since sustainable business seeks to simultaneously protect the environment, improve social well-being, and achieve financial growth, it has become increasingly relevant to everyone. Businesses that use sustainability methods increase operational efficiency, which lowers costs, according to the Harvard Business Review. It should be mentioned that customers today are increasingly conscious of how companies affect the environment and society, and they frequently examine both the internal and external markets. 73% of consumers globally are willing to alter their purchasing patterns in order to lessen their impact on the environment, according to Nielsen (2019)[1]. As a result, businesses that put sustainability first gain more customers and are more competitive. Long-term cost reduction is achieved through sustainable business strategies. Businesses can save up to 20% annually, for instance, by implementing energy-saving technologies (Harvard Business Review, 2020)[2]. Likewise, significant operational savings result from initiatives to decrease and recycle emissions. According to Deloitte research, businesses that practice sustainability are developing at faster rates than their competitors. As a result, such businesses are less exposed to financial and other risks and, if they do encounter them, are more resilient in such phases.

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3. Research Methodology

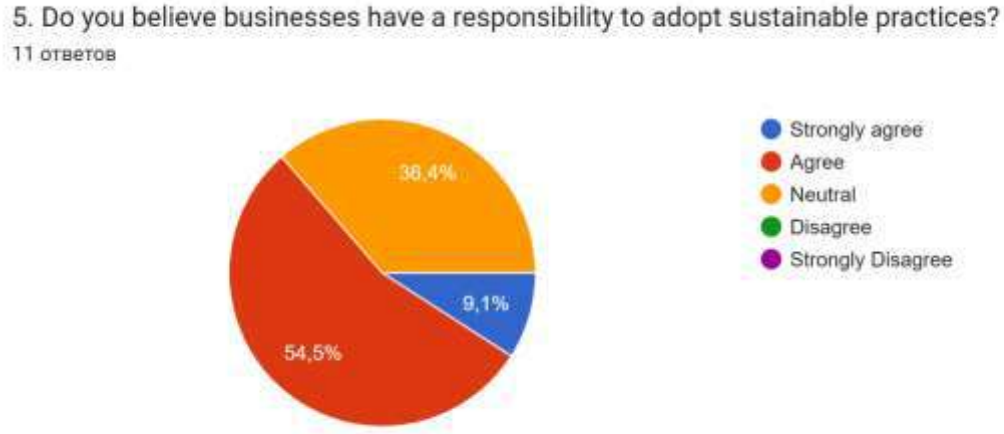
Primary Research

Eleven participants in a survey were asked about their opinions of sustainable company methods. Age groupings, educational attainment, and acquaintance with sustainability principles were among the important demographic information, viewpoints, and preferences gathered.

Secondary Research

Credible sources, including business publications, scholarly journals, and respectable research firms like Nielsen, Deloitte, and Harvard Business Review, were used to collect the data. The primary research findings were validated and given perspective by this data.

4. Research Findings



The findings indicate that the majority of companies think it is their duty to adopt sustainable practices. According to data, over 63% of respondents think that companies should be in charge of implementing sustainable practices. Although a sizable portion of people share this opinion, the 36.4% who are neutral indicate that some people might not yet completely comprehend the significance or necessity of sustainability in commercial dealings. This ambivalent stance can indicate knowledge or apprehension regarding the part that business plays in managing long-term change. However, the consensus that sustainability is a shared company duty is shown by the lack of disagreement.

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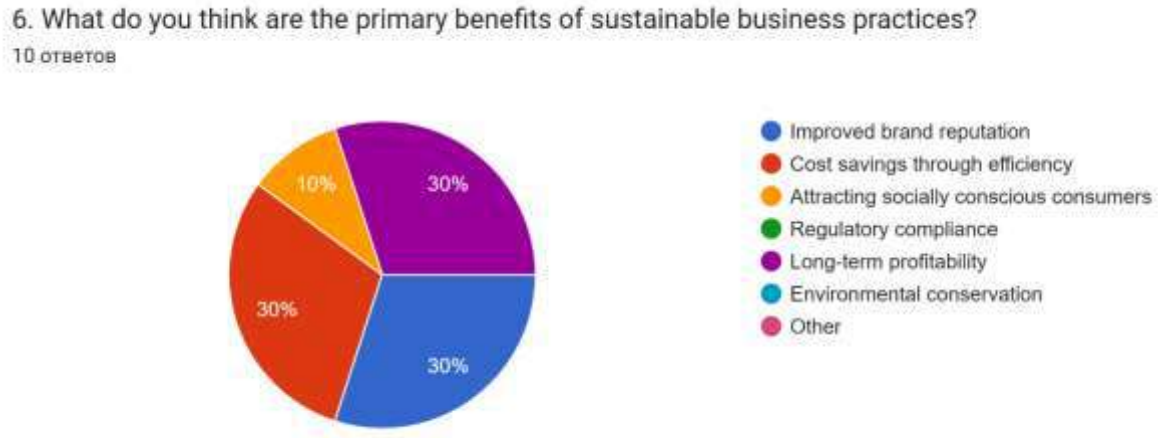
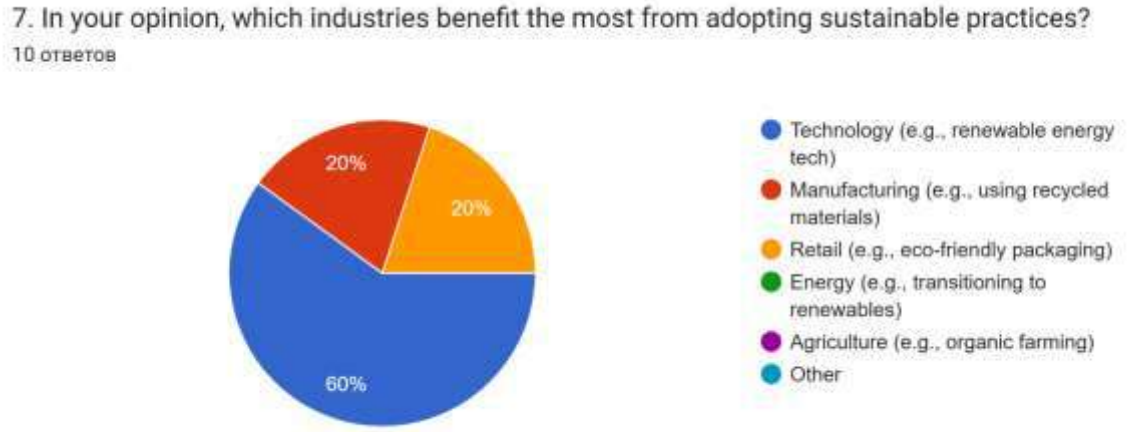


Profits were seen as being balanced between consumer engagement, brand reputation, and profitability. The responses show a fair assessment of the advantages of sustainable practices, which are equally acknowledged and include enhancing company reputation, drawing in ethical customers, and long-term profitability (30%). Overall, the results support the notion that sustainability can draw clients, improve public opinion, and yield long-term financial gains all at once.



The technology sector comes out as a clear leader, with 60% of respondents considering it as the key benefactor of sustainable practice. The increasing importance of technological innovations such as energy-efficient systems, renewable energy sources, and advanced green technology is demonstrated by this

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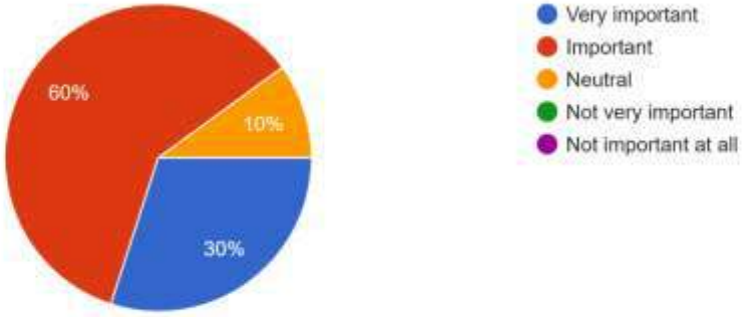
8. When making purchasing decisions, how important is it for a business to be sustainable?

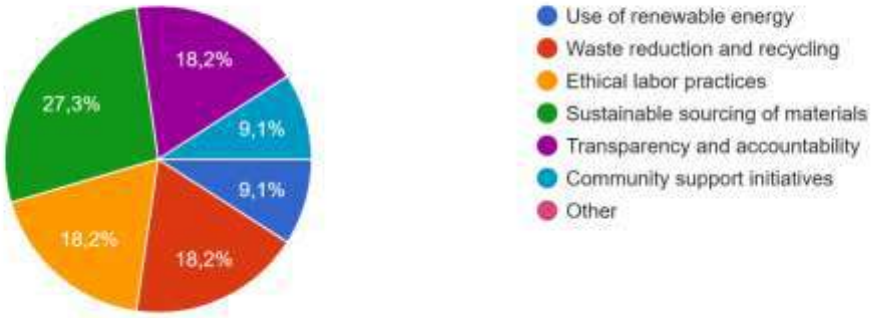
10 ответов



It's interesting to notice that 90% of respondents think environmental friendliness matters when making purchasing decisions. Consumer preferences have changed, as seen by this, particularly among younger consumers who are eager to support businesses that uphold moral and environmental standards. The remaining 10% might prioritize other factors like cost or usability, making it market neutral. Because sustainability is so crucial, businesses that disregard these concerns run the danger of losing a sizable portion of the market.

10. What sustainable practices do you value most in businesses? (Select up to 3)

11 ответов



Sustainable sourcing, waste reduction, and ethical practices were most valued.

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A large majority expressed readiness to recommend businesses committed to sustainability.

5. Data Analysis

1. Accountability for sustainable growth

In the survey, the majority (63.6%) agreed that businesses should be consistent in their practices, without any disagreements. However, 36.4% of respondents disagreed, indicating that colleagues or employees do not have responsibility for their businesses. This pattern is consistent with a broader study that found that companies should strike a balance between their financial objectives and their social and environmental responsibilities. Consumers now expect businesses to be responsible for their role in addressing social inequity and climate change, which affects the company's brand and trust (Deloitte, 2022)[3].

2. The main advantages of sustainable practices

This demonstrates that businesses who adopt sustainable practices see a number of advantages, including enhanced financial performance, a better reputation for their brand, and a rise in consumer loyalty. These results align with a Harvard Business Review (2019)[4] study that emphasizes how businesses with robust sustainability programs build long-term value and boost brand trust. The fact that only 10% of respondents listed "regulatory compliance" as an advantage suggests that respondents see sustainability as a chance for expansion and distinction in cutthroat marketplaces rather than as a need.

3. Consumer purchasing patterns and willingness to spend more

When it comes to purchasing, 90% of those surveyed stated that sustainability is "very important" or "important", indicating that sustainability has a significant impact on consumer choices. 70% of consumers indicated their willingness to pay an additional 10% and 20%-20% for environmentally friendly products. Many working and business-savvy survey respondents are willing to pay more for businesses that are committed to sustainability because they respect such businesses. This tendency is supported by PwC data (2021)[5], which shows that when assessing companies and products, people give sustainability and ethics a higher priority than price.

4. Effect on Brand Advocacy and Loyalty

Consistently practicing sustainability helps businesses thrive, and it’s also good for consumers. 90 percent of consumers said they would “likely” or “very likely” to recommend a business that prioritizes sustainability. This study shows how sustainability can increase consumer loyalty and

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brand awareness. Businesses that put sustainability first not only strengthen their bonds with customers but also acquire long-term competitive advantages through word-of-mouth advertising and brand trust, according to McKinsey & Company (2020)[6].

6. Discussion

Primary Research Results

The survey's findings demonstrate how sustainability is becoming more and more important, especially among younger, better-educated populations. increasing the need for companies to adopt moral and sustainable business practices on a global scale. Among the survey's main conclusions are:

Demand for ethical and transparent procedures: Green sourcing of materials (27.3%), waste reduction (18.2%), and ethical labor practices (18.2%) were ranked as the top priority by respondents. This shows that businesses are clearly expected to reduce their environmental impact, pay employees properly, and be open and honest about their work. 70% of respondents are willing to pay 10% more for ecologically friendly products, and 90% of them view sustainability as a crucial factor when making purchases. This indicates a notable change in customer behavior toward endorsing ethical companies.

Industries Gaining from Sustainability: Manufacturing and retail solutions were the next most recognized industries for promoting green practices, with the technology sector accounting for 60% of the total.

These results demonstrate that young customers are actively factoring sustainability into their purchase decisions in addition to being aware of it, which presents firms with both possibilities and pressure to change.

Secondary Research Insights

The results of the primary research closely match those of the secondary research that has already been done, demonstrating the real advantages of sustainability for company. Profitability and competitive advantage: Research from the Harvard Business Review (2020)[7] and Deloitte (2021)[8] shows that sustainable practices save costs by improving operational efficiencies such waste reduction and energy conservation. Businesses that adopt sustainability practices are seen as low-risk investments, which boosts investor trust and guarantees long-term financial viability.

Enhanced customer loyalty and brand reputation: A 2019 Nielsen survey found that 73% of global consumers are willing to alter their buying patterns in order to support businesses that lessen their environmental effect. Increased consumer loyalty, enhanced public perception, and market distinctiveness are all advantages of sustainable brands. Businesses like Unilever and Patagonia, for instance, have shown that sustainability increases both brand recognition and financial success.

Future-proofing and regulatory compliance: Secondary research emphasizes how government regulation is increasingly playing a part in advancing sustainability. By adjusting to shifting rules and consumer demands, sustainable practices frequently give companies a competitive edge over those that only achieve sustainability norms. For instance, the European

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Green Deal (2020)[9], which establishes standards for industry adoption of green practices, promotes long-term sustainability initiatives.

A unifying theme emerges from the alignment of primary survey data and secondary research: businesses that put sustainability first enjoy enhanced customer loyalty, better reputation, and long-term profitability. Through this research and analysis, many young workers are raising the need for ethical business practices, transparent communication, and responsible use of resources, and are choosing to develop in favor of green practices. The advantage of green practices is that through sustainability, businesses gain an advantage over competitors in a changing market, build confidence and resilience for long-term success, and help achieve social and environmental goals..

7. Conclusion

Long-term success now depends on sustainable business practices; they are no longer an alternative. Businesses that practice economic, social, and environmental responsibility draw in investors, maintain their resilience in a cutthroat industry, and foster brand loyalty. Consumers who are younger and better educated appreciate consistency and are inclined to patronize companies that share their ideals. Businesses may create a sustainable and lucrative future by tackling consumer expectations, regulatory compliance, and operational efficiency.

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PEDAGOGICAL VIEWS OF THE JADIDS AND REFORMS IN THE FIELD OF NATIONAL EDUCATION.

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Abstract. This article provides an overview of the life path of the Jadid enlighteners, the history and main ideas of Jadidism, the pedagogical views of the Jadids today and their dedication to this path, as well as opinions on how new views emerged at that time and what ideas were put forward in them.

Keywords: New, new method, school, education, upbringing, reform, madrasa. Turkish language, development, literacy, ancestors, generation, perfection

It is natural to ask questions about how Jadidism appeared, what was the main idea behind its emergence. We can find answers to these questions by first knowing the history of Jadidism. Jadidism or Jadidism (Arabic: jadīd - new) - late 19th century, early 20th century, a socio-political, educational movement that became important in the life of Turkestan, Caucasus, Crimea, and Tatarstan. came into being. It spread in Central Asia from the 90s of the 19th century. The representatives of this movement called for the fight for development, the development of Turkic languages, the enrichment of literature in these languages, the study of secular sciences, the use of scientific achievements, and the fight for the equality of women and men. Enlightenment leaders set the main goal of developing the education system, making the population literate, and through this, developing the country.

The main ideas and goals of Jadidism were:

- Freeing Turkestan from medieval backwardness and religious superstition, Sharia reform
- spreading enlightenment to the people
- Struggle to establish an autonomous government in Turkestan

To build a free and prosperous society by establishing a constitutional monarchy and parliament in Bukhara and Khiva, and then to a democratic republic, to introduce a stable national currency and to form a national army. Literacy of the growing young generation was one of the main goals. Cultural and educational centers opened by some groups of free-thinking and progressive people in Tashkent, Fergana, Bukhara, Samarkand and Khiva. The Jadidist movement was formed from the societies and associations of the direction. The word "Jadid" means new. Bringing innovation to the education system, organizing lessons in a new way, and making the young generation literate has become an urgent issue. In the early 20th century, the progressive leaders of the Jadidism movement - Behbudi, Fitrat, Cholpon, Munavvar Qori, Abdulla Avloniy - became stronger in their creativity and activity. Jadids put forward the idea of unifying the peoples of Turkestan and fighting for the national independence of the whole country. As Mahmudhoja Behbudi noted, "In each country, the initiative to reform and culture tools and the movement to take initiative began to appear on the part of the country's youth, so our In Turkestan as well, the

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school, which is at the door of culture, is the herald of renaissance and reform, the national press, the movement of enthusiastic young people, was created in the shadow of the guardians of education. Munavvarqori Abdurashidkhanov spoke about the responsibility of the parents in the education and upbringing of the child, and said that there are those who try their best to make their child enlightened. noted. Jadids emphasized that parents are involved in the education of their children and prepare them for schools and madrasas. After studying in schools and madrasas, they said that young people should improve their knowledge in educational institutions of developed countries and acquire modern sciences. Of course, not everyone accepted these ideas positively.

As a result, very few children became literate. Up to now, the study of the creative heritage of the modern enlighteners, the analysis and use of the works written by them is being carried out on a large scale. expressed such thoughts about the difficult path during the period "... In the next six years, the number of pre-school educational organizations in our republic increased almost 6 times, from 4988 to 29420, and the number of higher educational institutions increased from 77 to 213. New types of presidential schools, creativity schools, and specialized schools are being established in our country. The intelligence, will and tenacity of our progressive ancestors serve as a model school for all of us in raising our children to be well-rounded people who are loyal to national and universal values. We consider it an urgent task to further study the activities of modern scientists in cooperation with international scientific centers and world scientists. Through this unique heritage, we can find correct answers to many questions that concern humanity today. The more we actively promote this priceless wealth, the more our people, especially our youth, will realize the value of today's peaceful and free life. I wish all the participants of the conference good health, new creative achievements, and success in the work of the conference." (From his greeting to the participants of the international conference dedicated to the study of the heritage of the ancients. March 6, 2023). Abdulla Awlani is a shining example of modern enlighteners. The main goal of the writer was to introduce the children, who are the future of the nation, to the history of Islam, even if only briefly, from the elementary school, to increase their religious knowledge, and to instill the light of faith in their hearts. Abdulla Awlani's works are commendable. Along with the culture and enlightenment of the Uzbek people, it was considered important in the socio-political life of the neighboring Afghan people in 1919-1920. In his time, he served as the political representative and consul of the Soviet government in Afghanistan. In addition to writing works, Abdulla Avloni is engaged in opening schools, making the people literate, educating Uzbek women and girls, training teachers and intellectuals. In 1923-24, he was the head of the women's and men's educational institutions in the old city, in 1924-29 he was a teacher at the Tashkent military school, in 1925-34 at the Central Asian Communist University, Central Asian Agricultural School, He teaches at the State University of Central Asia. He worked as a professor and head of the Department of Language and Literature of the Faculty of Pedagogy. In 1933, he compiled and published "Literary Christology" for the 7th grade of Uzbek schools. Abdulla Avloni is critical with the nicknames "Hijran", "Nabil", "Indamas", "Shuhrat", "Tangriquli", "Surayo", "Shapaloq", "Chol", "Ab", "Chigaboy", "Abdulhaq". and a scientific article, more than 4000 lines of poetry did Avloni was awarded the title of "Hero of Labor" in 1927. In 1930, he was awarded the honorary title of "Zarbdari of Public Education of Uzbekistan". Currently, there are a number of schools named after Abdulla Avloni in our independent Uzbekistan. The above-mentioned modern enlighteners risked their lives for their country, people, and their spiritual development. Because

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with the language of the nation, with its spiritual perfection, with the understanding and knowledge of the mind, it can achieve high goals.

In conclusion, the literacy level of young people has increased significantly due to the hard work of modern enlighteners. Various works written in our national mother tongue have not lost their importance and value to this day. The introduction of a new education system, the promotion of studying in new conditions and in a new way, as a result of this, has set itself the goal of increasing the level of knowledge of the people, and it has achieved this goal to a significant extent. In developed countries, they have introduced a system of free education for young people who are hungry for knowledge, thus they have started development in the country. Nowadays, special attention is paid to learning the experience of modern enlighteners, because for the development of the country, it is the task of today's teacher to educate and educate young people who are passionate and patriotic in accordance with our ancestors. is considered After all, Abdulla Awlani said, "To lose the national language is to lose the soul of the nation." If we, the future teachers, can apply the rich heritage of the modern enlighteners of our ancestors to the growing young generation, the spiritual maturity of our generations will undoubtedly be higher and will be perfect.

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Оценка водоудерживающей способности коллекционных образцов кунжута (Sesamum indicum L.) в условиях Ташкентской области Республики Узбекистан

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Аннотация. Целью данного исследования являлась оценка водоудерживающей способности листьев 12 коллекционных образцов кунжута (*Sesamum indicum* L.) на фазе цветения в условиях Ташкентской области. Эксперимент проводился с использованием метода Ничипоровича, основанного на гравиметрическом измерении потерь влаги через листовые пластинки в течение фиксированных временных интервалов (0,5 ч, 2 ч и 4 ч). Результаты показали значительные различия между изучаемыми образцами. Образцы K66 (Афганистан) и K1396 (Кения) продемонстрировали наименьшие потери воды (средние значения водоудерживающей способности — 17,01% и 17,28%), что свидетельствует об их высокой адаптации к водному стрессу. В то же время контрольный образец (Tashkentskiy-122, Узбекистан) и K9428 (Венесуэла) показали наибольшие потери влаги (средние значения — 21,75% и 22,07%), что указывает на их меньшую устойчивость к засухе. Полученные данные подтверждают, что способность удерживать влагу у кунжута имеет генетически обусловленные особенности, зависящие от происхождения образцов. Образцы с высокой водоудерживающей способностью могут быть рекомендованы для селекционной работы и внедрения в условиях аридного земледелия.

Ключевые слова. индийский кунжут, *Sesamum indicum* L., водоудерживающая способность, транспирация, метод Ничипоровича, коллекционные образцы, засухоустойчивость, гравиметрический метод.

Введение

Водоудерживающая способность растений является важным физиологическим показателем, определяющим их устойчивость к засухе и другим стрессовым факторам окружающей среды. В условиях изменения климата и нарастающего дефицита водных ресурсов особую значимость приобретает изучение физиологических механизмов, обеспечивающих сохранение влаги в тканях растений.

Кунжут (*Sesamum indicum* L.) — одна из древнейших и наиболее ценных масличных культур, возделываемых в засушливых и полузасушливых регионах мира благодаря своей способности адаптироваться к экстремальным условиям. Семена кунжута содержат до 60% высококачественного масла и около 20% белка, что делает его стратегически важной культурой для пищевой и технической промышленности. Однако продуктивность кунжута существенно зависит от способности растений удерживать влагу в условиях водного стресса.

Фотосинтетические пигменты играют ключевую роль в адаптации растений к стрессовым условиям, включая засуху, за счёт обеспечения эффективного фотосинтеза и регуляции обмена воды. Пирназаров и Аманов (2024) в своих исследованиях установили различия в содержании хлорофиллов и каротиноидов у местных и зарубежных образцов

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Sesamum indicum L. Эти различия могут быть связаны с генетическими особенностями и адаптацией генотипов к условиям их произрастания [5].

Ташкентская область Республики Узбекистан характеризуется жарким аридным климатом, с высоким уровнем солнечной радиации и недостаточным количеством осадков в летний период. В таких условиях оценка водоудерживающей способности различных генотипов кунжута становится важной задачей для выявления перспективных образцов, обладающих высокой устойчивостью к засухе и способных обеспечить стабильную урожайность.

Физиологическая способность растений удерживать воду связана с их адаптивными механизмами, включающими:

- Регуляцию работы устьиц и транспирации,
- Морфологические особенности листового аппарата,
- Биохимические изменения, такие как накопление осмотически активных веществ для поддержания водного потенциала клеток [3; 4].

Исследования показывают, что генотипы растений с высокой водоудерживающей способностью более эффективно используют влагу и демонстрируют лучшую адаптацию к засушливым условиям. Например, для масличных культур, таких как соя, подсолнечник и кунжут, способность листьев удерживать влагу является ключевым фактором их устойчивости к водному стрессу [1].

Важным методом оценки водоудерживающей способности является **метод Ничипоровича**, который позволяет анализировать интенсивность потерь воды листьями путём последовательного взвешивания в фиксированные временные интервалы. Метод доказал свою эффективность в физиологических исследованиях для выявления засухоустойчивых генотипов сельскохозяйственных культур [6]. Несмотря на широкое применение этого метода для различных культур, данные по водоудерживающей способности коллекционных образцов кунжута остаются ограниченными, особенно для условий Центральной Азии.

Материалы и методы исследования.

Растения для опытов выращивали на экспериментальном участке научно-исследовательского института генетических ресурсов растений Республики Узбекистан, рассположенном в Ташкентской области. Делянки опыта – десятьрядковые, схема посева – 12х30х1, биологическая повторность трёхкратная, рендомизированная. Посадка произведена семенами 13 июня 2024 года. Для анализов брали растения с одинаковым уровнем роста и развития.

Из коллекция образцов Sesamum indicum L. как объект исследования использовались образцы из таблицы 1.

Таблица 1

Коллекционные образцы *Sesamum indicum* L.

№	Номер каталога	Название образца	Страна происхожения
1	Контроль	Tashkentskiy-122	Узбекистан
2	K66	-	Афганистан
3	K9428	CV 74-131	Венесуэла

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4	K119	Susan biyaz	Иран
5	K98	-	Армения
6	K161	-	Турция
7	K1396	587297	Кения
8	K9549	-	Индия
9	K598	Chan-din-bay	Китай
10	K1185	-	Таджикистан
11	K221	-	Израиль
12	K216	-	Сурия

Для оценки водоудерживающей способности листьев кунжута использовался **метод Ничипоровича** (1961), основанный на гравиметрическом принципе измерения потерь воды листьями в процессе испарения . Эксперимент включал 12 коллекционных образцов кунжута, каждый из которых был исследован в трёх повторах. Листья растений взвешивались в течение четырёх часов с промежуточными измерениями через 0,5, 2 и 4 часа.

Для оценки **водоудерживающей способности** листьев применяется модифицированная формула на основе метода **Ничипоровича**. В данном случае водоудерживающая способность определяется через **потери влаги во времени** и выражается в процентах.

На первом этапе проводилось начальное взвешивание листьев с точностью до 0,001 г (M_0). Затем листовые пластинки размещались в контролируемых условиях: температура 25±2°C, относительная влажность воздуха 50–60% и стабильная освещённость. Промежуточные взвешивания (Mt) проводились через 0,5, 2 и 4 часа, чтобы зафиксировать изменения массы листьев.

На втором этапе водоудерживающая способность рассчитывалась по формуле:

$$W = \left(\frac{M_0 - M_t}{M_0}\right) X100$$

W — водоудерживающая способность листа (%);

M_0— начальная масса листа (г);

M_t — масса листа через определённый промежуток времени t (г);

t — время испарения (ч).

Полученные результаты позволили рассчитать процент потерь влаги и сравнить способность листьев разных образцов кунжута удерживать воду.

Результаты исследований

Результаты исследований представлены в таблице 2. Измерения были проведены на фазе цветения 12 коллекционных образцов Sesamum indicum L.

Таблица 2

Водоудерживающая способность листьев коллекционных образцов *Sesamum indicum* L. (фаза цветения, 2024)

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№	Название образца	Масса листа				Водоудерживающая способность в промежутках времени (W_t)			Водоудерживающая способность ($W_{сред.}$) (сред. значение)
		В начале	через 0,5 часа	через 2 часа	через 4 часа	через 0,5 часа	через 2 часа	через 4 часа	
1	Контроль	0,068	0,056	0,053	0,050	17,0137	21,5159	26,7300	21,7532
2	K66	0,07	0,062	0,058	0,054	11,9577	16,4486	22,6215	17,0093
3	K9428	0,063	0,052	0,049	0,044	15,7803	21,6437	28,7718	22,0652
4	K119	0,075	0,065	0,061	0,057	14,3210	18,9150	24,6964	19,3108
5	K98	0,066	0,057	0,055	0,052	13,7136	17,9440	22,2057	17,9544
6	K161	0,066	0,057	0,052	0,047	13,8427	21,2485	29,4499	21,5137
7	K1396	0,062	0,057	0,052	0,047	8,8601	16,9549	26,0136	17,2762
8	K9549	0,061	0,057	0,048	0,044	15,2785	20,7778	27,3588	21,1383
9	K598	0,062	0,054	0,05	0,045	12,1946	18,6996	26,5424	19,1455
10	K1185	0,063	0,054	0,051	0,047	14,4371	19,6134	26,5022	20,1842
11	K221	0,058	0,049	0,046	0,042	14,6130	19,957	26,3906	20,3203
12	K216	0,059	0,052	0,046	0,043	16,5586	21,2814	26,7018	21,5139

Чем меньше значение W (процент потерь воды), тем выше водоудерживающая способность образца и лучше его адаптация к водному стрессу.

Образцы с высокой водоудерживающей способностью могут быть рекомендованы для селекционной работы и внедрения в условиях засухи.

Обсуждение

Полученные результаты исследования водоудерживающей способности 12 коллекционных образцов кунжута (*Sesamum indicum* L.) в условиях Ташкентской области показали значимые различия между генотипами. В частности, образцы **K66 (Афганистан)** и **K1396 (Кения)** продемонстрировали **наименьшие потери влаги** и высокие средние показатели водоудерживающей способности (**17,01%** и **17,28%** соответственно). Это указывает на их **высокую адаптивность к засушливым условиям**, что согласуется с их происхождением из регионов с аридным климатом.

В то же время контрольный образец (**Tashkentskiy-122**) и **K9428 (Венесуэла)** показали **наибольшие потери влаги** (средние значения **21,75%** и **22,07%**) и меньшую способность удерживать воду. Эти результаты позволяют предположить, что данные образцы менее устойчивы к водному стрессу, что может ограничивать их использование в условиях жаркого климата Ташкентской области.

Образцы с **меньшей интенсивностью потерь влаги** имеют **лучший механизм регуляции транспирации** (закрытие устьиц) и более эффективное использование влаги [3].

Быстрые потери воды в первые 30 минут, наблюдаемые во всех образцах, связаны с активной устьичной транспирацией на начальном этапе, что также отмечалось в других работах [2].

Результаты нашего исследования согласуются с выводами **Кумара и соавт. (2020)**, которые показали, что засухоустойчивые сорта кунжута из засушливых регионов Индии и Ирана обладают более высокой водоудерживающей способностью и теряют в среднем на **10–20% меньше влаги** по сравнению с другими образцами. В нашем исследовании образцы из Кении (**K1396**) и Афганистана (**K66**) показали аналогичные тенденции.

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Контролируемые условия эксперимента (постоянная температура, влажность и освещённость) могут не полностью отражать естественные условия засухи в полевых условиях. Для более точной оценки необходимо провести дополнительные **полевые испытания**. Исследование проводилось только на **фазе цветения**, что ограничивает возможность оценки динамики водоудерживающей способности на других стадиях вегетации.

Выводы

Проведённое исследование позволило оценить **водоудерживающую способность листьев 12 коллекционных образцов кунжута (***Sesamum indicum* **L.)** на фазе цветения в условиях Ташкентской области. Использование метода Ничипоровича показало значительные различия между образцами по способности удерживать влагу:

1. **Образцы K66 (Афганистан)** и **K1396 (Кения)** продемонстрировали **наименьшие потери воды**, что свидетельствует о **высокой водоудерживающей способности** и лучшей адаптации к условиям водного стресса.
2. **Контрольный образец Tashkentskiy-122 (Узбекистан)** и **K9428 (Венесуэла)** показали **наибольшие потери влаги**, что указывает на их **меньшую устойчивость** к засухе.
3. Водоудерживающая способность всех образцов снижалась с увеличением времени испарения, при этом наибольшие потери воды наблюдались **в первые 30 минут**.

Таким образом, выявленные различия между образцами позволяют сделать вывод о **генетически обусловленных особенностях водоудерживающих свойств кунжута**, что подтверждает значимость их происхождения и адаптивных механизмов.

Полученные данные по водоудерживающей способности листьев кунжута подтверждают результаты Пирназарова и Аманова (2024) о различиях в фотосинтетических пигментах между местными и зарубежными образцами. Дальнейшие исследования должны включать комплексный анализ физиологических и биохимических характеристик для более глубокой оценки устойчивости растений к водному стрессу.

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MEASUREMENT METHODS FOR ERROR ANALYSIS

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Abstract: *It is necessary to reduce the individual measurement error as much as possible. For this purpose, it is necessary to know the description of the measurement error and at least a list of the main factors that affect the amount of error in the measurement result.*

Measuring a quantity is the process of comparing it with another quantity that is accepted as a unit of measurement that is homogeneous with it. For example, when measuring wear, an operation is performed to find out how many times the decrease or increase in diameter, thickness, or other linear dimension (including the length of a circle) is greater or smaller than the accepted unit of measurement of millimeters or micrometers. Since the measurement result cannot be absolutely accurate, it is necessary to know the description, classification, and main factors affecting the measurement result of experimental errors.

Keywords.

Size, types of sizes, measurement errors, measuring instrument, error, absolute error, relative error, calibration, random errors, accuracy index,

Login.

As a result of a measurement, a value is usually found that differs from the true value of the quantity being measured. Often, the true value of a physical quantity is unknown, and instead of this value, its experimentally determined values are used. This value is so close to the true value of the quantity that it can be used for the intended purpose. The value of the quantity found by the measurement method is called the measurement result.

The difference between the measurement result and the true value of the quantity being measured is called measurement error. The error of the measurement method is understood as an error that arises due to the imperfection of the method. They often appear when using new methods, when equations are used that approximate the true relationship between values. The error of the measurement method must be taken into account when assessing the errors of the measuring instrument, in particular the measuring device, and sometimes the measurement result.

Error size The set of factors in a measurement depends on the measurement conditions, which are determined by the probability of their constancy.

The set of factors includes: the person performing the measurement; the object of observation; the instrument used in the measurement; and the external environment.

Since the quantity being measured and the unit of measurement are almost always of unequal magnitude, it is necessary to determine some fraction of the unit of measurement. Even when measurements are made with great care and precision using the most sophisticated instruments, errors are bound to occur.

Measurement errors are the differences between the values obtained during the

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measurement process and the true values. The following methods are widely used to calculate errors :

1. Absolute error is the difference between the measurement result and the true value. Formula:

$$\Delta = X_{o'lchangan} - X_{haqiqiy}$$

Here:

X – measured value

X – actual value

2. Relative error is an indicator of the absolute error in percentage terms relative to the true value. Formula:

$$E_{nisbiy} = \frac{\Delta}{X_{haqiqiy}} \times 100\ \%$$

3. The average error determines the average value of the absolute errors between several measurements. The formula:

$$\Delta = \frac{\sum_{i=1}^{n} X_{o'lchangan,i} - X_{haqiqiy}}{n}$$

Here:

n – number of measurements

4. Standard deviation. If there is a dispersion in the measurement results, the standard deviation is determined. Formula:

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n}(X_{o'lchangan,i} - X)^2}{n-1}}$$

Here:

X – average measured value

Example:

Actual value $X_{actual} = 50$

Measurement results: 48, 51, 49, 52

1. Absolute errors:

|48 - 50| = 2, |51 - 50| = 1, |49 - 50| = 1, |52 - 50| = 2

2. Average error:

$$\Delta = \frac{2+1+1+2}{4} 1.5$$

3. Relative error (average):

$$E_{nisbiy} = \frac{\Delta}{50} \times 100\% = 3\%$$

4. Standard deviation:

$$X = \frac{48+51+49+52}{4} = 50$$

Let's solve a detailed example of measurement errors.

the true value $X_{true} = 100$, and the measurement results be 95, 98, 102, 101, 99. We calculate the following errors:

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1. Absolute errors
2. Relative errors
3. Average error
4. Standard deviation

1. Absolute errors

Absolute error is the difference from the true value for each measurement. Formula:

$$\Delta_i = |X_{o'lchangan,i} - X_{haqiqiy}|$$

For each measurement we calculate:

$$\Delta_1 = |95 - 100| = 5$$

$$\Delta_2 = |98 - 100| = 2$$

$$\Delta_3 = |102 - 100| = 2$$

$$\Delta_4 = |101 - 100| = 1$$

$$\Delta_5 = |99 - 100| = 1$$

Absolute errors: 5,2,2,1,1.

2. Relative errors

We calculate the relative error for each measurement using the following formula:

$$E_{nisbiy,i} = \frac{\Delta}{X_{haqiqiy}} \times 100\%$$

For each measurement we calculate:

$$E_{nisbiy,1} = \frac{5}{100} \times 100\% = 5\%$$

$$E_{nisbiy,2} = \frac{2}{100} \times 100\% = 2\%$$

$$E_{nisbiy,3} = \frac{2}{100} \times 100\% = 2\%$$

$$E_{nisbiy,4} = \frac{1}{100} \times 100\% = 1\%$$

$$E_{nisbiy,5} = \frac{1}{100} \times 100\% = 1\%$$

Relative errors: 5

3. Average error

We calculate the mean absolute error as follows:

$$\Delta = \frac{\sum_{i=1}^{n} \Delta_i}{n}$$

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Here n = 5, the sum of the errors is:

$$\sum_{i=1}^{5} \Delta_i = 5 + 2 + 2 + 1 + 1 = 11$$

Average error:

$$\Delta = \frac{11}{5} = 2.2$$

4. Standard deviation

The standard deviation indicates the degree of dispersion.

Formula:

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n}(X_{o'lchangan,i} - X)^2}{n-1}}$$

The first step is to find the average value:

$$X = \frac{\sum_{i=1}^{n} X_{o'lchangan,i}}{n}$$

$$X = \frac{95 + 98 + 102 + 101 + 99}{5} = 99$$

Now we find the squared difference of each value from the mean:

$(95-99)^2 = (-4)^2 = 16$

$(98-99)^2 = (-1)^2 = 1$

$(102-99)^2 = (3)^2 = 9$

$(101-99)^2 = (2)^2 = 4$

$(99-99)^2 = (0)^2 = 0$

Sum of squared differences:

16 + 1 + 9 + 4 + 0 = 30

Standard deviation:

$$\sigma = \sqrt{\frac{30}{5-1}} = \sqrt{\frac{30}{4}} = \sqrt{7.5} \approx 2.74$$

Results:

1. Absolute errors: 5,2,2,1,1
2. Relative errors: 5
3. Average error: 2.2
4. Standard deviation: 2.74

Overall result:

The measurements given are close to the true value and the error rate is small. This indicates that the accuracy of the measurement process is high. By identifying and evaluating errors, the quality of the measurement can be improved or the accuracy can be analyzed.

Conclusion:

1. Absolute error – refers to the difference between each measurement and the true value. In the example, the largest absolute error is 5, and the smallest is 1. This indicates that the accuracy of the measurements is good.

2. Relative error – the absolute error expressed as a percentage of the true value. The largest

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relative error in the measurements was 5, and the smallest was 1. This means that the measurement results are very close to the true value.

3. Average error – the average of all errors 2.2. This reflects the level of overall measurement error and confirms that the values are close to the true result.

4. The standard deviation is 2.74, which indicates the degree of dispersion of the measurement results. This dispersion is not large, which means that the measurements are close to each other and reliable.

Measurement errors are inevitable in any measurement process, and their identification and analysis make the results more reliable. To reduce errors, it is necessary to correctly select technical means and improve measurement methods.

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ANALYSIS OF THE MOVEMENT OF COTTON PARTICLES ALONG THE SURFACE OF A VIBRATING SCREEN.

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Objective. *The article deals with issues that are devoted to the study of cotton cleaning using vibration cleaning. An analysis of the results obtained in experimental studies shows that at low vibration frequencies, small trash impurities are intensively released from the total amount of the selected trash. Increasing the frequency leads to a slow decrease in the yield of small weeds, and with a further increase, stabilization of the separation of weeds is observed.*

Methods. Currently, one of the promising non-traditional methods for cleaning raw cotton is the use of a vibration method. Since, the method has been known for a long time, but it is at the stage of theoretical and experimental study.

When developing the cleaning of raw cotton from weed impurities by the vibration method, its natural properties are preserved. To increase the cleaning effect of cotton gins, we offer a design with a vibration drive.

Results. The regularity of the movement of cotton particles along a vibrating mesh surface is proposed. An equation of motion for a mesh surface that performs oscillatory reciprocating motions is obtained.

The movement of the mesh surface in this case is considered complex. A characteristic feature of the mathematical description is the presence of a generalized force of potential forces and a generalized force from the action of resistance forces. A differential equation for the motion of a vibrating mesh surface of a raw cotton cleaner has been obtained.

Conclusion. Analytically and numerically, the differential equation of the movement of the cotton flow over the mesh surface is solved, the results of which show that the speed of the cotton flow and its cleaning from small weeds in the horizontal plane depend on the amplitude and frequency of the movement of the mesh surface over the mesh surface.

Keywords. peg-slatted drum, mesh, removal of weeds, vibration, cleaning of raw cotton from weeds, cleaning action, reciprocating mesh surface, eccentricity, coefficient of sliding friction.

Introduction. The choice of cleaning plans for raw cotton is made depending on its initial weediness, breeding and industrial grade, in conjunction with the subsequent cleaning of cotton fiber. If necessary, the cleaning plan is carried out with the inclusion of technological equipment of the drying and cleaning shop of procurement points [1].

The authors studied the issues of cleaning cotton from small weed impurities [3-4]. Cleaning machines from small weeds are an indispensable element of the production line of cleaning cotton, and when using them, it is necessary to take into account the place of their

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installation, and also in the designs of cotton cleaners from weeds there must be mechanisms to control the performance and cleaning effect.

M.J. Koshakova [5] considered the cleaning process using vibration. This method has an advantage over the traditional ones in terms of preserving the natural qualities of the fiber, but the low cleaning effect did not allow the use of this design in industry.

In the process of processing cotton and cleaning it from weeds, repeated mechanical impact of the working parts of the cleaners causes mechanical damage to cottonseeds [6]. As a result, defects appear in the composition of the fiber. Along with this, the priority operation of technological machines of drying and cleaning shops is disrupted and the physical and mechanical properties of cotton are deteriorating.

One of the promising directions for the modernization of cleaners is the attachment of pegs with the help of elastic elements. With the right choice of fastening rigidity, it is possible to excite vibrations of the pin during the operation of the machine. This will increase the number of impacts of the splitter on the cleaned mass of cotton and thereby increase the cleaning effect [7].

The authors studied the process of cleaning cotton using the vibration method. The movements of seeds along an inclined vibrating surface were studied and various effective results were obtained [8].

Theoretical study. Based on the above theoretical and experimental studies, we conduct a theoretical study

The differential equation of motion in the OXY plane, i.e., as a result of fluctuations in the cotton flow along the mesh surface, has the following form;

$$\left.\begin{aligned} m\ddot{x} &= mA\omega^2 sin\omega t + F \\ m\ddot{y} &= mA\omega^2 sin\omega t + N \end{aligned}\right\} \qquad (1)$$

where m - is the mass of the fly; ω - vibration frequency; A - is the amplitude of oscillations; g - free fall acceleration; H - is the normal pressure force; F - resistance force (fig. 1).

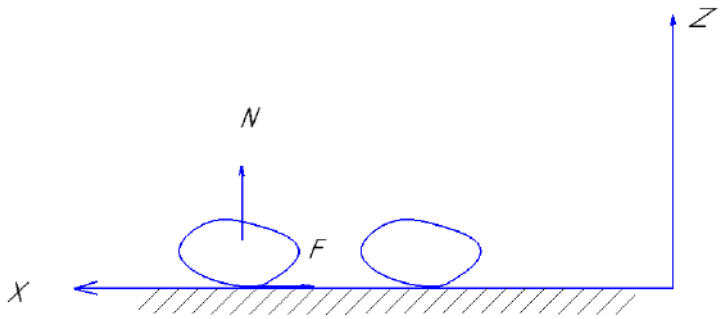

Fig. 1. Pattern of movement of cotton particles on a vibrating mesh surface

$$F = \begin{cases} -fN & \text{when} \quad \dot{x} > 0 \\ fN & \text{when} \quad \dot{x} < 0 \end{cases} \qquad (2)$$

where f - is the coefficient of sliding friction.

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From equation (1) we determine the normal pressure of the cotton flow on the surface of the oscillating mesh surface:

$$N = m\ddot{y} - mA\omega^2 sin\omega t \qquad (3)$$

If the movement of cotton particles occurs only along the OX axis, then it is equal to ¨=0, then equation (3) will take the form:

$$N = -mA\omega^2 sin\omega t \qquad (4)$$

Equation (4) N=N(t) is the law of the dependence of the normal compressive force on time. The dependence of the force of normal pressure on the flow of cotton moving along the surface of an oscillating grid of small weeds, on the frequency and amplitude of the oscillations is presented.

Let us determine the equation of motion of the cotton jet Y=0 along the mesh surface using equation (1):

$$m\ddot{x} = mA\omega^2 sin\omega t + F$$

Instead of F in equation (2), we substitute *F=fN*:

$$m\ddot{x} - mA\omega^2 sin\omega t \pm fN$$
$$m\ddot{x} - mA\omega^2 sin\omega t \pm fN(-mA\omega^2 sin\omega t)$$
$$\ddot{x} = A\omega^2 sin\omega t\ (1 \pm f)$$

Integrating over time

$$\dot{x} = A\omega^2 cos\omega t\ (1 \pm f) + C_1 \qquad (5)$$

$$x = A\omega^2\ sin\omega t\ (1 + f) + C_1\ t + C_2 \qquad (6)$$

Equation (5) is the flow rate of cotton over an oscillating mesh surface, and we use the following condition to determine the constants C_1 and C_2:

$$x(0) = 0, \quad \dot{x}(0) = 0$$

Where

$$0 = A\omega\ (1 \pm f) + C_1 \Rightarrow C_1 = A\omega\ (1 \pm f)$$
$$C_2 = -C_1 t = A\omega\ t(1 \pm f)$$

Substituting the constants into equation (6), the equation for the flow of cotton over an oscillating mesh surface is determined.

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$$x = Asin\omega\, t\,(1 \pm f) + A\omega\, t\,(1 \mp f) + A\,\omega\, t\,(1 \pm f) \qquad (7)$$

Results. Thus, equation (7) is a model of the oscillatory process of cleaning from small weeds, in which a differential equation for the steady motion of the cotton flow is constructed. According to this equation, the analysis of the movement of cotton particles on the surface of the vibrating screen is built in the form of a graph using the Maple program (Fig.2 and 3.).

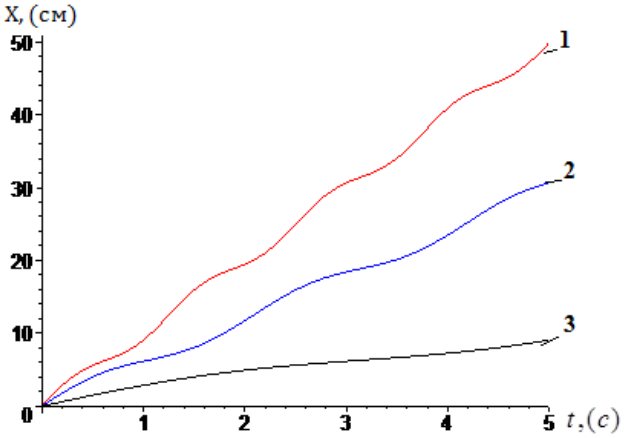

Fig. 2. Graph of change in time at different values of angular velocities when cleaning cotton bats from small weeds on the surface of a vibrating mesh;

$A_1 = 0.2$ м; $A_2 = 0.4$ м; $A = 0.6$ м.

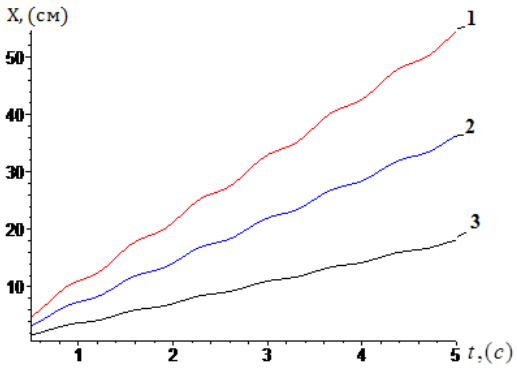

Fig. 3. Graph of changes in time at different values of the amplitude of oscillations when cleaning cotton bats from small weeds on the surface of a vibrating mesh;

Conclusion. Analytically and numerically, the differential equation of the movement of the cotton flow over the mesh surface is solved, the results of which show that the speed of the cotton flow and its cleaning from small weeds in the horizontal plane depend on the amplitude and frequency of the movement of the mesh surface over the mesh surface.

The results obtained show that the cleaning of the cotton flow from small weeds and the surface of the oscillating mesh obeys the parabolic law and the law of harmonic oscillations. With the effective cleaning of the cotton flow from small impurities, the vibration frequency is 400 times per minute, and the vibration amplitude is 0.2 m, which also ensures cotton consumption of 3000 kg/h.

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ЭФЕКТИВНАЯ КОНСТРУКЦИЯ ОЧИСТИТЕЛЯ ХЛОПКА-СЫРЦА

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Аннотация. *В статье приводится общая схема принципа работы очистителя волокнистого материала от крупного и мелкого сора. На основе составления динамической и математической моделей, численного ее решения представлены закономерности движения рабочих органов очистителя. Анализами законов движения и графических зависимостей обоснованы основные параметры очистителя. Даны рекомендации на широкое использование в волокноочистительном производстве.*

Ключевые слова*. Волокнистый материал,очиститель, мелкий сор, крупный сор, эффект, уравнения движения,рабочий орган,жесткость,диссипация, технологическое сопротивление, закон движения, наравномерность, режим, колки, колосник.*

Введение. Процесс очистки хлопка-сырца от сорных и посторнных примесей обусловливается характером его засоренности и эффективностью действия рабочих органов очистителей. Очистители разделяют на машины для выделения из хлопка-сырца крупных сорных примесей (стебли хлопчатника, коробочка, створка и т.д.) и машины для выделения мелких сорных примесей (частицы листика, прицветника, цветка, пыли и др.).

Эффективность удаления сорных примесей из хлопка-сырца в значительной степени зависит от качественных особенностей, свойственных данному селекционному сорту хлопчатника, промышленного сорта и влажности хлопка, длины волокна, времени нахождения сорных примесей в хлопка-сырце, характрера сцепления сора и многих других показателей [1].

В известной конструкции очистителя хлопка-сырца от крупного сора колосники выполнены многогранными и их ребра выполнены криволинейными, при этом угол поворота ребер грани одного конца четырехгранного колосника относительно другого конца равен 45^0, при пятигранном колоснике 36^0 и при шестигранном колоснике 30^0, направление повернутости грани соседных колосников противоположные [2].

Основным недостатком данной конструкции является значительное повреждение семян хлопка за счет большого угла поворота ребр колосника, значительное увеличение торможения летучки хлопка.

В другой конструкции колосниковой решетки содержащая пару боковин с отверстиями и размешение между боковинами стержневые колосники, на концевых участок оси которых установлены упругой втулки, расположенные в отверстиях боковин [3]. Недостатком данной конструкции является большой уход летучек в сороотвод за счет деформации упругих опор и увеличения зазора между колосниками.

В очистителе УХК содержащее зону очистки хлопка от мелкого сора колковые барабаны и сеткой под ними чередующиеся с ними зона очистки хлопка от крупного сора содержащее пильчатые барабаны и колосниковая решетка под ними, неподвижная щетка.

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Недостатком данной конструкции очистителя хлопка комбинированный (УХК) является то, что он улавливает мелкие сорные примеси и сливаются с крупным сорам в котором есть летучки хлопка-сырца. Кроме того в очистителе УХК не достаточно высокая эффективность очистки хлопка-сырца как мелкого, так и крупного сора.

С целью отвода мелких и крупных сорных прмесей в отдельности и увеличение эффекта очистки была совершенствована конструкции элементов зон мелкий и крупной очистки хлопка [4].

Эффективная схема очистителя волокнистого материала. Очиститель волокнистого материала содержит 1,2,3 зоны очистки хлопка от мелкого сора и 4,5,6 зоны очистки хлопка от крупного сора (рис.1). Над первой зоной 1 установлены питающие валики 7. При этом колки 8 барабанов 9 зоны 1 установлены по винтовой линии под углом $\alpha=30^0$, второй зоны 2 колки 10 барабанов 11 установлены по винтовой линии под углом $\alpha=22,5^0$, а третьей зоны 3 колки 12 барабанов 13 установлены по винтовой линии под углом $\alpha=15^0$. В зоне 4 многогранные колосники 14 под пильчатыми барабанами 15 и 16 выполнены с углом поворота ребр 12^0 относительно оси колосника 14, в зоне 5 ребра колосников 17 под пильчатыми барабанами 18,19 повернуты на 9^0, а в зоне 6 ребра колосника 20 под пильчатыми барабанами 21,22 повернуты на угол 6^0. Мелкие сорные примеси отводится шнеками 23, а крупные сорные примеси через шнеки 24. Рабочие органы установлены в корпусе 25.

Очиститель хлопка-сырца работает следующем образом. Хлопок-сырец посредством питающих валиков 7 поступает в первую зону 1 к колковым барабаном 9, колки которых установленые по винтовой линии на 30^0 захватывают и потаскывают хлопок эффективно еги разрыхляет. При этом в зоне 1 хлопок-сырец менее разрыхленный и поэтому за счет большого угла винта хлопок подвергается и в круговым и осевом направлениях воздействию. При этом противоположности винта соседных колковых барабанов, хлопок подвергается сложному движению. В зоне 4 колосники 14

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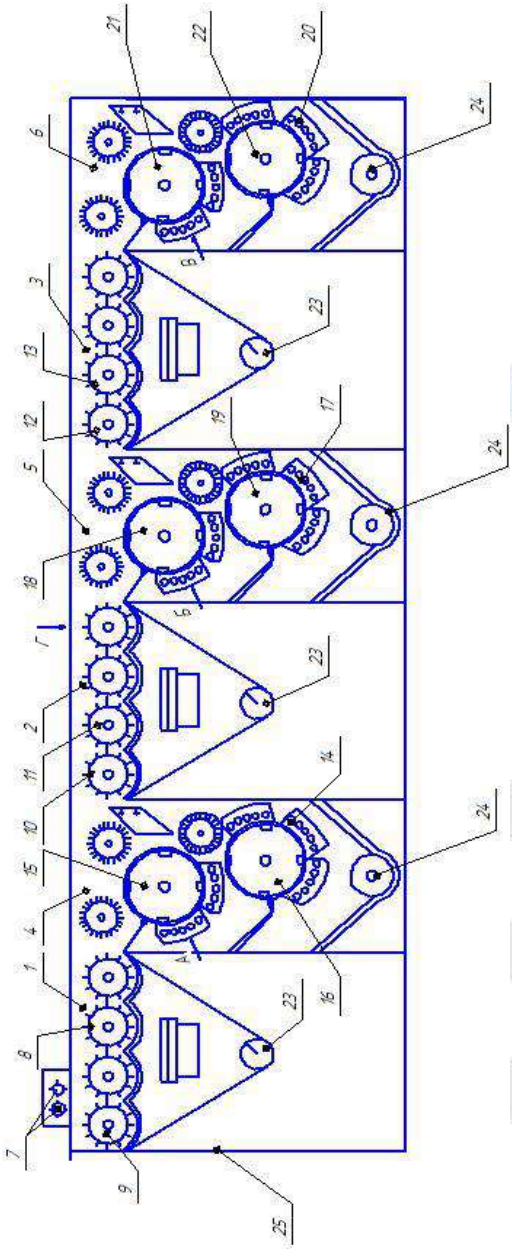

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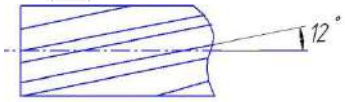

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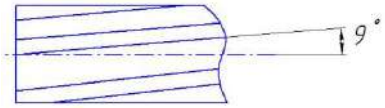

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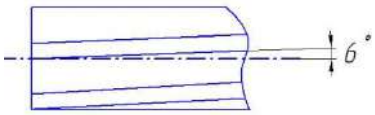

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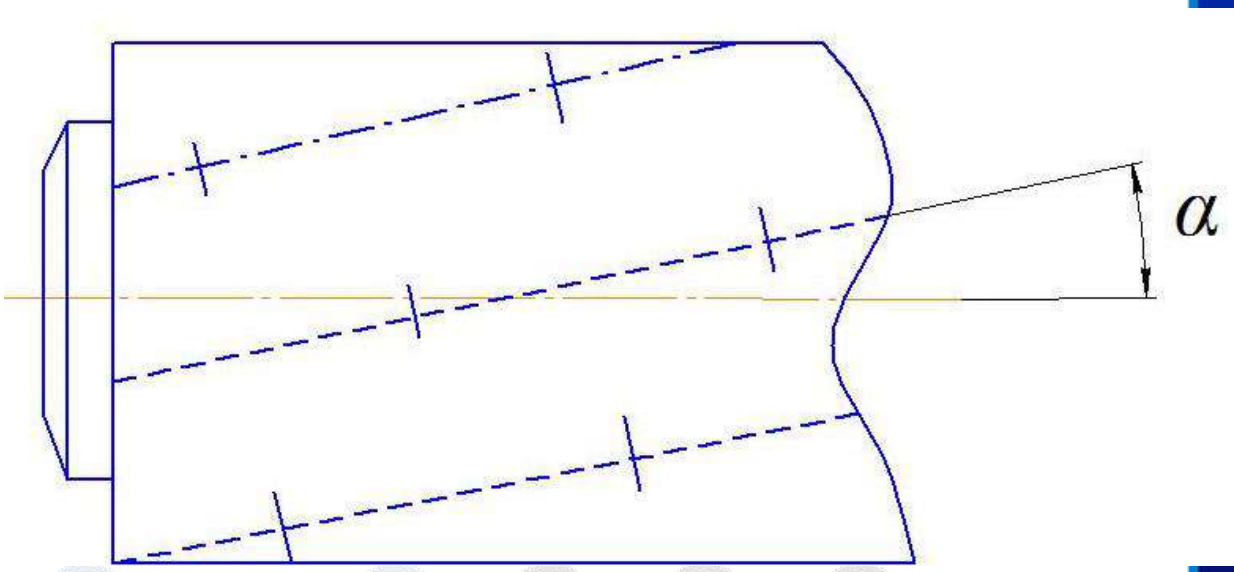

Рис.1. Схема очистителя волокнистого материала.

под пильчатыми барабанами 15 и 16 при взаимодействии с ними хлопок, происходят разнонаправленные силы реакции с достаточными значениями за счет большого угла поворота 12^0 ребр колосников 14 происходит эффективное выделение крупного сора. Далее в 2-й, 5-й, 3-й и 6-й зонах очистка хлопка осуществляется подобным образом. Но, при этом по ходу передвижения хлопка-сырца по этом зонам угол подъема винтовой линии α установки колков на поверхностях барабанов уменьшается до 15^0, а углы наклона ребр многогранных колосников также уменьшается до 6^0. То есть, с передвижением хлопка последовательно по зонам от 1 до 6 происходит постепенное разрыхление хлопка и поэтому также постепенно снижается и торможение хлопка к продвижению.

Выделенные мелкие сорные примеси в 1-й, 2-й и 3-й зонах отводится шнеками 23, а выделенные крупные сорные примеси в 4-й, 5-й и 6-й зонах отводится шнеками 24.

Очиститель хлопка комбинированный позволяет повышение эффекта очистки по мелкому и круному сору до (20-25) % относительно очистителя УХК.

Динамические и математические модели машинного агрегата с рабочими органами, привода мелкой очистки. В рекомендуемом очистителе хлопка одним из основных элементов считается зона мелкой очистки хлопка. При этом важным является выбор параметров колковых барабанов, обеспечивающие увеличение эффекта очистка. Для установления необходимых режимов работы колковых барабанов, а также установления плавных переходных режимов их движения был устаовлен отдельной электродвигатель. На рис.2 представлена динамическая модель машинного агрегата с механизмами привода колковых барабанов рекомендуемого очистителя волокнистого материала используя методику представленных в работах [5,6,7].

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Согласно динамической модели машинного агрегата на рис. 2. система является пятимассовой с двумя разветлениями. Движение от двигателя одновременно передается к первому и второму колковых барабанов, далее от второго колкового барабана к третему и четвертому колковым барабанам. При этом частота вращения каждого последующего барабана выбрана большим на (10-12) об/мин чем предидущий. При этом имеет соотношение: $\dot{\varphi}_д = 101{,}52 с^{-1}$; $\dot{\varphi}_1 = 43{,}0\ с^{-1}$; $\dot{\varphi}_2 = 46{,}5\ с^{-1}$; $\dot{\varphi}_3 = 48{,}8\ с^{-1}$; $\dot{\varphi}_4 = 52{,}95\ с^{-1}$; P=7,5 кВт.

Учитывая нагруженность колковых барабанов установленных последовательно, сотавлена диаграмма, которая представлена на рис.3.

Анализ гистограмм на рис.3. показывает, что в каждом последующем колковом барабане нагрузка от очищаемого хлопка-сырца постепенно уменьшается. При этом увеличивается степень разрыхленности хлопка-сырца, а также скоростной режим работы колкового барабана.

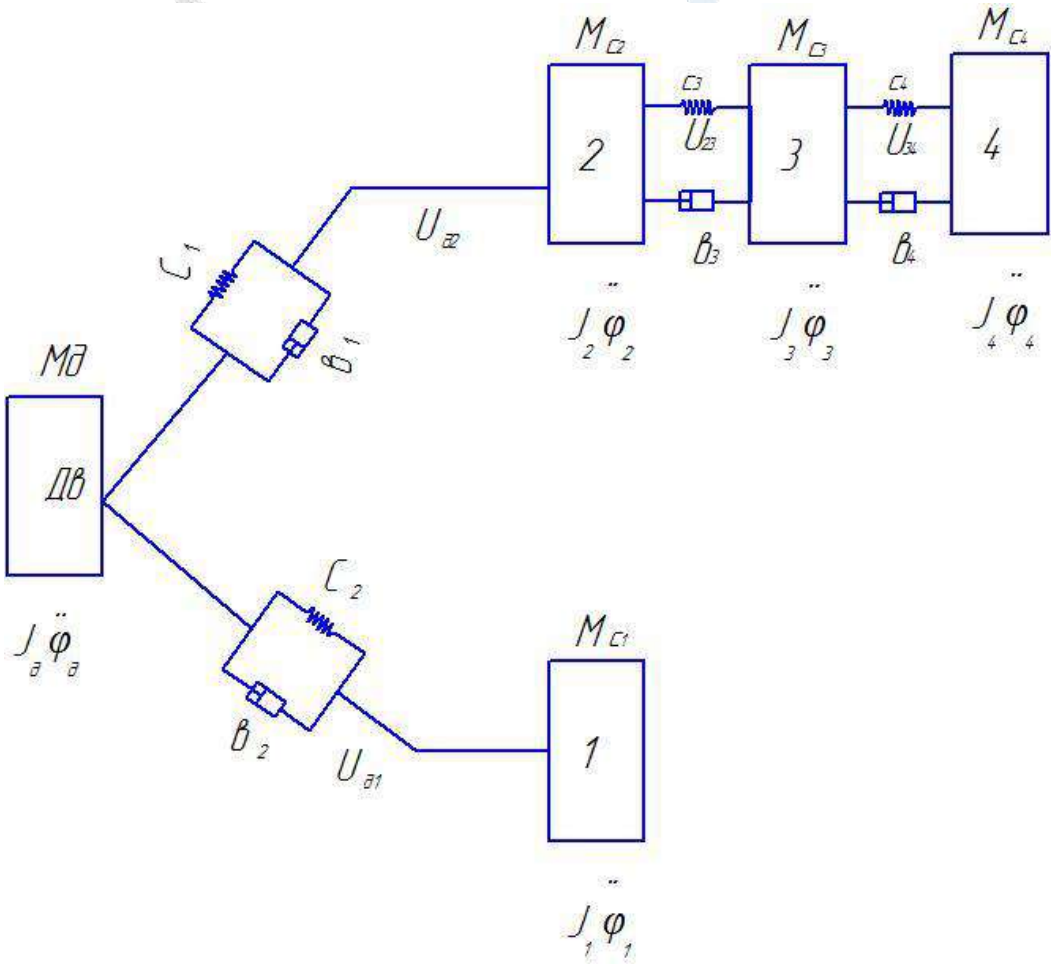

Рис. 2. Динамическая модель машинного агрегата привода зоны мелкой очистки

Используя методику составления математических моделей машинных агрегатов приводов технологических машин согласно [8,9,10] получим следующую систему дифференциальных уравнений для рассматриваемой зоны очистки хлопка от мелкого сора очистителя:

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$$\frac{dM_д}{dt} = \left(\omega_c - P\frac{d\varphi_д}{dt}\right)\psi - \frac{M_д}{T_э};$$

$$\frac{d\psi}{dt} = \frac{2M_к}{T_э}\left(\omega_c - P\frac{d\varphi_д}{dt}\right) - M_д;$$

$$T_э = (\omega_c - S_k)^{-1};\ \psi = \frac{S_k}{S}\left(M_д + T_э\frac{dM_д}{dt}\right);$$

$$J_д\frac{d^2\varphi_д}{dt^2} = M_д - в_1\left(\frac{d\varphi_д}{dt} - U_{д1}\frac{d\varphi_1}{dt}\right) - C_1\left(\varphi_д - U_{д1}\varphi_1\right) - в_2\left(\frac{d\varphi_д}{dt} - U_{д2}\frac{d\varphi_2}{dt}\right) - C_2\left(\varphi_д - U_{д2}\varphi_2\right) - Мтр;$$

$$J_1\frac{d^2\varphi_1}{dt^2} = U_{д1}в_1\left(\frac{d\varphi_д}{dt} - U_{д1}\frac{d\varphi_1}{dt}\right) - U_{д1}C_1\left(\varphi_д - U_{д1}\varphi_1\right) - M_{c1};$$

$$J_2 = \frac{d^2\varphi_2}{dt^2} = U_{д2}в_2\left(\frac{d\varphi_д}{dt} - U_{д2}\frac{d\varphi_2}{dt}\right) - U_{д2}C_2\left(\varphi_д - U_{д2}\varphi_2\right) - в_3\left(\frac{d\varphi_2}{dt} - U_{23}\frac{d\varphi_3}{dt}\right) - C_3\left(\varphi_2 - U_{23}\varphi_3\right) - M_2$$

$$J_3\frac{d^2\varphi_3}{dt^2} = U_{23}в_3\left(\frac{d\varphi_2}{dt} - U_{23}\frac{d\varphi_3}{dt}\right) + U_{23}C_3\left(\varphi_2 - U_{23}\varphi_3\right) - в_4\left(\frac{d\varphi_3}{dt} - U_{34}\frac{d\varphi_4}{dt}\right) - C_4\left(\varphi_3 - U_{34}\varphi_4\right) - M_д;$$

$$J_4\frac{d^2\varphi_4}{dt^2} = U_{34}в_4\left(\frac{d\varphi_3}{dt} - U_{34}\frac{d\varphi_4}{dt}\right) - U_{34}C_4\left(\varphi_3 - U_{34}\varphi_4\right) - M_{c4} \qquad (1)$$

где -$M_д$,Мк-движущий момент и его критическое значение на валу двигателя; ω_c-круговая частота сети; Р-число пар полюсов; $\varphi_д$-угловое перемещение ротора двигателя; S_k-критическое скольжение; $T_э$-электромагнитная постоянная времени двигателя; ψ-вспомогательная переменная; φ_1, φ_2, φ_3, φ_4- соответственно угловые перемещение колковых барабанов; $J_д$, J_1, J_2, J_3, J_4 - моменты инерции двигателя и колковых барабанов; C_1, C_2, C_3, C_4 - соответственно коэффициенты круговых жесткостей и диссипаций ременных передач привода к колковым барабаном очистителя; $U_{д1}$, U_{12}, U_{23}, U_{34} - передаточные отношения соответствующих ременных передач; M_{c1}, M_{c2}, M_{c3}, M_{c4} - технологические сопротивления от очищаемого хлопка на колковые барабаны согласно, которые получены экспериментами [11,12].

Решение задачи и анализ результатов. На основе численного решения системы (1) была получены закономерности изменения угловых скоростей движения ротора электродвигателя, колковых барабанов, крутящего момента на валу двигателя от вариации, технологических сопротивлений, коэффициентов жесткостей ременных передач привода.

На рис.5 представлены характерные закономерности изменения $\dot{\varphi}_д, M_д, \dot{\varphi}_1, \dot{\varphi}_2, \dot{\varphi}_3, \dot{\varphi}_4$. Анализ полученных законов движения ротора двигателя и колковых барабанов показывает, что система выходит на установившиеся режим работы за (0,2-0,25) с с учетом технологических сопротивления от хлопка-сырца. При этом высокочастотные колебания угловых скоростей соответствует частоте вращения колковых барабанов и количеству колковых рядов в барабане. Так, на рис.3.а представлены законы изменения $M_д$ и $\dot{\varphi}_д$ по времени, а на рис. 3,б приведены закономерности изменения $\dot{\varphi}_1, \dot{\varphi}_2, \dot{\varphi}_3$ и $\dot{\varphi}_4$ по времени. Средные значения угловых скоростей соответствуют номинальным значениям при средней технологической нагрузке.

Обработкой полученных законов изменения угловых скоростей колковых барабанов и нагруженности двигателя были построены графических зависимости параметров машинного агрегата.

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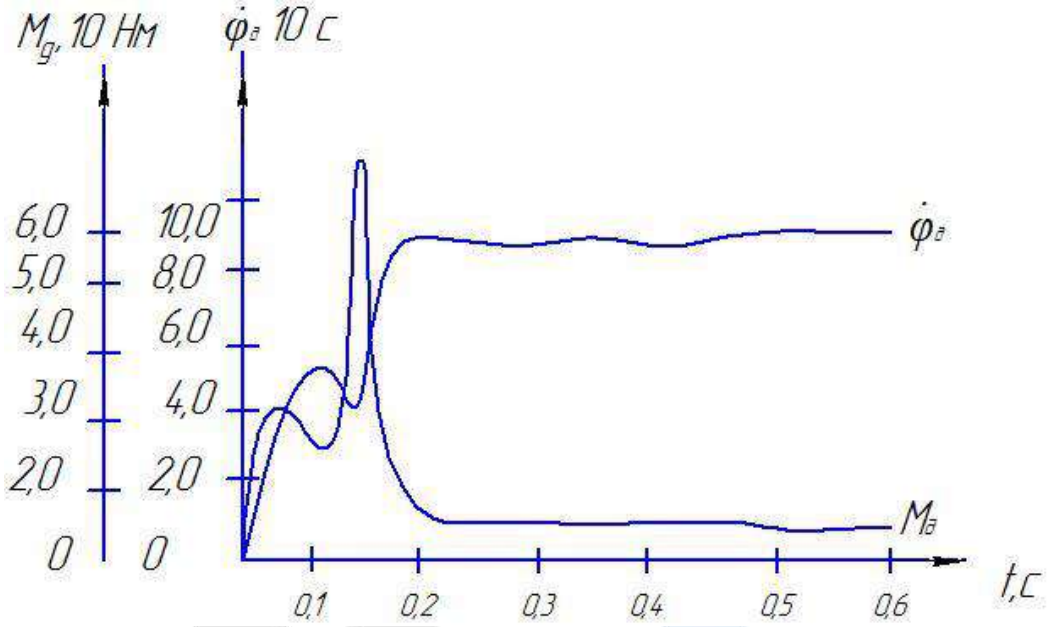
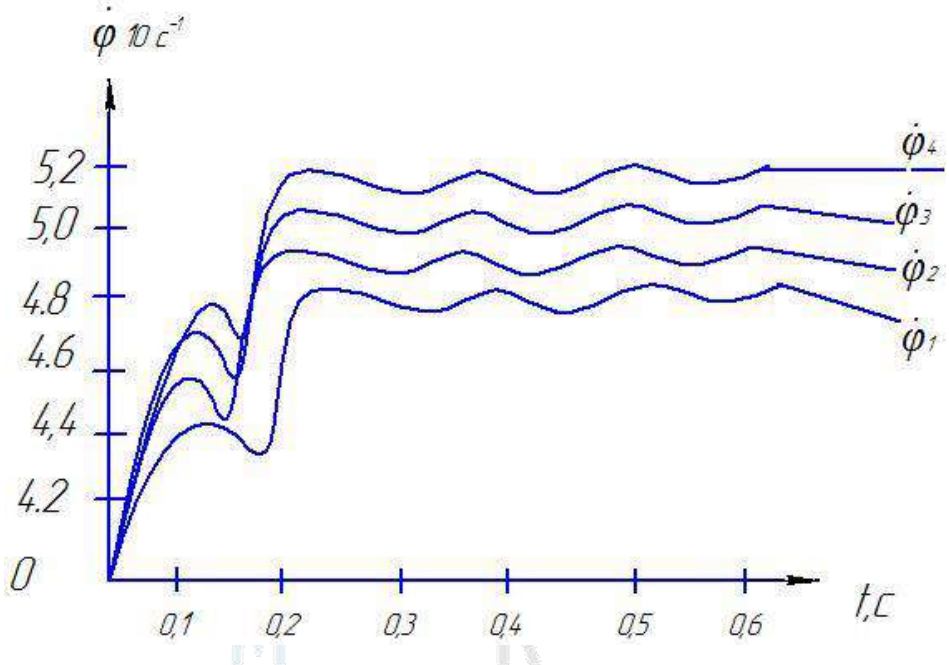


а)



б)

Рис.3. Закономерности изменения угловой скорости вала двигателя (а) и колковых барабанов (б), наргуженности двигателя т времени.

Анализ полученных графических зависимостей показывает, что увеличение производительности очистителя в зоне мелкой очистки хлопка приводит к увеличению нагруженности двигателя, а также неравномерности угловой скоростей колковых барабанов и ротора по нелинейной закономерности. Так, при увеличении Мс от 0,3 10Нм до 1,8 10Нм момент Мд увеличивается от 3,2Нм д 29,2Нм. При этом $\delta_д$ возрастает от 0,041 до 0,056. При этом коэффициент неравномерности угловой скорости первого колкового

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барабана увеличивается от 0,046 до 0,135, а четвертого колкового барабана ... от 0,022 до 0,072 по нелинейной закономерности. Следует отметить, в начальной зоне на первый и второй колковые барабаны испытывают большие нагрузки (см. Рис.2, гистограммы) за счет малой рахрыхленности очищаемого хлопка, а далее на колковые барабаны 3,4 нагрузки будут значительно меньше за счет достаточной разрахленности хлопка. Рекоиендуемыеми значениями являются: $\delta_1 = (0{,}03 \div 0{,}035)$; $\delta_2 = (0{,}025 \div 0{,}028)$; $\delta_3 = (0{,}022 \div 0{,}024)$; $\delta_4 = (0{,}018 \div 0{,}02)$, Мс≤(2,0÷2,5) 10 Нм.

На рис 7 приведены графические зависимости изменения угловых скоростей колковых барабанов от изменения соответствующих технологических сопротивлений. Известно, что с увеличением технологического сопротивления, тоесть производительности очистителя соответственно уменьшаются скоростные режимы движения рабочих органов. Так, при увеличении Мс от 0,2 10 Нм до 2,4 10 Нм угловая скорость первого колкового барабана уменьшается от 52,0 $с^{-1}$ до 45,5 $с^{-1}$ по нелинейной закономерности. Как отмечано выше для ликвидации забоев в зоне очистки хлопка-сырца от мелкого сора угловая скорость каждго последующего барабана будет большим, чем предыдущей. Из графиков на рис.7 видно, что при увеличении производительности очистителя хлопка-сырца угловая скорость последнего четвертого колкового барабана снижается от 43,1 $с^{-1}$ до 34,2 $с^{-1}$. Значить, каждый последующей колковый барабан будет врашатся быстрые чем предыдущей и режим движения будет более плавным.

На рис.8 приведены зависимости изменения размаха колебаний угловых скоростей колковых барабанов и нагрузки на двигатель от изменения соотношений коэффициентов круговых жесткостей соответствующих ременных передач к колковым барабанам. Увеличение круговых жесткостей ременных передач привода очистителя хлопка в зоне мелкой очистки приводит к увеличению крутящего момента на валу двигателя по нелинейной зокономерностях. Так, при увеличении С/Ср соответствующей ременной передачи для обоих ветвей системы (см. рис.3) при пр=5 т/ч момоент Мд воосрастает от 19,4 Нм до 62,3 Нм по нелинейной закономерности.

Выводы: Разработана и рекомендована новая эффективная конструктивная схема очистителя волокнистого материала . На основе исследований обоснованы основные параметры очистителя, при которых обеспечивается необходимый эффект очистки хлопка-сырца от мелкого сора при высокой производительности машины без забоев в зоне очистки.

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DYNAMIC STUDY OF THE STABILITY OF THE SHELL OF A COMPOSITE FEED CYLINDER DURING TORSION IN THE FEED ZONES OF ROTOR SPINNING MACHINES.

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ABSTRAKT. The article presents the results of theoretical research by determining the force of friction between the fibrous tape and the constituent feeding cylinder. The recommended formula for calculating the force of friction between the cylinder and the fibrous fiber. Based on the analysis of the constructed graphical dependencies, the values of the reduced mass were substantiated, stiffness coefficient, and geometric and kinematic parameters of the constituent supply cylinder of the discretizing zone in the spinning machine.

Keywords. Discretization of fibers, supply cylinder, shock absorber, friction, mass, stiffness, radius, angular velocity, damage, discretization.

Introduction. The essence of the discretization process of conclusions is in separating the tape into separate non-contacting fibers, in relative displacement, and in distributing them over a very large length.

In the process discretization takes place extra high thinning, the tape is drowning by 3000-7500 times, and in the section of a discrete flow with an ideal separation, there are 2-6 non-contacting fibers. This is the difference between discretization and pulling in [1].

In the spinning device, the main phases include: feeding, discretizing, conveying, picking up, and conveying with air. In the feed area, the tape is chosen from the pelvis and served at a constant speed. When sampling the tape from the canvas or pelvis doesn't occur large axial force, and no deformation is observed in the tape, therefore doesn't take place redistribution of fiber in the tape by length. During feeding, the cross section of the tape changes to a flat rectangular one, convenient for discretization. The tape passes through a sealing funnel which guides it to approximately the center of the width of the feeding cylinder. Sealing funnel has in impact primarily as an organ, giving certain direction for tape, and limiting its weight. The sealing funnel has an impact primarily as an organ, giving a certain direction for tape, and limiting its width. On machine BD – 200 section sealing funnel selected so that the width of the tape at the outlet does not exceed 9 mm and the thickness is 2 mm. Changing the section of the tape is achieved by increasing the density of the fibers in the section. The density of the fibers increases, since with a gradual decrease in the cross section for the passage of fibers in the tape, stresses arise under the influence of elastic transverse deformations. The sealing funnel does not change the uneven arrangement of fibers in the section of the tape. Voltage in the tape cause frictional forces on the walls of the sealing funnel, which prevent the movement of the outer layers of the fibers. These frictional forces operate around the perimeter sections sealing funnel uneven. These friction forces act unevenly along the perimeter of the section of the sealing funnel. To prevent a hidden draught, it is necessary to exist a section of the sealing funnel brings closer to

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the area of the compressing feeder device. The tape is compressed between the feed cylinder and the table. Wherein, the density of the fibers in the section increases, and at the same time increases the width of the tape to the width of the slot in the table [2].

In the known construction, the supply cylinder is corrugated with a straight corrugation (parallel to the axis of the cylinder).

During the operation of this cylinder, the condition for reliable operation of the fiber ribbon, without disturbing the uniformity of the tape, is to overcome the resistance of friction forces between the tape and the table, and development is necessary moving with supply cylinder.

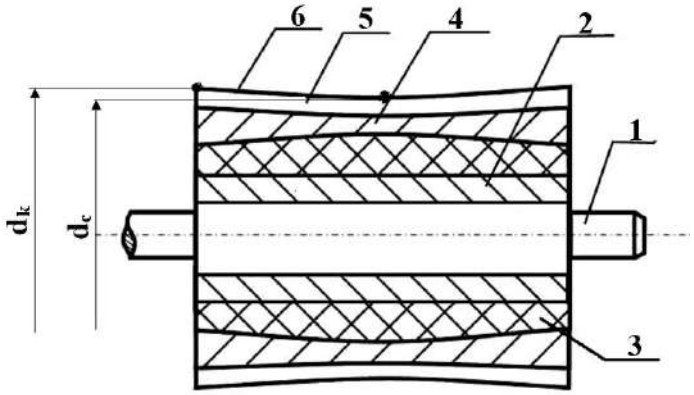
In a well-known design, the supply cylinder is made corrugated with straight corrugations (parallel to the axis of the cylinder). When this cylinder is operating, the condition for reliable operation of the fiber ribbon, without violating the uniformity of the tape, is to overcome the resistance of friction forces between the tape and the table and create the necessary movement using the supply cylinder. In this case, the force of friction changes with the force of clamping the tape to the table, and some sliding of the tape also occurs. This slip depends on the distance between the corrugated feeder cylinder of the supply cylinder.

The disadvantage of this design of the corrugated supply cylinder is the uneven distribution of the friction force along the length of the cylinder, which leads to some lag in the movement of the tape fibers along the edges of the cylinder. Due to the rigid interaction of the supply cylinder with the fibers, their damage occurs.

In another well-known design of the supply cylinder, the toothed garnitures are made obliquely to the axis of the cylinder and form single diamonds arranged in rows along the length of the supply cylinder. [3]

The disadvantage of the existing design is also the uneven distribution of the friction force of the fibers of the tape with a corrugated cylinder and a table along the length of the cylinder. This leads to some lag in the movement of the fibers of the tape along the edges of the cylinder. In addition, damage to the fibers of the tape occurs due to the rigid interaction of the rhombic corrugations on the tape, although there is a cushioning of the table due to the springs.

Recommended design scheme of the discretization zone supply the cylinder in a spinning machine. To ensure the uniformity of the tape feed along the length of the cylinder and reduce the damage to the fibers in the tape, the design of the cylinder was improved, allowing a uniform density of fibers in the tape along the length of the cylinder by creating a shear force of the fibers from the edges and in the middle of the tape [4].



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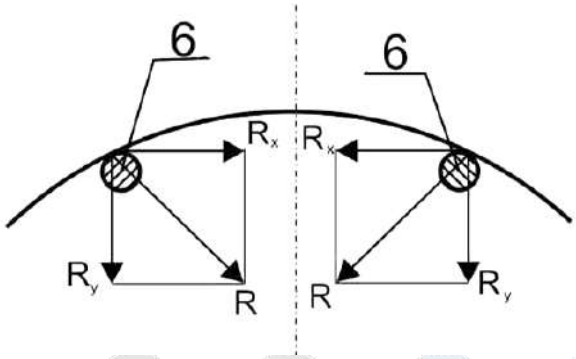

Figure 1. supply cylinder of the spinning device

The essence of the design lies in the fact that the supply cylinder is made composite of an outer corrugated bushing and an inner bushing connected to each other by means of a barrel-shaped rubber bushing along the outer surface, while the inner bushing is rigidly mounted on the belt drive, while the outer surface of the corrugated bushing is made curved, having a concave shape, the diameter in the middle of the sleeve of which is less than the diameters along the edges of the cylinder by 2.0 mm.

The design of the utility model is explained by the drawing, where in Fig. 1 is a general view of the supply cylinder in section.

The design of the supply cylinder of the spinning device consists of a drive shaft 1, mounted on it by means of keys (not shown in the figure) inner sleeve 2, an elastic rubber sleeve 3 of a barrel-shaped shape is mounted on it and a corrugated sleeve 4 with corrugations 5 put on it, having a concave curvilinear shape 6 on the outer surface. In this case, the diameter in the middle of the corrugated sleeve 4 is less than the diameters along the edges of the cylinder by 2.0 mm.

The process of feeding the tape into the sampling zone is carried out as follows. The fibrous mass (cotton fibers) in the form of a tape enters through the sealing funnel to the feed zone between the table (not shown in the figure) and the supply cylinder with a corrugated sleeve 4. In this case, the tape (fibrous mass) is compressed between the corrugated sleeve 4 and the table. Here, the pressure on the belt from the corrugated sleeve 4 of the supply cylinder is distributed more evenly along its length. This is ensured by deformation of the barrel-shaped elastic rubber sleeve 3. The greater the density of the fibers and its unevenness along the length of the tape cylinder, the greater the compression deformation of the elastic rubber sleeve 3. The barrel-shaped elastic rubber sleeve 3 centers the position of the corrugated sleeve 4 relative to the axis of rotation. In addition, the fibers located at the edges of the tape along the length of the supply cylinder due to the horizontal shear forces R_x that arise towards the middle of the tape will to some extent move towards the middle of the cylinder. Forces R_y take the fibers of the tape to the surface of the supply cylinder.

$$R = R_X + R_Y$$

here, R_X – the horizontal component of the reaction force R on the tape fiber, R_Y – the vertical component of the reaction force R on the tape fiber. This reduces the density of the fibers in the extreme positions of the moving tape. Thus, the uniformity of the density of the fibers across the width of the tape is ensured, and thus the uniformity of the feed of the tape, as well as the reduction of damage to the fibers.

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Determination of the force of rattling between the fibrous tape and the supply cylinder. During the operation, the content supply cylinder compresses the tape and pushes it into the sampling zone at the cross-sectional area of the appropriate shape (2x9) mm2. In the current design, this is mainly due to the coefficient of friction and compressive strength between the fibers and the cylinder [5]. The rubber bushing of the supply cylinder with the recommended composition also depends on the elasticity to a certain extent.

During the interaction of the fiber tape with the content supply cylinder, the following forces are generated: cylinder gravity, centrifugal force; rubber bushing elasticity, fibrous tape elasticity; friction force and reaction force.

The calculation scheme for the interaction of the fiber belt with the discrete zone supply cylinder is shown in Figure 2.

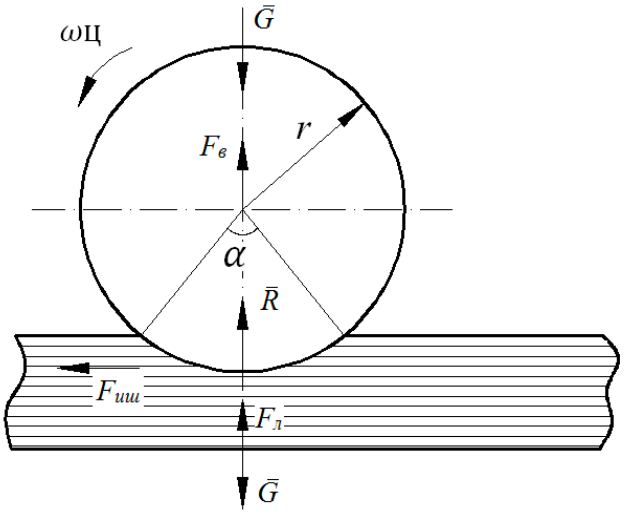

Figure 2. Interaction calculation scheme with composite cylinder and fiber tape

The mass of the supply cylinder is $m_в$, the mass of the flexible rubber bushing is $m\tau_в$ and the mass of the garniture is $m_р$. Therefore:

$G_т=(m_в+ m_{вт}+ m_р)g$ (1)

here g – free fall acceleration.

Centrifugal force of the supply cylinder [6]:

$$F_{м.ц} = \left(\frac{\pi n_ц}{30}\right)^2 \left(m_в + m_{вт} + m_р\right) r \quad (2)$$

here, $n_ц$ – supply cylinder rotation frequency; $\pi = 3.14$; r- cylindrical garniture tooth bevel radius.

It should be noted that the restorative force of the rubber bushing, as well as the restorative force in the vertical displacement of the fibrous tape, is also directed upwards, the values of which are taken into account by the following total elasticity [7]:

$$F_б = \frac{c_{вт} \cdot c_л r^2}{c_{вт} + c_л} \left(1 - \cos\frac{\alpha}{2}\right) \quad (3)$$

Frictional force accordingly [81]:

$F_{иш} = fN$ (4)

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here, f – coefficient of friction; N – total power; a – the angle of coverage of the deformation zone of the tape.

The contact surface of the supply cylinder reflux garniture and the fiber tape is defined by the following expression [8]:

$$S_{\pi} = 2rl\sin\frac{\alpha}{2} \qquad (5)$$

here, l – cylinder length.

Taking into account the above, the frictional force between the surface of the cylindrical garniture, which provides a discrete zone under the condition of balance of forces, was determined by the following expression [8]:

$$F_{иш} = \left\{\left(m_{в} + m_{вп} + m_{2}\right)\left[\partial + \left(\frac{Пп_{ц}}{30}\right)^{2} r\right] + \frac{c_{вт}\cdot c_{лг}}{c_{вт} + c_{л}}\left(1 - \cos\frac{\alpha}{2}\right)\right\}\cdot f \qquad (6)$$

In deriving the resulting expression, the motion is determined in steady state, i.e., for the calculation where the acceleration value is zero.

Analysis of the dependence of the friction force on the parameters of the supply cylinder. To determine their dependence on the parameters of the cylinder providing the friction force, their calculated values are taken into account in the following intervals:

$n_{ц} = (10 \div 20)$ rotation/min; $r = (9 \div 11)\cdot 10^{-3}$ м; $m_{в} = (100 \div 124)\cdot 10^{-3}$ kg;

$m_{вт} = (15 \div 25)\cdot 10^{-3}$ kg; $m_{2} = (30 \div 45)\cdot 10^{-3} kg$; $\alpha = \left(8^{0} \div 16^{0}\right)$;

$c_{вт} = (15 \div 25)$ сН/мм; $c_{к} = (4.5 \div 7.0)$ сН/мм; $f = 0.2 \div 0.3$

As a result of solving the problem, a graph of the dependence of the movement of the friction force between the content supply cylinder of the sampling zone and the ribbon fiber was constructed. Figure 3 shows the graphs of the frictional force dependence of the total mass of the cylinder supplying the discrete zone with the toothed garniture and fiber tape.

It is known [9,10] that the higher the mass values, the higher the pressure force on the friction surfaces, i.e. the higher the friction force. According to the analysis of the graphs in Figure 3, U_{wr} $F_{иш}$ values increase linearly from 0.1·10 cH to 0.58·10 cH when the total mass of the composite cylinder increases from $0.75\cdot10^{-1}$ kg to $2.0\cdot10^{-1}$ kg and the coefficient of friction is at least 0.2. Correspondingly, when the coefficient of friction increases to 0.3, the values of U_{wr} $F_{иш}$ increase from 0.315·10 cH to 1.18·10 cH in a linear bond. In the sampling zone, sufficient frictional force is required to move the fiber tape to the workpiece at a specified speed without slipping. But on the other hand, it should be noted that as the pressure on the fiber tape increases, the damage to the fibers also increases.

Therefore, to ensure that the friction force is in the range (0,8÷1,1)·10 cH, the recommended values of the total mass of the supply cylinder (1,8÷2,5) $\cdot10^{-1}$ kg, and f =0,2÷0,25

The friction force is largely directly related to the stiffness of the cylindrical rubber bushing and the value of the fiber belt deformation, ie the density. Figure 4 shows the graph of the dependence of the frictional force between the cylinder providing the sampling zone and the fiber belt on the cylinder rubber bushing and the coefficient of elasticity of the fiber tape.

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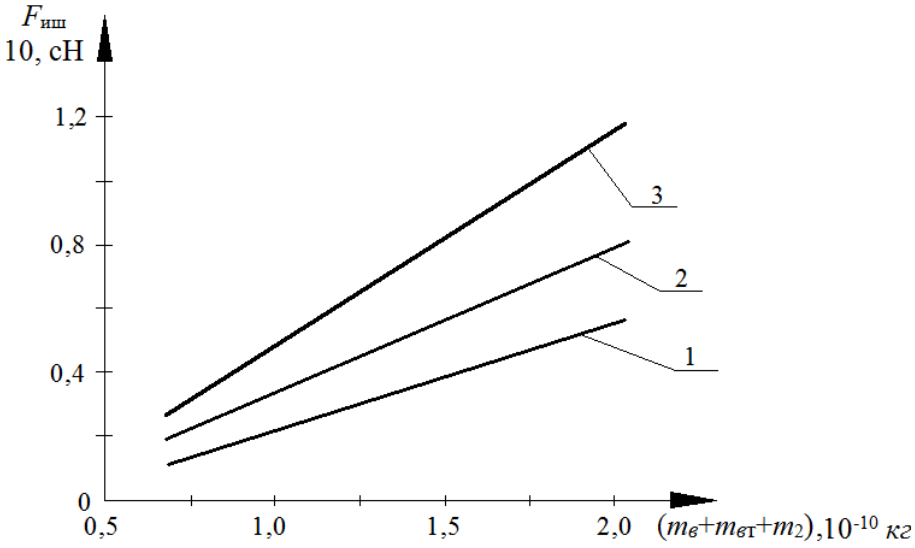
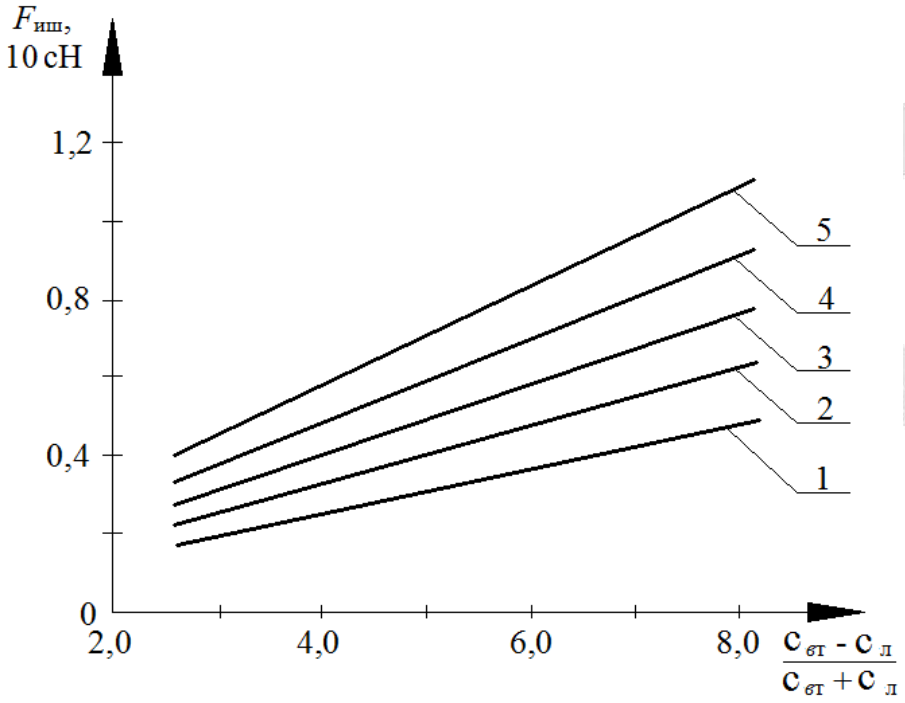


1-f=0,2; 2-f=0,25; 3-f=0,3

Figure 3. Graphs of the friction force dependence of the total mass of the cylinder supplying the composition of the proposed sampling zone with a toothed garniture and fiber tape



$1-r=8.5\cdot10^{-3}$ м; $2-r=9.0\cdot10^{-3}$ м; $3-r=9.5\cdot10^{-3}$ м;

$4-r=10\cdot10^{-3}$ м; $5-r=10.5\cdot10^{-3}$ м;

Figure 4. Graphs of the dependence of the friction force between the cylinder providing the sampling zone and the fiber belt on the coefficients of elasticity of the cylinder rubber bushing and the fiber tape

The analysis of the constructed graphs requires that the frictional force is 0, when the total buffer coefficient of 2,8 сН/мм is 8,0 сН/мм and the outer radius of the cylinder is r=8,5·10^{-3}m, 0,19·10 сН to 0,52·10 сН increases in a linear bond. Also, when the cylinder radius increases to r=10,5·10^{-3}m, the frictional force between the correspondingly provided cylindrical garniture and the fiber belt increases in a linear pattern from 0,45·10 сН to 1,12·10 сН. Therefore, in order to

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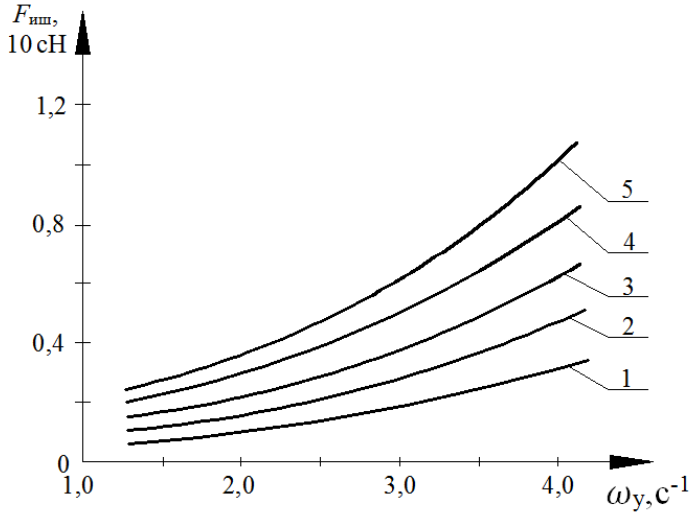
increase the frictional force between the supply cylinder and the fibrous tape, it is expedient to select their applied coefficients in the range (7,0÷9,0) cH/мм.



$1-\alpha=8^0;\quad 2-\alpha=10^0;\quad 3-\alpha=13^0;\quad 4-\alpha=14^0;\quad 5-\alpha=16^0;$

Figure 5. Graphs of the dependence of the frictional force between the cylinder providing the sampling zone and the fiber belt on the angular velocity of the cylinder

It is recommended that the radius of the supply cylinder gear be $r \le (9.5 \div 10.5)\cdot 10^{-3}$ m. The speed of supply of the sampling zone, i.e. the productivity, depends mainly on the angular velocity of the supply cylinder. The angular velocity indicates sufficient between the cylinder and the fibrous tape. Figure 5 shows graphs of the dependence of the friction force between the cylinder providing the sampling zone and the fibrous tape on the cylinder angular velocity. It can be seen that the U_{wr} $F_{ш}$ values increase in a nonlinear coupling from $0.08\cdot 10$ cH to $0.36\cdot 10$ cH when the angular velocity of the supply cylinder increases from $1.5\cdot c^{-1}$ to $4.0\cdot c^{-1}$ and the dip angle is $\alpha = 8^0$. It can be noted that if the angle of immersion of the cylinder in the differentiation in the tape increases to 16^0, the friction force increases in a nonlinear pattern from $0.28\cdot 10$ cH to $1.09\cdot 10$ cH (Fig. 5, Figures 1.5).

Hence, it is effective to increase the angular velocity of the cylinder to increase the frictional force between the cylindrical rifle garniture and the fiber tape in the discrete zone. Recommended values:

$$\omega_{ц} = (3{,}0 \div 3{,}5)c^{-1};\quad \alpha = \left(12^0 \div 14^0\right)c^{-1}$$

Conclusion. A new effective design scheme of the composite supply cylinder of the discretization zone of the spinning machine is recommended. On the basis of theoretical studies, a formula was obtained for calculating the friction force between the supply cylinder and a fibrous tape, the main parameters of the cylinder were substantiated.

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WELDING PROCESS OF AUSTENITIC CHROME-NICKEL STEELS.

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ABSTRACT Austenitic chromium-nickel steels (stainless steels) are corrosion-resistant, high-mechanical properties materials that are widely used in various industries. These steels usually have a content of 18% chromium and 8% nickel, which gives them high strength, heat resistance and corrosion resistance. The welding process of austenitic steels has its own characteristics, and the processes and difficulties that arise during the welding of these steels require special knowledge and technologies. This article discusses the welding process of austenitic chromium-nickel steels, its properties and the processes that occur during welding

Keywords : Austenitic steels, coefficient of expansion, chromium carbides, Melting temperatures.

Annotation. Austenitic chrome-nickel steels (inox steels) are corrosion-resistant materials with high mechanical properties and are widely used in various industries. These steels typically contain 18% chromium and 8% nickel, which gives them high strength, heat resistance, and corrosion resistance. The process of welding austenitic steels has its own characteristics, and the processes and difficulties that arise during the welding of these steels require special knowledge and technologies. This article describes the process of welding austenitic chromium-nickel steels, its characteristics and the processes that occur during welding.

Key words. Austenitic steels, coefficient of expansion, chromium carbides, Melting temperatures.

INTRODUCTION Austenitic steels contain 15 to 25% Cr and 8 to 35% Ni with a carbon content of up to 0.14%. Two groups of chromium-nickel steels are distinguished.

a) 18-8 type steels (1X18H10T, X18H11B, X18H12M2T)

b) 25-20 type steels (X25 N 20 S 2, X23 N 18, X23 N 13)

18-8 steels are rustproof and resistant to oxidation, 750 °Cretaining their properties at temperatures up to 700 degrees.

Steels of types 25-20 are resistant to metal burnout and heat-resistant, and can withstand temperatures up to 1100 in a gas environment. – 1150 °Ccan be operated at low temperatures. When assessing the weldability of austenitic steels, it should first be taken into account that they are not subject to spatial changes, therefore, during welding there are no difficulties associated with the occurrence of structural changes in the heat-affected zone and the risk of cold cracks is reduced.

The main factors that make welding these steels difficult are:

1. Low resistance of the weld metal to the formation of crystalline hot cracks;
2. Possible loss of corrosion resistance of the metal;
3. Increased brittleness of the weld metal during use.
4. Formation of pores in molten metal.

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Prone to hot cracks .

The high tendency of a metal with an austenitic structure to crack formation is explained by the following reasons:

a) with the thermal physical properties of austenitic metal;

b) with a transcrystalline structure of the weld metal;

c) with the presence of easily soluble constituents located at the boundaries of columnar crystallites;

g) with the phenomenon of polygonization.

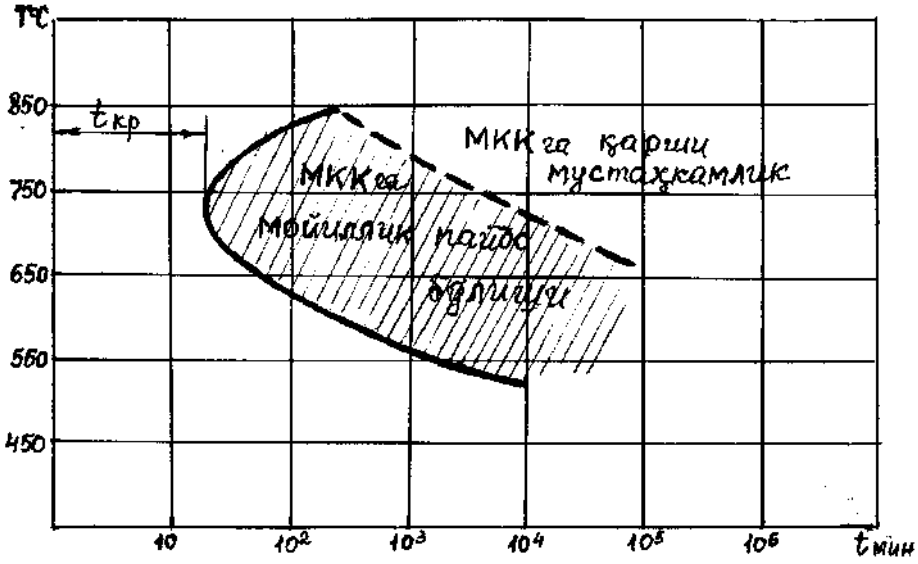
The thermal properties of austenitic steels allow the formation of hot cracks. For example, the low thermal conductivity and high coefficient of thermal expansion of chromium-nickel steels increase the stresses in the weld metal that affect its crystallization and ultimately lead to their uneven distribution.

For example, comparative data on austenitic steels and low-carbon steels.

Table 1

Properties of steels	St. 3	18-8	25-20
Melting point, ^{0}C	1535	1400-1430	1390-1410
Heat o'tkavchan cal/cm*sec ° C λ	0.096	0.039	0.03÷0.04
Chiziqli keng a yish koef-ti λ *10 6			
Pri n a strike ot 0 ^{0} to 100 ^{0} S pri n a strike ot 0 ^{0} to ^{5000} S	12	17.3 18.5	15.0 18.0

b) The transcrystalline coarse dendritic structure of the primary structure is due to the absence of structural changes in the solidified metal; therefore, regardless of the number of layers in the weld, the crystals of each subsequent layer are considered to be a continuation of the crystals



of the previous layer.

Figure 1. Scheme of the tendency of the heating duration to the occurrence of MCC.

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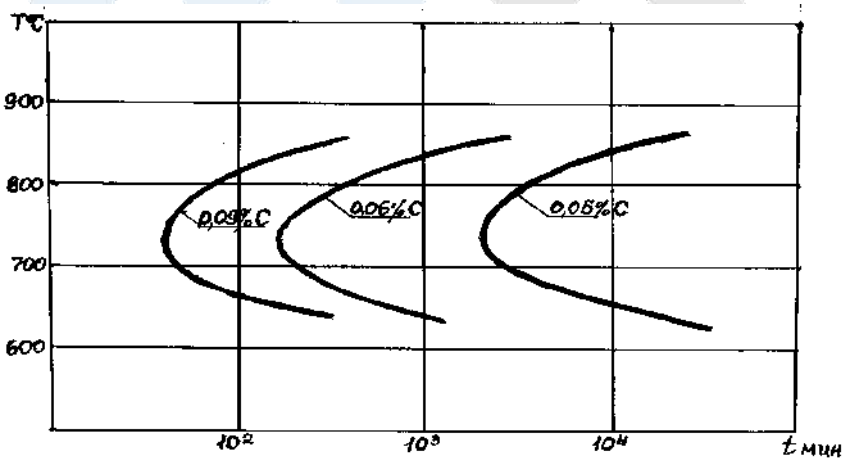
In the TCI (brittle temperature range), the transcrystallite structure is characterized by increased susceptibility to cracking.

c) The name of the intercrystalline layers that form a readily soluble eutectic, located at the crystal boundaries, is given to the eutectic properties. Their solidification temperature is usually lower than the solidification temperature of the metal. For example, easily soluble sulfide eutectics of the type Ni_3S_2+Ni have a melting temperature of about 600 ^{0}C, and easily soluble eutectics of niobium in the Ni-Nb system 1270 °Chave a melting temperature of about . Easily soluble eutectics with a melting temperature of NiS 644 °Ccan be formed. **Corrosion resistance** . Intergranular corrosion is also observed in the welding of austenitic steels. Unlike ferritic steels, in austenitic steels, chromium carbides are formed not by cooling the steel from high temperatures, but by repeatedly heating the steel. Such heating occurs in the area around the weld and when heat is applied to it from subsequent rolls. The critical temperature range for the precipitation of chromium carbides from the solution is 500. -800 °CAustenitic steels usually 1100 °Cexhibit their best properties after rapid cooling from about 1050 - 1050. After such treatment of the metal, a state of dissolved austenite is observed, which contains a very high carbon content for room temperature. Further heating of the metal in a certain temperature range allows the formation of carbides, which are mainly precipitated near the boundary. Here, the solution is not only depleted in carbon, but also loses chromium. Carbides, which are depleted at the boundaries and are normal in the grain center, and the non-uniformity of the solution composition, when exposed to a corrosive environment, allow corrosion to develop along the grain boundaries from the metal surface to the inside. The schematic connection of the formation of such a tendency to MCC as a result of the duration of exposure to the metal at different temperatures is shown in the diagram below:



2- drawing. The effect of carbon content in metal on intergranular corrosion and heating resistance.

As a result of diffusional alignment of the solution near the grain center and metal boundaries, the metal becomes resistant to MCC under the influence of high temperatures for a long time . The carbon content has a significant effect on the amount of holding time required until the metal acquires sensitivity to MCC, t_{cr} . The value of t_{cr} changes. Therefore, one of the means of combating MCC is to reduce the carbon content in chromium-nickel steels. If stronger carbide formers than Cr are added to the metal, for example, Ti, Nb, t_{cr} can also be increased due to the introduction of strong carbide formers. In this case, chromium depletion is not observed at the

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austenite boundaries, since mainly carbides of titanium or niobium are formed. 3. Embrittlement. In the austenitic welds of steels of types 25-20, 900 °Csigmatization occurs during prolonged heating of the metal at temperatures up to 650 ° C. Sigmatization is accelerated by V, Cr, Mn, W, Mo, Ni, Si, Nb, Cu. Carbon hinders this process. The composition of the σ -phase is very complex, especially in steels of the 25-20 type. After heating for 1000 hours, the σ -phase formed contained 51.8% Cr; 3% Ni; 1.1% Si; 0.61% Mn; 44.62% Fe in a ratio of Fe:Cr of 0.86. At the same time, the amount of Cr in the steel was 25%, and the amount of Ni was 18%. The second type of embrittlement of the weld metal 475 °Cis embrittlement, also associated with prolonged heating, but 525 °Cat temperatures above and especially around 325 ° C. 475 °CThis embrittlement can be eliminated by a similar method as sigmatization, that is, 1150 °Cby heating to 1000 ° C and then rapidly cooling.

Pores . The main reason for the formation of pores in the welding of austenitic steels is the presence of N_2, which is due to its high solubility in austenite and the low rate of diffusion in austenite.

CONCLUSIONS AND SUGGESTIONS In conclusion, it can be said that the processes occurring during welding are one of the most important areas of metallurgy and materials science. The changes between chemical, physical and mechanical processes in welding determine the quality of the joints and the strength of the materials. To properly control the welding process and create high-quality joints, it is necessary to take into account the necessary temperature, gas environments and the specific properties of the materials. These processes are important in ensuring the strength of materials in industry, construction, transport and other areas.

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PROCESSES THAT OCCUR WHEN FORMING WELDED JOINTS

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ABSTRACT Welding is the process of joining two or more metals or other materials using heat, pressure, or a combination of both. The chemical, physical, and mechanical processes that occur during this process determine the quality of the weld, its durability, and the properties of the material. The processes of forming welded joints are complex and involve atomic and molecular changes between the materials. This article analyzes the main processes that occur during welding.

Key words: oxide, dilatometric effect, mass transfer, overheated region, residual stresses.

Introduction Surface coatings (oxide layers) of weld metals or alloys are usually relatively hard and soluble (except for iron oxides). Their presence at the final stage of the process generally prevents the formation of metallic bonds, since they are washed away during welding and are lost from the surface of the joint of two parts. [1]
In conditions of spot, back and seam welding, erosion and redistribution of surface layers is achieved by melting the metal at the point of contact of two sheets.

1. Main types of welding process . In the welding process, chemical bonds are formed between two or more materials. In such processes, materials are mainly heated at high temperatures. Welding processes are divided into:

- **High-temperature welding** : By bringing the metals to their melting point, they are melted and joined together. This type of process is used in autoclave and electric arc welding.
- **Low temperature welding** : Joining materials in an unmelted state, such as gas welding (with oxygen).
- **Ultrasonic welding** : Materials are joined together using rough mechanical action.

2. High temperatures and energy changes . During welding, metal materials are heated to high temperatures, melted or softened, and joined together. The specifics of this process are as follows:

- **Melting and solidification** : When welding, the melting point of the materials must be reached. When metals are heated, they melt, and thus the molecules join together in the molten part. In this process, the hardness and strength of the metal decreases, but new chemical bonds are formed in the molten part.
- **Joining** : When the molten metal pieces begin to cool, they join together to form a new joint or weld. Many new materials are created through these processes, such as nickel, iron, or aluminum compounds.

Energy exchange plays a very important role in these processes. During welding, under the influence of thermal energy, changes occur in the structure of materials, i.e. the welded materials come closer to each other and new bonds are formed between them.

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4. Mechanical processes and stresses Mechanical processes that occur during welding change the physical properties of the material. During welding, changes occur quickly, especially between heated materials:

Formation of stresses : During the welding process, internal stresses arise due to rapid heating and cooling of materials. These stresses can cause deformation and destruction of the material. This especially affects the strength of the materials being welded.

- **Critical cooling** : During the cooling process, the material begins to crystallize. If cooling occurs too quickly, this can change the internal structure of the material and reduce its subsequent properties.

5. Factors affecting welding quality. The quality of chemical, physical and mechanical processes occurring during welding is affected by various factors:

- **Welding Temperature** : The optimum temperature helps the materials to melt properly and the joints to be strong. Too high or too low a temperature reduces the quality of the materials.
- **Material properties** : Different materials react differently. For example, changes in iron sulphide and strong aluminum alloys are different.
- **Influence of the gas environment** : During the welding process, gases present in the environment (e.g. oxygen, nitrogen) can affect the quality of the weld.

6. Spatial and microscopic changes occurring during welding . During the welding process, changes also occur in the structure of the material at the microscopic level. These changes often manifest themselves in the following situations:

- **Formation of new phases** . When welding, new chemical phases (or alloys) are formed between materials. These new phases change the mechanical properties of the material.
- **Crystallization process** : During welding, the crystalline structure of the material changes, which affects the mechanical and physical properties of the weld.

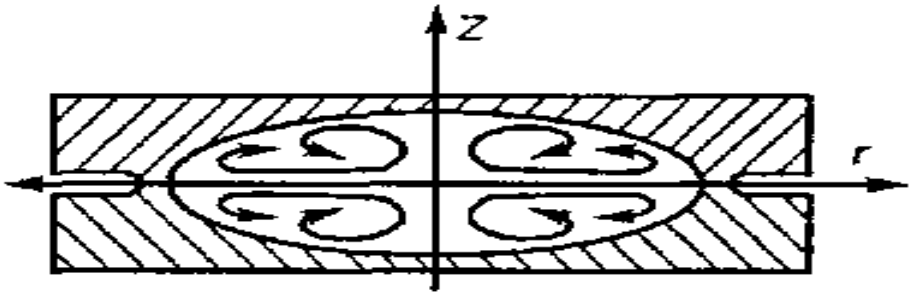

Figure 1. Direction of rotation of the liquid metal core during mixing.

It is this current that causes the liquid metal to mix with the welding current.

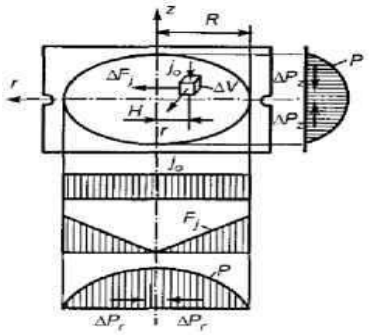

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Figure 2. Scheme for determining electrodynamic forces and scheme for distributing current density jo , forces Fj and pressures P in liquid metal along z and roks .

If we assume that the current density is uniformly distributed over the cross-section of the core, then the force A Fj , acting on the elemental volume *AV of the metal at a distance r from the core, is equal to:*

$$\Delta F_j = \mu_m j_0^2 \Delta V_r / 2,$$

where: / $_{lt}$ – absolute magnetic absorption of the substance.

all volumes of the core A *V,* create a pressure in the liquid core similar to the pressure caused by gravity in the liquid. These forces also affect the volumes of the metal in the solid state, where they are balanced by the resistance forces of the crystal lattice.

Volumetric forces A Fj have the greatest value at the edges of the core and decrease to zero at its center. The pressure at the point of contact of the sheets is expressed by the parabolic equation:

$$p = \mu_m j_0^2 (R^2 - r^2)/4$$

and reaches its maximum value at its center *(R* is the radius of the core).

As a rule, the casting core has an ellipsoid shape, so pressure gradients in the molten metal arise not only in the horizontal direction (AP_g), but also in the vertical direction (AP $_z$). Under the influence of these gradients, layers of liquid circulate.

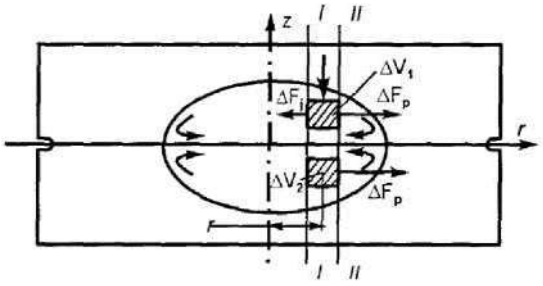

Figure 3. Distribution of forces acting on particles suspended in a solution

Suspended solid in solution (conductive AV 1 or, in most cases, electrically conductive impenetrable AV 2) the curtain particles are subject to forces AF_p caused by the pressure difference in sections II and II - II :

$$\Delta F_p = \Delta P_r \Delta V$$

Non-conducting particles move and collect at the edges of the cast core. If the current density j 1 in the conductive particle AV 1 greater than current density j 0 in molten metal , then the particle

$$\Delta F = \Delta F_p - \Delta F_j = \mu_m (j_0^2 - j_1^2) r^2 / 4$$

as a result of the difference in forces, the particle moves towards the center of the nucleus.

In butt welding, the ends of the parts are open to interaction with the atmosphere. In contact welding, oxidation accelerates the process most actively. Fusion butt welding is characterized by continuous renewal of metal at the ends of the parts; when connectors connecting oxygen and other gases explode, a large number of metal droplets and vapors are formed (for example, carbon monoxide CO when welding steel). into the crack, which greatly slows down the rate of interaction of the metal with the atmosphere. However, when joining chemically active metals (titanium,

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molybdenum, etc.), such protection may not be effective enough, and therefore, in some cases, welding is carried out in an atmosphere of inert gases. The conditions for the destruction and loss of oxides in butt welding depend on the temperature of the ends of the parts, the temperature gradient, and the properties of oxides and metals. The difficulty of removing oxides in contact welding increases as their hardness increases. For example, when welding steels, it is difficult to remove the oxide Fe 2 O 3, the hardness of which is comparable to the hardness of the base metal. But FeO , which has a melting point and hardness lower than steel, is easily lost. In butt fusion welding, when the oxides are predominantly liquid, their hardness does not significantly affect their loss while they are on the substrate. Since plastic deformation during contact welding is relatively small, the oxides are partially eroded and lost. In this case, the surface renewal (loss of oxides from the ends of the parts) does not exceed 60 - 70%, which generally indicates that the plasticity of the joints will be relatively low.

In fusion welding, the loss of oxides occurs much more easily and occurs together with the particles of molten metal ejected from the joint and mainly during the precipitation of oxides by squeezing them into the lattice with liquid and solid metal. In the optimal mode, the deformation of the surface is comparatively small, and the renewal of the surface approaches 100%.

Thermal expansion of metal during welding

As a result of heating metal bodies, their linear dimensions and volume increase (dilatometric effect). In particular, at temperature T of a solid body, its length lt and volume W are equal to:

$l_T = l_0(1+\alpha_l T)$ And $V_T = V_0(1+\beta_v T)$,

where: lo and Vo are the length and volume of the body at temperature T=0°C; and $_t$ and D , are the thermal coefficients of linear and volumetric sudden expansion.

During melting, the volume of the body increases sharply and reaches 8-10% Vo.

In spot and weld conditions, the thickness and dimensions of the parts increase predominantly in *the z-axis direction* , since the coldness of the adjacent metal parts stops the increase in dimensions in the *r-axis direction*. During welding, the thermal expansion of the metal leads to the movement (gap) of the machine electrodes, primarily the upper movable electrode.

A significant displacement of the upper electrode is observed from the moment of metal melting (the appearance of the core) and now occurs with an increase in the temperature field and the size of the core.

CONCLUSIONS AND SUGGESTIONS In conclusion, it can be said that welding processes are one of the most important areas of metallurgy and materials science. During welding, changes between chemical, physical and mechanical processes determine the quality of connections and the strength of materials. In order to properly control the welding process and create high-quality connections, it is necessary to take into account the required temperature, gas environment and specific properties of materials. These processes are important for ensuring the strength of materials in industry, construction, transport and other areas.

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THEORETICAL PREREQUISITES FOR DETERMINING THE RATIONAL PARAMETERS OF THE CHANNEL DIGGER

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Abstract. Well-known studies on the justification of the parameters of the channel digger were mainly aimed at reducing energy consumption and improving the quality of the formation of temporary irrigation dams. The analysis of well-known works implies the need for theoretical research: substantiation of the basic geometric dimensions of the temporary sprinkler; dependence of the quality of the technological process of cutting the temporary sprinkler on the main parameters of the channel digger. Theoretical prerequisites for determining the rational parameters of the channel digger the shape and geometric dimensions of temporary sprinklers (the width of the bottom of the excavation, the height of the dam, the width of the base of the dam) are substantiated, analytical dependencies for determining the parameters of the channel digger are proposed. Analytical dependences are derived to determine the width of the bottom of the excavation, the width of the base and height of the dam, the width of the occupied strip of the temporary sprinkler, the angle of the ploughshare to the bottom of the furrow, the height of the body, the length of the ploughshare, and other parameters of the working body of the channel digger.

Keywords: *temporary sprinklers, height of the dam, channel digger, width along the bottom, depth of excavation, water flow, width of the dam base, upper edge of the dump, cross-section, height of the reservoir rise, slope angle, angle of installation of the ploughshare, height of the hull.*

Introduction. Currently, the furrow method of irrigation of agricultural plants is mainly used, in which several thousand kilometers of temporary irrigation networks and outlet furrows are cut annually during the growing season of agricultural crops. At the same time, to ensure the necessary command water level, temporary sprinklers are cut in such a way that the bottom of their recess is located below the bottom of the recess of irrigation furrows. This difference in the levels of recesses is usually called “dead” depth because after the termination of irrigation, a certain volume of water remains in the temporary sprinkler, which does not enter the irrigation furrows, is not used by plants and is a net loss. In addition, in this case, after the levelling of the temporary sprinkler in the area of its excavation, increased humidity persists for a long time. This negatively affects the quality of the formation of dams during the re-cutting of temporary sprinklers, which, due to poor crumbling of the soil, are not sufficiently waterproof.

Based on the above, the purpose of this work is to reduce water losses in the temporary sprinkler zone by improving the design of the channel digger and its parameters.

The choice of technical means depends mainly on the purpose of the sprinkler. For cutting temporary sprinklers placed in the sowing zone, the most compact channel digger is selected in an aggregate with a highly maneuverable wheeled tractor [1,2.3,4].

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Materials and methods. It is known that the capacity of temporary sprinklers depends primarily on the area of their cross-section, although its shape is also of great importance. Since the fields where temporary sprinklers are cut have slopes with significant fluctuations, the transverse profile of the sprinkler should be such that it can pass the required amount of water in areas with small and large slopes.

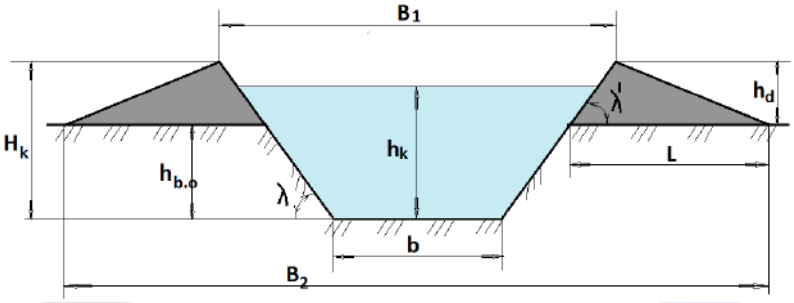

Figure 1. The main parameters of the temporary sprinkler

The main parameters of the temporary sprinkler (Fig.1) are: $\mathbf{h_{b.o}}$ is the depth of the excavation; $\mathbf{h_{\partial}}$ is the height of the dam; **B** is the width along the bottom.

The water consumption of a temporary sprinkler mainly depends on its width along the bottom, the depth of the excavation and the height of the dam. When watering, to ensure the necessary ($\boldsymbol{Q}$ = 40 ... 70 l/s) water flow, we determine the main parameters of the temporary sprinkler.

According to the purpose of the research and based on the analysis of the state of the issue, the following tasks were set:

- analytical study of the shape and basic dimensions of a water-saving temporary sprinkler.
- theoretically investigate the interaction of the working organ of the channel digger with the soil, depending on the size of the temporary sprinkler and its main parameters.

Results and discussions.

Temporary sprinkler bottom width. As noted above with $\mathbf{h_{b.o} > h_{b.b}}$ in temporary sprinklers, a "dead" depth $\triangle \boldsymbol{h}$ is formed , determined by the formula:

$$\triangle h = \mathbf{h}_{b.o} - \mathbf{h}_{b.b} \qquad (1)$$

where $\mathbf{h_{b.b}}$ - depth of irrigation furrow excavation.

To exclude the formation of a "dead" depth, the depth of the excavation of the temporary sprinkler should be equal to or less than the depth of the excavation of the irrigation furrows, i.e. $\mathbf{h_{b.o} \leq h_{b.b}}$. However, on the other hand, the temporary sprinkler must pass the required amount of water.

It is known that the flow rate of water that a temporary sprinkler must pass is determined by the expression.

$\boldsymbol{Q} = \boldsymbol{\omega}$ with $\sqrt{Ri}$,

where $\boldsymbol{Q}$ is the water flow rate in the sprinkler (the volume of liquid flowing through the cross section of the flow per unit time), l/s;

$\boldsymbol{\omega}$ is the area of the " living " section of the sprinkler;

C is the Chezy coefficient (speed coefficient);

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R —hydraulic radius, m;

i - the slope of the bottom of the temporary sprinkler.

The hydraulic radius can be determined by the formula of S.A. Girshkan

$$R=O,45\ Q^{0.4} \qquad (2)$$

The flow rate ( ) of water for a temporary sprinkler is 40…70 /l/s /11/, then R= 0.12...0.16 m.

The value of the coefficient **C** at R = 0,12...0,16 m is equal to C = 18,4...19,96.

From Fig.1 with $\lambda = \lambda'$, and given that $h_H = h_{B.o} + h_K$ (where h_K is the command water level), we find:

$$\omega = [b + (h_{b.o} + h_k)\operatorname{ctg}\lambda](h_{b.o} + h_k) \quad (2.1)$$

Taking into account 2.2 and 2.3, formula (2.4) has the following form:

$$Q = [b + (h_{b.o} + h_k)\operatorname{ctg}\lambda](h_{b.o} + h_k) \text{ with } \sqrt{0,45Q^{0,4}i}$$

From the analysis of this expression it follows that with decreasing$h_{b.o}$ the required water flow, which the temporary sprinkler must pass, can mainly be achieved by increasing the width of the sprinkler along the bottom (2,4,5).

Solving 2.5 with respect to (**b**) we get

$$b = \frac{Q-(h_{b.o}+h_k)^2 c\sqrt{0,45Q^{0,4}i}\ \operatorname{ctg}\lambda}{(h_{b.o}+h_k)\ c\sqrt{0,45Q^{0,4}i}} \qquad (3)$$

Based on 3, a graph of dependence **b =f ($h_{b.o}$) was constructed** (Fig.2).

From the graph (Fig.2) it can be seen that in order to provide the necessary (Q = 40...70 l/s) water flow, the width of the bottom of the excavation at$h_{b.o}$ **= 0.15 m should be b= 0.4 ... 0.5 m, and when$h_{b.o}$ = 0.18 m - b= 0.3 ... 0.4 m** (curves 1 and 2). An increase in the excavation depth of more than 0.18 m will lead to the formation of a “deep” depth. Thus, the width of the bottom of the excavation at $h_{b.o}$= 0.15 ... 0.18 m is equal to b = 0.3 ... 0.5 m, and the average value b_{CP}= 0.4 m.

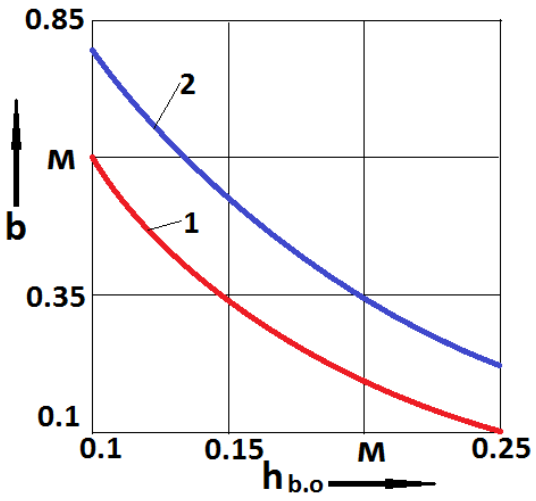

Figure 2. *Dependence graph* **b =f ($h_{b.o}$)** *1-at Q = 40 l/s; 2-at Q = 70l/s.*

Dam Height Determination. It is known /11,16,17/ that the command water levelh_K (see Fig.2) in temporary sprinklers for irrigation should be 0.05 ... 0.15 m above the irrigated cutting surface.h_2 (Fig.3) above the command level of the temporary sprinkler should be at least 0.10. Based on this requirement, the height of the dam should be at least 0.2 m / 1.2

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Assuming that the excavated soil is distributed equally on both sides of the channel, i.e. **S1 = S2** __ write the equation:

$$S = (S_1 + S_2) / K_R \qquad (4)$$

where **S** is the cross-sectional area of the excavation of the temporary sprinkler;

S 1, S 2 - cross-sectional areas of the right and left irrigation dams;

K P = 1.1 ... 1.3-coefficient of soil loosening.

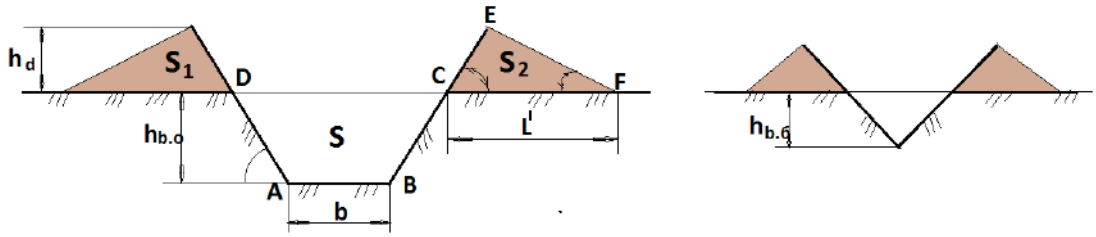

Figure 3. *Scheme for determining the profile and dimensions of a temporary sprinkler*

Fig.3 shows that

$$S = (b + h_{b.o}\ \mathrm{ctg}\,\lambda)\ h_{b.o} \qquad (5)$$

from △ CE F

$$S2 = \frac{h_{\partial}^2}{2} (\mathrm{ctg}\lambda' + \mathrm{ctg}\delta) \quad (2.9)$$

Taking into account (4) and (5), from (6) we have:

$$\mathbf{h}_{\partial} = \sqrt{\frac{(b+h_{b.o}\ \mathrm{ctg}\,\lambda)\ h_{b.o} K_P}{\mathrm{ctg}\lambda'+\mathrm{ctg}\delta}} \qquad (6)$$

where **δ**= 35 ^{0} ...43 ^{0} is the slope angle of the outer plane of the dam (the angle of natural soil shedding).

From the analysis of formula (6) it follows that the height of the dam depends on the size of the cross section of the excavation, the coefficient of soil loosening (**K R**) and the angle of the inner (**λ**′) and outer (**δ**) slopes of the dam.

Calculations using formula (6) showed that for$\boldsymbol{h_{b.o}}$ = 0.15...0.18 m, ***b***= 0.40m, ***λ***= ***λ ′*** **= 45 ^{0}** , **δ**$_{\mathbf{CP}}$ = 39 ^{0} , **Kp** = 1.2 dam height **h** $_{\partial}$ = 0.20...0.23 **m** , i.e. the selected dimensions of the cross-section of the irrigator provide the required height of the dam.

Determining the width of the dam base and the width strip occupied by the sprinkler. The width **L´ of** the base of the dam is one of the important parameters of the temporary irrigation system because it significantly affects the height of the dam and the width of the occupied irrigation strip. It depends on the angle ($\boldsymbol{\gamma_{kr}}$) of the dump wing to the direction of movement and the translational speed ($V_п$) of the channel digger, and it is also affected by the angle (***λ***) of the slope and the angle (***λ ′***) of the inner slope of the dam.

When the channel digger moves, the soil layer is lifted by a plowshare, and then by a dump to the day surface of the field and is dumped from its wings to the side at a certain speed.

The movement of the soil after leaving the dump can be considered as a free flight with an initial *speed* Va

the valueV_a can be determined by the well-known formula:

$$V_a = V_p \cos \frac{\gamma_{кр}}{2} \sqrt{2(1 - \cos \gamma_{кр})}, \qquad (7)$$

where $\boldsymbol{V_p}$ - translational speed of the ditcher;

$\boldsymbol{\gamma}_{кр}$- the angle of installation of the blade wing to the direction of movement.

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We consider that the center of mass (Fig. 4) of the cross section of the reservoir at the moment of leaving the dump is at the cutting height h_o from the surface of the field, i.e. at the point M_o We refer the free movement of the point M_o to the fixed coordinate system **y o z** with the origin at the point **O.**

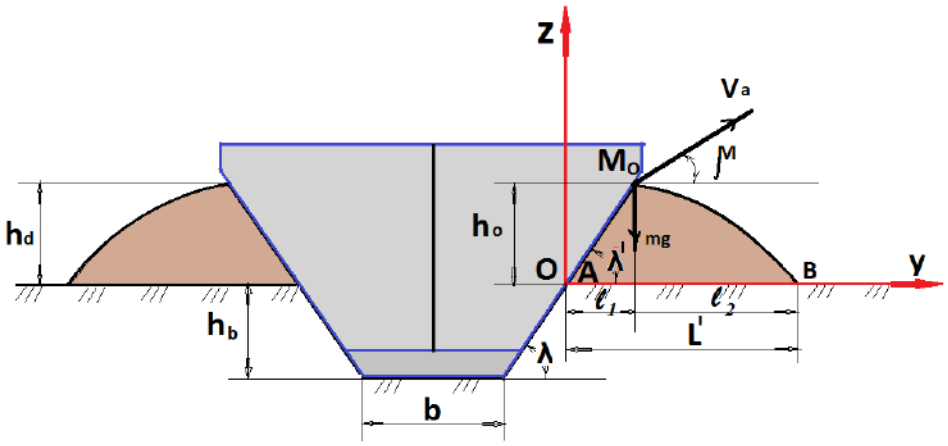

Figure 4. *Scheme for determining the width dam foundations*

Figure 4 shows that

$L' = \ell_1 + \ell_2$ (2.12)

$$\ell 1 = h_o \operatorname{ctg}\lambda' \quad (8)$$

To determine the range l_2 ejection of soil particles, we compose a differential equation of motion of the center of mass (point M_o) of the cross section of the reservoir in the coordinate system **y o z** in the form:

$$m\ddot{y} = O, \qquad m\dot{z} = -mg \quad (9)$$

Integrating (2.14) twice, taking into account the initial conditions (for t = o, $\dot{y} = V_a \cos\mu$, $z = V_a \sin\mu$, $y = \ell_1$, $z = h_o$, where μ **is** the slope of the vector V_a to the horizon), we get:

$$y = \ell_1 + V_a t \cos\mu \quad (10)$$

$$z = h_o - gt^2/2 + V_a t \sin\mu \quad (11)$$

From here we find the equation of motion of the point M_o

$$z = h_o - g\,(y - \ell_1)^2/(2V_a^2\cos^2\mu) + (y - \ell_1)\operatorname{tg}\mu \quad (12)$$

When $y = \ell_1 + \ell_2$, $z = o$ or

$$h_o - g\,\ell_2^2/(2V_a^2\cos^2\mu) - \ell_2 \operatorname{tg}\mu = o \quad (13)$$

Solving this equation for ℓ_2, we get:

$$\ell 2 = \left\{V_a^2\cos^2\mu\left[\operatorname{tg}\mu + \sqrt{\operatorname{tg}^2\mu + 2gh_o/(V_a^2\cos^2\mu)}\right]\right\}/g \quad (14)$$

Substituting the value ℓ_1 and ℓ_2 into equality (13), taking into account (14), we obtain the following expression:

$$L' = h_o \operatorname{ctg}\lambda' + \frac{2}{g}V_п^2\,(t\,g\mu + \sqrt{\operatorname{tg}^2\mu + \frac{2gh_o}{V_п^2\cos^2\frac{\gamma_{кр}}{2}(1-\cos\gamma_{кр})\cos^2\mu}})\times$$

$$\times \cos^2\frac{\gamma_{кр}}{2}(1 - \cos\gamma_{кр})\cos^2\mu \quad (15)$$

From the analysis of formula 15 it follows that the width of the base of the dam depends on the speed of movement of the unit and the angle of installation of the blade wing to

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the direction of movement. In addition, the width of the dam base is influenced by the angle of the internal slope of the dam, the height and angle of the descent of soil particles and the acceleration of their free fall. With an increase in these parameters, the width of the dam base increases and vice versa.

The width (B_2) of the strip occupied by the sprinkler can be determined from the following dependence (see Fig. 4)

$$B_2 = 2(h_{b.o}\,\mathrm{ctg}\,\lambda + L') + b \qquad (16)$$

or taking into account (2.20), we get:

$$B_2 = 2\left[h_{b.o}\,\mathrm{ctg}\,\lambda + h_o\,\mathrm{ctg}\lambda' + \frac{2}{g}V_п^2\left(\mathrm{tg}\mu + \sqrt{\mathrm{tg}^2\mu + \frac{2gh_o}{V_п^2\cos^2\frac{\gamma_{кр}}{2}(1-\cos\gamma_{кр})\cos^2\mu}}\right)\times\right.$$

$$\left.\times\cos^2\frac{\gamma_{кр}}{2}(1-\cos\gamma_{кр})\cos^2\mu\right] + b \qquad (17)$$

Based on (17) in Fig.5, a graph of the dependence **of B_2** on **V_p** And $\gamma_{кр}$.

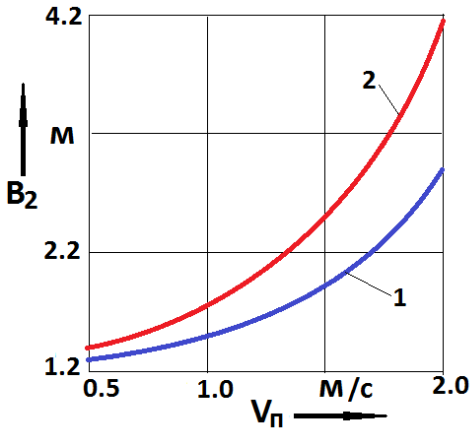

Figure 5. *The dependence of the value of* ***B*** $_2$ *on* V_p *: 1-at* $\gamma_{кр}$. *= 30* ˚*; 2-at* $\gamma_{кр}$. *40* ˚

It can be seen from the graphs that with an increase in the speed of movement and the angle of installation of the wings of the canal digger blade to the direction of movement, the width of the occupied strip increases. However, according to the initial requirements, the width of the strip occupied by the sprinkler should be no more than 2.2 m.

From the graph in Fig.5 it can be seen that this is possible with V_p = 1.3 ... 1.63 m / s.

The remaining cross-sectional dimensions of the temporary sprinkler, also necessary to justify the parameters of the working body, can be determined by calculation.

The total (construction) depth H_k can be determined from the following dependence

$$H_к = h_{b.o} + h_∂\,, \qquad (18)$$

Where $h_{b.o} = h_{b.δ}$= 0.15...0.18, and according to clause 2.1.2 $h_∂$ = 0.2...0.23 m;

Thus, according to (2.23) $H_к$= 0,35...0,41 m.

With B_1 along the top of the dam (see figure 2.1)

$$B_1 = b + 2(h_{b.o}\,\mathrm{ctg}\,\lambda + h_∂\,\mathrm{ctg}\lambda') \qquad (19)$$

at $\lambda = \lambda' = 45$ ˚, and from clause 2.1.1 b= 0.3 ... 0.5 m.

Taking averages b and $h_∂$ we get: B_1 = 1.2 m.

The main parameters and shape of the plow-type working body for cutting temporary sprinklers should be selected considering obtaining the necessary reasonable cross-sectional dimensions of the sprinkler and the minimum possible traction resistance.

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The process of operation of a canal digger consists in cutting and lifting a certain amount (volume) of soil necessary to form a dam with a height that meets agrotechnical requirements, dividing the raised layer into two equal parts while simultaneously shifting these parts to opposite sides of the cut to the edge of the channel relative to each other.

Justification of the required reservoir lift height. The working body must raise the soil layer without rotation to a certain height, so that with further lifting, the layer turns without wedging between the working body and the slopes of the channel. Therefore, the bottom part of the working body is proposed to be made in the form of a flat dihedral wedge (ploughshare). The lancet type of the plowshare is unsuitable, as it causes additional compression of the formation by the working body and the slope of the channel.

The required formation lift height (excluding deformation) is determined from the condition of unhindered formation rotation on the crest of the channel, which is possible (Fig.6) if

$$AC' \leq AB \qquad (20)$$

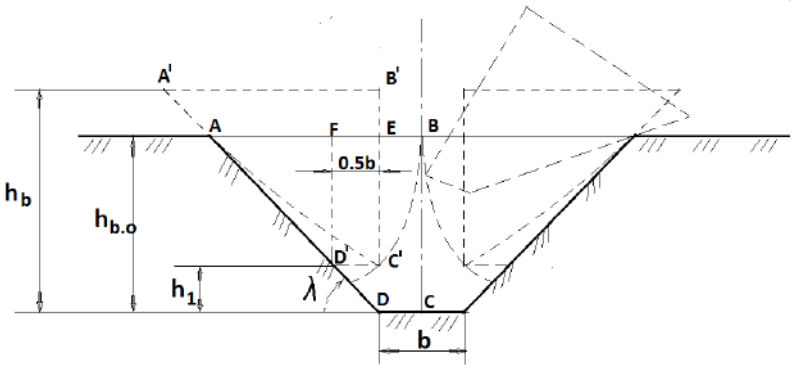

Figure 6. *Scheme for determining the required height of the lower flat part of the working body*

since in this case the ABSD layer, raised to the position A^I, B^I, C^I, D^I to a height of h_1, will not be in contact with the layer being turned on the opposite edge when turning on the edge.

Figure 6 shows that

$$AB = 0{,}5b + h_{b.o}\,\mathrm{ctg}\,\lambda$$

where: b- channel width along the bottom, m;

$h_{b.o}$- channel depth in excavations, m;

From Figure 6 it can be seen that

$$AC' = \sqrt{(AE)^2 + EC')^2} = \sqrt{(AF + FE)^2 + (B'C' - B'E)^2} =$$
$$= \sqrt{[(h_{b.o} - h_1)\,\mathrm{ctg}\,\lambda + 0{,}5b]^2 + (h_{b.o} - h_1)^2} \qquad (21)$$

Substituting into equation (20) the values **AC** ′ and AB from equations (21) and (22), we obtain

$$h_1^2(1 + \mathrm{ctg}^2\lambda) - h_1(2h_{b.o}\mathrm{ctg}^2\lambda + b\,\mathrm{ctg}\,\lambda + 2h_{b.o}) + h_{b.o}^2 \geq O$$

whose solution will give:

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$$h_1 \geq \frac{2h_{b.o}ctg^2\lambda + b\,ctg\,\lambda + 2h_{b.o} \pm \sqrt{(2h_{b.o}ctg^2\lambda + b\,ctg\,\lambda + 2h_{b.o})^2 - 4h_{b.o}^2(1+ctg^2\lambda)}}{2(1+ctg^2\lambda)} \quad (23)$$

Since the smallest possible height is neededh_1 rise of the reservoir, for the calculation take the inequality with a minus sign.

Calculations using formula (23) made it possible to determine the following rational value h_1:

At $h_{b.o}$= 0.15 ... 0.18 m, λ= 45 ^{0} and b= 0.4 m h_1= 0.04 ... 0.06 m.

Justification of the angle of installation of the plowshare to the bottom of the furrow. As already noted in the first chapter, the lower part of the digging share should be made in the form of a flat straight share ($\gamma_л$ =90 ^{0}).

Studies by a number of authors have shown that for each type of soil, depending on the depth of processing, there is such an optimal value for the angle of $\varepsilon_л$installation of the plowshare to the bottom of the furrow, at which the traction resistance of the plowshare has the smallest value.

In the general case, the resistance of the plowshare can be represented as:

$R = R_1 + R_2 + R_3 + R_4$,

where:

R_1 is the resistance of the soil to the penetration of the plowshare blade;

R_2 is the force expended on the formation deformation;

R_3 - the force expended on moving the layer along the plowshare;

R_4 - the effort expended on the rise of the reservoir.

Consider the scheme (Fig.7) of the movement of the reservoir along a flat share excluding

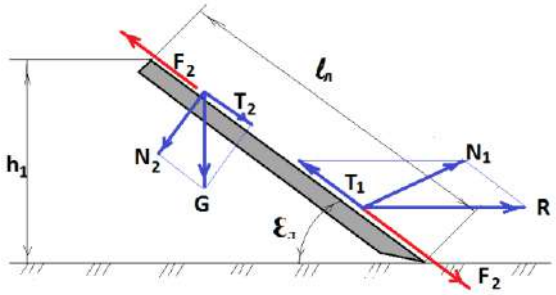

Figure 7. *Scheme of forces acting on the soil layer and the plowshare*

soil resistance to the penetration of the share blade **R** $_1$, resistance to formation deformation **R** $_2$ and resistance to movement of the formation along the share **R** $_3$.

N$_1$ acts on the layer**,** which can be decomposed into a longitudinal **R** and tangent (along the share) **T** $_1$ components. When moving the soil layer along the plowshare, a friction force **F** $_1$ also appears, which prevents the formation from moving. The magnitude of the force capable of moving the soil along the plowshare is:

$P_1 = T_1 - F_1$ (24)

From Fig.7 it can be seen that $R = N_1/\sin\varepsilon_л$, $T_1 = N_1\,ctg\varepsilon_л$ and $F_1 = N_1\,tg\,\varphi$. Substituting the values of T_1 and F_1, we get

$P_1 = R_1 \sin\varepsilon_л(1 - tg\varepsilon_л tg\,\varphi)/tg\varepsilon_л$, (25)

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Where **φ**- the angle of friction of the soil on the metal.

With the steady movement of the soil along the plowshare, the force **P** $_1$ is balanced by the tangential component of the weight of the reservoir **T** $_2$ and the friction force from the normal component of the weight **N** $_2$, i.e.

$P_1 = T_2 + F_2$ (26)

From Fig. 2.8 it can be seen that $T_2 = G \sin Ɛ_л$ and $F_2 = G \operatorname{tg} \varphi \cos Ɛ_л$ Substituting these values into (26) we get:

$P_1 = G(\sin Ɛ_л + \operatorname{tg} \varphi \cos Ɛ_л)$, (27)

Where **G** is the weight of the soil layer on the share.

The weight of the layer on the plowshare can be taken equal to:

$G = F l_л \gamma_п K_{cr} g$ (28)

or

$G = F h_1 \gamma_п K_{cr} g / \sin Ɛ_л$, (29)

where ***F*is** the cross-sectional area of the formation;

$l_л$ - plowshare length;

$\gamma_п$- soil density;

g - free fall acceleration;

K_{cr}- loading factor;

h_1**is** the height of the soil layer.

Substituting (28) into (29) we get:

$P_1 = F h_1 \gamma_п K_{cr} g(\sin Ɛ_л + \operatorname{tg} \varphi \cos Ɛ_л) / \sin Ɛ_л$ (30)

from equality (2.31) and (2.33) it follows that

$R \sin Ɛ_л (1 - \operatorname{tg} Ɛ_л \operatorname{tg} \varphi) / \operatorname{tg} Ɛ_л = F h_1 \gamma_п K_{cr} g(\sin Ɛ_л + \operatorname{tg} \varphi \cos Ɛ_л) / \sin Ɛ_л$ (31)

Solution for **R** gives the following relationship:

$R = F h_1 \gamma_п K_{cr} g \operatorname{tg} (Ɛ_л + \varphi) / \sin Ɛ_л$. (32)

The cross-sectional area of the reservoir for our case can be expressed in terms of in the following form:

$F = h_{b.o}(b + h_{b.o} \operatorname{ctg} \lambda)$

Substituting this expression into (2.38) we get:

$R = h_{b.o}(b + h_{b.o} \operatorname{ctg} \lambda)\ h_1 \gamma_п K_{cr} g \operatorname{tg} (Ɛ_л + \varphi) / \sin Ɛ_л$. (33)

Since the profile of the temporary sprinkler is selected and does not change, and the lifting height remains constant, then (33) quite realistically reflects the change in traction resistance depending on the angle of installation of the plowshare to the bottom of the furrow. Figure 8 shows graphs of this function for various values of the coefficient of friction between soil and steel.

To determine the extreme value of the angle $Ɛ_л$ of installation of the plowshare to the bottom of the furrow, we determine the first derivative of the function:

$f(Ɛ_л) = \mathbf{tg}\ (Ɛ_л + \boldsymbol{\varphi}) / \mathbf{sin} Ɛ_л$ (34)

and equate it to zero

$f'(Ɛ_л) = [\mathbf{sin}\ Ɛ_л / \mathbf{cos}^2 (Ɛ_л + \varphi) - \mathbf{cos} Ɛ_л\ \mathbf{tg}\ (Ɛ_л + \varphi) / \mathbf{sin}^2 Ɛ_л = \mathbf{0}$ (2.41)

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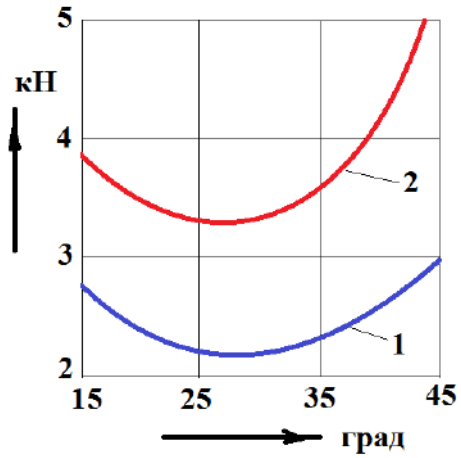

Figure 8. *Graph of the dependence of the component of traction resistance on the angle of installation of the plowshare to the bottom of the furrow at: I - φ=20 ^{0} ; II - φ= 30 ^{0} ;*

After transforming equation (34), we get:

$tg^3Ɛ_л\, tg^2\, \varphi + tg^3Ɛ_л\, tg\, \varphi tg^2Ɛ_л + 2\, tg^2Ɛ_л - tg\, \varphi = 0$ (35)

Denoting $x = tgƐ_л$, $y = tg\, \varphi$ have

$ax^3 + bx^2 + cx + d = 0$ (36)

where $a = y^2 + 1$, $b = y$, $c = 2y^2$, $d = y$.

Equation of the third degree (37) has one real solution for the discriminant $D = q^2 + p^3 > 0$

where $q = \frac{b^3}{27a^3} - \frac{bc}{6a^2} + \frac{d}{2a}$; $p = \frac{3ac - b^2}{9a^2}$

The solution of the equation of the third degree can be obtained by reducing the equation (38) to the form:

$x^3 + 3px + 2q = 0$ (39)

where $x = z + \frac{b}{3a}$ and using the Cordon formula we find the real root of the equation:

$$z = \sqrt[3]{-q + \sqrt{q^2 + p^3}} + \sqrt[3]{-q - \sqrt{q^2 + p^3}}$$

Not taking into account the term $\frac{b^3}{27a^3}$ due to its small value, it is possible to determine the values; it is possible to determine the values $p$using $q$the formulas:

$$q = -\frac{y(5y^2+3)}{6(y^2+1)^2};\ p = \frac{y^2(6y^2+5)}{9(y^2+1)^2}$$

The value of **z** determines the optimal value of the angle of installation of the plowshare to the bottom of the furrow $Ɛ_л$, which determines the minimum value of the traction force:

$$Ɛ_л = \text{arctg}\left[z - \frac{y}{3(y^2+1)}\right] \quad (40)$$

According to the formula (40), the values of the angle are calculated $Ɛ_л$**.** At various anglesφ friction of the soil on the plowshare, the optimal value of the angle of installation of the plowshare to the bottom of the furrow lies within 25 ... 31 $^\circ$.

Determining the height of the body of the worker organ digger. The soil cut by the dredger at the depth of its stroke and raised to the top should not be poured through the body back into the furrow, but should be completely used to form a dam. It follows that the height of the

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channel digger body must be equal to or greater than the total (construction) depth **H_K** of the channel. Considering the loading of the soil in front of the working body, it is advisable to install it by 20 ... 30% more **H_K**.

With this in mind, the height (**H**) of the body of the working body of the channel digger can be determined by the formula:

$$H = K_{cr} \; H_K, \quad (41)$$

where **K_{cr}** = 1.2 ... 1.3 - the coefficient of soil loading before the working body.

According to item 2.1.4 $H_K = h_{b.o} + h_{\partial}$ and considering (42), formula (42) has the form:

$$H = K_{cr}\left[h_{b.o} + \sqrt{\frac{(b+h_{b.o}\,\mathrm{ctg}\,\lambda)h_{b.o}K_p}{\mathrm{ctg}\lambda' + \mathrm{ctg}\delta}}\right] \quad (43)$$

From the analysis of formula (43) it follows that the height of the hull depends on the cross-sectional dimensions of the excavation, the loading coefficients (K_{cr}) and loosening (K_p) and the angles of the inner (λ') and outer (δ) slopes of the dam.

Calculations according to formula (43) showed that at $h_{b.o}$= 0.15 .... .0.18 m, b= 0.40m, $\lambda = \lambda'$= 45 ^{0}, δ_{cp}= 39 ^{0}, K_{cr} = 1.3 and K_p= 1.2, height housing H = 0.46 ... 0.51 m.

The height of the body H = 0.5 m was considered, considering the exclusion of spilling the soil back into the furrow.

The remaining necessary parameters of the working body can be selected from the conditions for ensuring rational parameters of the temporary sprinkler and determined by calculation.

For example: the length ($\ell_л$) of the plowshare can be determined by calculation with a known angle$\varepsilon_л$ plowshare adjustment to the bottom of the furrow and a known height$\boldsymbol{h_1}$ preliminary lifting of the formation:

$$\ell_л = h_1 \; / \; \sin\varepsilon_л \quad (44)$$

According to p.2.2.2 $\varepsilon_л$= 25...31 $^\circ$ and p.2.2.1 $\boldsymbol{h_1}$= (0.04...0.06) m then $\boldsymbol{\ell_л}$= 0.09...0.12 m.

the width ($\boldsymbol{b_1}$) of the plowshare equal to the average value of the required width of the bottom of the excavation, i.e. $\boldsymbol{b_1} = \boldsymbol{b}_{cp}$= 0.4 m.

Conclusions. Corner $\boldsymbol{\varphi}_к$ the inclination of the lower edge of the wing on the frontal projection should be chosen from the condition of the formation of stable slopes and a dam, i.e. $\boldsymbol{\varphi}_к \le \boldsymbol{\lambda}_{cp}$=**45** $^\circ$ span **(B)** wings should be no less than the width **(B_1)** along the top of the furrow, i.e. $\mathbf{B} \ge \mathbf{B_1}$= 1.20 m. Corner$\boldsymbol{\gamma}_{кр}$ deviation of the upper edge of the wing to the direction of motion, according to known studies, should be 36 ... 41°. The length $\boldsymbol{\ell}$of the wing can be determined according to Fig.8 according to the following relationship.

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ANALYSIS OF THE PROCESS OF PREPARING SEEDS FOR SOWING

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Abstract. *The article presents an analysis of the stages of preparing seeds for planting, and determines the quality of seeds, their biological properties, viability, growth potential, and germination characteristics.*

Key words . *Seed , shell , germination , moisture , dirt , mechanical damaged , hairy , residue fiber content .*

A seed is a living organism capable of respiring, disease, reproduction, and significant exposure to weather changes. It consists of a shell and a kernel that differ in chemical properties, biological indicators, and structure [1, 2, 3, 4].

The shell - the outer layer of the seed - protects it from the negative effects of the external environment. In terms of structure and chemical properties, it is close to wood. The kernel of the seed consists of the bran and endosperm, and makes up 60% of the weight of the ripe seed. It is raw fat , protein, fiber , ash and nitrogen-free from substances consists of .

Village at the farm face coming main from problems one this of seeds one It's not the same .

It is known that every how village farm of crops seeds , that including cotton sprout process one flat happened It won't be . This is a row genetic and biochemical to the reasons It depends . Therefore for , the bush on each branch located cotton seeds size , shape and with mass of seeds main from the part difference does .

By genetic scientists held many research this showed that the most valuable seed each how of a bush The middle part will be . They this of the plant development and growth high quality indicators providing feed articles , as well as chemical to substances to [5] .

In field conditions, seed germination usually does not exceed 60-65%, therefore, increasing it to 80-85% will create the basis for providing each irrigated hectare with full seedlings, which in turn will increase cotton yields when provided with appropriate agronomic practices [6].

The following problems can be solved by cleaning and sorting seeds:

1. Removing impurities from seed material and obtaining clean seeds belonging to only one species in accordance with the norms established by state standards;

2. Improving the physical properties of seeds ;

3. Selecting only the highest yielding seeds for planting.

Seeds are separated by width using a round-hole sieve. Studies have shown that if the seeds are too long (length is 2 times the width), they cannot pass through the round holes of the sieve in a vertical position. Therefore, only chickpeas, buckwheat, millet, etc. are well separated by width.

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Thickness according to seeds stretched holes was oh no using is separated . Such without , seeds horizontal vibrations with holes along while moving on the edge to be need and from that only later they from the lake to pass possible . Seeds thickness according to variability important information happened for , main from the harvest mixtures good separation possible .

Seeds in the selection often air flow is used , which them air in the flow to separate by mass opportunity Gives . Seeds when sorting in the air stream, many in terms of seed weight , surface to its nature , its hairiness , its fiber and seed air direction according to which towards looking at to stand related . Seeds sorted in the air stream separation one of time in itself other one row features with done is increased , this for modern sorting machines , seeds sorted by air flow , in a sieve, dimensions according to separation provides [7, 8, 9] .

This cleaning principle is successfully used in simple (fans) and complex seed cleaning machines for cleaning hairy seeds.

Getting a healthy plant from a seed depends on the sufficiency of nutrients in it, the viability of the seed coat and the degree of damage. The larger the geometric dimensions and mass of the seed, the more nutrients it contains. Mechanical damage to the shell reduces the viability of the seed. It is known that damage to the seed coat leads to a violation of the respiratory rhythm, self-heating and the appearance of microbes. All this leads to a decrease in the availability of nutrients, and as a result, to a decrease in germination properties.

The ability of seeds to germinate under favorable conditions is called germination.

Germination capacity is determined by the ability of a seed to germinate under favorable conditions, but germination in a short period of time depends on the energy produced by the seed.

Since the seed has a small amount of potential energy and the duration of germination depends on the intensity of the biochemical processes occurring in it, it is of great importance to know the duration and extension of germination. Thus, the more energy a seed produces in a short time, the faster it will germinate. Its energy is measured by the ratio of the number of germinated seeds to the total number of seeds in the sample . The germination force is the ability of the seed to overcome the resistance of the environment.

Based on the above, it can be concluded that the quality of the seed depends on its biological properties, viability, growth potential, germination, etc. [10, 11].

Currently, in Uzbekistan, mainly hairy and dehaired seeds are used for cotton cultivation. The quality indicators of seeds prepared for sowing must comply with the requirements of the standard UzDst 663:2017 “ Seed seeds. Technical conditions”.

Based on the results of the research, in 2005, new requirements for the quality indicators of seeds of the Republic of Uzbekistan were developed (Tables 1-2).

1-table

Requirements for varietal purity of seed

Seed generation	Grade purity at least,%
Super elite, Elite	100
R1	99
R2	98
R3	96

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Seed must meet the standards given in Table 1.2 for seed germination, moisture content (mass fraction of moisture), impurities (mass fraction of mineral and organic impurities), hairiness, mechanical damage, and residual fiber content.

Table 1.2.

Requirements for the quality of seeds

Indicators	Rate , %		
	hairy seed for	less hairy seed for	Hairless seed for
Fertility , at least	90.0	90.0	90.0
Humidity (humidity) mass distribution), most with	10.0	10.0	10.0
Pollution (mineral and organic of impurities massive share), most with	0.7	0.5	0.3
Mechanical damaged , many with	7.0	8.0	8.0
Hairiness , lots of it with	-	2.5	0.5
Remainder fiber content , high with : - hairy seeds for - naturally depilated seeds for	 0.8 0.4		

From Table 1.2 above, we can say that the impurity of hairy seeds prepared for sowing should not exceed 0.7%, based on this indicator, seed cleaning and sorting machines are used. To date, SPS and CHSA units have been used as hairy seed cleaning and sorting machines, and ChSA units are the most widely used in the Republic, because in addition to cleaning and sorting, they also perform vertical transportation from their location upwards. Therefore, it is important to improve the efficiency of sorting with high productivity based on the improvement of CHSA units.

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БЕНЧМАРКИНГ КАК МЕТОД УПРАВЛЕНИЯ КАЧЕСТВОМ ПРОДУКЦИИ

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Аннотация: Бенчмаркинг способствует более полному удовлетворению потребительских требований. Потребитель всегда желает получить самые лучшие товары по самым низким ценам. Это требование выступает в качестве ориентиров для бенчмаркинга эффективности работы предприятия и цен на продукцию. В основе бенчмаркинга как метода управления качеством продукции лежит сравнение продукта конкурента, или какой-либо его части, по сопоставимым параметрам с продуктом компании, проводящей анализ, с целью повышения качества и конкурентоспособности последнего.

Ключевые слова: Управление, качество, товар, потребитель, бенчмаркинг, метод, продукция, конкурентоспособность.

Управление качеством продукции предполагает установление, обеспечение и поддержание необходимого уровня ее качества. Под качеством товара следует понимать степень удовлетворения потребностей потребителей в процессе его использования. Следовательно, бенчмаркинг как метод управления качеством продукции должен быть направлен на обеспечение необходимого уровня качества продукции, который удовлетворял бы потребности.

Бенчмаркинг - продукт эволюционного развития концепции конкурентоспособности, предполагающий разработку программ улучшения качества продукции, впервые появившихся в Японии. Японцы научились идеально копировать чужие достижения. Они тщательно исследовали европейские и американские товары и услуги, что бы выявить их сильные и слабые стороны, а затем выпускали нечто подобное по меньшей цене.

На западе бенчмаркинг как метод управления качеством продукции впервые был использован корпорацией *Xerox* в целях преодоления рыночных проблем, обусловленных катастрофически быстро уменьшающейся долей рынка корпорации. У корпорации не было выбора. Конкуренты предложили потребителям аналогичные по качеству товары по более низким ценам. Решение проблемы было найдено немедленно: для определения причин создавшейся ситуации провели сравнительный анализ товаров конкурентов и выявили следующее:

- ее производственные затраты на единицу продукции эквивалентны цене продаж японцев в США;

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- коэффициент отказа ее продукции, сходящей со сборочной линии, в 10 раз выше, чем у лучших компаний;
- общее время производства - в 2 раза больше, чем у лидеров;
- число брака на 100 единиц оборудования в 7 раз выше, чем у лучших компаний.

Эти результаты помогли Xerox понять объем преобразований, которые ей потребуется осуществить с целью повышения качества своей продукции. На этой основе корпорация разработала уникальное рыночное предложение.

Бенчмаркинг способствует более полному удовлетворению потребительских требований[37]. Потребитель всегда желает получить самые лучшие товары по самым низким ценам. Это требование выступает в качестве ориентиров для бенчмаркинга эффективности работы предприятия и цен на продукцию.

В основе бенчмаркинга как метода управления качеством продукции лежит сравнение продукта конкурента, или какой-либо его части, по сопоставимым параметрам с продуктом компании, проводящей анализ, с целью повышения качества и конкурентоспособности последнего.

Например, сравнивая два телефонных аппарата, можно выделить следующие типовые параметры: кнопочный против дискового набора; автоматический дозвон; память телефонных номеров; проводной против беспроводного телефона; стиль; цвет; цена. Компании могут выделять наборы параметров по продуктам, предлагаемым конкурентами и определять свои преимущества или недостатки в вопросе обеспечения соответствующего потребностям качества продукции.

Однако сравнение параметров не так просто. Во-первых, многие технологически сложные продукты обладают сотнями несравнимых между собой параметров. Во-вторых, бывает не ясно, действительно ли исключительная черта продукции трансформируется в конкурентное преимущество.

Бенчмаркинг как метод управления качеством продукции реализуется в 3 этапа:

- определение наиболее важных параметров продуктов для потребителя. В некоторых случая то, что важно для одной группы клиентов, безразлично для других. В этих случаях необходимо определить параметры продуктов для каждого сегмента клиентов;
- провести сравнение соответствующих параметров продуктов конкурентов;
- определить основные сильные и слабые стороны продукта, учитывая приоритеты и предпочтения клиентов.

При бенчмаркинге как методе управления качеством продукции основным является понимание не только того, каких уровней качества необходимо достигнуть, но и то, с помощью каких методов достигается необходимое качество продукции. Ниже приведены несколько точек сравнения, используемых при бенчмаркинге качества:

- производственная убыль (процент изделий, признанных негодными или ниже стандартов после изготовления);
- уровни переделки (процент изделий, переделанных после их производства);
- расходы на гарантию (затраты на ремонт по гарантии);
- среднее время до отказа продукта (надежность);

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- среднее время ремонта;
- методы управления качеством (участие рабочих, система контроля и инновационные производственные процессы).

Судя по тому, что бенчмаркинг в области управления качеством в настоящее время применяется достаточно активно, можно сказать, что как метод управления качеством продукции бенчмаркинг реализовал себя и получил признание.

Например, Hewlett-Packard с помощью бенчмаркинга стремилась определить направление своих дальнейших усилий в области повышения качества продукции на ближайшие 25 лет. Применяя бенчмаркинг как метод управления качеством продукции, корпорация *Hewlett-Packard пришла к двум очень важным выводам.*

1. Качество изделий должно отслеживаться уже на стадии проектирования.
2. Необходимо создать производственные процессы, которые в условиях массового производства обеспечивают качество продукции, нацеленное на удовлетворение потребностей постоянно расширяющегося рынка.

Организация бенчмаркинга на предприятии представляет собой совокупность последовательных действий – этапов процесса бенчмаркинга.

В литературе нет единого мнения в том, сколько этапов включает в себя процесс бенчмаркинга. Существуют модели, состоящие как из пяти[38], так и из десяти[39] этапов. На самом деле, все модели, вне зависимости от числа этапов, отражают приблизительно одинаковый порядок действий при организации бенчмаркинга на предприятии. Разница в числе шагов обусловлена разделением некоторыми авторами обширных этапов на несколько более конкретных.

Рассмотрим основные этапы процесса бенчмаркинга в общем, а затем конкретизируем их применительно к бенчмаркингу как методу управления качеством продукции.

1. Для начала нужно определить объект бенчмаркинга, то есть, какие функции, задачи, процессы или виды деятельности организации должны быть подвергнуты данной процедуре. Сперва, нужно подвергать процессу бенчмаркинга те показатели, которые являются самыми слабыми, а уже затем переходить к другим. Для того, что бы выяснить слабые стороны предприятия нужно перед выбором объекта бенчмаркинга провести анализ деятельности предприятия и уже на основе полученных результатов сфокусировать внимание на чем-то одном.
2. На втором этапе предприятию необходимо определить партнеров по бенчмаркингу, то есть, определив цели, необходимо начать поиск лучших предприятий. Критериями отбора партнеров могут служить, в частности, их лучшие по сравнению с субъектом бенчмаркинга или в своем классе показатели, конкурентоспособность в своей сфере, наличие надежной информации о партнере[40]. Выявление партнеров предполагает следующие шаги:

-беглый обзор (“to skim”). На этой стадии осуществляют поверхностный обзор имеющихся источников информации, а также собирают уже доступные данные. Здесь, помимо традиционных методов поиска эталона (в книгах, журналах, деловых связях, на конференциях, семинарах и т. д.), можно обратиться за помощью в центры бенчмаркинга, создаваемых специально для поиска партнеров с целью эталонного сопоставления.

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Благодаря деятельности таких национальных центров в 24 странах мира, объединенных в Глобальную сеть бенчмаркинга (Global Benchmarking Network, GBN), бенчмаркинговые проекты становятся международными[41]. В 2004 году Россия в лице департамента «Деловое совершенство» Всероссийской организации качества стала официальным членом GBN;

-приведение в порядок (“to trim”). В этой фазе собранные к этому моменту сведения и информация приводятся в порядок: подробно описываются и систематизируются. Для организации, решившей перенимать опыт других, необходимым условием является четкое понимание своей деятельности, своего бизнес-процесса, иными словами нужно сравнивать похожие категории. Когда информация проанализирована на уровне процессов (функций), можно столкнуться с тем, что планируемый проект невозможно осуществить в силу выявленных ограничений. В этом случае необходим детальный анализ информации, который помогает выявить причины возникновения тех или иных барьеров и минимизировать ограничения. Если же минимизация ограничений все же не позволит реализовать проект, значит, эталон выбран неудачно, и следует искать другие варианты;

выбор лучших (“to cream”). Заключительная стадия выбора лучших компаний и установление контактов с ними.

Сбор информации. Эта фаза включает не только сбор качественных данных, но и изучение содержания труда, процессов или факторов, которые объясняют продуктивность. Данные об эффективности процесса партнеров по бенчмаркингу собирают посредством проведения опросов, консультаций с деловыми партнерами, анализ материалов исследований и технических журналов.

На этом этапе анализируется полученная информация. Эта стадия выдвигает большие требования к творческим и аналитическим способностям участвующих в процессе анализа превосходства, так как анализировать - это не только осознавать сходства и различия, но и понимать взаимосвязи. Кроме того, необходимо выявить воздействия, которые могут осложнить сравнения и фальсифицировать результаты.

Целенаправленное проведение в жизнь полученных сведений, а именно, не только внедрение разработанных возможностей улучшения, но и дальнейшее развитие организации предприятия. В данном случае речь идет не о том, чтобы копировать, а о том, что они должны служить стимулом для дальнейшего инновационного развития собственной организационной структуры, иначе анализ превосходства обернется стратегией побежденного[42].

Контроль за процессом и повторение анализа. Контроль за процессом при внедрении результатов анализа происходит в двух направлениях:

- первое направление - необходимо следить за развитием установленных оценочных показателей результатов работы предприятий, так как то, что еще недавно было наилучшим достижением, скоро станет стандартом или же ухудшится;
- второе направление - необходимо проверять достижение промежуточных целей и соблюдение планов по ресурсам и срокам, поскольку как правило затраты на анализ превосходства после внедрения значительно снижается.

Так как бенчмаркинг не единовременный акт, а процесс непрерывного улучшения, его необходимо повторять. Конкуренты не стоят на месте, и со временем появляется новая, лучшая практика[43].

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Теперь рассмотрим, как можно организовать бенчмаркинг, чтобы управлять качеством продукции.

Соответственно на первом этапе объектом бенчмаркинга нужно выбрать продукт, услугу или процесс. Сравнивая, характеристики продукции с характеристиками аналогичной или похожей продукции конкурента или эталонной компании, предприятие выявляет преимущества и недостатки своей продукции и принимает меры по улучшению ее качества, чтобы она была способна в большей степени удовлетворять потребности. Сравнение, например, технологических процессов производства, может помочь предприятию снизить издержки, сократить затраты времени на производство продукции.

На этом же этапе необходимо определить основные критерии оценки качества продукции.

Этап второй предполагает поиск партнеров. Для сравнения может быть выбрана компания или внутрифирменная область. Критерием выбора партнера в данном случае может послужить конкурентоспособность предприятия, принадлежащая конкуренту доля рынка, спрос на продукцию.

На третьем этапе осуществляется сбор информации. Возможен открытый и добровольный обмен информацией между конкурентами в рамках профессиональных объединений и ассоциаций, но на практике такое случается не часто. Так что компания может привлечь к сбору информации о качестве продукции конкурентов маркетологов-аналитиков, которые анализируют прайс-листы, специальные предложения конкурентов. Также может, например, оценить качество товара конкурентов, исследуя его образец как в лабораторных условиях, так и выясняя мнения потребителей о данной продукции.

На четвертом этапе анализируется вся полученная информация о качестве продукции конкурентов, определяется возможность применения полученных данных, сопоставляется с показателями качества собственной продукции, выявляются те характеристики продукции, которые требуют изменений, улучшений, вырабатываются цели, планы и стратегии по достижению должного уровня качества выпускаемой продукции.

Реализация поставленных целей происходит на пятом этапе. Затем оцениваются результаты, контролируется качество улучшенной продукции, выявляются, возможно, какие-то недостатки и все можно начинать сначала.

На рис.3.1 отображена примерная схема организации бенчмаркинга как метода управления качеством продукции.

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PANDEMIYALAR DAVRIDA TIBBIY TASVIRLARNI TAHLIL QILISH UCHUN SUN'IY INTELLEKTGA ASOSLANGAN USULLARNING MUKAMMAL SHARHI

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Annotatsiya: Covid-19 pandemiyasi tezkor diagnostika zaruratini ochib berdi. Sun'iy intellekt (ai) tibbiy tasvirlarni tahlil qilishda, xususan, ko'krak qafasi rentgenografiyasi, kt va o'pka ultratovushida muhim vositaga aylandi. Ushbu maqolada mashinaviy o'qitish, chuqur o'qitish, transfer o'qitish va gibrid yondashuvlar sohasidagi so'nggi yutuqlar ko'rib chiqilib, asosiy hissalar, ma'lumotlar to'plamlari, muammolar va kelajakdagi yo'nalishlar ta'kidlanadi.

Kalit so'zlar: Covid-19, tibbiy tasvirlarni tahlil qilish, sun'iy intellekt (SI), mashinaviy o'qitish (MO), chuqur o'qitish (CHO'), transfer o'qitish (TO'), ko'krak qafasi rentgenografiyasi (KQR), segmentatsiya, klassifikatsiya, diagnostika vositalari, konvolyutsion neyron tarmoqlar (KNT), tushuntiriladigan sun'iy intellekt (TSI).

Комплексный обзор методов анализа медицинских изображений на основе ии во время пандемий

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Аннотация: Пандемия covid-19 выявила необходимость быстрой диагностики. Искусственный интеллект (ии) стал преобразующим инструментом в анализе медицинских изображений, особенно для рентгенографии грудной клетки, кт и узи легких. В этой статье рассматриваются последние достижения в области машинного обучения, глубокого обучения, трансферного обучения и гибридных подходов, подчеркивая ключевые вклады, наборы данных, проблемы и будущие направления.

Ключевые слова: Covid-19, Анализ Медицинских Изображений, Искусственный Интеллект (ИИ), Машинное Обучение (МО), Глубокое Обучение (ГО), Трансферное Обучение (ТЛ), Рентгенография Грудной Клетки (РГК), Сегментация, Классификация, Диагностические Инструменты, Сверточные Нейронные Сети (СНС), Объяснимый ИИ

A comprehensive overview of ai-driven methods for medical image analysis during pandemics

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Abstract: The COVID-19 pandemic highlighted the need for rapid diagnostics. Artificial intelligence (AI) has emerged as a transformative tool in medical image analysis, particularly for chest X-rays, CT scans, and lung ultrasounds. This article reviews recent advances in machine learning, deep learning, transfer learning, and hybrid approaches, highlighting key contributions, datasets, challenges, and future directions.

Keywords: *COVID-19, Medical Image Analysis, Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL), Transfer Learning (TL), Chest X-rays (CXR), Segmentation, Classification, Diagnostic Tools, Convolutional Neural Networks (CNN), Explainable AI (XAI)*

Introduction: The rapid emergence and global spread of the SARS-CoV-2 virus in late 2019 marked one of the most significant public health challenges in modern history. First identified in Wuhan, China, the virus led to an unprecedented pandemic, known as COVID-19, which has since claimed millions of lives worldwide and disrupted economies and healthcare systems. Early and accurate diagnosis of the disease has been recognized as critical in mitigating its impact and improving patient outcomes.

Traditional diagnostic methods, such as reverse transcriptase-polymerase chain reaction (RT-PCR), have served as the gold standard for COVID-19 detection. However, the high demand for RT-PCR testing kits, coupled with logistical challenges in many regions, has created an urgent need for alternative diagnostic approaches. In this context, medical imaging modalities, including chest X-rays (CXRs), computed tomography (CT) scans, and lung ultrasounds, have emerged as valuable tools. These imaging techniques enable rapid identification of lung abnormalities associated with COVID-19 and provide insights into disease progression and severity.

Recent advancements in artificial intelligence (AI) have revolutionized medical imaging analysis, offering powerful tools for automated detection, classification, and segmentation. Leveraging machine learning (ML), deep learning (DL), and transfer learning (TL) methodologies, researchers have developed systems capable of analyzing vast quantities of imaging data with remarkable accuracy and efficiency. Convolutional neural networks (CNNs), for instance, have demonstrated superior performance in identifying COVID-related abnormalities, while hybrid models have enabled comprehensive analysis across various imaging modalities.[1]

This paper aims to provide a comprehensive overview of AI-based approaches in COVID-19 medical image analysis, highlighting the methodologies, datasets, and performance metrics employed. Furthermore, it explores the challenges and future directions for AI applications in combating pandemics. By examining the intersection of technology and healthcare, this study seeks to illuminate the transformative potential of AI in addressing global health crises.

Materials and methods

AI models for medical image analysis. Artificial intelligence (AI) has played a transformative role in medical imaging analysis, particularly in the context of the COVID-19 pandemic. AI models are categorized into machine learning (ML), deep learning (DL), and transfer learning (TL) approaches, each with unique capabilities and applications in medical diagnostics. These models have enabled rapid detection, classification, and segmentation of COVID-19-related

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abnormalities in medical images, including chest X-rays (CXRs), computed tomography (CT) scans, and lung ultrasounds.

Machine learning (ML) Machine learning, a subset of AI, focuses on developing algorithms that learn patterns from data to make predictions or classifications. In medical imaging, ML methods like support vector machines (SVM), random forests (RF), decision trees (DT), and k-nearest neighbor (KNN) have been employed to classify lung images into categories such as COVID-positive, normal, or pneumonia.[2]

ML approaches are effective in handling structured datasets, particularly when sufficient labeled data is available. For example, SVM has been widely used for binary classification tasks, such as differentiating between COVID-19 and non-COVID-19 cases. Figure 1 illustrates a generic ML workflow used in medical image analysis. Despite their efficiency, ML models often rely on feature extraction, which can be labor-intensive and less effective than DL in capturing complex image patterns.

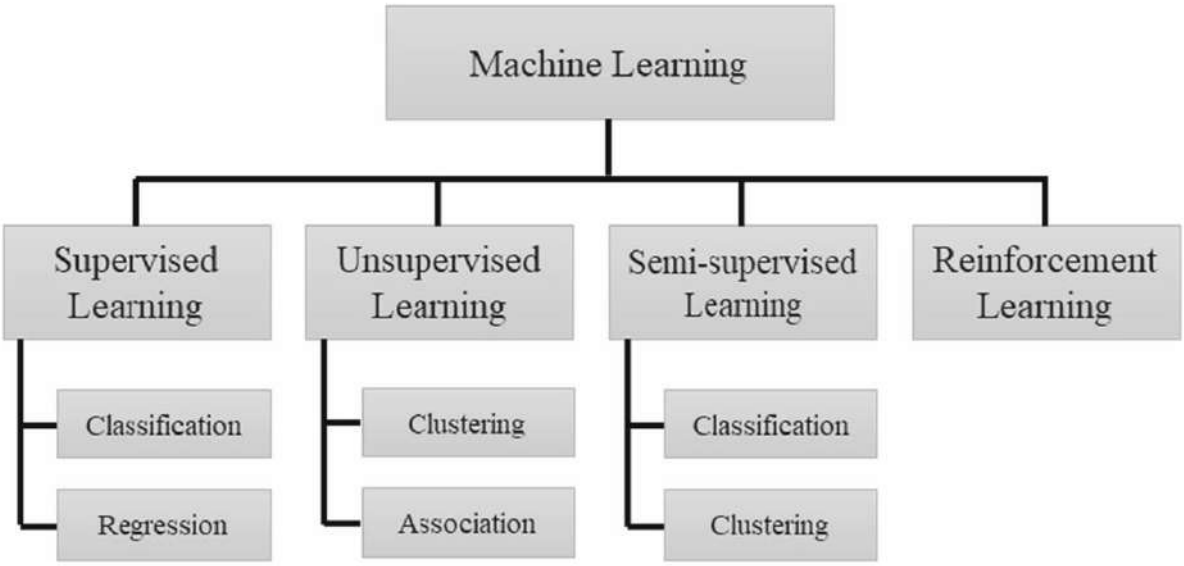

Fig. 1 ML models

Deep learning (DL) Deep learning, an advanced branch of ML, utilizes deep neural networks (DNNs) to learn hierarchical representations from data. DL models, particularly convolutional neural networks (CNNs), have shown unparalleled performance in medical image analysis, making them a cornerstone for COVID-19 diagnostics.[3]

CNNs excel at extracting spatial features from medical images, enabling tasks like classification, segmentation, and visualization. Advanced architectures such as ResNet, DenseNet, and U-Net have been deployed for COVID-19 diagnosis. These models are characterized by their ability to capture intricate patterns, such as ground-glass opacities and other lung abnormalities, from imaging data.

The generic architecture of a CNN includes input, convolutional, pooling, fully connected, and output layers (Fig. 2). These layers work together to transform input images into classification or segmentation outputs. For instance, U-Net and U-Net++ are popular choices for segmenting infection regions in CT scans and CXRs, helping radiologists assess disease severity.

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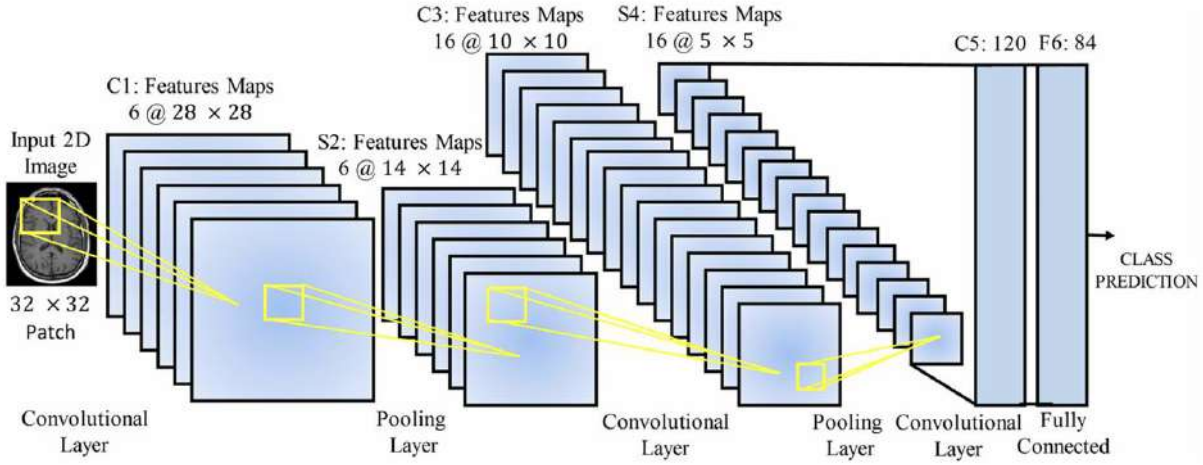

Fig. 2 A sample CNN structure for medical image analysis

Transfer learning (TL) Transfer learning has emerged as a game-changing approach, especially in scenarios where labeled data is scarce. TL leverages pre-trained models, such as VGGNet, ResNet, and MobileNet, that have been trained on large, general-purpose datasets. These pre-trained models are fine-tuned on specific datasets, such as COVID-19 imaging data, to adapt to new tasks (Fig. 3).

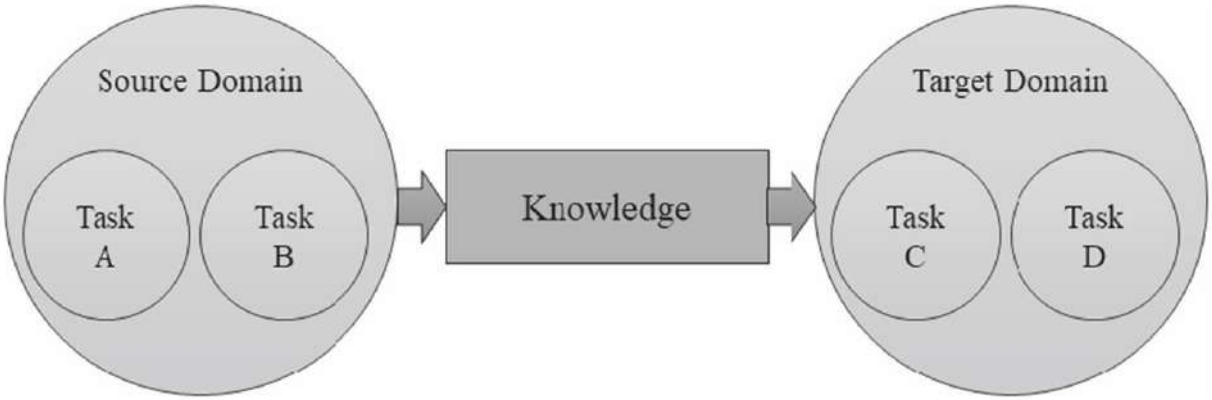

Fig. 3 Transfer learning

For example, models pre-trained on ImageNet have been repurposed for COVID-19 detection, significantly reducing training time while improving model performance. TL is particularly useful for resource-constrained settings, where generating large labeled datasets is challenging. Deep transfer learning (DTL) models have demonstrated promising results, achieving high accuracy in both classification and segmentation tasks.[4]

Hybrid models Hybrid models combine ML, DL, and heuristic techniques to enhance the accuracy and robustness of medical image analysis systems. These models integrate the feature extraction capabilities of ML with the representation learning power of DL, resulting in better performance for tasks like disease detection and severity classification.

For instance, combining CNNs with SVMs has yielded models that classify lung conditions with high precision. Similarly, hybrid approaches have been employed to integrate image-based and clinical data, providing comprehensive diagnostic insights.

Challenges in AI models for medical imaging Despite their advantages, AI models face challenges in medical image analysis. Limited annotated datasets, data heterogeneity, and the need

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for high computational power are significant barriers. Moreover, the lack of explainability in DL models raises concerns among healthcare professionals about the reliability of automated diagnoses.

The integration of AI in medical imaging has revolutionized the diagnosis and management of COVID-19. While ML methods offer simplicity and efficiency, DL and TL approaches provide powerful tools for analyzing complex imaging data. Hybrid models represent a promising avenue for further research, combining the strengths of various methodologies. Figure 4 illustrates the relationships between AI, ML, DL, and TL models, providing a comprehensive overview of their interconnected roles in medical imaging.[5]

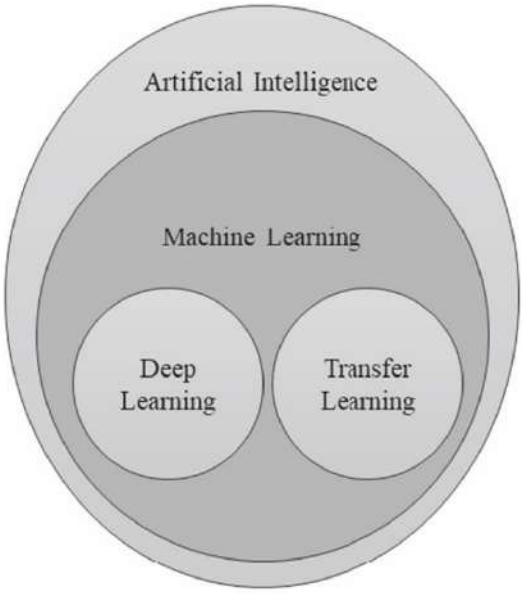

Fig. 4 Relationships between AI, ML, DL, and TL

The next section delves into the evaluation metrics used to assess the performance of these models, providing insights into their accuracy and reliability.

Results

Performance metrics Evaluating the performance of AI models in medical imaging is crucial to ensuring their reliability, accuracy, and applicability in real-world scenarios. Performance metrics are categorized based on their relevance to classification and segmentation tasks. These metrics provide quantitative insights into how effectively models identify COVID-19-related abnormalities in medical images.

Metrics for classification tasks

Classification tasks aim to categorize images into predefined labels, such as COVID-positive, pneumonia, or healthy. The following metrics are commonly used:

1. *Accuracy* Accuracy measures the proportion of correctly classified instances among all instances. It is calculated as:

$$Accuracy = \frac{TP+TN}{TP+FP+TN+FN} \quad (1)$$

Where:

- TP: True Positive (correctly classified positives)
- TN: True Negative (correctly classified negatives)
- FP: False Positive (incorrectly classified positives)

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- FN: False Negative (incorrectly classified negatives)

2. *Precision (Positive Predictive Value, PPV)* Precision indicates the proportion of true positive predictions among all positive predictions:

$$Precision = \frac{TP}{TP+FP} \quad (2)$$

3. *Recall (True Positive Rate, TPR, or Sensitivity)* Recall measures the proportion of true positives identified among all actual positives:

$$Recall = \frac{TP}{TP+FN} \quad (3)$$

4. *F1-Score* The F1-score is the harmonic mean of precision and recall, offering a balance between the two:

$$F1 - Score = 2 * \frac{Precion*Recall}{Precion+Recall} \quad (4)$$

5. *Specificity (True Negative Rate, TNR)*

$$Specificity = \frac{TP}{TP+FP} \quad (5)$$

6. *ROC Curve and AUC* The Receiver Operating Characteristic (ROC) curve plots the true positive rate (TPR) against the false positive rate (FPR) at various thresholds. The area under the curve (AUC) indicates the model's discriminative ability. A higher AUC reflects better performance (Fig. 5).

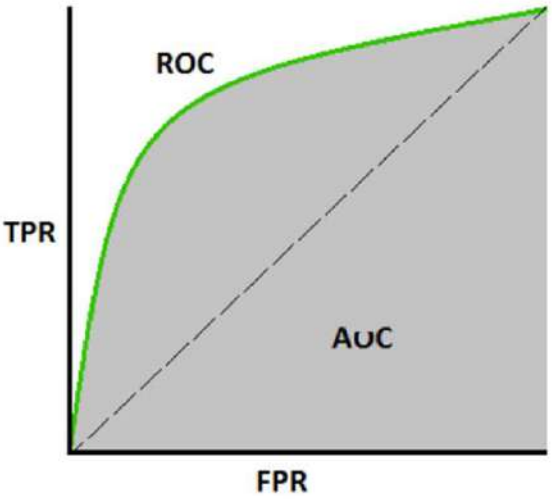

Fig. 5 ROC and AUC

Metrics for segmentation tasks

Segmentation tasks involve delineating specific regions of interest, such as infection zones in lungs. Metrics for segmentation focus on the overlap and similarity between the predicted segmentation and the ground truth:

1. *Dice coefficient (Dice score)* Dice score measures the similarity between the predicted and actual regions:

$$Dice\ Score = \frac{2 * |A \cap B|}{|A| \cap |B|}$$

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Where AAA and BBB represent the predicted and ground truth regions, respectively.

2. *Jaccard index* The Jaccard index calculates the ratio of the intersection to the union of the predicted and ground truth regions:

$$Jaccard\ Index = \frac{|A \cap B|}{|A \cup B|}$$

3. *Matthews correlation coefficient (MCC)* MCC is a balanced measure that accounts for true and false positives and negatives, particularly useful in imbalanced datasets:

$$MCC = \frac{(TP * TN) - (FP * FN)}{\sqrt{(TP + FP)(TP + FN)(TN + FP)(TN + FN)}}$$

Importance of metrics in model evaluation

Performance metrics guide the selection and fine-tuning of models for specific tasks. For instance, in COVID-19 classification, high precision is critical to avoid false positives, while high recall ensures that true cases are not missed. Segmentation metrics, such as Dice and Jaccard scores, are essential for evaluating the model's ability to delineate infection regions accurately, aiding in severity assessment and treatment planning.

Challenges in evaluation

Evaluation metrics, though effective, have limitations:

- *Class imbalances***:** COVID-19 datasets often have imbalanced classes, skewing metrics like accuracy.
- *Threshold sensitivity:* Metrics like ROC and AUC depend on threshold selection, which can vary across studies.
- *Lack of standardization:* Diverse metrics and datasets hinder direct comparison between models.

Performance metrics are indispensable for assessing AI models in medical imaging. Metrics like precision, recall, F1-score, and AUC are crucial for classification tasks, while Dice and Jaccard scores are vital for segmentation. Overcoming challenges in evaluation is essential for advancing AI-based medical diagnostics. The next section will explore recent research contributions and their applications in COVID-19 medical image analysis.[6-7]

Literature review

Survey of existing literature: The COVID-19 pandemic catalyzed an unprecedented global effort in leveraging artificial intelligence (AI) for medical diagnostics, particularly in the analysis of chest imaging. Researchers worldwide have focused on developing AI-driven approaches to detect, classify, and segment COVID-19-related abnormalities, utilizing imaging modalities such as chest X-rays (CXRs), computed tomography (CT) scans, and lung ultrasounds. This section provides an overview of the major contributions, methodologies, datasets, and tools highlighted in recent literature.[6]

The early months of the pandemic saw a surge in research efforts to utilize AI for diagnosing COVID-19. The primary goal was to augment existing diagnostic tools like reverse transcriptase-polymerase chain reaction (RT-PCR), which, while considered the gold standard, was constrained by its cost, availability, and processing time. Chest imaging, being more readily available and cost-effective, emerged as a valuable diagnostic alternative. AI techniques,

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particularly deep learning (DL), have proven to be highly effective in extracting complex features from medical images, making them indispensable in this domain.[7]

AI techniques and applications AI models employed in medical image analysis during the pandemic fall into three broad categories: machine learning (ML), deep learning (DL), and hybrid approaches. Convolutional neural networks (CNNs) were central to these efforts, offering exceptional accuracy in classification tasks. For instance, architectures like ResNet, DenseNet, and MobileNet have been instrumental in distinguishing COVID-19 from other conditions such as bacterial or viral pneumonia. Moreover, segmentation models such as U-Net and its enhanced versions (e.g., U-Net++) were widely used for identifying infected lung regions, aiding in severity assessment and treatment planning.[8]

Hybrid approaches, combining traditional ML and DL methods, gained traction as they leveraged the strengths of both methodologies. These models, which integrate classical feature extraction techniques with modern deep learning frameworks, achieved high performance in handling diverse and imbalanced datasets. Additionally, transfer learning (TL) became a cornerstone in the rapid deployment of AI solutions, as pre-trained models were fine-tuned on COVID-19 datasets, significantly reducing the need for extensive training.

Datasets and challenges The availability of high-quality datasets has been a critical factor in the progress of AI research for COVID-19 diagnostics. Publicly available datasets such as COVIDx, COVID-19 Image Data Collection, and SARS-CoV-2 CT-scan dataset have played a pivotal role. These repositories provide labeled imaging data, enabling researchers to train and validate models effectively. However, challenges remain, including class imbalances, limited data diversity, and the lack of standardized annotations, which often hinder the generalizability of AI models.

Notable tools and applications AI has transcended research settings to become a practical asset in clinical diagnostics. Tools like NVIDIA's Clara COVID-19 and CAD4COVID exemplify the application of AI in real-world scenarios. Clara COVID-19 integrates AI algorithms for automated analysis of lung imaging, offering actionable insights to healthcare providers. Similarly, CAD4COVID provides rapid assessment of CXRs, enabling clinicians to make informed decisions in a time-critical context.

Performance benchmarks AI models for COVID-19 imaging have demonstrated impressive performance metrics. Many studies report classification accuracies exceeding 90%, with segmentation models achieving high Dice and Jaccard scores. The precision and recall values of these models underline their reliability in identifying COVID-19 cases accurately while minimizing false positives and negatives. Table 1 in the referenced literature summarizes the performance metrics of various models, offering a comparative view of their efficacy.

Integration into clinical practice The integration of AI into healthcare systems has the potential to revolutionize diagnostics. By providing faster and more accurate results, AI tools alleviate the burden on healthcare workers, enabling them to focus on patient care. The ability of AI to combine imaging data with other clinical variables further enhances its utility in personalized medicine.

Research gaps and future directions While significant progress has been made, gaps remain. The limited availability of annotated datasets and the lack of explainability in AI models are key areas for improvement. Moreover, the standardization of evaluation metrics and the

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development of ethical guidelines for AI deployment are critical for broader adoption. Future research should prioritize the creation of diverse datasets, explore explainable AI (XAI) solutions, and focus on hybrid models that can integrate multiple data modalities.[9]

In summary, the existing literature highlights the transformative potential of AI in addressing the diagnostic challenges posed by COVID-19. From automated detection to detailed segmentation of infection regions, AI has demonstrated its value as a powerful diagnostic tool. However, addressing the remaining challenges is essential for unlocking its full potential and paving the way for its application in future pandemics and broader healthcare contexts.

Challenges and future directions

The application of artificial intelligence (AI) in medical image analysis has proven invaluable in the fight against COVID-19. However, several challenges hinder its full-scale adoption and efficacy in clinical settings. Addressing these challenges is essential to furthering AI's transformative role in healthcare and ensuring readiness for future pandemics.

Key challenges One of the most pressing issues is the scarcity of high-quality, diverse, and annotated datasets. COVID-19 datasets often suffer from limited sample sizes, class imbalances, and a lack of standardization. These limitations affect the robustness and generalizability of AI models, making it difficult for them to perform consistently across different populations and clinical settings. Class imbalances, where COVID-negative cases outweigh COVID-positive ones, skew training processes, often resulting in biased models.

Another significant challenge lies in the computational demands of training deep learning models. AI systems require substantial resources, including high-performance computing infrastructure, which may not be available in resource-constrained settings. This constraint hampers the deployment of AI solutions in regions that could benefit the most from technological innovations.

The lack of interpretability in deep learning models, often referred to as the "black box" problem, presents another barrier. Healthcare professionals are understandably cautious about relying on systems that do not offer clear explanations for their decisions. This lack of explainability undermines trust and slows adoption in clinical environments.

Additionally, the integration of AI into existing healthcare workflows poses technical and operational challenges. Many healthcare systems lack the infrastructure to support seamless AI deployment, and the integration process often requires significant adjustments to established practices. Moreover, regulatory and ethical issues, including data privacy and the need for clear approval pathways, further complicate the widespread implementation of AI in healthcare.[10]

Future directions To overcome these challenges, researchers and stakeholders must prioritize the development of robust, diverse, and standardized datasets. Collaborative efforts to create open-access repositories with uniform annotation standards can significantly enhance model training and evaluation. Data augmentation techniques and synthetic data generation can also help address class imbalances and diversify training datasets.

The advancement of explainable AI (XAI) is critical to building trust and ensuring usability in clinical settings. Techniques such as heatmaps, Grad-CAM, and attention mechanisms can provide insights into model decision-making, making AI systems more transparent and interpretable. Integrating rule-based approaches or hybrid models can further enhance explainability while maintaining high performance.

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Hybrid models, combining traditional machine learning (ML) techniques with deep learning (DL), offer a promising avenue for optimizing performance. By leveraging the strengths of both methodologies, these models can improve accuracy and handle complex tasks more effectively. Furthermore, integrating imaging data with other clinical and demographic data can lead to more comprehensive diagnostic solutions.

Edge computing is another promising direction, enabling AI systems to process data locally on portable devices. This approach reduces the dependency on centralized computing resources and is particularly beneficial for deploying AI solutions in remote or resource-limited areas.

Transfer learning (TL) will continue to play a pivotal role in overcoming data scarcity. By fine-tuning pre-trained models on specific datasets, TL reduces the need for extensive training and allows for rapid adaptation to new diseases or conditions. Expanding the scope of TL to include cross-domain applications can further enhance its utility in healthcare.

Finally, addressing regulatory and ethical challenges is essential for the sustainable integration of AI into healthcare. Clear guidelines on data privacy, security, and regulatory compliance must be established to ensure that AI systems are both effective and ethically sound. Streamlined approval processes for AI-driven diagnostic tools will facilitate faster adoption while maintaining safety and reliability.

The path forward The COVID-19 pandemic has underscored the immense potential of AI in healthcare, but it has also highlighted the gaps that must be addressed to fully realize its capabilities. By tackling challenges related to data availability, model explainability, and operational integration, researchers can pave the way for more robust and reliable AI systems. Collaborative efforts between the healthcare and technology sectors, coupled with policy support, will be critical to driving innovation and ensuring that AI becomes an integral part of global healthcare preparedness.[9-10]

In the long term, AI has the potential to revolutionize not just pandemic response but also routine diagnostics and chronic disease management. By continuing to address these challenges and exploring innovative solutions, AI can transform healthcare into a more efficient, equitable, and patient-centered system.

Discussion

The integration of artificial intelligence (AI) into medical imaging during the COVID-19 pandemic has demonstrated transformative potential, offering precise and rapid diagnostic solutions to manage an unprecedented global health crisis. This discussion explores the broader implications of AI applications, evaluates the challenges identified, and suggests pathways for enhancing its utility in medical practice.

Significance of ai in pandemic response. AI has proven to be a powerful tool in Addressing the diagnostic challenges posed by COVID-19. By leveraging advanced models such as convolutional neural networks (CNNs) and hybrid techniques, researchers have achieved high accuracy in detecting and classifying COVID-19-related abnormalities. These advancements have not only supplemented traditional diagnostic methods like RT-PCR but have also reduced the burden on overextended healthcare systems, enabling more efficient triaging of patients. Furthermore, AI-based segmentation models have aided in severity assessment, providing actionable insights for treatment planning.

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The development of AI-driven tools, such as Clara COVID-19 and CAD4COVID, underscores the practical applications of this technology. These tools have integrated seamlessly into clinical workflows, supporting healthcare providers by automating routine tasks and improving diagnostic consistency. Such systems illustrate how AI can enhance decision-making, particularly in resource-constrained environments where medical expertise may be limited.

Challenges and limitations Despite its potential, the application of AI in medical imaging faces several challenges. The scarcity of large, diverse, and annotated datasets has limited the generalizability of AI models. Most datasets are region-specific and often lack the diversity needed to ensure robust performance across different populations. This challenge is compounded by class imbalances, where the prevalence of COVID-negative cases exceeds that of COVID-positive ones, leading to biased training outcomes.

The "black box" nature of deep learning models remains a significant concern. Clinicians and decision-makers often hesitate to rely on AI systems that do not provide transparent explanations for their predictions. This lack of explainability not only affects trust but also hampers the broader adoption of AI in clinical settings.

Another critical challenge is the integration of AI systems into existing healthcare infrastructures. Many healthcare providers lack the technical expertise or infrastructure to support the deployment of AI tools. Additionally, regulatory frameworks and ethical considerations, such as data privacy and security, present barriers that need to be addressed to ensure safe and compliant use of AI technologies.

Future implications and research directions To address these challenges, several avenues for future research and development have been identified. First, creating and maintaining open-access repositories of standardized and diverse datasets should be a priority. These datasets should encompass various demographic, geographic, and clinical characteristics to improve the adaptability of AI models.

Second, the development of explainable AI (XAI) systems is essential for fostering trust among healthcare professionals. Techniques like attention mechanisms, heatmaps, and Grad-CAM can provide insights into the decision-making processes of AI models, making them more interpretable and clinically acceptable.

Hybrid approaches that combine traditional machine learning (ML) and deep learning (DL) techniques can further enhance the robustness and versatility of AI systems. These models can integrate imaging data with other clinical and demographic information, providing a more comprehensive diagnostic framework.[10]

The advancement of edge computing and transfer learning (TL) also holds promise for improving the accessibility and efficiency of AI tools. By enabling real-time data processing on portable devices, edge computing can expand the reach of AI solutions to remote or under-resourced areas. Transfer learning, meanwhile, can facilitate the rapid adaptation of pre-trained models to new diseases or imaging modalities.

The COVID-19 pandemic has underscored the critical role of AI in revolutionizing medical imaging and diagnostics. While significant progress has been made, addressing challenges related to dataset diversity, model explainability, and healthcare integration remains essential. Collaborative efforts among researchers, clinicians, and policymakers will be vital in overcoming these barriers and ensuring the successful implementation of AI in healthcare. By fostering

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innovation and addressing current limitations, AI can transform global health systems, not only in managing pandemics but also in providing equitable and efficient care for all.

CONCLUSION

The COVID-19 pandemic has highlighted the critical need for innovative approaches to medical diagnostics, especially in addressing the challenges posed by limited resources and overwhelming demand on healthcare systems. Artificial intelligence (AI) has emerged as a transformative solution, offering unprecedented capabilities in medical image analysis. By leveraging machine learning (ML), deep learning (DL), and transfer learning (TL) techniques, researchers have made significant strides in detecting, classifying, and segmenting COVID-19-related abnormalities in chest X-rays (CXRs), computed tomography (CT) scans, and lung ultrasounds.

AI-driven methodologies have demonstrated remarkable accuracy and efficiency, with models achieving over 90% classification accuracy and robust segmentation performance in identifying infected lung regions. Tools like Clara COVID-19 and CAD4COVID have proven invaluable in streamlining diagnostic workflows, reducing the burden on radiologists, and enabling faster decision-making. These advancements underscore the potential of AI to enhance diagnostic precision and support healthcare providers in managing pandemic-related challenges.

Despite these achievements, several challenges remain. The scarcity of diverse and annotated datasets limits the generalizability of AI models, while the lack of standardization in data formats and evaluation metrics complicates cross-study comparisons. Computational constraints and the opacity of deep learning models further hinder their integration into clinical practice. Additionally, ethical concerns surrounding data privacy and the regulatory complexities of deploying AI in healthcare settings must be addressed.

Looking ahead, the future of AI in medical imaging lies in collaborative efforts to overcome these hurdles. Developing large-scale, open-access datasets with standardized annotations will be crucial for training more robust models. Emphasizing explainable AI (XAI) will foster trust and usability among clinicians by providing insights into model decision-making processes. Hybrid approaches that combine the strengths of ML and DL, along with innovations in edge computing, can address computational challenges, particularly in resource-constrained environments. Moreover, advancing transfer learning techniques will enable the rapid adaptation of pre-trained models to new diseases or conditions, broadening the scope of AI applications in healthcare.

The integration of AI into healthcare systems is not merely a technological shift but a paradigm change that has the potential to revolutionize patient care. From early detection to personalized treatment planning, AI holds the promise of transforming the way diseases are diagnosed and managed. By addressing current limitations and fostering interdisciplinary collaboration, AI can play a pivotal role in enhancing global healthcare preparedness for future pandemics and improving outcomes for patients worldwide.

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РАСЧЕТА МОДУЛЯ ЗАЦЕПЛЕНИЯ ШЕСТЕРЕН, РАБОТАЮЩИХ В УСЛОВИЯХ СУХОГО ТРЕНИЯ

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Аннотация. В статье прведена методика расчета модуля зацепления зубчатых передач работающих в условиях качения с проскальзыванием при наличии и отсутствие в составе масла агрегата мобильных машин абразивных частиц, с учетом геометрических, кинематеских параметров зубчатого зацепления, механических свойств материала зубчатых колес, прочности, концентрации и влияющих на износостойкость зубьев шестерен. Предложенная методика расчета модуля зацепления зубчатой передачи отличается от традиционной методики расчета.

Ключевые слова: модуль зацепления, закрытая зубчатая передача, качения, качения с проскальзыванием, абразивные частицы, прочность абразивных частиц на сжатие, дробление, твердость материала шестерен, напряжение изгиба, придел текучести материала.

Исследованиями, проведенные по определению износостойкости зубьев шестерен в условиях сухого трения, работающих при наличии и отсутствии в окружающей среде абразивных частиц установлено, что наибольшему износу подвергаются головка и ножка зубьев, и в большинстве случаях по этим причинам зубчатые колеса выбраковываются [1, 2]. Поэтому в проектных расчетах по определению модуля зацепления зубчатых передач необходимо учитывать не только комплекс факторов, характеризующих прочности и геометрических параметров, а также факторов влияющих на износостойкость зубьев шестерен, как величина износа, срок службы до полной выбраковки, геометрические и кинематические параметры зубчатого зацепления, механические свойства материала шестерен, наличии в масле абразивных частиц, характеризуемых их запыленности окружающей среды, размера и прочности абразивных частиц.

Целью настоящей работы является разработка методики расчета модуля зацепления зубьев шестерен, работающих в сухом трении в зависимости от комплекса параметров, при наличии и отсутствии в окружающей среде абразивных частиц.

Объем абразивных частиц, контактирующих профилем зуба за один оборот ведомой шестерни,

$$v_{\text{а}} = \frac{k_a \varepsilon_в v_{\text{в}}}{\gamma_a} = \frac{2k_a \varepsilon_в m d_{ср} z_к L}{\gamma_a},$$

где, $k_{\text{а}}$ — коэффициент, учитывающий долю контактирующих абразивных частиц и участвующих в процессе изнашивания зубьев шестерен; $\gamma_{\text{а}}$ — плотность абразивной

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частицы; $\varepsilon_в$ — запыленность окружающей среды, где работает рассматриваемая шестерня; модуль зацепления зубчатой передачи, $d_{ср}$ — средний размер абразивных частиц, находящих в взвешенном состояние в воздухе; $z_к$ — число зубьев ведомой шестерни; L — длина зуба шестерни; γ_a — плотность абразивных частиц.

В зависимости от расположения зубчатой передачи относительно поверхности разрабатываемого материала доля контактирующих абразивных частиц и участвующих в процессе изнашивания зубьев шестеренколеблется в приделахk_a=0,25…0,55.

Для расчета общего количества абразивных частиц, контактирующихся с поверхностью зуба и участвующих в процессе их изнашивания получена зависимость:

$$n_v = \frac{v_a}{v_{1a}} = \frac{3{,}82 k_a \varepsilon_в m d_{ср} z_к L}{d_{\text{ср}}^3 \gamma_a}, \qquad (1)$$

где, v_{1a} — объем одной абразивной частицы, имеющей сферической формы,

$$v_{1a} = \frac{\pi}{6} d_{\text{ср}}^3.$$

Предположим, что в процессе работы агрегата запыленность воздуха шестерни остается постоянной, тогда условно можно принимать, что абразивные частицы по поверхностям зуба распределены равномерно. Тогда между количеством абразивных частиц, расположенных по длине и по высоте зуба шестерен имеет следующая связь:

$$\begin{cases} n_L n_h = n = \dfrac{3{,}82 k_a \varepsilon_в m d_{ср} z_к L}{d_{\text{ср}}^3 \gamma_a} \\ \dfrac{n_L}{n_h} = \dfrac{L}{h} = \dfrac{L}{2m}, \end{cases} \qquad (2)$$

где, n_L, n_h — соответственно количества абразивных частиц, расположенных по длине и по высоте зуба; h — высота зуба.

Решив систему уравнений (3.8) относительно n_L и n_h получим:

$$n_L = \frac{1{,}38 k_a^{1/2} \varepsilon_в^{1/2} d_{ср}^{1/2} z_к^{1/2} L}{d_{\text{ср}}^{3/2} \gamma_a^{1/2}}, \qquad (3)$$

$$n_h = \frac{2{,}76 k_a^{1/2} \varepsilon_в 1/2 m d_{ср}^{1/2} z_к^{1/2}}{d_{\text{ср}}^{3/2} \gamma_a^{1/2}}. \qquad (4)$$

Определяем объем деформированного металла абразивными частицами, находящихся в клиновидном зазоре зубчатых передач при контакте до их разрушения. Для чего вначале рассчитаем путь трения абразивных частиц, с момента контакта поверхностями зубьев до их разрушения, по поверхностям ведущей (ведомой) шестерни:

$$s_{ш,к} = \frac{s H_{ш,к}}{H_ш + H_к},$$

где $H_ш$ — твердость материала ведущей шестерни; $H_к$ — твердость материала ведомой шестерни; S — путь скольжения между зубьями ведущей и ведомой шестерен.

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Причем разрушение абразивных частиц, в открытых зубчатых передач, происходит в клиновидном зазоре зубьев не доходя до зоны контакта поверхностей трения, при этом процесс изнашивания зубьев происходит с участием абразивных частиц. В зоне контакта зубьев процесс изнашивания шестерен происходит в результате деформации поверхностей контакта выступами шероховатостей, без участия абразивных частиц.

Путь трения абразивных частиц в клиновидном зазоре s между поверхностями зубьев при наличии их проскальзывания определяется по выражению, приведенной в [3]. При «чистом» качении этот путь равен диаметру пятна контакта абразивной частицы, когда она внедряется в поверхность трения, перед дроблением. Согласно проведенных исследований, глубина внедрения абразивной частицы в поверхности трения ведущей (ведомой) шестерни в точке касания зуба шестерни и абразивной частицей,

$$h_{ш,к} = \frac{d_{ср}\sigma_a}{4H_{ш,к}},$$

где σ_a — прочность абразивной частицы на сжатие.

Для расчета пути трения абразивной частицы по поверхности ведущей (ведомой) шестерни до дробления получена зависимость,

$$s_{ш,к} = \frac{s\sigma_a}{4H_{ш,к}}$$

Наибольшая площадь основания, деформированной поверхности трения, в перпендикулярном сечении по ходу движения абразивной частицы в момент ее дробления,

$$F_{ш,к} = \frac{d_{\text{ср}}^2\sigma_a\Gamma_{ш,к}}{60H_{ш,к}}.$$

здесь $\Gamma_{ш,к}$ — коэффициент учитывающий соотношения твердости поверхности трения зуба шестерни и прочности абразивной частицы.

Объем деформированного металла, поверхности зуба, абразивными частицами, находящимися на длине зуба, при наличии проскальзывания между зубьями шестерен,

$$V_{aL(\text{ш,к})} = F_{\text{ш,к}}s_{ш,к}n_{\text{L}}^1,$$

гдеn_L, n_h —количества абразивных частиц, расположенных на длине равной до разрушения.

Скорость изнашивания в общем виде определяется [1,4]:

при наличии проскальзывания,

$$\gamma_{a(ш,к)} = \frac{1800F_{\text{ш,к}}n_L^1n_{\text{ш,к}}\eta}{\text{n}_{\text{р(ш,к)}}\text{L}}, \qquad (5)$$

Вероятность повторной деформации абразивной частицей одного и того же объема металла поверхности трения зуба, η равно:

$$\eta = \frac{1}{in_L} = \frac{0{,}72id_{\text{ср}}^{3/2}\gamma_a^{1/2}}{k_a^{1/2}\varepsilon_в^{1/2}d_{ср}^{1/2}z_к^{1/2}L} \qquad (6)$$

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Расстояние между двумя соседними абразивными частицами, расположенных по длине зуба,

$$L_{1L} = \frac{L}{n_L} = \frac{d_{\text{ср}}^{3/2}\gamma_a^{1/2}}{1{,}38k_a^{1/2}\varepsilon_в^{1/2}d_{ср}^{1/2}z_к^{1/2}}. \qquad (7)$$

Количество абразивных частиц, расположенных на пути трения поверхности зубьев шестерен до их разрушения,

$$n_{s(\text{шш,н})} = \frac{1{,}38k_a^{1/2}\varepsilon_в^{1/2}d_{ср}^{1/2}z_к^{1/2}s\sigma_a}{4H_{ш,к}d_{\text{ср}}^{3/2}\gamma_a^{1/2}}. \qquad (8)$$

Количество абразивных частиц, находящихся на площади трения абразивных частиц до их разрушения,

$$n_L^1 = \frac{0{,}24k_a\varepsilon_в d_{ср}z_к L\sigma_a S}{4H_{ш,к}d_{\text{ср}}^3\gamma_a}. \qquad (9)$$

Здесь S определяется по формуле [4]:

$$S = \frac{\pi m(i+1)\left(z_w^2\sin^2\alpha + kz_w \pm 4k^2 - z_w\sin\alpha\right)}{z_k}.$$

Площадь трения абразивных частиц, по поверхности зубьев шестерен до их разрушения,

$$F_{\text{р(ш,к)}} = Ls_{\text{ш,к}} = \frac{Ls_{(\text{вв,н})}\sigma_a}{4H_{ш,к}}. \qquad (10)$$

Площадь деформации зоны «чистого» качения зубьев шестерен абразивными частицами, находящихся на длине зуба,

$$F_{\text{р}} = d_{\text{ср}}L. \qquad (11)$$

Подставив η из (6) F_p из (10) n_p из [5], s из [5] на (5) после упрощения получим скорости изнашивания зубьев шестерен:

ведущей (ведомой) шестерни, при наличии проскальзывания,

$$\gamma_{a(ш,к)} = \frac{1{,}3\cdot\pi\cdot\sigma_a^2\cdot k_a^{1/2}\cdot\varepsilon_в^{1/2}\cdot\psi\cdot\psi_{\text{m}}\cdot n_{\text{ш,к}}\cdot i\cdot d_{ср}\cdot(i+1)}{\text{n}_{\text{р(ш,к)}}\cdot\Gamma_{ш,к}\cdot\gamma_a^{1/2}\cdot H_{ш,к}^2\cdot z_k^{1/2}}, \qquad (12)$$

где ψ — коэффициент относительного проскальзывания между зубьями шестерен; ψ_{m} — коэффициент, зависящий от режима нагружения; $n_{\text{ш,к}}$ — частота вращения ведущей (ведомой) шестерни; i — передаточное отношение зубчатой передачи.

Решив выражение (12) относительно модулю зацепления для открытых зубчатых передач с участием абразивных частиц, получено:

$$m = \frac{0{,}0234\cdot\pi\cdot\sigma_a^{\ 2}\cdot k_a^{1/2}\cdot\varepsilon_в^{1/2}\cdot\psi\cdot\psi_{\text{m}}\cdot n_{\text{ш,к}}\cdot d_{ср}\cdot T\cdot i\cdot(i+1)}{\text{n}_{\text{р(ш,к)}}\cdot\Gamma_{ш,к}\cdot\gamma_a^{\ 1/2}\cdot H_{ш,к}^2\cdot z_k^{1/2}}, \qquad (13)$$

где T — срок службы зубчатой передачи.

Задача по определению скорости изнашивания открытых зубчатых передач без участия абразивных частиц, решена в научно-исследовательском отчете «Разработка

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научных основ, повышения износостойкости зубчатых передач агрегатов мобильных машин и промышленного оборудования» [5].

В таблице 1 приведены изменение модуля зацепления в зависимости от запыленности окружающей среды от 2 до 12 г/м^3 при изменении среднего размера абразивных частиц 0,050, 109, 0,238 и 0,381 мм, при следующих исходных данных σ_a = 200 МПа;i= 2;$H_{ш,к}$ = 300 МПа; Γ = 4,680;γ_a= 2,1 т/м^3;$z_к$= 38;$n_{р\ (ш,\ к)}$ = 8,103;$n_к$ = 0,5 с$^{-1}$; ψm= 30; ψ = 2,513;k_a= 0,4.

Изменение модуля зацепления в зависимости от запыленности окружающей среды и среднего размера абразивных частиц

Таблица 1

$\varepsilon_в$, г/м^3	2	4	6	8	10	12
Размер абразивных частицd$_{ср}$=0,050 мм						
m, мм	4,85	6,88	8,43	9,73	10,88	11,92
Размер абразивных частицd$_{ср}$=0,109 мм						
m, мм	10,57	15,00	18,38	21,21	23,72	25,99
Размер абразивных частицd$_{ср}$=0,238 мм						
m, мм	23,09	32,75	40,13	46,31	51,79	56,74
Размер абразивных частицd$_{ср}$=0,381 мм						
m, мм	36,96	52,43	64,21	74,14	82,89	90,80

Изменение модуля зацепления от твердости материала шестерни 200, 300, 400, 500, 600, 700 МПа определялись, в соответствии с которых, изменялись: коэффициент соотношения твердости материала шестерен и прочности абразивных частиц 4,328, 4,680, 4,763, 4,778, 4,769, 4,769;числа циклов деформации, приводящие к разрушению деформированной поверхности трения ведущей шестерни 9,172, 8,103, 7,066, 6,063, 5,097, 4,171; прочность абразивных частиц на сжатие 100 МПа; k$_a$= 0,4; ε$_в$=3 г/м^3; ψ=2,513;ψ_m=30; d$_{ср}$=0,238 мм; T=5000 час; i=2; γ_a=2,1; z$_k$=38 приведены в таблице 2.

Расчет модуля зацепления открытой зубчатой передачи работающих в отсутствии абразивных частиц, при наличии проскальзывания между зубьями шестерен получена зависимость;

$$m = \frac{7200 \cdot \pi \cdot (1+i) \cdot \sigma_{тш} \cdot \sigma_{изг}^2 \cdot \theta_ш \cdot U \cdot \psi_m \cdot \psi \cdot n_ш \cdot T}{c \cdot z_ш^2 \cdot n_{рш} \cdot E_{пр} \cdot H_ш}, \quad (14)$$

где $\sigma_{тш}$ — придел текучести материала шестерни; $\sigma_{изг}$ — напряжение изгиба в зубчатой передачи; $\theta_ш$ — упругая постоянная; U — придельный износ зубьев шестерен по толщине; $E_{пр}$ — приведенный модуль упругости материалов шестерен.

Изменение модуля зацепления от твердости материала шестерни и коэффициент соотношения твердости материала шестерен и прочности абразивных частиц

Таблица 2

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Твердость материала шестерен, МПа	200	300	400	500	600	700
Коэффициент соотношения твердости материала шестерен и прочности абразивных частиц 4,328						
m, мм	33,280	13,065	10,797	8,055	6,654	5,975
Коэффициент соотношения твердости материала шестерен и прочности абразивных частиц 4,680						
m, мм	30,787	12, 087	9,987	7,453	6,156	5,537
Коэффициент соотношения твердости материала шестерен и прочности абразивных частиц 4,778						
m, мм	30,145	11,834	9,780	7,296	6,027	5,412
Коэффициент соотношения твердости материала шестерен и прочности абразивных частиц 4,769						
m, мм	30,200	11,856	9,797	7,309	6,038	5,423

Изменение модуля зацепления зубчатой передачи в зависимости от передаточного отношения зубчатой передачи и придела текучести шестерен

Таблица 3

Придел текучести материала ведомой шстерни $\sigma_T = 120$ МПа						
i	1	2	3	4	5	6
m, мм	0,91	1,37	1,82	2,28	2,73	3,19
Придел текучести материала ведомой шстерни $\sigma_T = 240$ МПа						
m, мм	1,70	2,55	3,74	4,25	5,61	6,55
Придел текучести материала ведомой шстерни $\sigma_T = 300$ МПа						
m, мм	2,43	3,65	4,86	6,08	7,29	8,51
Придел текучести материала ведомой шстерни $\sigma_T = 420$ МПа						
m, мм	4,70	7,05	9,40	11,75	14,10	16,45

Для расчета модуля зацепления зубчатой передачи работающей в чистом воздухе использовались следующие исходные данные: $\theta_ш = 4{,}23 \cdot 10^{-6}$ 1/МПа; c=3; $E_{пр}$=215000 МПа; $\sigma_T = 120$ МПа; 180 МПа; 240 МПа; 300 МПа; 360 МПа; 420 МПа; i=2,0; U=1,5 мм; $n_{рш}$=9,172; 8,103; 7,066; 6,063; 5,097; 4,171; ψ=3,906; ψ_m=35; $n_ш$ = 0,5 с$^{-1}$; 1,0 с$^{-1}$; 1,5 с$^{-1}$;2,0 с$^{-1}$; 2,5,0 с$^{-1}$;3,0 с$^{-1}$; $z_к$ =38; T =5000 час; 7500час; 10000час; U = 0,5 мм; i = 2; $\sigma_{из} = 250$ МПа; 275 МПа; 300 МПа; 325 МПа; 350 МПа; 375 МПа; $H_ш$ = 200; 300; 400; 500; 600; 700 МПа.

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Изменение модуля зацепления зубчатой передачи в зависимости от напряжения изгиба в зубчатой передаче и наибольшего износа зубьев по толщине

Таблица 4

Наибольший износ зубьев по толщине 0,5 мм						
$\sigma_{из}$, МПа	250	275	300	325	350	375
m, мм	0,47	0,65	0,89	1,21	1,73	2,35
Наибольший износ зубьев по толщине 1,0 мм						
m, мм	0,94	1,30	1,78	2,42	3,46	4,70
Наибольший износ зубьев по толщине 1,5 мм						
m, мм	1,41	1,95	2,67	3,63	5,19	7,05
Наибольший износ зубьев по толщине 2,0 мм						
m, мм	1,88	2,60	3,56	4,84	6,92	9,40

Таким образом по результатам проведенных исследований можно сделать следующие выводы:

1. Модуль зацепления открытых зубчатых передач, работающих в запыленных условиях повышается с ростом запыленности воздуха, прочности и размера абразивных части, срок службы и передаточного отношения зубчатой передачи, степени относительного проскальзывания между зубьями шестерен; уменьшается с ростом твердости материалов шестерен, числа зубьев ведомой шестерни.

2. Модуль зацепления открытых зубчатых передач, работающих в окружающей среды при отсутствии в воздухе абразивных частиц повышается с ростом придела текучести материала шестерен, напряжение изгиба в зубчатой передачи, величины износа срок службы и передаточного отношения зубчатой передачи, степени относительного проскальзывания между зубьями шестерен; снижается с повышением числа зубьев ведущей шестерни, твердости, приведённого модуля упругости материалов шестерен.

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THE IMPACT OF DIGITAL TRANSFORMATION ON FINANCIAL ACCOUNTING PRACTICES

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АННОТАЦИЯ

В этой статье рассматривается глубокое влияние цифровой трансформации на практику финансового учета, с упором на внедрение передовых технологий, таких как искусственный интеллект, блокчейн и облачные вычисления. В ней рассматривается, как эти технологии повышают прозрачность, сокращают количество ошибок и улучшают процессы принятия решений.

Ключевые слова. Цифровая трансформация, Финансовый учет, Искусственный интеллект, Блокчейн, Облачные вычисления, Принятие решений.

ABSTRACT

This article explores the profound impact of digital transformation on financial accounting practices, focusing on the adoption of advanced technologies like artificial intelligence, blockchain, and cloud computing. It examines how these technologies enhance transparency, reduce errors, and improve decision-making processes.

Keywords. Digital Transformation, Financial Accounting, Artificial Intelligence, Blockchain, Cloud Computing, Decision-Making.Цифровая трансформация, Финансовый учет, Искусственный интеллект, Блокчейн, Облачные вычисления, Принятие решений

INTRODUCTION

The evolution of technology has significantly influenced various sectors, and financial accounting is no exception. Digital transformation has introduced innovative tools that have revolutionized traditional accounting practices. Technologies such as artificial intelligence (AI), blockchain, and cloud computing are reshaping how financial data is recorded, stored, and analyzed. This paper investigates the benefits and challenges of integrating these technologies into financial accounting.

The evolution of technology has significantly influenced various sectors, and financial accounting is no exception. Digital transformation has introduced innovative tools that have revolutionized traditional accounting practices. Technologies such as artificial intelligence (AI), blockchain, and cloud computing are reshaping how financial data is recorded, stored, and analyzed. These technologies not only streamline processes but also create opportunities for better compliance and fraud detection. This paper investigates the benefits, challenges, and future implications of integrating these technologies into financial accounting.

LITERATURE ANALYSIS AND METHODOLOGY

Numerous studies highlight the advantages of digital transformation in accounting. AI facilitates real-time data processing and predictive analytics, while blockchain ensures secure and immutable transaction records. Cloud computing provides scalable storage solutions and enhances collaboration. However, concerns about cybersecurity and the cost of technology adoption remain significant barriers.

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The research employs a mixed-methods approach, combining quantitative analysis of survey data from accounting professionals and qualitative interviews with industry experts. A total of 150 participants from diverse industries contributed to the survey, while 15 in-depth interviews provided nuanced insights.

Numerous studies highlight the advantages of digital transformation in accounting. AI facilitates real-time data processing and predictive analytics, allowing for faster and more accurate decision-making. Blockchain ensures secure and immutable transaction records, significantly reducing instances of fraud. Cloud computing provides scalable storage solutions, enabling seamless access to data from remote locations and enhancing collaboration among stakeholders. However, concerns about cybersecurity, data privacy, and the high cost of technology adoption remain significant barriers. Additionally, the literature underscores the importance of regulatory frameworks to support the integration of these technologies.

The research employs a mixed-methods approach, combining quantitative analysis of survey data from accounting professionals and qualitative interviews with industry experts. A total of 150 participants from diverse industries contributed to the survey, providing insights into the adoption rates, benefits, and challenges of digital technologies in accounting. Meanwhile, 15 in-depth interviews with technology consultants and accounting leaders offered nuanced perspectives on best practices and future trends.

RESULTS

Efficiency Gains: 90% of respondents reported improved efficiency due to AI-driven automation.

Enhanced Transparency: Blockchain adoption led to a 40% reduction in transactional disputes.

Cost Implications: While 60% of respondents cited high initial costs, 75% agreed that long-term savings outweighed the expenses.

Efficiency Gains: 90% of respondents reported improved efficiency due to AI-driven automation, reducing manual data entry errors and accelerating financial reporting.

Enhanced Transparency: Blockchain adoption led to a 40% reduction in transactional disputes, with real-time audit capabilities strengthening trust among stakeholders.

Cost Implications: While 60% of respondents cited high initial costs, 75% agreed that long-term savings outweighed the expenses due to reduced operational overheads.

Cybersecurity Concerns: Despite its advantages, 50% of respondents expressed concerns about potential data breaches, emphasizing the need for robust cybersecurity measures.

Table 1: Key impacts of digital transformation on financial accounting

Technology	Benefits	Challenges	Adoption Rate
Artificial Intelligence	Automates repetitive tasks; enhances accuracy	High implementation cost; skill gaps	80%
Blockchain	Improves transparency; ensures data integrity	Regulatory uncertainty; integration issues	60%

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Cloud Computing	Enables remote access and data scalability	Cybersecurity risks; dependency on vendors	70%
Big Data Analytics	Facilitates predictive insights and strategic planning	Data privacy concerns; need for expertise	65%

Description of the Table:

Technology: Lists the primary technologies driving digital transformation in financial accounting.

Benefits: Highlights the specific advantages offered by each technology, such as automation, transparency, and scalability.

Challenges: Points out the potential difficulties organizations face when adopting these technologies, including costs, regulatory issues, and skill shortages.

Adoption Rate: Provides a percentage estimate of how widely each technology has been embraced within the accounting industry, based on survey data.

This table serves as a concise overview of the technological advancements, their impact, and the barriers to their integration into financial accounting practices. It complements the article's findings by summarizing key points in an easily interpretable format.

CONCLUSION

Digital transformation is a double-edged sword for financial accounting. While it offers unparalleled efficiency and accuracy, organizations must address cybersecurity concerns and invest in employee training. The future of accounting lies in striking a balance between leveraging technology and maintaining robust ethical standards.

Digital transformation is a double-edged sword for financial accounting. While it offers unparalleled efficiency, accuracy, and transparency, organizations must address cybersecurity risks, regulatory challenges, and employee skill gaps. Training programs and strategic investments in technology can help mitigate these challenges. The future of accounting lies in striking a balance between leveraging technology and maintaining robust ethical standards to build trust and drive innovation.

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MORPHOLOGICAL AND AGRONOMIC CHARACTERISTICS OF COTTON AMPHIDIPLOID HYBRIDS

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ABSTRACT

The results of research on studying of the morphobiologic and economically valuable traits of amphidiploids F_1 (cultivar «Kelajak» (*G.hirsutum subsp. euhirsutum*) x (*G.arboreum subsp. perenne* x *G.arboreum subsp. obtusifolium var. indicum)*) and F_1 (cultivar «Kelajak» (*G.hirsutum subsp. euhirsutum*) x (*G.arboreum subsp. obtusifolium var. indicum* x *G.herbaceum subsp. pseudoarboreum*)) obtained by use of vicarious cotton species**.**

KEY WORDS: **cotton, species,** sympodial**,** monopodial, photoperiod, nectary, **a**nther, petal, **fiber length,** weight of one boll**,** anthocyan**,** weight of 1000 seeds**.**

INTRODUCTION

The concept of the vicariate is sometimes interpreted very narrowly or very large. In a very large interpretation, it includes not only genetically related taxa replacing each other, but also life forms. In the narrow interpretation, the vicariate understands the phenomenon of the replacement of the plant and the animal species in the fauna and flora of various continents or of spatially significantly remote territories of the same continent.

Vicarious species are called closely related to the species of the plants and the animals that occupy different areas of the distribution (*geographical vicariate*) or are found within the same range, but in different environmental conditions (*ecological vicariate*). One of the main criteria by the presence or absence of the vicariate is judged the relative position of the geographic areas of closely related species.

It is known that the boundaries of the ranges are mobile and depend on a complex of factors, the most important of that: climatic, soil-ground, biotic and historical. Depending on the history of the settlement and the current range, the species are assigned to a specific arealogical group.

The vicariate in plants is associated with the issues of the historical transformation of the vegetation cover and the interpretation of the biological concept of «species». The phenomenon of the vicarism in the genus *Gossypium* L. is mainly the result of the rupture, which were never uniform, areas were divided into parts, isolated by indefinite geographic barriers (*sea spaces*) during the long geological periods.

This circumstance associated with the profound changes in ecological conditions explains that all island species, inhabiting islands of the continental origin are vicar in relation to the species of the neighboring continent [4, 5, 6, 7, 11].

L.V. Semenikhina, L.I. Gurevich, A.E. Egamberdiev [1] under the action of a 0.1% solution of colchicine on the growing point, actively growing shoots of the interspecific sterile hybrid *G.hirsutum* x *G.trilobum* with the number of hromosome 2n = 39, hexaploid amphidiploid with chromosome number 2n = 78 is induced.

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In amphidiploid, the manifestation of 26 contrasting signs of the wild species *G.trilobum* and cultural *G.hirsutum* L. has been studied. Amphidiploid has polyploid capacity, fertility, natural leaf fall, disease resistance and can be used in breeding.

When studying hybrid progeny (*G.hirsutum* x *G.herbaceum*) x *G.harknessii*, H. Babamuratov [2] was able to identify individual genotypes with the high combinational value for the weight of one boll, yield and fiber length.

S.M. Rizayeva [8, 9, 10] obtained numerous unique amphidiploid and hexaploid forms with high economically valuable traits based on intergenomic hybridization of the remote cotton species.

Part of the germinated seeds of the triploid (2n = 39) F_0 hybrids with the well developed roots of 0,5 cm were picked and laid out in Petri dishes on filter paper moistened with a 1% aqueous solution of the colchicine with an exposure of 24 hours. Then the seedlings were rinsed several times with the running water to remove traces of colchicine.

After that, both control and colchicine seedlings were planted in earth-sand paper cups. In the period of 2-3 true leaves of the plant were transplanted into Wagner's vessels and grown in greenhouse conditions. Plant care, phenological observations and description of morphobiological and economically valuable traits were carried out according to the generally accepted methods [3].

MATERIALS AND METHODS

The initial material for the research was F_1 hybrids obtained by interspecific and intraspecific hybridization of the vicar species *G.herbaceum* L. and *G.arboreum* L.: *G.arboreum subsp. perenne* x *G.arboreum subsp. obtusifolium* var. *indicum*; *G.arboreum subsp. obtusifolium* var. *indicum* x *G.herbaceum subsp. pseudoarboreum*, as well as the regionalized variety Kelajak (*G.hirsutum subsp. euhirsutum*).

RESULTS

Below is a brief description of the amphidiploids F_1 by morpho-biological and economically valuable traits, obtained as a result of the research conducted on the creation of valuable forms using the varieties of the cotton.

F_1 (*G.arboreum subsp. perenne* x *G.arboreum subsp. obtusifolium* var. *indi-cum*). Bush upright, compact, medium density. The height of the main stem is 50,0-55,0 cm, green; pubescence and anthocyan tan are average, the number of common nodes is 20-25 pcs. The branch is sympodial, the first sympodial branch is at 7-8 nodes, the number of monopodiae is 3-2 pcs., The number of sympodia is 13-17 pcs. The leaf is medium (9,5 x 9,0 cm), green, five to seven separate, slightly pubescent. Nectary is not available. The length of the leaf stalks is 7,0-8,0 cm, with a weakly anthocyanin tan. With the short pedicle, 0,5-0,6 cm. Petal medium, 5,0 x 4,5 cm, heart-shaped, with 8-10 teeth, with a light yellow color, with an anthocyanin stain at the base. Anthers and pollen are light yellow. The boll is small, cone-shaped with a sharp nose, with a non-smooth surface, the weight of one boll is 2,2-2,4 g, four-fold, with 5-6 seeds in each nest. The seeds are small, stony, the weight of 1000 seeds is 66,0-69,0 g. White fiber, short, 24,0-26,1 mm. Not photoperiodic, in the conditions of a short day, the first fertile branches are laid on 7-8 nodes. Symptodial branches of type I. Mid-season.

F_1 (*G.arboreum subsp. obtusifolium* var. *indicum* x *G.herbaceum subsp. pseu-doarboreum*). Bush compact, sredneopushenny, with a strong anthocyanin-tan. The branching is sympodial, the number of monopodia is 8-10, the sympodium is average. The height of the stem

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is 75,0-80,0 cm, the number of common nodes is 35-38 pcs. The leaf is light green, medium, 10,5 x 10,5 cm, 5-7 split, slightly pubescent. Nectary is not available. The length of leaf stalks is 7,0-7,5 cm, with medium anthocyan tan. The flower is medium, with a short pedicel, 3,5 cm. The petal is medium, 5,4 x 4,5 cm, heart-shaped, with 8-9 teeth, with a yellow color, with an anthocyanin stain at the base. Anthers and pollen are light yellow. The stigma protrudes 0,2 cm above the stamina. The boll is small, oval, with a sharp nose, with a smooth surface, the weight of one boll is 2,0-2,2 g, 3-4-fold, with 4-5 seeds each nest. Seeds are small, weight is 1000 seeds - 54,0-56,0 g. White fiber, short, 24,5-26,0 mm. Not photoperiodic, in conditions of a short day, the first fertile branches are laid on 12-14 nodes. Sympodial branches, I-II type. Mid-season.

Cultivar «Kelajak» (*G.hirsutum subsp. euhirsutum*). Spreading bush. The branch is sympodial, the number of monopodia is 1-2 pcs., The sympodium is short, weak. The height of the stem is 90-100 cm. The leaf is light green, medium, 11,0 x 10,0 cm, 3-5 - palmate, slightly pubescent. Nectary one. The length of the leaf stalks is 9,0-9,5 cm, with medium anthocyan tan. The flower is medium, with short pedicel, 1,5-2,0 cm. The petal is medium, 4,5 x 3,5 cm, heart-shaped, with 10-11 teeth, with a white color, there is no anthocyanin stain. Anthers and white pollen. The stigma protrudes 0,3 cm above the stamina. The boll is average, oval, the weight of one boll is 5,5-6,5 g, 4-5-fold, with 9-10 seeds in each nest. The seeds are small, the weight of 1000 seeds is 118,0-123,0 g. White fiber, short, 33,0-38,0 mm. Not photoperiodic, resistant to drought, salt and pests, the first fertile branches are laid on the 4-5 nodes. Simpodial branches of type II. Early.

F_1 (cultivar «Kelajak» (*G.hirsutum subsp. euhirsutum*) x (*G.arboreum subsp. perenne* x *G.arboreum subsp. obtusifolium* var. *indicum*)). Bush compact, slightly pubescent, with a medium anthocyanin tan. The branch is sympodial. There are no monopods, the sympodium is short, weak. The height of the stem is 55,0 cm, the number of common nodes is 20 pcs. The leaf is light green, medium, 10,0 x 13,0 cm, 3-5-finger-blade, slightly pubescent. Nectarnik- 3, oval, colorless. Leaf with medium anthocyanin tan. The flower is medium, with short pedicel, 0,5-1,0 cm. Petal is medium, 4,0 x 3,8 cm, heart-shaped, with 8-10 teeth, with a light yellow color, there is no anthocyanin stain. Anthers and pollen are light yellow. The stigma protrudes 0,1 cm above the stamina. The boll is average, ovoid, the weight of one boll is 2,3-7,3 g, 4-5-fold. Seeds are average, weight is 1000 seeds - 152,0 g. White fiber, 32,0-38,0 mm. Not photoperiodic, the first fertile branches are laid on the 7 th node. Simpodial branches of type II.

F_1 (cultivar «Kelajak (*G.hirsutum subsp. euhirsutum*) x (*G.arboreum subsp. obtusifolium* var. *indicum* x *G.herbaceum subsp. pseudoarboreum*)). Bush compact, slightly pubescent, with an average anthocyanin tan. The branch is sympodial, there are no monopods, the sympodium is short, weak. The height of the stem is 60,0 cm, the number of common nodes is 13 pcs. The leaf is light-green, medium, 14,0 x 17,0 cm, palmate-lobed, slightly pubescent. Nectars- 3, oval, colorless. The color of the nerve node is red. Leaf petioles with medium anthocyanin tan. The flower is medium, with short pedicel, 0,7-1,0 cm, heart-shaped, 10-12 teeth. The boll is average, ovoid, the weight of one boll is 1,2-2,2 g, 4-5-folding. The seeds are small, the weight of 1000 seeds is 140,0 g. The fiber is light brown, medium, 30,0-37,0 mm. Not photoperiodic, the first fertile branches are laid on the 5th node. Simpodial branches of type II.

Thus, as a result of the research, unique forms of the cotton have been created using the vicar species of cotton *G.herbaceum* and *G.arboreum*, which have valuable economic

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characteristics that are recommended to be used in further research programs and the selection process as a initial material.

CONCLUSIONS

Consequently, the preservation, study, enrichment and efficiently use of the unique diversity of the genetic resources of the cotton genus *Gossypium* L. in the national economy is important. This valuable genetic fund is the basis of the basic and applied research, as well as the basis for the creation of new high-yielding and high-quality cotton varieties resistant to biotic and abiotic environmental factors that meet the needs of the national economy and are competitive in the global market.

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PROSPECTS OF THE METHOD OF DRYING CEREALS WITH FOAM

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Abstract

The current study aims to investigate the feasibility of drying high-quality cereal grains using a special foam drying technique. It was carried out by foaming the spiked grains with the addition of egg white (5, 10 and 15%) and methyl cellulose (0.5%). It was dried at three drying temperatures, i.e., 60, 70 and 80 °C in a tray dryer. The drying study showed that the drying time required for foamed cereal pulp was lower than that of non-foamed pulp at all selected temperatures. Biochemical analysis results showed a significant decrease in ascorbic acid and β-carotene content in grain powder obtained at high temperatures compared to pulp dried at a low temperature of 60 °C. Rehydration ratio and water activity values decreased with increasing temperature, but values for both parameters increased with increasing egg white concentration.

An increase in pH values was observed with increasing temperature as well as with increasing egg white concentration. From this study on drying, it was found that grain pulp treated with 10% egg white and 0.5% methyl cellulose and dried at 60 °C retained significantly higher quality characteristics than other foaming and drying methods.

Key words: spiked grain, foam mat drying, methylcellulose, egg albumin, moisture.

INTRODUCTION. Cereals are the most common nutritious plant in our country. Wheat grain has a sweet taste and is considered the main food of Uzbeks. Uzbek table cannot be imagined without bread. The main drawback of flour products produced by us is the quick hardening of the bread covered with it. Many studies have been carried out to overcome this deficiency. Secondly, the enrichment of flour products with the necessary trace elements is important in maintaining human health.

Wheat grain contains various types of macro and microelements, vitamins, proteins and enzymes. It is well supplied with vitamins A and C when consumed regularly. It contains vitamins B, D, E, K and minerals such as magnesium, sodium, iron, calcium, phosphorus and potassium. Wheat is a good source of beta-carotene, which helps prevent free radical damage, which can otherwise lead to some forms of cancer. Wheat grain is a high-calorie food [1-3].

Drying is the process of removing water to stop or slow down the growth of spoilage microorganisms and to allow a chemical reaction to occur. Drying is generally defined as removal of moisture until equilibrium with the environment, removal of moisture to a very low moisture content, almost bone dry, is called dehydration.

Drying technology has evolved from the simple use of solar energy to current technology, including oven drying, tray drying, tunnel drying, spray drying, freeze dehydration, osmotic dehydration, extrusion, using liquid and microwave ovens, radio frequency drying, shatter glass and so on. Technology. Foaming of liquid and semi-liquid materials has long been recognized as one of the ways to reduce drying time. Over the past decade, this relatively old technology, known

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as foam drying, has been used to process materials that are difficult to dry, to obtain products with desirable properties (e.g., easy rehydration, controlled density) and non-foaming storage of volatile substances lost during drying of materials, etc. [4-6].

MATERIALS AND METHODS. Before starting the drying process, grain products are mechanically and biochemically cleaned of impurities and excess pesticide residues. Washing is carried out by spraying water and brushing to remove adhering soil. Removal of the outer shell from the grain is carried out in the mill. Grain pieces from the mill were pulped using a laboratory mixer-grinder [7-10].

EXPERIMENTAL PART. Foaming agents and stabilizers were used within specified limits and based on preliminary foaming tests performed. Food foaming and stabilizing agents such as methylcellulose (0.5%) and egg white (5, 10 and 15%) were selected and used for foaming. Egg white and methyl cellulose were added later during grinding to foam and stabilize the wheat grain pulp. Foamed and unfoamed samples at different temperatures viz. It was dried in SSh-80-01 dryer at 60, 70 and 80 °C for 120 minutes. Food of uniform foam cereal pulp size (80 x 40 x 3 cm) was distributed evenly on stainless steel trays.The temperature inside the drying chamber was measured using a thermometer. At 30-minute intervals, trays are removed from the drying chamber to determine moisture loss. Drying was stopped when the mass of the samples registered a constant weight. The moisture in the sample was determined by the hot air oven method. The pH was measured with a digital glass electrode pH meter (CD 175 E), which was calibrated before measuring the sample pH using buffer solutions of pH 4.0 and 7.0. The rehydration ratio of wheat flour was determined as the ratio of the rehydrated mass to the initial dehydrated mass, which gives a measure of the ability of the wheat flour to reabsorb water.

One part of wheat powder is dissolved in 10 parts of 1% NaCl solution and boiled in a test tube for 20 minutes. Then cool for 45 minutes at room temperature. The water activity of the obtained wheat powder was measured at room temperature (28.5 ± 1 °C) using a water activity meter (Aqua Lab, Model Series 3TE, USA). Three measurements were averaged.The color of different wheat and wheat powder fractions was measured using a colorimeter with a color measuring device (Colourquest XE, Hunter lab colorimeter, Software - QC). The colorimeter was calibrated using a white plate, and then the color values (L, a, b) of the samples were measured.

Among the color component, L represents the value (lightness) of the color, and it is larger for light color, negative for green and positive for red, b is negative for blue and positive for yellow. Ascorbic acid was calculated by visual titration of 2,6-dichlorophenol indophenols using a standard procedure. β-carotene in wheat flour was determined by recording the optical density at 452 nm using petroleum ether as a blank (Ranganna, 1999). Drying of foamed wheat pulp using egg white at concentrations of 5%, 10% and 15% as foaming agent and methyl cellulose (0.5%) as foam stabilizer (Rajkumar and Kailappn, (2006) and performed at three different drying temperatures. 60, 70 and 80 ° C. Drying studies were carried out using a thin layer of the sample under constant drying conditions of temperature, speed and humidity. Basically, steady-state batch thin-layer drying experiments consist of measuring moisture loss over time. A plot of moisture versus time is called a drying curve.

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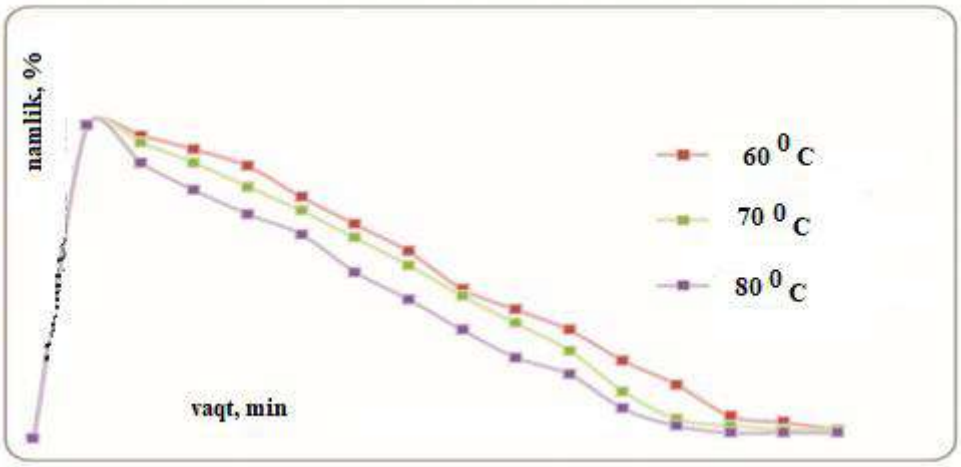

Figure 1. Effect of wheat grain drying at different temperatures on moisture content.

The rehydration ratio of dried wheat was defined as the ratio of the rehydrated mass to the initial dehydrated mass, giving a measure of the ability of the wheat powder to reabsorb water. The rehydration coefficient values were observed to decrease with increasing drying temperature.Rehydration is maximized when cellular and structural disturbances such as compression are minimized. In addition, changes in rehydration ratio values can be affected by drying temperature, soaking time, air exchange, pH, and ionic strength. And since there may be more shrinkage and cell disruption due to increased temperature (Fenemma, 1975), a change in values was observed. A gradual increase in rehydration ratio values was observed with increasing egg white concentration. The reason for this may be the increased porosity of wheat flour. Porosity can be developed by frothing or frothing a food liquid or puree before drying. Ascorbic acid was estimated by a titration method, in which a solution of wheat flour in oxalic acid was titrated against 2,6 dichloroindophenol dye.

Ascorbic acid content was observed to decrease significantly with increasing drying temperature, because ascorbic acid is sensitive to heat, another reason may be oxidation of ascorbic acid. The loss of ascorbic acid was in the range of 70.87 - 81.57% for 60 °C, 74.94 - 85.44% for 70 °C and 79.92 - 88.44% for 80 °C. The amount of ascorbic acid slightly increased with the increase in egg white concentration.

The reason for this is that there is a small amount of ascorbic acid in egg white, and therefore the increase in its concentration leads to a slight increase in the amount of ascorbic acid. The amount of β-carotene in wheat flour has decreased significantly. A gradual decrease in β-carotene content was observed with increasing drying temperature. The decrease in β-carotene content may be due to the thermolabile and photosensitive nature of carotenes (Gover, 1973; Mir and Nath, 1993). Negligible changes in β-carotene values were observed with increasing egg white concentration.

CONCLUSION. For 5%, 10% and 15% of observed egg whites, the time required to obtain a powder at 60°C was observed to be 390, 360 and 360 minutes, respectively. The time required for 5%, 10% and 15% at 70°C and 80°C was 360, 330 and 330 minutes and 330, 330 and 300 minutes, respectively. The retention of ascorbic acid and β-carotene was relatively high for 10% egg white at 60 °C. For 10% egg white, the rehydration rate at 60°C is also higher. Thus, the optimal condition for the production of wheat flour was drying at 60 °C with the addition of 10% egg white.

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DRAWING MECHANISM OF A SPINNING MACHINE

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Annotatsiya. Ushbu maqolada to‘qimachilik sanoatida qo‘llaniladigan yigiruv mashinasining cho‘zish qurilmasi tavsiflanadi. Bu qurilma uchta riflyali silindr va prujinali yuk yordamida silindrlarga bosiladigan elastik qoplamali uchta valikdan tashkil topgan. Oxirgi uchinchi silindrning riflyalari simmetrik tarzda shevron shaklida yasalgan bo‘lib, α_1 va α_2 burchaklari materialning riflyaga ishqalanish koeffitsiyentiga muvofiq tanlanadi.

Kalit so‘zlar: To‘qimachilik, cho‘zish, yigirish, rifliyali silindr, prujinali yuklanish, simmetrik, koeffitsiyent.

Аннотаций. В этой статье используется в текстильной промышленности вытяжной прибор прядильной машины содержит три рифленых цилиндра и три валика с эластичным покрытием, прижатых к цилиндрам пружинной нагрузкой. Рифли последнего третьего цилиндра выполнены симметрично в виде шеврона с углами α_1 и α_2 выбираемыми в соответствии с коэффициентом трения материала о рифли 3 ил.

Ключевые слова: Текстильной, вытяжной, прядильной, рифленых цилиндра, пружинной нагрузкой, симметрично, коэффициентом.

Abstract. In this article, a spinning machine drafting device is used in the textile industry. It contains three grooved cylinders and three rollers with an elastic coating, pressed to the cylinders by a spring load. The grooves of the last third cylinder are made symmetrically in the form of a chevron with angles α_1 and α_2 selected in accordance with the coefficient of friction of the material on the grooves 3 or .

Key words: Textile, drawing, spinning, corrugated cylinder, spring load, symmetrically, coefficient.

A device for roving output is known, consisting of drawing pairs that include cylinders and pressure rollers installed one above the other, with an additional small cylinder installed, which is pressed against the pressure roller of the output pair of the drawing mechanism and secured by spring elements to the tension roller of the output pair of the drawing mechanism. Thanks to this device, at the output of the drawing mechanism, uncontrolled slippage of fibers from the grip of the output pair during operation is eliminated due to a reduction in the flow arc, and the spread of twist contributes to increasing the strength of the outgoing roving [1].

Disadvantages of this design is the impossibility of regulating the circumference of the arc and the angle of inclination of the weft in the section of the exhaust device-wind drive when processing fibers of different origin and properties, as well as when producing yarn of different assortments. Additionally, the elastic removable sleeves of the pressure rollers do not provide the necessary uniformity in the drafting of yarn fibers.

In existing spinning machines, two parallel fiber strands (slivers) consisting of identical fibers are fed into the drafting system and move in parallel through three groups of drafting pairs,

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comprising fluted cylinders and pressure rollers. The pressure rollers are equipped with elastic rubber sleeves on their outer surface [2].

The drawback of the existing drawing device design is the inability to use them to drain parallel bundles made of various fibers, for example, the first bundle is made of polyester fibers and the second bundle is made of cotton fibers. At the same time, due to the different deformation properties of the fibers, different values of the fibers are observed. This leads to uneven yarn production.

In another known construction of the exhaust device, which contains a feeding pair, exhaust pairs. The output steam has a lower cylinder with an elastic coating and a pressure device in the form of rollers, which are installed on the axes. The axes are fixed to the lower shoulder of the double lever. The upper ends of the levers are connected to each other by a hinge. The two-armed lever is mounted in the middle on a lever installed on the axis, and the axis is mounted on the seat [3].

The drawback of this design is also the fact that it is impossible to ensure even thinning of the ribbon (plate), straightening and parallelisation of the fibers in the corresponding pairs of the device due to the imperfection of the design of the elastic coatings (vtulks). The deformation of elastic coatings actually occurs according to a linear pattern, without taking into account the unevenness of the stretched yarn, especially when stretching two parallel bundles with different characteristics.

The known design of the tensioning device for spinning machines contains tension pairs in which the elastic coatings of the pressure rollers are made with different diameters, there is a means for individual adjustment of the clamping forces of each spring of the loading device (lever) [4].

The disadvantage of this design is the lack of a clear division into drawing zones. This is manifested in the fact that under the pressure roller of the second drawing pair, the controlled fibers move at the speed of the first, second and third pairs (they should move only at the speed of the second drawing pair). The movement of fibers at different speeds does not allow increasing the number of controlled fibers, and therefore the drawing. This design also cannot be used when drawing two parallel webs with different structures and fiber characteristics. In another known design, a spinning machine drafting device containing drafting pairs of three grooved cylinders and three pressure rollers with an elastic coating, a loading lever with springs, wherein the elastic coatings of the rollers are made of inner and outer rubber bushings, wherein the inner bushing is made in the form of truncated cones connected by smaller bases, and the inner surface of the outer bushing is in the form of a conical surface of truncated cones connected by larger bases, wherein the rigidity of the inner rubber bushing is greater than the rigidity of the outer bushing, and the springs of the loading lever are made conical, wherein their rigidities are selected to increase in the direction of movement of the tape and have a ratio of $C_1 < C_2 < C_3$ (C_1, C_2, C_3 are respectively the rigidities of the springs for the first, second and third pressure rollers in the direction of movement of the web) [5].

Also known is a spinning machine drafting device containing draft pairs of three grooved cylinders and three pressure rollers with an elastic coating, a loading lever with springs, while the elastic coating of the output pressure fiber is made removable and consists of two equal in length, wherein the first of which has a smaller thickness by 25% of the thickness of the second part of the output pressure roller, a plastic sleeve is installed under the first rubber bushing [6].

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The disadvantage of this design is the limited possibilities of obtaining yarn from threads with different characteristics due to the imperfection of the design of the grooved cylinders.

The closest to the claimed design is the drafting device containing draft pairs of three grooved cylinders and three pressure rollers with elastic coatings. The load on the rollers is spring loaded, individual for each roller and is carried out by one lever. Seals are installed in front of each draft pair. To control the movement of the fibers in the second drawing zone, there are two belts: upper and lower. The lower belts are tensioned by spring-loaded brackets. Depending on the linear density of the produced roving, the distribution between the belts changes. The change is carried out using replaceable stops between the bars [7-19].

The disadvantage of these drafting devices is the lack of a clear division into drafting zones, and the corrugated cylinders do not allow the necessary uniformity of the yarn fiber draft, especially when drafting two pairs of webs with different fibers, for example, polyester and cotton fibers.

It should be noted that when drafting and merging two different characteristics of tapes, the cylinder in existing designs has corrugations with the same angles of inclination when they merge.

The drafting device of the spinning machine includes corrugated cylinders 1,2,3, pressure rollers 4,5,6, which form three drafting pairs. Pressure rollers 4,5,6, are installed in the loading lever 7 on the axes of the pressure rollers 4,5,6, which are movable and connected with conical springs 8, 9, 10, Fig. 1. Seals are installed in front of each drafting pair (not shown in the Fig.). The loading lever 7 is connected to the housing by means of a hinge 14. The pressure rollers 4, 5, 6 have elastic coatings 11, 12, 13. In this case, the riffles of the cylinder 3 of the last third drawing pair 3,6 are made inclined, symmetrically in the form of a chevron with angles α_1 and α_2 selected in accordance with the coefficient of friction of the material on the riffles. The angles of inclination α_1 and α_2 of the riffles 16 and 17 of these parts are inclined oppositely in the form of a chevron and are directed toward the middle part of the riffles 16 and 17. The angles of inclination α_1 and α_2 are made different, which are selected depending on the characteristics of the tapes (webs) being drawn out, and have the following ratio:

$$\frac{\alpha_1}{\alpha_2} = \frac{f_1}{f_2}$$

Where, α_1, α_2 – angles of inclination of the corrugations 16 и 17; f_1,f_2- friction coefficients of the tape with the grooved surfaces of the cylinder 3.

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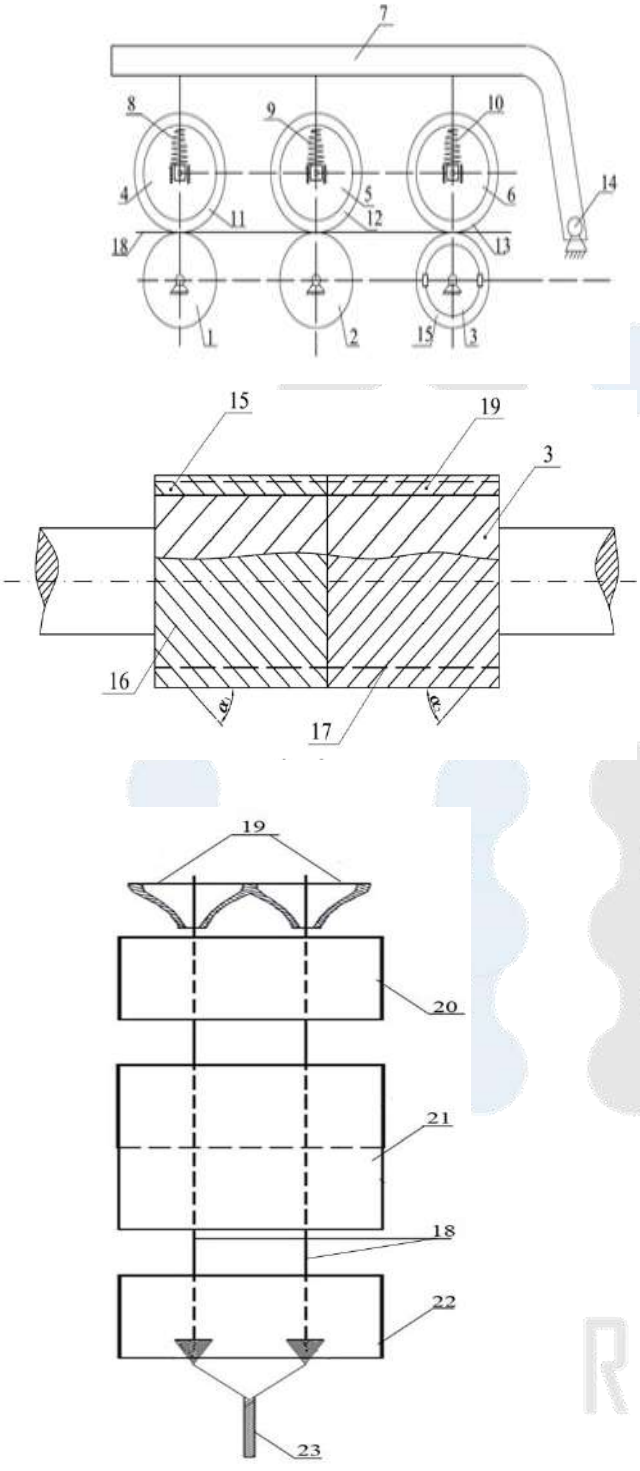

Figure 1. Exhaust device diagram

The grooved parts of the cylinder 3 can be made removable in the form of external bushings 15 and 19 mounted on the cylinder 3 by means of two keys. The spinning machine drafting device operates as follows. The grooved cylinders 1, 2, 3 receive rotational motion from an electric motor (not shown in the Fig.). The loading lever 7, freely rotating due to the hinge 14, presses the pressure rollers 4, 5, 6 by means of springs 8, 9, 10 to the grooved cylinders 1, 2, 3. In this case, the parallel-

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fed webs 18 consisting of fibers of different characteristics, for example, a web of cotton fibers and a web of wool fibers.

According to the diagram (Fig. 3) the feeding of webs (tapes) 18, they pass through the eyes 19 into the drafting zone and through the drafting pairs 20, 21, 22, that is, through the corrugated cylinders 1, 2, 3 of the pressure rollers 4, 5, 6. Due to the increasing speed mode of the drafting pairs as the webs 18 advance, straightening and parallelization of the fibers occurs. In the third drafting pair 3,6, due to the inclined corrugations 16 and 17, the webs 18 are intertwined and become one. At the same time, due to the different inclination angles α_1 and α_2 of the angles of the corrugations 16 and 17, the fibers with different characteristics, that is, friction coefficients, are obtained a thread 23 of uniform density with mixed fibers (cotton and wool) of high quality.

The design allows for the production of a thread with mixed fibres with different characteristics of high quality.

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SHAXSIY REKORDLAR UCHUN MOTIVATSIYA, YENGIL ATLETIKACHILAR TAJRIBASI
MOTIVATION FOR PERSONAL RECORDS, EXPERIENCE OF ATHLETES
МОТИВАЦИЯ НА ЛИЧНЫЕ РЕКОРДЫ, ОПЫТ СПОРТСМЕНОВ

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Ilmiy rahbar: **Yunusov Lazizbek Sodiqovich**

Annotatsiya: Ushbu maqolada yengil atletikachilarning shaxsiy rekordlarni yengishdagi motivatsion usullari va tajribalari ko'rib chiqiladi. Ichki va tashqi motivatsiyaning o'zaro ta'siri, aniq maqsad qo'yish, ruhiy tayyorgarlik, sog'lom turmush tarzi va kichik muvaffaqiyatlarni nishonlashning ahamiyati tahlil qilinadi. Shaxsiy rekordlarni yengish jarayoni nafaqat sportdagi, balki hayotdagi muvaffaqiyat uchun ham muhim turtki sifatida ko'rsatilgan.

Kalit so'zlar: yengil atletika, shaxsiy rekord, motivatsiya, ichki motivatsiya, tashqi motivatsiya, maqsad qo'yish, ruhiy tayyorgarlik, sog'lom turmush tarzi, muvaffaqiyat.

Abstract: This article examines the motivational methods and experiences of track and field athletes in achieving personal records. The interaction of intrinsic and extrinsic motivation, clear goal setting, mental preparation, a healthy lifestyle, and the importance of celebrating small successes are analyzed. The process of achieving personal records is shown to be an important motivator for success not only in sports, but also in life.

Keywords: track and field, personal record, motivation, intrinsic motivation, extrinsic motivation, goal setting, mental preparation, healthy lifestyle, success.

Аннотация: В данной статье рассматриваются мотивационные методы и опыт легкоатлетов в преодолении личных рекордов. Анализируется взаимодействие внутренней и внешней мотивации, постановки целей, умственной подготовки, здорового образа жизни и важности празднования небольших успехов. Процесс установления личных рекордов показан как важная мотивация достижения успеха не только в спорте, но и в жизни.

Ключевые слова: легкая атлетика, личный рекорд, мотивация, внутренняя мотивация, внешняя мотивация, целеполагание, психологическая подготовка, здоровый образ жизни, успех.

Yengil atletika dunyosi inson irodasi va jismoniy chegaralarini sinovdan o'tkazadigan soha bo'lib, unda shaxsiy rekordlar qo'yish katta ahamiyatga ega. Har bir sportchi o'z chegarasini yengib o'tishga intiladi, chunki bu nafaqat natijalar, balki o'z-o'zini rivojlantirishga bo'lgan motivatsiyani ham ko'rsatadi. Ushbu maqolada yengil atletikachilarning o'z shaxsiy rekordlarini yangilashda qanday motivatsiyadan foydalanishlari, ularning tajribasi va qo'llaniladigan usullar haqida so'z yuritamiz. Sportchining muvaffaqiyati ko'p jihatdan uning ichki va tashqi motivatsiyasiga bog'liq. Motivatsiya insonning o'z maqsadlariga erishishida ichki va tashqi kuch sifatida xizmat qiladi. U hayotning turli sohalarida muvaffaqiyatga erishishda asosiy omillardan biri hisoblanadi. Insonning harakatlarini yo'naltiradi va unga maqsad belgilash imkonini beradi. Maqsadsiz harakat samarali bo'lmaydi, shu sababli motivatsiya insonni aniq yo'nalishga olib chiqadi. Ichki motivatsiya o'zini yengish, mahoratini oshirishga intilish. Bu turdagi motivatsiya sportchining o'ziga nisbatan ishonchini oshiradi. Qiyinchiliklarga duch kelganda taslim

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bo‘lmaslikka yordam beradi. Masalan, sportchilarda ichki motivatsiya ularga zo‘riqishlarni yengib o‘tish va yuqori natijalarga erishishda kuch beradi. Bu jarayon hayotning barcha sohalarida muvaffaqiyat uchun asos yaratadi. Ish yoki o‘qish jarayonida motivatsiya insonni doimiy ravishda yuqori darajada ishlashga undaydi. U samaradorlik va natijaga intilishni ta'minlaydi. Tashqi motivatsiya: Musobaqalarda yutuq qo‘lga kiritish, jamoa uchun ishlash, mukofot yoki shon-shuhratga erishish. motivatsiya har bir inson uchun rivojlanishning harakatlantiruvchi kuchidir. U holda inson qiyinchiliklarga bardosh bera olmaydi va maqsadlariga erishish imkoniyatini yo‘qotadi. Shu sababli, hayotda barqaror motivatsiya saqlash muvaffaqiyatning kalitidir. Yengil atletikachilar odatda ichki va tashqi motivatsiyalarni birlashtirib, o‘zlariga yangi marralarni belgilashadi.[1]

Sportchilar shaxsiy rekordlarini yangilash uchun o‘z usullari va strategiyalariga ega. Aniq maqsad qo‘yish- yengil atletikachilarning muvaffaqiyatga erishishida asosiy omillardan biridir. Maqsadsiz trening yoki musobaqaga tayyorgarlik natijasiz bo‘lishi mumkin. Shu sababli, sportchilar o‘zlari uchun aniq va o‘lchanadigan maqsadlar belgilab, ularni bosqichma-bosqich amalga oshirishni maqsad qiladilar. Sportchilarning maqsadlari odatda qisqa muddatli va uzoq muddatli bo‘ladi. Kichik maqsadlar katta marralarga erishish yo‘lida motivatsiyani saqlab qolishga yordam beradi. Masalan, bir oy davomida har kuni 100 metrni 0.5 soniyaga tezroq yugurish maqsadi katta musobaqaga tayyorgarlikning bir qismidir. Aniq maqsadlar qo‘yish orqali yengil atletikachilar o‘z natijalarini tahlil qilishadi va ulardan o‘rganishadi. Masalan, yuguruvchi maqsadiga erishish uchun har bir mashg‘ulotni tahlil qilib, qaysi sohada yaxshilanish kerakligini aniqlaydi. Aniq maqsad sportchilarga mashg‘ulotlarni rejalashtirishda yordam beradi. Masalan, uzoq masofaga yuguruvchilar masofani qisqa segmentlarga bo‘lib, har bir segmentda muayyan natijaga erishishni maqsad qilib qo‘yadilar. Ushbu yondashuv yengil atletikachilar orasida muvaffaqiyatli usul hisoblanadi. Usain Bolt, dunyoning eng tezkor odamlaridan biri, musobaqa oldidan har bir 10 metrli segmentda qaysi tezlikni ko‘rsatishini oldindan belgilagan. Bu unga aniq rejaga muvofiq harakat qilish va yakuniy natijani oshirish imkonini bergan. "Shunchaki yaxshi yugurish" kabi mavhum maqsad emas, balki "100 metrni 9.8 soniyada yugurish" kabi aniq va o‘lchanadigan maqsadlar sportchilarga rivojlanish darajasini ko‘rsatadi va ular natijalarini doimiy kuzatib borish imkonini beradi. Yengil atletikachilarning tajribasi shuni ko‘rsatadiki, aniq maqsad qo‘yish sportchining muvaffaqiyatga erishishida asosiy omil hisoblanadi. Bu nafaqat o‘z natijalarini boshqarish, balki motivatsiyani saqlash va qiyinchiliklarni yengib o‘tishda ham katta yordam beradi. Aniq maqsadlar nafaqat yengil atletikada, balki hayotning barcha sohalarida muvaffaqiyat kaliti bo‘lishi mumkin. Yevropalik marafon yuguruvchisi Paula Radcliffe musobaqa oldidan o‘ziga kichik maqsadlarni belgilash orqali yirik natijalarga erishganini aytgan. Har bir treningda aniq vazifalar va o‘zgarishlarni kuzatish motivatsiyani doimiy saqlab turadi.

Trening rejalarini diversifikatsiya qilish: Masalan, Usain Bolt qattiq mashg‘ulotlarni dam olish kunlari bilan muvozanatlashgan holda olib borgan. Shu bilan u zo‘riqishning oldini olgan va motivatsiyasini yo‘qotmagan. Trening rejalarini diversifikatsiya qilish - sportchilarning jismoniy va ruhiy rivojlanishini ta'minlovchi samarali usuldir. Bu usul mashg‘ulotlarni turli xil mashqlar,

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texnika va intensivlik darajalarini qo‘shish orqali monotoniya va zerikishdan qochishga yordam beradi. Diversifikatsiya qilingan rejalar nafaqat sportchining umumiy ko‘rsatkichlarini yaxshilaydi, balki jarohat olish xavfini kamaytiradi va mashg‘ulotlarga bo‘lgan qiziqishni oshiradi. Yengil atletikachilar uchun bu yondashuv muhimdir, chunki u tananing turli mushak guruhlarini rivojlantirish, chidamlilik va kuchni oshirishga yordam beradi. Shu bilan birga, yangi mashg‘ulotlarni qo‘shish orqali sportchilar o‘z qobiliyatlarini kengaytiradi va yangi cho‘qqilarni zabt etishga tayyor bo‘ladi. Xulosa qilib aytganda, diversifikatsiya qilingan trening rejasi sportchining jismoniy imkoniyatlarini maksimal darajada oshirish, motivatsiyani yuqori darajada saqlash va uzoq muddatli muvaffaqiyatga erishish uchun muhim vositadir.[2]

Olimpiyachilar ruhiy salomatlikni jismoniy tayyorgarlik bilan teng darajada qadrlashadi. Masalan, meditatsiya, diqqatni jamlash texnikalari va musobaqadan oldingi vizualizatsiya usullari keng qo‘llaniladi. Ruhiy tayyorgarlik jarayoni qanday kechadi? Ruhiy tayyorgarlik — sportchilar uchun jismoniy mashg‘ulotlar kabi muhim jarayon bo‘lib, u insonning ruhiy barqarorligi, diqqatni jamlash qobiliyati va o‘ziga bo‘lgan ishonchini oshirishga qaratilgan. Bu jarayon maqsadga erishish uchun psixologik jihatdan tayyorlanishni anglatadi va quyidagi bosqichlardan iborat:

1. Maqsadlarni belgilash: Sportchi aniq va o‘lchanadigan maqsadlarni belgilaydi. Bu ruhiy tayyorgarlikning birinchi qadami bo‘lib, yo‘l-yo‘riq va motivatsiya beradi. Masalan, musobaqada qatnashuvchi yuguruvchi qaysi vaqtda marraga yetishni o‘ziga maqsad qiladi.

2. Vizualizatsiya texnikasi: Sportchi o‘zining muvaffaqiyatli harakatlarini tasavvur qiladi. Bu texnika yordamida sportchi ruhiy jihatdan oldindan tayyorlanadi va murakkab vaziyatlarda o‘zini qanday tutishini mashq qiladi. Masalan, yengil atletikachi musobaqa paytida barcha bosqichlarni o‘z tasavvurida jonlantiradi.

3. Diqqatni jamlash: Ruhiy tayyorgarlikning asosiy bosqichlaridan biri diqqatni jamlashdir. Sportchi chalg‘ituvchi omillarni bartaraf etib, butun e'tiborini vazifaga qaratishni o‘rganadi. Buning uchun nafas olish mashqlari yoki meditatsiyadan foydalaniladi.

4. Stress va bosimni boshqarish: Musobaqa oldidan yoki davomida paydo bo‘ladigan stressni boshqarish uchun sportchilar stressni kamaytiruvchi usullardan foydalanadi. Masalan, chuqur nafas olish texnikasi, musiqani tinglash yoki psixolog bilan suhbat qilish.

5. O‘ziga bo‘lgan ishonchni mustahkamlash; Sportchi o‘z imkoniyatlariga ishonch hosil qiladi va ijobiy fikrlashni rivojlantiradi. Buning uchun "men uddalayman", "men bunga tayyorman" kabi ijobiy afirmatsiyalar ishlatiladi.

6. Ruhiy chidamlilikni oshirish: Sportchilar qiyin va noqulay sharoitlarda o‘zini boshqarishni mashq qilishadi. Bu uchun simulyatsiyalar yoki maxsus treninglar tashkil qilinadi. Masalan, musobaqa sharoitlariga yaqin muhitda mashg‘ulot o‘tkazish.

7. Dam olish va tiklanish: Ruhiy tayyorgarlik faqat mashqlarni o‘z ichiga olmaydi, balki sifatli dam olishni ham talab qiladi. Yaxshi uyqu, meditatsiya va massajlar sportchining ruhiy salomatligini tiklashga yordam beradi.

Ruhiy tayyorgarlik jarayoni sportchining ruhiy barqarorligini oshirish, o‘z-o‘ziga bo‘lgan ishonchini mustahkamlash va musobaqalarga maksimal darajada tayyor bo‘lishiga xizmat qiladi. Ushbu jarayon diqqat, tasavvur, ijobiy fikrlash va stressni boshqarish kabi jihatlarni o‘z ichiga oladi. Jismoniy tayyorgarlik qanchalik muhim bo‘lsa, ruhiy tayyorgarlik ham sportchining

[2] Bompa, T. O., & Carrera, M. C. (2015). Periodization Training for Sports. Champaign, IL: Human Kinetics.

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muvaffaqiyat kaliti sanaladi. Yaxshi raqibga ega bo‘lish rekordini yangilash uchun eng yaxshi turtki. Raqobat nafaqat natija uchun, balki texnika va taktikani rivojlantirishda ham muhimdir.

Rekordga intilishda eng asosiy usullar:

a) Progressni kuzatish

Yengil atletikachilar mashg‘ulotlarini doimiy ravishda tahlil qilishadi. Jismoniy ko‘rsatkichlarni qayd etuvchi qurilmalar yoki kundaliklar motivatsiyani oshiradi. Masalan, yuguruvchilar har bir kilometrdagi vaqtlarini kuzatib, keyingi yugurishda uni yaxshilashga harakat qilishadi.

b) Sog‘lom turmush tarzi:

Optimal ovqatlanish va sifatli uyqu nafaqat jismoniy quvvatni oshiradi, balki sportchi motivatsiyasiga ham ta'sir qiladi.

c) Kichik muvaffaqiyatlarni nishonlash:

Sportchilar uchun har bir kichik yutuq keyingi katta muvaffaqiyat uchun motivatsiya bo‘lib xizmat qiladi.

Yengil atletikachilarning tajribasi shuni ko‘rsatadiki, inson o‘z imkoniyatlarini muntazam rivojlantirish orqali cheksiz natijalarga erisha oladi. Masalan, marafonchilar har bir bosib o‘tilgan masofani emas, balki oxirigacha yetish qanchalik muhim ekanligini yaxshi bilishadi. Shaxsiy rekordlarni yengish faqat maqsad emas, balki o‘z-o‘zini oshib o‘tish jarayonidir.

Xulosa: Shaxsiy rekordlarga erishish uchun doimiy harakat, qat’iyat va irodali bo‘lish kerak. Yengil atletikachilarning tajribasi har birimizga shuni o‘rgatadiki, eng katta raqib bu - o‘zimiz. Shunday ekan, har kuni o‘zimizni yengishga va yangi cho‘qqilarni zabt etishga intilishimiz kerak. Shaxsiy rekordlar nafaqat sportda, balki hayotning barcha sohalarida muvaffaqiyat kaliti bo‘lishi mumkin.

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POVERTY REDUCTION BASED ON SMALL BUSINESS AND ENTREPRENEURSHIP DEVELOPMENT

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Annotation: the article describes the concept of poverty, describes the conditions, principles, foreign experience and ways of effective use of the importance of small business and private entrepreneurial activities in reducing poverty in the region.

Keywords: poverty, poverty reduction, poverty rate, unemployment, poverty.

Introduction. In the last decades in the world economy, the role of the state in the regulation of the economy, theoretical and practical views on the participation of poverty reduction through the development of small businesses and entrepreneurship in the provision of economic development are radically changing. According to a report by the International Financial Fund (IMF), today 90 percent of enterprises in the world belong to small and medium-sized businesses, which employ 63 percent of the population of the whole world.

In ensuring socio-economic development in our country, the development of small business and private entrepreneurship has been identified as an important direction. It should be noted that a solid legislative and legal framework for the development of the industry is being formed and regularly improved, the state provides systematic assistance in issues of granting benefits and preferences for business, technical and technological re-equipment of production and modernization.

Systematic measures are carried out in areas such as state regulation of this sector, including increasing its share in the production and employment of gross domestic product, improving the technological structural structure, meeting the need for credit resources and creating a favorable business environment. As a result of such significant investments, by the end of 2021, the share of small business and private entrepreneurship reached 58.9 percent in gross domestic product, 40.6 percent in the volume of industrial products, 98.4 percent in the volume of agricultural products, and 35.8 percent in the volume of investments in fixed capital.

77.9% of the total working population is working in this sector. Improving mechanisms for the development of small business and entrepreneurial activities in poverty reduction, improving the efficiency of these processes, creating a comfortable working environment for small businesses, effective use of monetary mechanisms of regulation, increasing its participation in the foreign economic sphere, increasing the opportunities for poverty reduction by creating new jobs and increasing the income of the population, introducing innovative ideas and technologies into practice

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In our society, " the population should live happily, agreeing today from the state, and not only in the hope of tomorrow... poverty reduction does not mean increasing the amount of monthly or pension, lending to joppas. To do this, first of all, it is necessary to introduce a system of vocational training of the population, increasing financial literacy, arousing a sense of entrepreneurship in people, improving infrastructure, educating their children, quality treatment, payment of addressable benefits"[1]. Thus, the concept of poverty reduction has been the subject of a variety of opinions by economists.

The word" poor "is given three footnotes in the"Explanatory Dictionary of the Uzbek language". These are: 1.Living in need, there was not enough of what he needed to make a living; poor, poor, poor. 2. Not enough; less, lacking. 3. In a portable sense. Someone who is in a difficult or miserable situation[2] described as.

President Of The Republic Of Uzbekistan Sh.M.In his address to the Supreme Assembly, Mirziyoev spoke about poverty for the first time in his history, sung on January 29, 2020. Through his efforts, a number of decrees and decisions have been made on the implementation of appropriate measures to end poverty, and he has been providing relevant instructions on the development of several state and territorial programs for their implementation.

Analysis of thematic literature. While poverty is understood by a group of scientists to mean the lack of an opportunity to meet a person's primary needs (food, clothing, housing, education, and Health), another group of scientists-the inadequacy of freedom of choice, and the third-the constant circle of obstacles in the field of social, educational and Health, which undermines a person's participation in

In terms of population income inequality and the relationship between poverty and economic growth, d.Ricardo, R.Solou, A.Sen, A.Many classical neoclassical economists and Nobel Prize laureates, such as ditont, have conducted theoretical and empirical studies that, based on an analysis of gross domestic consumption, technological development, labor productivity, population health, tax base and other similar factors, have theoretically proven that in low-poverty societies, economic growth rates will be higher[3]. Issues related to poverty, its identification and reduction have been duly studied by a number of domestic and foreign economist scholars, researchers and practitioners.

[1] Ўзбекистон Республикаси Президенти Шавкат Мирзиёевнинг 2020 йил 29 декабрдаги Олий Мажлисга Мурожаатномаси. https://review.uz/oz/post/poslanie-prezidenta-uzbekistana-shavkata- mirziyoyeva-oliy-majlisu.

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N from the CIS countries.I.Baranets, I.V.Barbashin, O.I.Vitkovskaya, D.A.Volkov, T.A. Gurko, S.O.Among the kalendzhyans and Uzbek economic scientists and researchers, Q.X.Abdurahmanov, Sh.R.Kholmominov, R.F.Djumanova, N.M.Ibragimova, M.Z.Mukhitdinova, B.Pardaeva, K.S.Saidov, P.Z.In the scientific research of khashimov and others, issues related to poverty were tried to study in depth as a special problem[4].

Research methodology. The justification of the main features inherent in the significant ways of small business and entrepreneurial activity in poverty reduction is explained by issues related to poverty, its identification and reduction. During the study, monographic observation, systematic approach, analysis and synthesis methods were used.

Analysis and results. It is no secret that in countries living in conditions of a market economy and stabilization of the economy, part of the population cannot fully meet its material and spiritual needs due to low income. Poverty is a special case of people's lack of material support, when the income of an individual or the socially necessary consumption for the lives of families does not allow to be maintained. Such a layer of the population is called the poor. The level of income and poverty of the population can be determined by the selective observation of families and by the normative method. Under selective observation, a family's income is considered poor when it is several times lower than the country's average income. In particular, in Uzbekistan, poverty is determined by the normative method. In this method, the most necessary set of food, istemol items and services is determined on the basis of values. This value constitutes the istemol budget. The income corresponding to the minimum istemol budget or part of IT (example 50% percent) is called the poverty line.

And in order to “break” this fixed limit, the increase in entrepreneurial activity among the population is darcor. In particular, the most common form of entrepreneurial activity – small business and family entrepreneurship-is a way out of poverty.

Small family entrepreneurship is the most common form of entrepreneurial activity in the world and relies on centuries-old traditions. In countries with a developed market economy, family firms form the basis of the well-being and development of society, a large part of the goods produced and the services provided correspond to their responsibility. At the same time, the development of small family business is of great importance for the country not only economically, but also socially and politically. Although hattoki is the smallest, there will be a goal that he aspires to in a family with his own business, the reason that he raised his children, what he inherited. Such

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a kilib is formed in the country a middle class of owners who can gradually work for themselves and at the same time bring significant income to the state. The middle class is the basis of the social and political stability of society.

The adoption of the law of the Republic of Uzbekistan “on family entrepreneurship”established the legal framework for the development of small family businesses in our country. In this law, a generalised definition of family entrepreneurship is given to the concept of family entrepreneurship: "family entrepreneurship is an entrepreneurial activity carried out by family members with the aim of taking risks and obtaining income (profit) under their own property responsibility[5],

Family entrepreneurship is understood as entrepreneurial activity aimed at obtaining income (profit) on a legal basis, taking risks of family members and other hired participants who support them and taking the status of a natural or legal person under their own property responsibility. Indeed, in this definition, the entrepreneurial activity of the household is fully covered. First, in family entrepreneurship, hired employees can also participate, along with family members. Secondly, the source of income is based on their property liability and risk. Thirdly, it is envisaged that it is necessary to operate on a legal basis in order to achieve this, and not just for them to make income.

The decision-making of family entrepreneurship solves several socio-economic problems in our country:

first, it establishes a class of small businesses and private owners, which are the main driving force of the market economy.

secondly, it creates the opportunity to enrich the market of our country with consumer goods and various services.

thirdly, it reduces the number of residents who are not employed and allows its active kism to be involved in production (performance of work, service).

fourth, the ESA becomes a major factor in raising the most important problem, family income. For this reason, it is necessary to develop family entrepreneurship, to achieve a high level of production of competitive products (work, services). This requires human beings to seek, to take initiative, to discover new inventions.

On March 26, 2020, the decree of the president of the Republic of Uzbekistan “on the organization of activities of the Ministry of economic development and poverty reduction of the Republic of Uzbekistan and its system organizations”and on December 3, 2021, the presidential decrees “on measures to organize activities of deputy governors on issues of entrepreneurship development, employment and poverty reduction in the neighborhood”were adopted.

Based on this decision, from January 1, 2022, the position of assistant mayor of the district (city) was established on issues of entrepreneurship development, employment and poverty reduction in each municipality, village, Ovul, as well as in each neighborhood. The introduction of a system of Deputy Governors makes a sharp turn in the policy aimed at combating poverty in our country.

[5] O‘zbekiston Respublikasining "Oilaviy tadbirkorlik to‘g‘risida"gi Qonuni. 2012 yil 26 aprel. //Xalq so‘zi, 2012 yil 27 aprel. - 2 b.

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In our research, theoretical and methodological approaches to the study and measurement of poverty were analyzed in three main groups.

1. The absolute concept is more based on the definition of the direct lack of the most consumption: food, clothing, housing, long-term used goods ("consumer basket"), determined by the total cost of assessing the subsistence minimum.

2. The relative concept-determines the relatively worst case of a person in relation to the level of total income in the country, since the indicators of well-being are not associated with small incomes.Small needs, but the level of material supply prevails in one thing or another.

3. The subjective concept is based on an assessment of one's own financial situation and standard of living. Created by the people themselves. Subjective estimates of poverty are significantly higher. Calculations, first of all, are lower than the minimum of living in a population with a monetary income compared to the indicator.

In order to reduce the above poverty, several practical works are being carried out in the Republic of Uzbekistan.

Loans within the framework of programs for the development of family entrepreneurship based on the recommendations of the deputy governors in all districts of the country; support for employment is provided at the expense of the state fund and the public affairs fund, the fund for the support of farmers, farmers and landlords, the women's book fund, the youth book fund, subsidies It follows that the introduction of a system of Deputy Governors makes a sharp turn in the policy aimed at combating poverty in our country. After all, as the head of our state noted, the deputy governor is the representative of this president in the neighborhoods, who is a person who serves to get out of poverty by teaching entrepreneurship and agriculture, while working with the population every day to convey to people the financial opportunities created by the state. The task of creating at least one new job every day was set by the head of our country to each governor. At least 30 new jobs will be created in a month. When doing this, the population with an intention to engage in entrepreneurship is given the information necessary for the implementation of entrepreneurship and guidance is provided. In short, there is a great emphasis on increasing employment. To assess the effective result of these reforms, a system of indicators is being developed, for example, a per capita income level in each neighborhood or a system of indicators covering the number of entrepreneurs in each neighborhood, the size of the developed tomorks and hokozos, and since February of this year an assessment system will be introduced based on these indicators. Evaluation refers to the activities of each deputy governor being evaluated and encouraged or taken action through this system of indicators"[6].

Conclusion. In order to reduce poverty, it is necessary, first of all, to strengthen the focus on lowering the unemployment rate. In this regard, it will be of great effect to pursue an active and influential policy in support of those who cannot independently help Uzi, to attract the resources of the society and the private sector to these goals.

We believe that poverty should be measured not only by the level of income, but also by the level of consumption. The problem of working poverty should be considered with a focus on:

[6] *https://review.uz/oz/ag5*

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when determining the level of poverty, it is necessary to compare the subsistence minimum not with the real one. Income of the population, but accrued income, which includes hidden income, wages, income of owners, payments in kind, income from subsidiary farms and other properties;

for the working population, spending on the consumer basket should be included in education and professional training and retraining.

For example, in cooperation with NGOs, there is a great need to develop the most advanced programs for training our people in entrepreneurship and to strengthen the activity of NGOs in vocational training. It is necessary to develop a type of workmanship. In this case, it is difficult to create the opportunity to use financial resources for the purchase of modern machines, equipment, raw materials and materials. It is necessary to help cashiers find customers, expand their cooperation with business entities. It is also necessary to take measures aimed at expanding the system of professional training, retraining and professional development for persons in need of employment, creating optimal conditions, taking into account the needs of the market.

To increase the real income and purchasing power of the population, for this it is necessary to dramatically increase the volume of production of goods and services per capita, that is, labor productivity, by correctly establishing the social division of Labor.

It is advisable to create microclaster structures in the targeted use of preferential loans and population droplets, which are being allocated for the elimination of the poverty of the population layer living in a state or border.

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NAVIGATING THE ADVANTAGES AND CHALLENGES OF STARTING AN ONLINE BUSINESS IN UZBEKISTAN AND THE IMPACTS OF THE GROWING MARKET

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Annotatsiya: Ушбу мақолада асосан Ўзбекистонда электрон тижоратни ташкил қилишда афзаллик ва камчилик томонлари, шунингдек ривожланаётган бозорга қандай таъсир қилаётганлигини турли статистикалар орқали таҳлил қилинади. Бундан ташқари халқаро ва маҳаллий электрон тижорат саноат орқали бизнесини амалга оширадиган кампанияларни даромадини, ривожланиши статистик маълумотлар орқали таққошлаш ва стратегияларини Ўзбекистонда тўғри амалга ошириш ўрганилади. Ўзбекистонда электрон тижоратни амалга оширишда дуч келадиган имкониятлар ва қиййинчиларни ўрганишдан ташқари, Ўзбекистондаги электрон тижоратнинг ўсишни ўрганиш учун асосий фактлари келтиришда асосан 2018 йилдан бошлаб 2027 йилгача бўлган электрон тижоратнинг ўсишига боғлиқ бўлган статискилардан фойдаланилади. Амалий таҳлилларни ўтказиш учун асосан 10 та мутахасисларда сўровнома ўтказиш ва тахминларни тўғри ёки нотўғрилигини исботлаш учун гиппотезия тести ўтказилади. Ушбу мақолани асосий мақсади Ўзбекистондаги электрон тижоратнинг афзалликлари ва камчиликларни ўрганган ҳолда ушбу бизнесни ташкил қилиш яхши ёки ёмон бўлишини аниқлаш, ривожланаётган онлайн бизнесини ўсиб бораётган бозорга, мижозларнинг хатти-ҳаракатига таъсирини тадқиқ қилишдан иборатдир.

Kalit so’zlar: Afzalliklar, Kamchiliklar, Xalqaro va Mahalliy elektron tijorat kampaniyalari, O’zbekistondagi elektron tijorat, Uzum Market, AliExpress, Wildberries, Temu, Wolt, Yandex,

Аннотация: В этой статье в основном анализируются преимущества и недостатки электронной коммерции в Узбекистане, а также то, как она влияет на развивающийся рынок с помощью различных статистических данных. Кроме того, международные и местные компании электронной коммерции, ведущие свой бизнес через эту отрасль, будут изучать статистику доходов и развития, а также правильную реализацию своих стратегий в Узбекистане. Помимо изучения возможностей и проблем, с которыми сталкиваются при внедрении электронной коммерции в Узбекистане, основные факты для изучения роста электронной коммерции в Узбекистане в основном основаны на росте электронной коммерции с 2018 по 2027 год. Использованы статистические данные. . Для проведения практического анализа проводится опрос 10 экспертов и проверка гипотез, чтобы доказать, верны или неверны предположения. Основная цель данной статьи – определить, хорошо или плохо организовывать электронную коммерцию в Узбекистане, изучая ее преимущества и недостатки, а также исследовать влияние развивающегося онлайн-бизнеса на растущий рынок и поведение клиентов.

Ключевые слова: Электронная коммерция в Узбекистане, Преимущества и недостатки, Международные и местные компании электронной коммерции, Uzum Market, AliExpress, Wildberry, Temu, Wolt, Yandex, OLX.

Abstract: This article mainly analyzes the advantages and disadvantages of e-commerce in Uzbekistan, as well as how it affects the developing market through various statistics. In addition, international and local e-commerce companies that do their business through the industry will study the revenue and development statistics and the correct implementation of their strategies in Uzbekistan. In addition to studying the opportunities and challenges faced in the implementation of e-commerce in Uzbekistan, the main facts for studying the growth of e-commerce in Uzbekistan are mainly based on the growth of e-commerce from 2018 to 2027. statistics are used. To carry

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out practical analysis, a survey of 10 experts is conducted, and a hypothesis test is conducted to prove whether the assumptions are correct or incorrect. The main purpose of this article is to determine whether it is good or bad to organize e-commerce in Uzbekistan by studying its advantages and disadvantages and to research the impact of the developing online business on the growing market and customer behavior.

Key words: E-commerce in Uzbekistan, Advantages and Disadvantages, International and Local e-commerce companies, Uzum Market, AliExpress, Wildberries, Temu, Wolt, Yandex, OLX.

1.0 INTRODUCTION

This article focuses on the implementation of e-commerce in Uzbekistan and analyzes the advantages and disadvantages, as well as how it affects the growing market and customer behavior based on in-depth research. In addition, information is given on the basis of other written articles about the history and types of electronic commerce. Statistics from 2018 to 2027 were used to compare the performance of e-commerce in companies in developed countries and the comparison of these international companies with Uzbekistan, and the correct application of strategies was analyzed. In the next part, the opportunities and challenges that can be faced in the implementation of e-commerce are considered. Hypothesis and survey analyses are conducted to prove these given data with practical analysis. In the hypothesis, the correctness or inaccuracy of the prediction is examined through specific facts and statistics, and in the survey, 10 experts are conducted through docs.gogle.com/form/. At the end of the article, the given information will be analyzed, which one is good or bad in the implementation of this online business, decisions will be made, and the final conclusion will be given.

2.0. LITERATURE REVIEW

This section discusses the history and types of e-commerce, advantages and disadvantages, examples of international e-commerce companies, and information on e-commerce companies in Uzbekistan. In addition, the opportunities and difficulties encountered in the implementation of this online business in Uzbekistan are studied in depth with examples.

2.1. E-Commerce

According to Lutkevich (2020), This e-commerce refers primarily to various online business organizations that engage in the sale and purchase of their products or services. This business is mainly carried out with the help of technologies, for example, computers and internet networks. The basic understanding about this e-commerce shows that by doing this online commerce, one can buy all the necessary things even sitting at home, and it is not difficult for the retail sellers to enter this business.

- **History of E-commerce**

According to Kiriakidis (2016), Nowadays, almost all people are considered to have almost all knowledge about how to use this online commerce and how this business works and buy various products for themselves through this online commerce. It follows that till now this online commerce is available in almost all parts of the world; a brief explanation of the history of this online commerce shows that this business was first discovered in **1960.** In this year, researchers to improve electronic data exchange created the first system. but as the first online retailer, **Net Market was founded in 1994**, and this online retailer mainly sold **CDs** through its websites. After these years, the online trade industry began to develop dramatically and led to the founding of large companies such as **Amazon and Alibaba**. One of the most beneficial aspects of this e-commerce is that it reduces various costs.

- **Advantages and Disadvantages of E-Commerce**

Advantages - there are several advantages of this e-commerce, the first of which is the convenience of **24 hours and seven days a week**. Through this strategy, it provides many conveniences for customers to sell themselves. In addition, by **reducing costs**, this type of business

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does not require a specific location, which causes many cost reductions. Another advantage is that it is seles international trade, in which the seller has the opportunity to sell his products to people in other countries (MailChimp, 2023).

Disadvantages - of e-commerce are some limited customer service and **long delivery times**, which means that it takes at least **2-3 days** for your purchase to arrive, but **Amazon** It has the feature of delivery in **1 day** when the purchase is made as an exception. Another disadvantage is that the product may not look like the picture, so the buyer will not be satisfied with the product they have purchased, and the package will cause negotiations. The large number of competitors is also a disadvantage (MailChimp, 2023).

- Types of E-commerce

There are several types of electronic commerce. For example, as shown in the figure below, **B2C** is a business that focuses on selling products directly to consumers. **B2B**, on the other hand, refers to business-to-business sales of products to companies. **B2G** refers to the sale of products through business-to-government tenders. **C2C**, or consumer-to-consumer, business basically means selling products through different platforms (IndiaFilings, 2019).

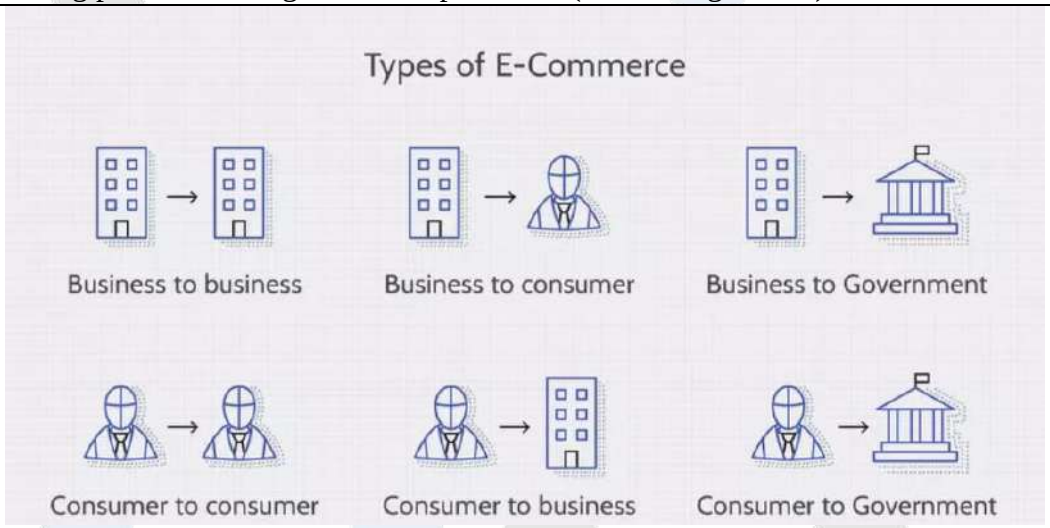

Figure 1. Types of E-Commerce

2.2. Example of biggest E-commerce International companies

According to Lee (2022), There are several large online commerce companies around the world that are already considered successful. The chart below shows how these large online business companies rank in terms of revenue and competitiveness. **Amazon** is considered to be the first giant company in the field of online commerce and was founded in 1994 by Jeff Bezos, who started his first business as an online bookstore and later expanded his business scope. Amazon's company's revenue has been rising sharply over the years $867.58 billion, reaching 11.8% growth in 2023 and reaching $574.79 billion. This shows a one-year growth of $36.85 billion. Another large company is **Walmart,** with a market value of 387.72 billion dollars, and at the same time, it is the second largest company in the United States. But it has enough reputation in online commerce considering its revenue is half that of Amazon company. The company that takes third place according to statistics is **Home Depot**. This company is also headquartered in America, and according to the market value, its revenue is almost equal to Walmart's, and it is 324.85 billion dollars. Online sales are especially important for home furnishings retail (Coppola, 2022).

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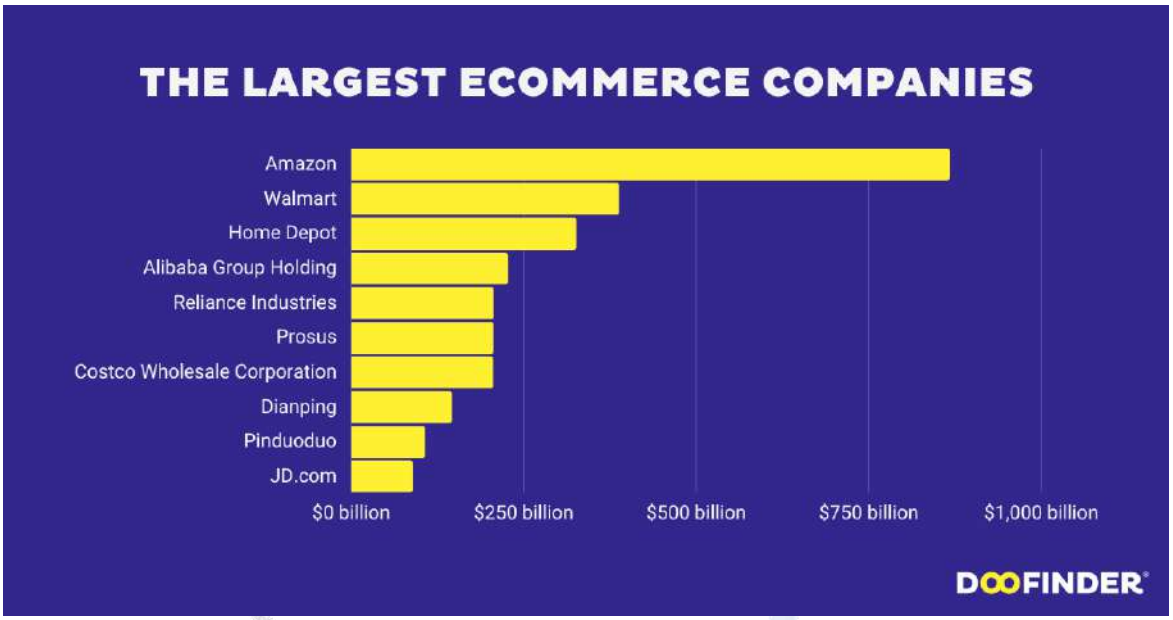

Figure 2. Largest E-commerce companies

The company that occupies the fourth place after this company is **Alibaba,** which is headquartered in China. It was founded by Jack Ma and has a leading market capitalization of $206.31 billion. Based on statistics, this company is growing rapidly, and its revenue will almost triple from 2018 to 2022 (Coppola, 2022). As an example of another online business, **Reliance Industries** in India is the fifth largest company in the world, with its main location in Mumbai. This company, due to several successes, caused its revenue to increase to $206.01 billion in market value. The largest companies involved in online commerce are located mainly in America, and with other companies, it is possible to get enough information based on that picture below (Feldsher, 2024).

2.4. E-Commerce Market in Uzbekistan

- **Executive Summary**

According to KPMG (2023) ,A summary of the online commercial business established in Uzbekistan shows that, analyzing several statistics, **Retail sales** in Uzbekistan will reach $14 billion in 2022, and by 2027, this figure is estimated to increase to $19.6 billion. **E-commerce penetration** in Uzbekistan was 2.2% in 2022 but is expected to be around 9% and 11% by 2027 based on future projections. The total revenue of this **E-commerce** was $311 million based on 2022 statistics. According to estimates, this indicator is expected to increase from $1.8 to $2.2 billion by 2027.

- **Example and structure of E-commerce in Uzbekistan**

The development of this online commercial business in Uzbekistan began in 2022, and **Uzum Market,** which is currently engaged in large-scale online business, was also established in 2022 year. This website is a major e-commerce site with 2.36 million visits, with customers placing the most orders, with its business primarily for delivery of various products and food. In 2023, Uzum reached its biggest milestone, making more than 1 million deliveries and establishing a 150,000-square-meter logistics center due to increased revenue. Based on the statistics of 2023, it has provided more than 800,000 product ranges for customers and acquired the popular payment platform **"Click."** In addition, it bought another well-known platform, **"Payme,"** from TBC Bank to implement payment services (ecommerce, 2022).

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Figure 3. Example of E-commerce companies in Uzbekistan

Company Name	Company Description	Downloads[1], (min)	Number of SKU[2]'s	Warehouse Ownership	Number of Pick-up Points	Price per Order	Delivery Speed[3]	Own BNPL Solutions
Uzum	A digital ecosystem which includes services for online shopping (marketplace), fintech solutions, payments and food delivery	13.1	500,000	Yes	500[4]	Within & Outside Tashkent — For orders up to $43, the delivery cost is a standard fee of $2.6 — Above $43, delivery is free — Free delivery to Uzum Market pickup points	Within Tashkent — Same day delivery Outside Tashkent — Next day delivery	Yes
Zood	Zood is a digital lending platform, that provides a holistic ecosystem encompassing FinTech (ZoodPay), E-commerce (ZoodMall), and E-logistics services (ZoodShip operate by Fargo), with lending at the core of its operations	1.2[5]	6 mln[6]	No[7]	30 + 250 lockers	— Free delivery to pickup points and lockers for local and cross border	Within Tashkent — Same day delivery Outside Tashkent — Next day delivery	Yes
Mediapark	Marketplace for home appliances and electronics, operating an extensive network of 33 stores throughout the Republic of Uzbekistan	0.46[8]	NA[2]	No	NA	Within Tashkent — Up to $87.8: $2.6/ Above $87.8 Free — Outside Tashkent (up to 80 km from Tashkent city) — Within a radius of 35 km: $6.6 — Between 35 and 50 km: $8.3 — Beyond 50 km: $8.3 + $0.2 per each additional km of travel	Within Tashkent — Within 24 hours Outside Tashkent — Within 72 hours (3 business days)	NA

According to Zuhra Otakuzieva and Ulugbek Nortozhiev (2024), Another e-commerce company established in Uzbekistan is **AliExpress,** which has achieved sufficient reputation. In addition, **Wildberries** is a large Russian e-commerce organization that entered Uzbekistan in 2022. These established companies use social networks like Telegram, Instagram, and other platforms to carry out their business. **OLX** also conducts online trading business, but the difference is that it mainly deals with individual trades. Many companies and banks use this OLX to offer their services to their customers through cooperation. Later, the **Unisavdo platform** was established to carry out this online trade, and later it was planned to turn it into a large electronic market by 2025. Currently, there are several such e-commerce websites, such as **Temu, Wolt**, etc. However, these have not yet been determined by precise statistics. In 2022, the Tradeuz.com platform was established, helping small and medium-sized domestic online businesses to sell their products in other countries.

2.5. Opportunities and Drawbacks E-commerce in Uzbekistan industry

Opportunities - There are several options for organizing online commerce in Uzbekistan. It will be possible to include the possibility of paying in installments in these options. Using this strategy will help attract customers with lower family incomes and increase sales in Uzbekistan. Moreover, the frequency of orders may increase as online commerce from Uzbekistan develops day by day. will have the right to sell their goods in all regions of Uzbekistan in online commerce. In this online business, **online payment** is also implemented, so it does not cause many problems. When it comes to the possibilities of meeting the demands of customers, the first of these is to offer competitive prices, in which people in Uzbekistan are more sensitive to prices compared to other countries, so it is possible to turn these people into potential customers through **constant discounts and low prices**. In addition to offering a wide **range of products,** For example, **Uzum Market** has more than 500,000 product types on its site, and the speed of delivery also helps to satisfy customers. Due to the fact that it is organized in a flexible payment system, online payment

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has created many opportunities because it is considered convenient and safe (LLOYDS BANK, 2017).

Drawbacks - In addition to the possibilities of electronic commerce in Uzbekistan, there are also various limitations. These restrictions lead to a reduction in potential customers by delaying delivery of products to customers in distant locations due to **various problems in the logistics** and **infrastructure** used for delivery when viewed by the supply side. Other limitations are some of the limitations imposed on the infrastructure, including the **lack of internet**, which can cause various problems with connectivity. Financial services also have different restrictions, for example, **different laws issued** by the state, and different costs may arise from making payments to them. There are also **several restrictions** imposed on customers by demand, and customers are afraid to submit their details online due to the rise of fraudsters and the possibility of identity theft during online payments. Even **consumer behavior is hindering** online commerce. For example, Uzbekistan may face various challenges through the introduction of various new technologies and slow adoption of customers. Due to the various **restrictions imposed on Internet access**, Uzbekistan constantly prevents people from going online, which leads to a decrease in potential customers. People do not know how to use online shopping platforms due to the **low development of technology literacy**, which also causes a decrease in customers (KPMG, 2023).

3.0. RESEARCH METHODS

The main purpose of this article is to study the advantages and disadvantages of e-commerce in Uzbekistan, as well as to find out how it affects the developing market by analyzing the challenges and opportunities faced when starting e-commerce. Primary and Secondary research methodology was used in this analysis and statistical study. All the information presented in the article is provided using reliable sources, and statistical information on e-commerce in Uzbekistan from 2018 to 2027, based on future forecasts, was used mainly from Google Scholar. The purpose of using this information is to find out how e-commerce is developing in Uzbekistan and to study the impact on the market by providing specific facts. Also, a question-and-answer session was held to conduct practical analysis in the article. This survey was conducted primarily among 10 experts via Google Docs, docs.google.com/form/. In the next practical analysis made in the article, that is, for the implementation of the hypothesis, statistical information was obtained from reliable sources, company websites, and various other sites.

4.0. HYPOTHESES AND ASSUMPTION

Hypothesis: E-commerce in Uzbekistan is developing year by year; according to estimates, it will grow by 11% by the end of 2027, which will have a positive effect on customer behavior, and some important factors for development are influencing, which will make the business to develop is creating an opportunity.

Table 1. In the following table, the **key facts related to Uzbekistan,** for example, population, e-commerce and retail market size, GDP, internet users, banking and internet penetrations, and other necessary information are defined in the form of percentage and US dollars. These statistics were analyzed in **July 2023.**

Key facts in UZB	Indicator (% or $)
1. Population of Uzbekistan	36,372 ths
2. Population aged 15-39 (total population 40%)	14,393 ths
3. Internet users	23,533 ths
4. Retail market in Uzb	$14 billion
5. E-commerce market size	$311 million
6. E-commerce retail market	2.2%
6. Real GDP growth rate	5.7%

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7. Inflation rate	12.3%
8. Unemployment rate	8.9%
9. GDP per capital	2,256
10. Banking and Internet penetration	Banking 49% Internet 77%

In the following statistical indicator illustrate the forecast of the **growth of the e-commerce market** from year to year. These figures show the low and high estimates for the period up to 2027.

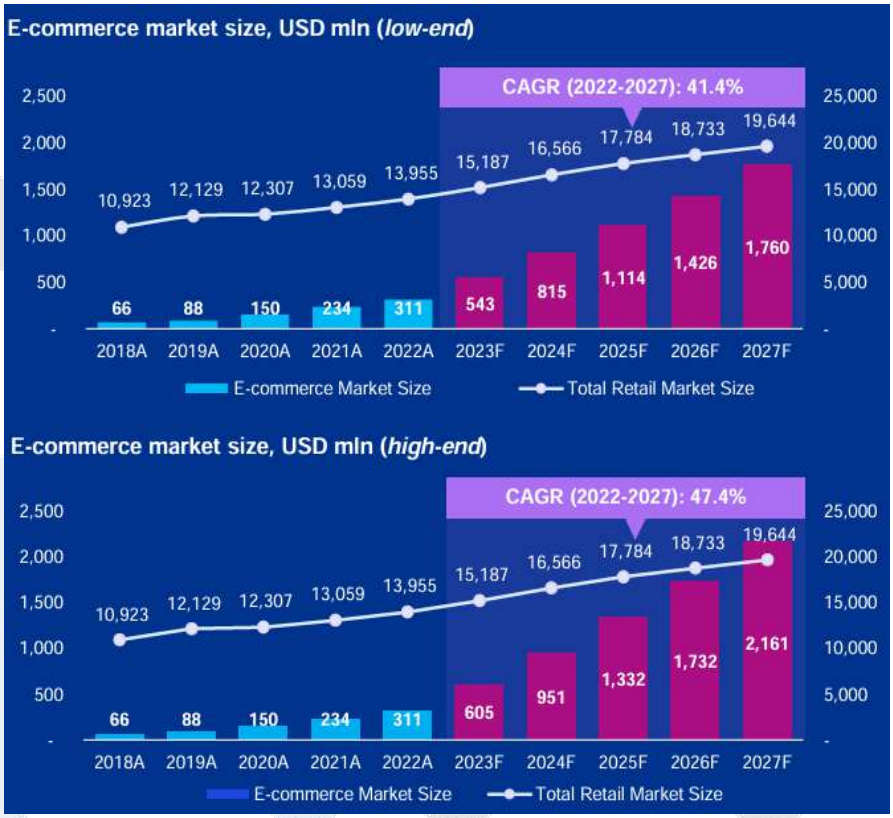

Figure 4. Growth of the E-commerce market in Uzbekistan (2018 to 2027)

It can be seen from the following statistics that an important part of the development of e-commerce is state support. State-side strategic initiatives for e-commerce will require government support for regulatory efforts such as enabling e-commerce to comply with all state laws, for example. E-commerce that is not implemented within the framework of this legal framework and law will not be successful.

Figure 5. The main factor affecting Uzbekistan's e-commerce.

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The growth of Internet users in Uzbekistan will help increase competition in the market and increase potential customers.

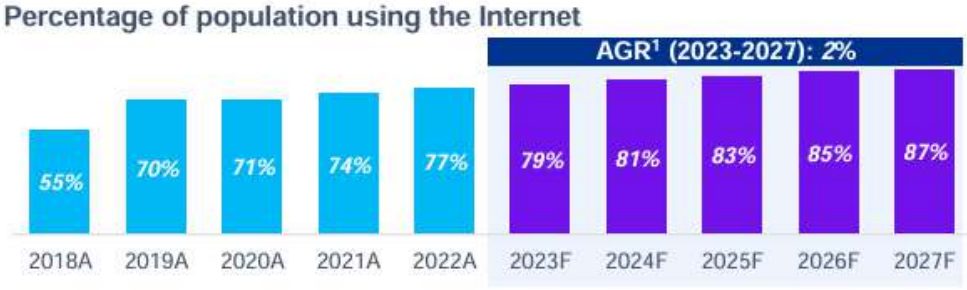

Figure 6. Growing Internet level of Penetration

Conclusion of Hypothesis Testing

The hypothesis is true based on the findings above, from these data, it can be seen that the retail market size is $14 billion, and the e-commerce market size is $311 million. Although this e-commerce is not yet developed, it shows great indicators from year to year; that is, according to statistical analysis, the forecast of Internet access by the end of 2027 is 87%, when analyzed according to GDP, 57% of consumer spending, and the volume of retail trade, and it is estimated to be $19.6 billion. This development does not affect the perception of retail markets. In addition, according to the above statistics, several factors help the development and strengthening of e-commerce in Uzbekistan, the first of which is economic growth, urbanization due to changes in shopping habits, and lifestyle changes in 2022. 'reportedly increased by 50%. Additionally, the growth of gross domestic products experienced a 5% boost. In addition, considering the influence of other factors, this increase in the level of access to the Internet will help to increase the competition in the market and expand the potential customer base. According to statistics, it can be seen that it has increased to 81% in 2024, and this figure may reach 87% by 2027. It can be seen that the development of e-commerce has a positive effect on customer behavior, and the income of e-commerce increases.

5.0. SURVEY

The specific purpose of conducting this survey includes the determination of the correctness or falsity of the given statistical data through clear analysis and question answers. This survey will cunduct is mainly 10 or more experts. This survey is done through docs.gogle.com/form/. In addition, the questions of this survey are mainly used to clearly analyze the good and bad sides of the increasingly developing e-commerce in Uzbekistan, its impact on customer behavior, and the impact of various factors on development. Another purpose of conducting this survey is that for new business managers who want to start an online business, it can help them to analyze whether the business is suitable or not and to decide whether it will be successful or not. This questionnaire contains 11 specific questions.

6.0. COLLECTING, ORGANIZING AND ANALYZING THE DATA

The analysis of the conducted survey shows that in this survey mainly 10 experts worked and presented their opinions. This survey is made up of 11 specific questions, mainly to determine the opportunities and shortcomings that may be encountered in establishing an online business in Uzbekistan, the impact of e-commerce that is developing day by day on customer behavior, and other topics. survey was conducted, including. In this survey, **80%** of people are **18-20 years old**, and **20%** are **27+ people**. The second question in the survey was about information and how much knowledge you have about e-commerce. Based on this question, it can be said that the low level of knowledge about technology in Uzbekistan affects the fact that they have more information about electronic commerce. In the next question, **80%** of people said yes, but **20%** of people said no. Therefore, e-commerce can attract more price-sensitive potential customers by offering more discounts. In the third question of the survey, when asked what problems they may face in the

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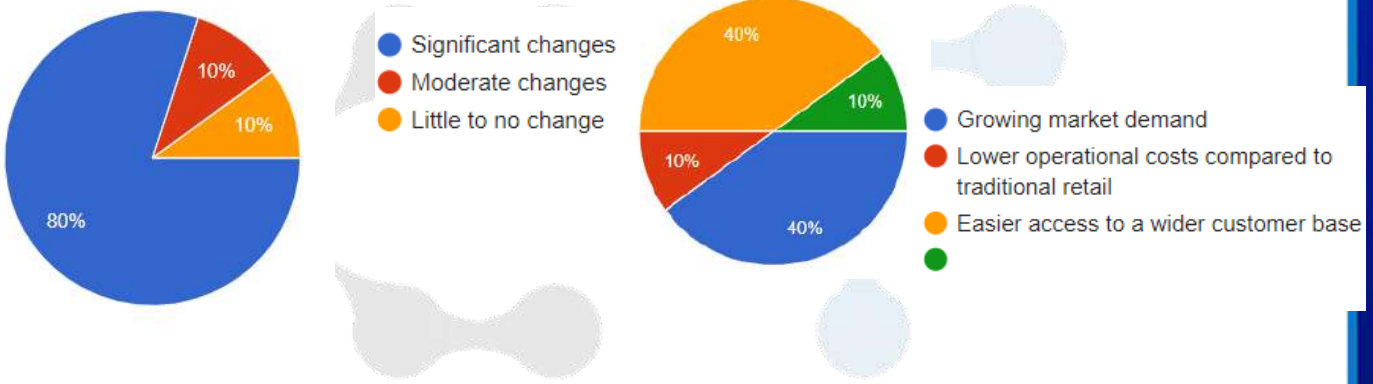
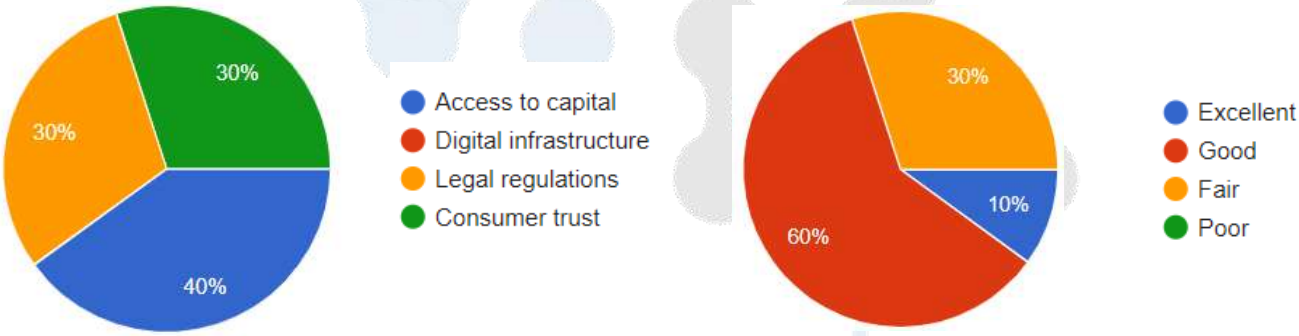
implementation of e-commerce in Uzbekistan, **40%** of people said that access to capital, **30%** of people said that it would affect legal regulations, and another **30%** of people said that it would lead to more difficulties in gaining the trust of customers. came to a conclusion. The next question asked of the customers is how the growth of e-commerce in Uzbekistan will affect consumers in 5 years**. 80%** of people agreed that it will cause more changes because of more convenience; more customers may prefer to use online business through the convenience of delivery. and another **10%** decided that there would be moderate change and almost no change.



Pie chart 1. Uzbekistan e-commerce impact customer behaviour
Pie chart 2. Advantages of conducting online business in UZB



Pie chart 3. Diasadvantages of conducting online business in UZB
Pie chart 4. Rate the current digital infrastructure

In the next question of the survey, what are the advantages of e-commerce for entrepreneurs who want to start their own business? According to people's opinions, **40%** of people considered the growing market demand as an advantage, and **10%** of the survey participants said that it costs less than offline business. and another **40%** of participants consider the benefits of e-commerce to reach more potential customers faster. It follows that in establishing an e-commerce, mainly the high demand in the market and having more customers can make the business successful. **70%** of experts believe that digital payment solutions are very important for the growth of e-commerce, and **30%** think that it may be more important. When asked which sectors of e-commerce in Uzbekistan are important and create more opportunities, **80%** of experts agreed with food

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delivery, which means that the online business sector that brings the most income for online business is food. delivery is considered. **50%** of the experts said that they would support the development of online business, and the other **50%** decided that they would oppose it. survey analyses showed the above indicators.

7.0. DISCUSSION

When discussing all the information presented in this article, first of all, the article mainly examines the shortcomings and opportunities of starting and implementing e-commerce in Uzbekistan and how the development of online business affects the growing market. was considered with In addition, the history and origin of this electronic commerce were studied. The purpose of this analysis is to determine whether a thorough understanding of this business is beneficial for anyone aspiring to start their own business. and considering the **advantages and disadvantages** of implementing e-commerce in Uzbekistan, considering the articles written by some specialists, the good side of this online business is that it works non-stop for 24 hours, the ease of entering this e-commerce, and the high demand of customers. It was estimated that it could be done. In addition, due to the large number of types of e-commerce, all were considered based on specific analysis. In the article, considering strategies for increasing the income of successful e-commerce in another country, the income of **Amazon $**867.58 billion**,** which is considered a giant in this online business, was analyzed through various searches. As an example, the statistics of other similar companies, **Walmart $**387.72 billion**, Home Depot $**324.85 billion**, Alibaba $**206.31 billion**,** and **Reliance Industries,** were considered. After that, the statistics of electronic commerce in Uzbekistan were presented, and the income and strategy of **Uzum Market** 2.36 million visits**, Aliexpress, Wildberries,** and **OLX,** which are in the first place, and Temu and Wolt, which are new to the online business, were considered for the example of online business. . For this purpose, these international and local companies were reviewed to find out how e-commerce is developing in Uzbekistan. In the next part, by conducting **Hypothesis and Survey** analysis, specific decisions were made by conducting a survey of experts and accurate statistics in order to verify the information presented. The analysis of the conducted survey shows that in this survey mainly 10 experts worked and presented their opinions. This survey is made up of 11 specific questions, mainly to determine the opportunities and shortcomings that may be encountered in establishing an online business in Uzbekistan, the impact of e-commerce that is developing day by day on customer behavior, and other topics.

Decision making

In this article, in the implementation of this decision, first of all, it was decided that it is good or bad to implement this business through statistics and various in-depth analyses for the implementation of e-commerce in Uzbekistan. This shows that nowadays, due to the fact that e-commerce provides various conveniences to the customers, the demand for this business is increasing, and it is developing day by day. considering that if this business is implemented, it will be possible to face many problems due to strong competition. For example, to gain the trust of customers, it is necessary to act more truthfully. By analyzing other developed companies, for example, Amazon, which strategy helped them to increase their income? If 1-day delivery is implemented in Uzbekistan, it will be possible to achieve great development like this company in the future. According to the analysis of 2022, the total income of e-commerce in Uzbekistan was $**311 million**, but this indicator is planned to increase to $**1.8** and $**2.2 billion** by 2027. According to the hypothesis analysis, if this increase is realized, it is estimated that various factors will cause a positive impact on customer behavior and growth, and this assumption is proven correct by statistics. It follows that the implementation of online lines will become the need of the hour in the future and can help in faster revenue growth. In the survey analysis by Google.docs.com, it can be seen that almost **80%** of people bought products online, and this figure may be higher later, so this business implementation shows effective results!!!.

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8.0. CONCLUSION

In this article, the conclusion shows that through the analysis of several data and statistics, the positive and negative aspects of the implementation of e-commerce in Uzbekistan were considered. Through hypothesis analysis, predict that various factors will cause the growth of electronic commerce and have a positive effect on customer behavior, and confirm that this prediction is correct through statistics. Due to the development of technology, it also affects the number of people using the Internet. According to the analysis of 2022, the increase of these users, which are shown to be used by 23,553 thousand people, will greatly affect the development of e-commerce in Uzbekistan. In addition, the article reviewed the statistics of companies in the international and local e-commerce industry based on research findings and concluded what strategies to implement for the development of local companies. In the survey analysis, a survey was conducted with 11 experts, as a result of which the implementation of online business was carried out based on specific opinions. According to the results, 40% of the experts defined the advantages of online business as market demand, and another 80% of people rated e-commerce as very good. The conclusion based on the analysis of this article means that face various problems in opening any business, but by doing everything correctly and with quality, achieve success, as well as this electronic commerce.

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The role of Technology in Business Innovation

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ABSTRACT

Technology plays an important role in the development of innovation in today's emerging industry. This article examines how technological advances, particularly in areas such as Artificial Intelligence (AI), Machine Learning (ML), are driving operational efficiency and product service innovation to shape business models. Through primary and secondary research, surveys further facilitate analysis and explore how technologies are adopted in the development of innovation. The study examines the benefits of technology in improving and accelerating business efficiency and customer experience. However, over-reliance on technology also creates problems. The result of the survey shows that 75% of the technology maintains an advantage over competitors. 25 percent say that new technological solutions are complicated. The study also observed that businesses in industries such as healthcare, retail and manufacturing are using artificial intelligence, cloud computing to drive innovation. Business growth highlights the dependence on technology and the challenges organizations face in effectively integrating it.

Key words: Technology in business innovation, Artificial Intelligence (AI), Machine Learning (ML), technological adoption, business models, competitive advantage, primary research results, innovation challenges.

1. Introduction

In recent years, due to technology, there are changes in business models and customer engagement in the industry. As technology contributes to the evolving digital landscape, they must innovate to stay competitive. Technology is an active catalyst in today's companies' production of products, automated communication with customers, and simplification of communication with them. Companies that used to be driven by research and development (R&D) are now successfully driving business innovation because of technology. The reason for this study is to focus on how important the role of technology is in business innovation and how new technologies can reduce the problems faced by companies.

The survey conducted in this article uses primary research collected from 145 participants to comprehensively examine the relationship between technology and business innovation. Provides context for business growth and the role of technology in secondary research.

2.Literature review

The concept of business innovation has been studied in academic circles, and many scholars have emphasized its importance for the sustainability of growth. According to (Shala, Bytyçi and Dodaj, 2021) [1], business innovation is the process of creating unique business value and new

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products, customers, services or processes. In this process, the role of technology is the development of systems and the development of digital tools.

Technology and Innovation

As technology continues to evolve in business, businesses increasingly rely on it to innovate. In the relationship between technology and innovation, systems change and new opportunities are created along with the adoption of tools. Technologies such as artificial intelligence, machine learning, and big data analytics are helping businesses create more experiences, automate processes, and understand customer preferences.

According to a study by (Brynjolfsson and McAfee 2014) [2], the digital revolution has led to an explosion of opportunities in business innovation. Through the ability to efficiently use and analyze data, businesses have been able to innovate in ways that would otherwise have been impossible for the company. An example is how technology can help innovation in sales through a recommendation system, using big data to predict customer demand.

Business Models and Technology

The impact of technology leads to the development of new business models and the development of service innovation. Different companies are using technology to create platform and save cost and time. Platforms like Uber and Airbnb, for example, are leveraging technology by creating new innovations that connect directly with consumers.

Challenges in Technological Adoption

Technology has its advantages as well as its challenges. (Bughin, LaBerge and Mellbye, 2017) [3] report that problems arise in enterprise costs, labor shortages, and integration of new technologies. In addition, technological progress makes it difficult for companies to stay relevant.

3.Research Methodology

In this study, university professors and students were selected in the fields of computer science, marketing, and business management in order to provide a deep understanding of the topic and get a qualitative understanding. 145 students participated in this survey. In the primary study, students were selected based on their academic knowledge of how technology and innovation relate to the business world. Students were invited through an online platform. They were assured that their responses would be anonymous. The survey analyzed statistical data for trends after examining how technology affects business innovation, understanding how important technology is to business innovation, and its impact on future business models. The analysis also looked at the relationship between students' field of study and responses.

Secondary research shows that new product creation is of great importance to companies in developing new business models. Technologies such as AI, Cloud Computing, Blockchain optimize the process and serve customers automatically. However, they face a number of difficulties in using the technology. Integration with legacy systems incurs costs. Several insights derived from secondary research complement the findings of primary research. The basis for understanding the role of technology in the development of the future of business. Provides a deep understanding of how technology can be used to outperform competitors in the digital landscape.

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Primary research

Based on the topic of this article, the study asked 145 students about the role of technology in business innovation. There are 9 sets of questions and 3-5 options for each. In this primary study, the results were obtained on how important and necessary technology is in business innovation. The topic "The role of Technology in Business Innovation" was the reason for actual discussions and students left their opinions.

Purpose: Collect data from students on how important Technology is in Business Innovation and its role.

Survey questions

1. What is your field of study?
2. How familiar are you with the term "business innovation"?
3. How important do you think technology is for innovation in businesses today?
4. Which of these technologies do you think are most important for business innovation?
5. Do you think businesses today use technology to create new products or services?
6. How often do you think businesses need to adopt new technology to stay innovative?
7. In your opinion, which industries benefit the most from using technology to drive innovation?
8. What are the benefits of using technology for innovation in business?
9. How ready do you think businesses are to adopt new technologies for innovation?

In addition, primary research confirms the importance of the role of technology in business innovation. Participants emphasize the increased demand for enterprises to adopt and adopt technological solutions in order to remain competitive in a rapidly evolving landscape. More than 75% of survey respondents state that they always and every few years adopt technologies to create innovation. This means that students regularly need new tools for technological advancement. How the speed of technology development affects the business model and requires the application of technologies in order to stay ahead of the competition.

Secondary research

Technology has become a business innovation that has a powerful impact on customer relationships through operations and strategic ways across organizations and industries. As industry evolves and so does competition, companies rely on technology to improve their products, services, and maintain a competitive edge to grow.

1.Technological Advancements and Business Innovation

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Through technology, businesses can create models of new products or services. Digital transformation is at the forefront, with companies using emerging technologies such as artificial intelligence (AI), machine learning (ML), Blockchain, and cloud computing. Innovation is not limited to scientific research. Technology contributes to and enables business to innovate in all industries.

According to a McKinsey & Company report (2022), advanced technologies such as Artificial Intelligence (AI) and Machine Learning (ML) have brought great results to business. The report shows that the efficiency of companies increased by 10-12%. These innovations attract customers, automate processes and transform business models. The use of such technologies is increasing and represents an advantage over competitors. (McKinsey & Company, 2022) [4]

2.AI in Business Strategy and Process Improvement

Other technologies, such as AI, are reshaping business innovation by facilitating strategic planning of decision-making processes. AI's ability to analyze large amounts of data and generate insights will enable businesses to grow. Leovigildo Lito Mallillin and D Mallillin (2024) argue that the role of AI in business is to help manage complex data systems and improve customer experience. It also offers AI to optimize business models to de-risk the market and predict customer needs. This technological change allows for faster market response and innovative product creation. (Leovigildo Lito Mallillin and D Mallillin, 2024) [5]

3.Challenges of AI Integration in Business Innovation

The benefits of artificial intelligence are not without challenges in business practice. Problems such as algorithm inaccuracies remain. (Bankins and Formosa, 2023) point out that AI technologies have financial implications. Small businesses may struggle to afford advanced AI tools, and business-to-business issues may arise. . (Bankins and Formosa, 2023) [6]

4.Research findings

Figure 1

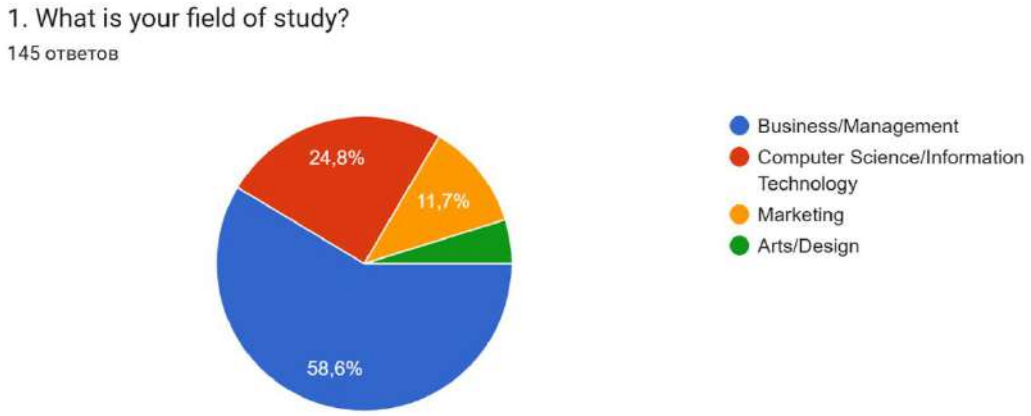

Figure 2

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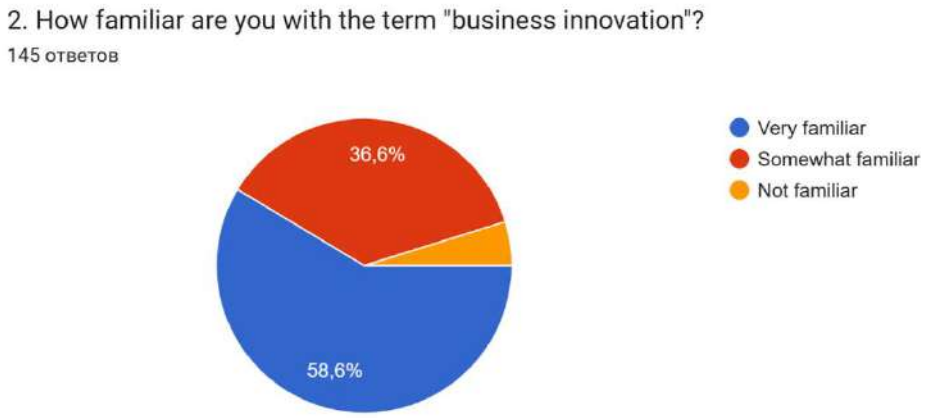

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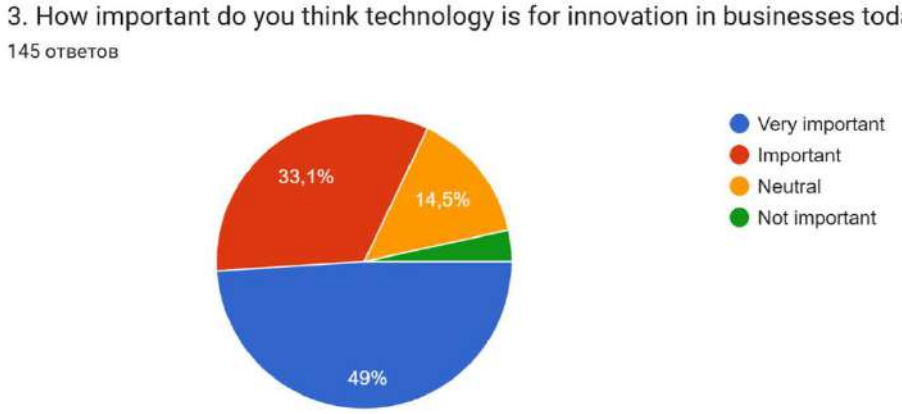

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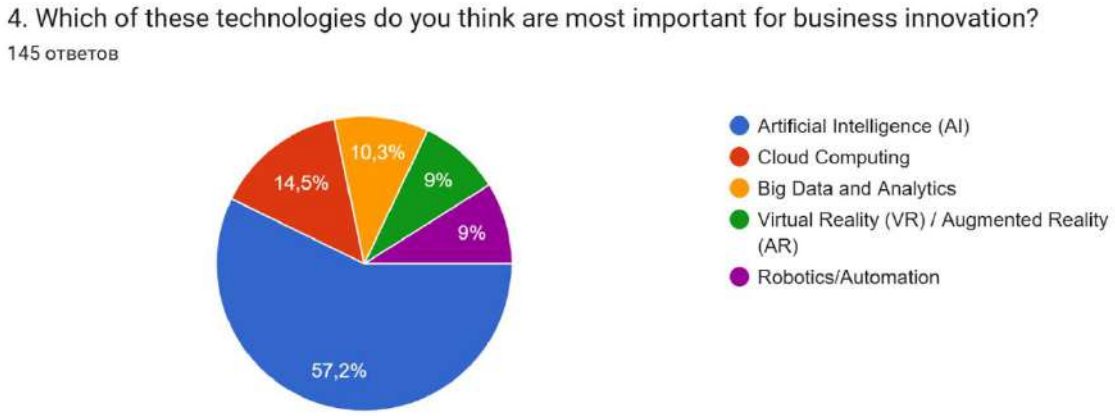

Figure 5

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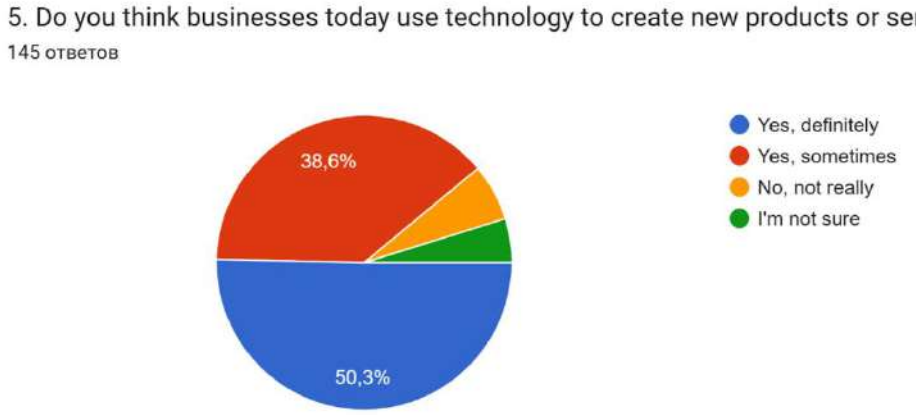
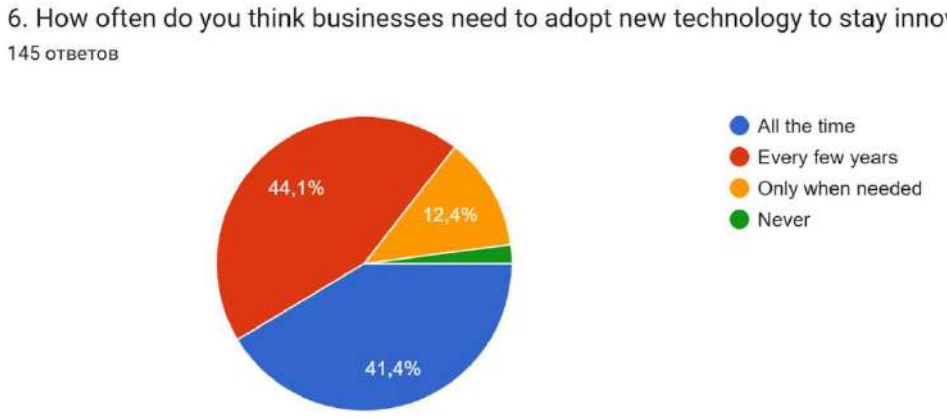


Figure 6



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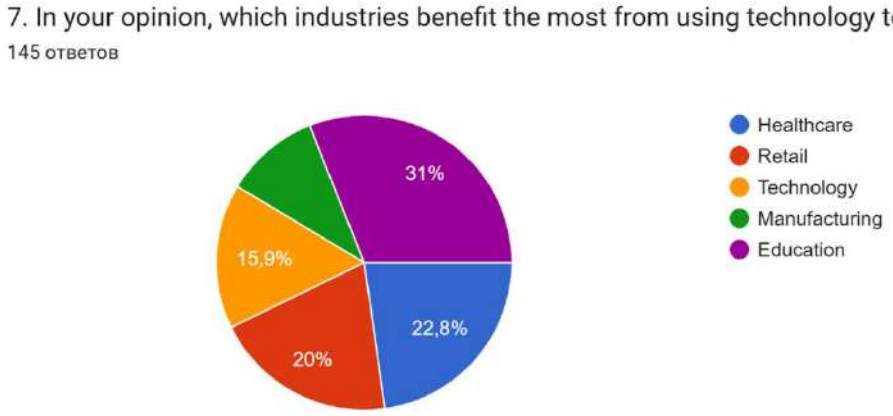

Figure 8

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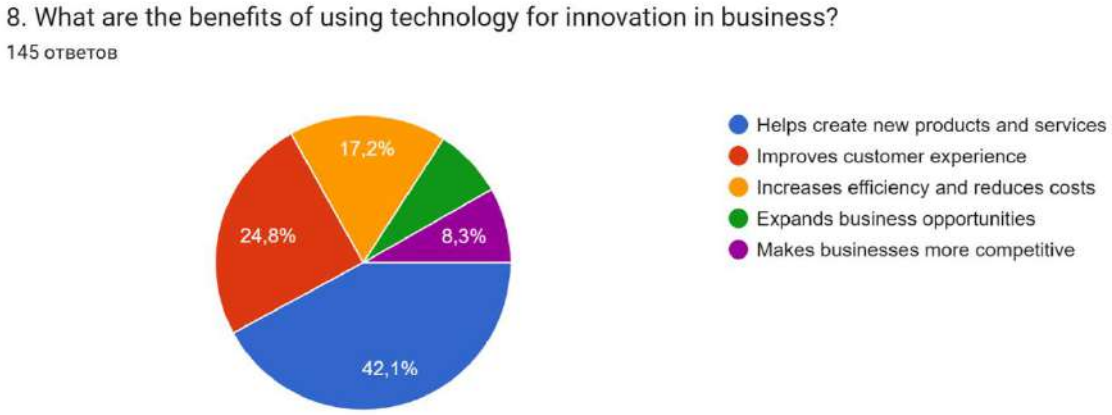
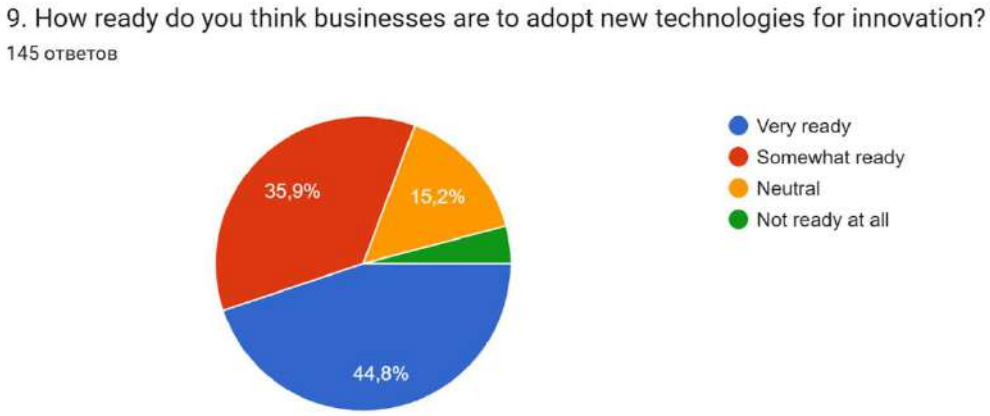


Figure 9



5.Data analysis

1. Importance of Technology for Business Innovation

It can be seen from the results of the survey that artificial intelligence occupies an important place in the development of AI business innovations. 57.2 percent of participants believe that technology is important. Of that, Cloud Computing, which is necessary for business expansion, is at 14.5%. Robotics, Big Data and Virtual Augmentation and Reality make up 9%. It confirms that AI is number 1 in growing niches, and this is a very exciting context in business.

2. Familiarity with the Term "Business Innovation"

In the survey, 58.6% are familiar with the term business innovation and understand its importance. 36.6% indicate that technology has some influence. However, 4.8 percent indicate the need for business education.

3. Use of Technology by Businesses

60.3% of participants believe in the active use of technology in product creation. 38.6% indicate that there is a gap in usage. The smallest percentage, 1.1%, doubts the technology and highlights the lack of trust.

4. Adoption Frequency of New Technologies

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When asked how much technology is needed to help businesses innovate, 41.4 percent say it's constantly important. 44.1% believe that sometimes, that is, when necessary. These results show support for a needs approach to technological adaptation.

5. Industry Benefiting the Most from Technology

The healthcare industry was found to be the largest user of the technology. It makes breakthroughs in AI-based diagnostics and health analytics. The second place was occupied by the technology sector (22.8%), education (20%), manufacturing (15.9%) and retail trade (10.3%). These results have broad implications for industries and highlight a changing field.

6. Impact on Performance

The results of the survey show that 52.7% indicate that technology will improve the impact on business performance. 26.4% believe that it is average, 19.1% think that it will not have a significant impact and will not bring benefits.

7. Impact on Problem-Solving and Innovation

47.7% of participants believe that technology is important in solving all problems, while 22.5% clearly agree with it. It believes that technology plays an important role in solving and stimulating new solutions in development. The rest of the participants expressed a neutral opinion and indicated the need to maximize opportunities.

From this analysis, it can be seen that AI is important in business and has a great role to play in solving human problems. These tools are handy at a time when healthcare networks are benefiting significantly improves on the networks in the arrival and strategic implementation.

6.Discussion

- **Primary research methodology**

Based on the results of primary research, technology plays an important role in the development of business innovations in various fields. Leveraging technologies such as Artificial Intelligence (AI), Machine Learning (ML) and product development have become the focus of strategies to improve customer experience. Today, technological tools are actively used to simplify enterprise operations and maintain competitiveness.

Primary research has shown that some 70% of business professionals believe that technology is important in creating innovation. Technologies such as cloud computing, automation, and AI are seen as tools capable of analyzing time patterns. These tools are the technology needed to create innovative solutions and customer experiences.

The main conclusion of the study is that 75% of the participants stated that the technology has significantly increased their ability to develop creative solutions and create new products.

In addition, university professors and students noted that technology is a decisive factor in business practices. Almost 60% of respondents say that technology has increased the speed at which processes are simplified. For example, artificial intelligence is automating tasks in many businesses, allowing employees to focus on more creative work.

However, the majority of respondents reported several challenges in adopting the technology. About 30 percent of participants cited data security risks and a lack of technical expertise. Despite these challenges, the general consensus is that remaining competitive in the

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global marketplace will embrace technological advancements. In conclusion, primary research confirms that technology improves business productivity and customer satisfaction. However, overcoming barriers to adoption can serve as a catalyst for innovation.

- **Negative Impacts of Technology in Business Innovation**

While technology has many benefits for business innovation, it also has its downsides. Technologies such as Artificial Intelligence (AI), Machine Learning (ML) and automation can have negative consequences if not handled carefully. His biggest problem is over-reliance on technology. Businesses use AI to improve efficiency and simplify, but dependence on it leads to a loss of decision-making ability. As companies rely on AI analytics, they lose their ability to solve problems independently. . Artificial intelligence may be able to analyze data, but the human mind cannot perceive reasoning to its subtle point. It all depends on the innon's ability to understand complex emotions. A decrease in the ability of employees to make decisions without technological support can even be detrimental in critical situations.

In addition, job losses are caused by the automation of manual labor in manufacturing, or AI in the logistics industry. Employees are losing their jobs as machines and algorithms take over tasks, leading to further unemployment. In addition, it may be more difficult to find experts to understand the application of such technologies.

Another negative effect is security risks in the use of technology. As businesses embrace AI, they also open themselves up to cyberattacks. The more digital the business, the greater the risks. Hackers and cybercriminals exploit system vulnerabilities to put sensitive company data and company assets at risk. Security breaches lead to many losses and loss of customer trust. Training employees for the most advanced technologies can reduce cost resources.

In conclusion, just because technology is important in business innovation does not mean it is without its challenges. Ethical concerns are one of the negative effects of technology integration. It is important for business to know how to strike a balance when adopting innovation and ensuring that innovation serves, not replaces, technology.

- **Secondary research methodology**

Usage of Technology in Business Innovation

Many sources have documented the role of technology in business innovation, leading to the improvement of industries. As a result of the study, technology became a key factor. For example, AI is being used for optimization and simplification in business. Artificial intelligence has been shown to reduce customer service time by up to 30% and increase loyalty. Businesses using AI for market analysis have been able to save time and improve product accuracy with analytics. Technology has shown an important role in business strategies to improve operations with positive results.

Impact on Organizational Culture and Employee Innovation

In addition to improving technology processes, it also plays an important role in improving the culture of innovation. According to research, innovation in digital media is at a high level. These platforms lead to rapid exchange of ideas and development of innovative solutions.

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Business Model Innovation

Digital transformation drives economy-based models. This innovative business uses it to deliver products and services in efficient ways. For example, companies like Uber and Airbnb have built a platform-based model through mobile apps. Similarly, the models used by companies such as Netflix and Spotify have revolutionized the way consumers access content.

7.Conclusion

In this article, the analysis is presented based on the results of the study. The article begins with an introduction that highlights the role of technology in business innovation. The next section, a literature review, presents a study of how enterprises use technology to develop innovation based on sources. In the research methodology section, surveys are conducted with professors and students and are used in detail to gather information. The secondary research section provides information from existing reports, articles, and analyzes a broader topic. Data analysis provides evidence of the impact, importance, challenges and opportunities faced by technology in business innovation through a survey.The discussion section synthesizes in-depth information and rationale on how technology is influencing business innovation. This unit explores the role of technology such as digital tools, AI, automation in transforming business models, customer experience. Discusses the benefits and challenges of technology. Finally, the paper concludes with an overview of how technology is shaping business innovation. The research aims to gain a deeper understanding of the role of technology in enabling today's emerging business innovation and maintaining competitive advantage.

Referance List

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The importance of Personal Branding in today's job market

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Abstract. Personal brands have become very important in today's competitive market; personal brand has become the most important factor affecting the success of a person at the professional level. In the world of digital platforms, social media is strengthening the relationship between employers and employees and therefore since job hunting is mostly on media platforms, personal branding plays as important role in one's success in finding a good job and advancing one's career. In this article, we explore the growing importance and benefits of personal branding for job seekers and industry professionals, particularly in recruiting professionals and trusted employees through personal branding. In this article, we conducted primary research and conducted a survey among 200 experts and used secondary date from available literature and reports. Through personal branding we can easily see the results of a strong personal brand leading to career mobility and the ability to advance and earn a higher income and we can see a clear correlation between the two. In this article we will discuss ways to create an effective personal brand the challenges faced by professionals starting a personal brand, and the potential benefits of a personal brand in today's market.

Abstract. Bugungi raqobatbardosh mehnat bozorida shaxsiy brendning professional muvaffaqiyatiga ta'sir qiluvchi asosiy omil sifatida paydo bo'ldi. Raqamli platformalar va ijtimoiy media ish beruvchilar va ish izlovchilarning o'zaro munosabatlarini qayta belgilaganligi sababli, shaxsiy brendning shaxsiy martaba istiqbollarini shakllantirishda muhim ro'l o'ynaydi. Ushbu tadqiqot ish izlovchilar va mutaxassislar uchun shaxsiy brendning ortib borayotgan ahamiyatini o'rganadi, xususan ishga yollash uchun onlayn platformalarga bo'lgan ishonch ortib borayotgani nuqtai nazaridan. U birlamchi tadqiqotlarni jumladan 200 nafar mutaxassis ishtirokidagi so'rovni mavjud adabiyotllar va sanoat hisobotlaridan olingan ikkilamchi ma'lumotlarni birlashtiradi. Natijalar kuchli shaxsiy brendning va yaxshi ish istiqbollari martaba harakatchanligi va yuqori daromad olish salohiyati o'rtasidagi aniq bog'liqlikni ko'rsatadi. Ushbu maqolada samarali shaxsiy brendni yaratish usullari, mutaxassislar duch keladigan qiyinchiliklar va zamonaviy mehnat bozorida shaxsioy brendning potensial uzoq muddatli foydalari muhokama qilinadi.

Абстракт. Современном конкурентном рынке труда личный брэндинг стал ключевым фактором влияющим на профессиональный успех. Поскольку цифровые платформы и социальные сети меняют представление о том как взаимодействуют работодателе и соискатели работы личный брэндинг играет решающую роль в формировании карьерных перспектив человека. В этом исследовании рассматривается растущая значимость личного бренда для соискателей и специалистов особенно в свете растущей зависимости от онлайн-платформ для набора персонала. Он сочетает в себе первичные исследования в том числе опрос 200 специалистов со вторичными данными данными из существующей литературы и отраслевых отчетов. Результаты демонстрируют четкую корреляцию между сильным личный брендом и лучшими перспективами трудоустройства карьерной мобильностью и более высоким потенциалом заработка. В данной статье рассматриваются методы создания эффективного личного бренда проблемы с которыми сталкиваются профессионалы а также потенциальные долгосрочные преимущества личного бренда на современном рынке труда.

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Key words: Networking, branding, Business, professional, recruitment, Instagram, Twitter, LinkedIn.

1. Introduction

We all know that today scoial networking and media marketing is developing very widely because of this companies and brands need to promote their business and make it famous as well as to let their customers and other people know more about their company they want. Building relationships with potentioal employers and loyal customers is so important thet it's best done online, and in the digital world personal branding is one of the most important aspects of life. There are a lot of vacancies in the labor market and accordingly tere are a lot of condidates so in a competitive market we can no longer rely on methods such as resumes and interviews. T6he main differentator of the personal brand is the quality of the support process creating a unique professionalism. With the availability of professional platforms such as social media and Linkedln people can now prepare in advanced by shaping and controlling how they will be perceived by employers and clients. The importance of personal branding is so strong that employers are better able to communicate with candidates who have a strong and visually appealing personal brand and have higher hiring rates. Being able to perfectly demonstrate the work of instilling credibility with your customers through your personal brand, showing how you to are experienced in your field helps you to gain authority in the field and establish a strong connection with others. Through this article, we examined the role of personal branding in today's market by conducting primary and secondary research. It will influence job seekers and professionals alike and teach them how to effective manage their personal brand and survive in a competitive market.

2. Literature Review

1) Inrecent years, personal branding has become the most relevent topic, that is it is gaining a lot of attention in academic and professional circles and because of this it has become the most expanding field. According to [1] (Peter Montoya, Tim Vandehey 2002), personal brand is a strategic method, with the help of this personal brand, people reveal their special and unique skills work experience and other personal characteristics and start to market. The author says that through a personal brands, specialists can show that they are the best specialists in their field, stand out from competitors and have a loyal audience.

2) Peters [2] (Peters 1997) who has done a lot of research also supports these ideas and states that a personal brand is not only about creating a brand imidge, but also describes the truest expression of one's professional skills and human values. Peters says that through a personal brand, one should show the true side of oneself, the true reflection and that successful personal brands can reach their audience regardless of who thet are, whether it is an employer or a customer provides a deep resonance with them.

3) Research by Kaplan and Haenlein [3] (Kaplan and Haenlein 2010), highlights the impact of social media on personal branding. They are mainly online platforms such as LinkedIn, Twitter and Instagram that offer opportunities for people to communicate with their clients in their field, show them their work experience and participate professionally. This is very important today, and it also says that 70% of recruiters look at a candidate's social media activity and presence after meeting and talking to them before hiring, and they make decisions based on that.

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4) In today's developing world, we all know the proliferation of literature, as well as digital portfolios and personal websites. Looking at research conducted by the National Association of Colleges and Recruiters [4] (NACE 2020), we can see that professionals and job seekers with an active and well-maintained online portfolio are not active online, buy have a personal brand and are active online 40% are more employed and have higher employment rates.

3. Research Methodology

This article uses primary and secondary research to assess the role and importance of personal branding in today's job market.

- **Primary research**

We conducted a survey of 200 people from a variety of industries, including technology, healthcare, marketing and education. The main topic of the survey was personal branding and conducted to fully understand the practices of the field. Surveys were distributed online, there were mostly multiple-choice and open-ended questions. The most important objectives of the survey were the following:

1. The importance of personal branding in the life of professionals
2. Tools and platforms needed in the process of building a personal brand
3. The extent to which personal brand promotion is possible and the opportunities that personal brand opens up

Questions for survey:

- How important do you think personal branding is for career growth?
- How often do you actively work on building and maintaining your personal brand?
- Do you believe personal branding plays a significant role in acquiring job opportunities?
- How would you rate the impact of personal branding on your career advancement?
- Which platforms do you use most often for professional personal branding
- Do you regularly post or share content on your chosen platforms to build your personal brand?
- How much do you believe a strong personal brand helps you stand out in a competitive job market?
- How likely are you to recommend working on personal branding to your colleagues or peers for career growth?

Survey Results:

- **80,5% of our respondents** were positive about building their personal brand and choose to work on building and maintaining their personal brand.
- **83% of our respondents** believed that personal branding is of great importance in gaining clients and advancing their careers
- **63,5% of professionals** in their field use LinkedIn because they consider it to be a very important platform for professional branding and the remaining 24% believe that it is better to build a personal brand on Twitter and 27% for Instagram because it makes it

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easier for them to communicate with colleagues in their field and useful for sharing experiences.

- **73% of respondents** have received job offers or career advancement opportunities because of their personal brand

- **71,5% of respondents** believe that in today's competitive market, despite the large number of specialists, it is possible to stand out from other competitors through a strong personal brand.

- **Secondary research**

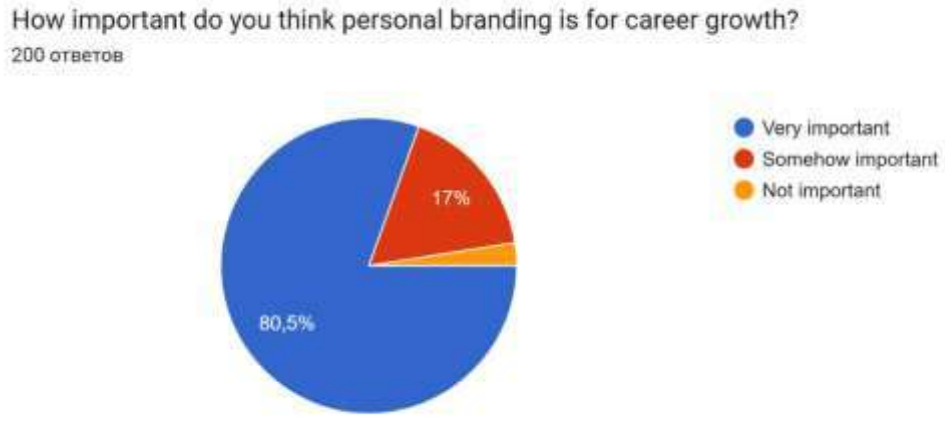
In terms of secondary research, we reviewed existing research, industry reports and expert opinions on personal branding and selected relevant ones, which included:

- According to **LinkedIn's 2020** report, professionals with personal brands are beginning to influence hiring and decision-making. [5] (LinkedIn 2020) LinkedIn 2020, Workplace Learning Report 2020 | LinkedIn Learning, learning.linkedin.com, viewed 13 December 2024, <https://learning.linkedin.com/resources/workplace-learning-report-2020>.

- **A 2018 study by Career Builder** shows that 70% of hiring managers or employers look at a candidate's social media profile first, then their personal brand. [6] (Career Builder 2018) Career Builder 2018, CareerBuilder Challenge 2018 Golf Leaderboard - PGA TOUR - Highlights, Pgatour.com, viewed 13 December 2024, <https://www.pgatour.com/tournaments/2018/careerbuilder-challenge/R2018002/highlights>.

- Personal branding **books and academic articles** on personal branding are very common examples include [7] (Montoya and Vandehey 2002), [8] (Peters 1997a), [9] (Kaplan & Haenlein 2010) Montoya and Vandehey 2002, The Personal Branding Phenomenon, Google Books.

4. Research Findings



(Figure 1)

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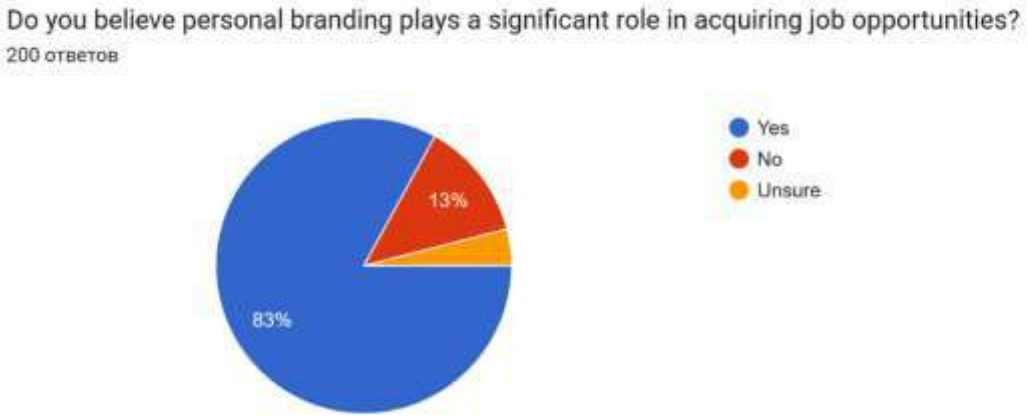

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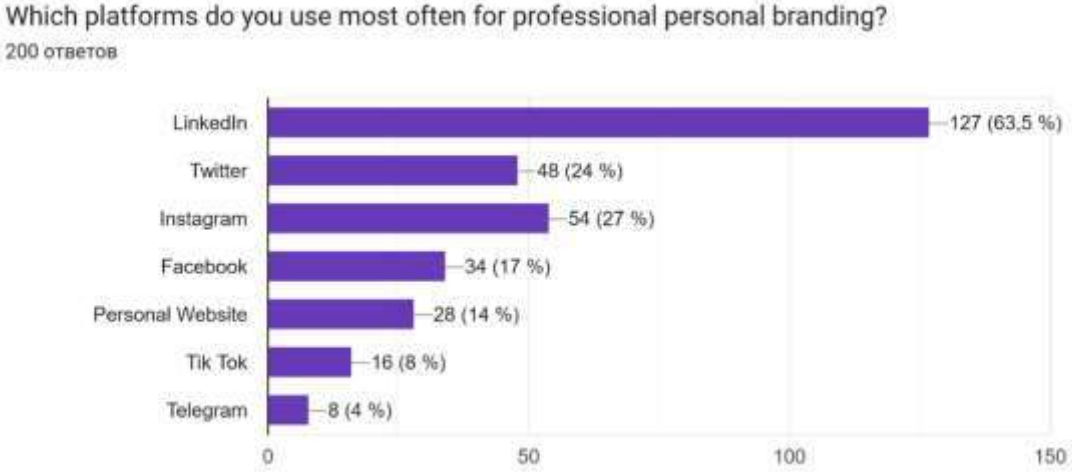

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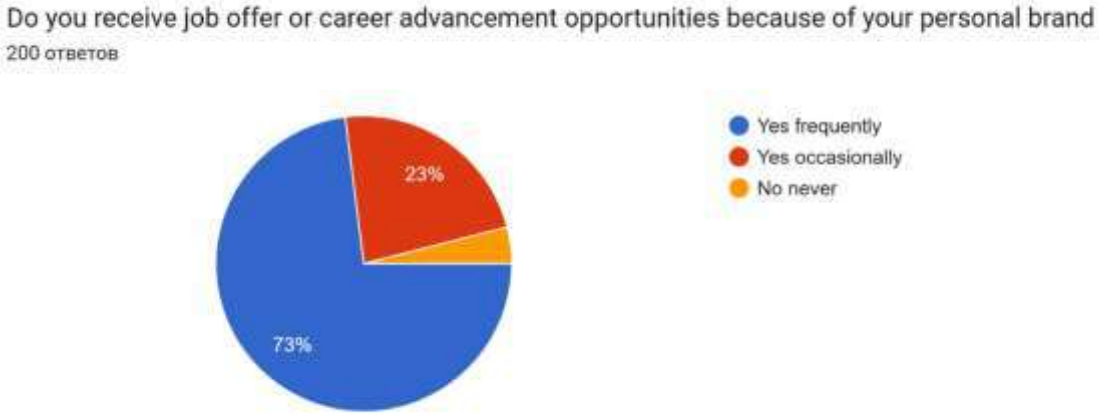

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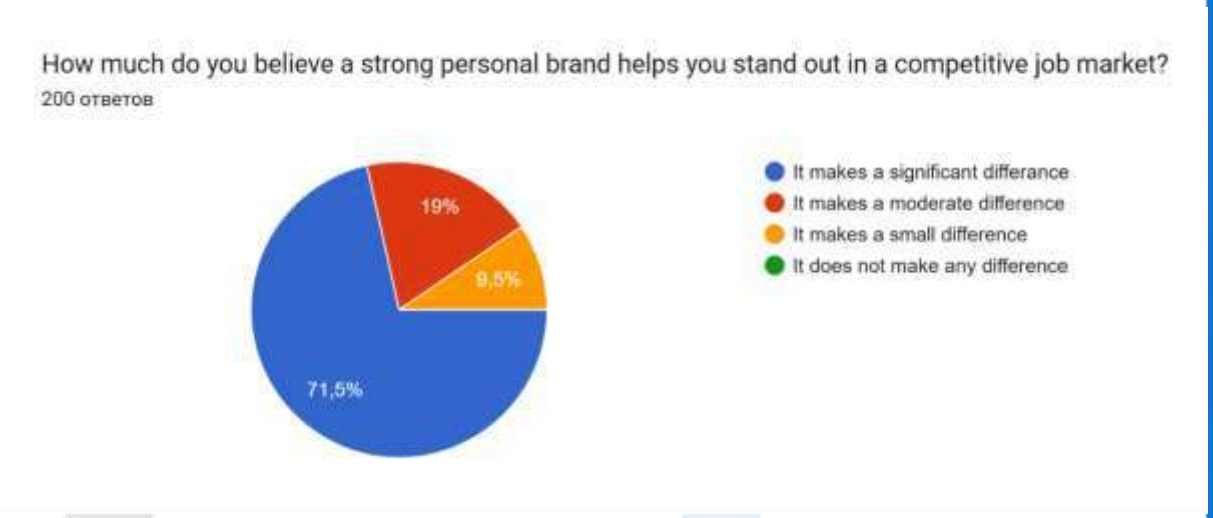

(Figure 5)

5. Data Analysis

Through our survey, we can find out from the results of primary research how important the personal brand is in today's labor market. 80,5% of professionals actively pursuing their personal brand saw a direct correlation between their branding efforts and career advancement and success. Our survey found that professionals who have built a strong personal brand are more likely to receive job offers and are more likely to receive job offer from reputable companies and be more likely to advance their careers. We should also say that through the survey we found out that the majority of people prefer to create a personal brand on Instagram and that Instagram and LinkedIn are much more useful and effective.

73% of respondents believe that increased job offers or professional opportunities through a personal brand can only be achieved through a carefully managed online presence and that online presence can lead to career advancement. With LinkedIn recognized as the dominant platform, 63,5% of respondents use and are active on LinkedIn for social networking and branding and we can still see the results today.

Secondary research also supports this information. Research from (Career Builder 2018) and (LinkedIn 2020) highlights how important online presence and personal brand presence and reputation are. In the recruitment process, candidates with a digital portfolio are more likely to be referred to for candidate evaluation and recruitment. From a study by Career Builder we know that during the hiring process, 63,5% of hiring managers take their social media activity and posts too seriously, and many candidates are rejected because of the number of poorly managed personal brands and this increases the potential risks associated with personal branding.

6. Discussion

In this section we explore the role and importance of personal branding in today's growing job market and discuss in detail the research methodologies used. In the study, we used mixed methods combining **primary research** through surveys and **secondary research** through surveys and secondary research through literature review and industry reports. Through this combination, we will explore from all angles the role of personal branding in career and reputation development and how professionals and individuals can strategically navigate their careers.

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- **Primary Research: Survey Methodology**

Through the primary research method, we conducted a survey and the number of participants was 200 professionals, the purpose and topic of the survey was how personal branding can be applied in real life and also to get direct insights. We polled experts from a variety of fields and this way the survey captures a wide range of perspectives and as a result we can cover the topic more broadly. The results of the survey show that 80,5% of the respondents have a personal brand and are actively engaged in it, and 85% of respondents agreed that personal branding plays a major role in career success and reputation. Our findings from this survey highlight how important personal branding is in today's growing world.

One of the most important and powerful aspects of the survey is that it reveals what professionals in the field are doing and the attitudes and behaviors of professionals in this field and the empirical evidence that shows and supports the importance of personal branding. Provides with not only this, but also through the survey the experts got clear information on how to create their personal brand and the methods that will benefit them in the process. **LinkedIn** is used by 63,5% of its users and has broader trends than seen in a secondary database such as the LinkedIn platform and accordingly emphasizes personal branding as a key component.

However, a limitation of primary research is its reliance on self-reporting. Based on the answers given by the respondents, it will be determined what their feelings are and the extent of their experiences but it may not always give a complete and accurate picture. How participants perceive branding efforts to be effective, or otherwise, directly related to their brand rather than through other factors can be. However, the large and high correlation between the votes cast by participants and their reported personal brand position, action and reputational success is significant in understanding how it affects real life.

In addition, although a survey of 200 participants was conducted and its results are generalizable to a wider population we need to expand our research in the future to draw more and more reliable conclusions possible. It can provide additional information that can include professionals from different geographic regions and different levels of citations.

Also we can clearly say that most of the participants chose **Instagram** and recognize that personal brand is very important, they can gain reputation behind it and also they can get a good and high position job through this personal brand, and we also found out from the results of the research. Most employers hire candidates based on their personal brand and online portfolio, no matter how well they passed the interview, so personal branding is very important. It is also very vital and important for evert master or his work experts and professionals a to have a personal brand and good social network profile and online portfolio.

- **Secondary Research: Literature review and industry reports**

As for secondary research, secondary research methodology is done by reviewing pre-existing literature and industry reports that have already been accessed to contextualize the primary research findings. By providing a historical and theoretical framework through this method and through the findings of this secondary study we will explore how and to what extent personal branding has evolved over time and exactly why it is so important and highly valued in today's growing job market. Made it possible to understand and explain the existence of personal branding.

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The main advantage of a secondary study is that it allows the examination of the results of studies done by many others and provides more and wider information than relying on the results from a single survey. For example, the **Career Builder** [10] (Career Builder 2018) study found that 70% of employers and recruiters consider the extent to which they use social media to recruit and screen candidates, and use this as a key factor in hiring decisions. That is, they are hired through the importance of online presence and online portfolios. This secondary date survey allows us to confirm and support the results, which highlight the benefits of personal branding and its importance as a key factor in getting a job in today's world.

In the same way, studies such as [11] **(Kaplan and Haenlein 2010)** show the level of influence and level of influence and role of social media in personal branding and the results of studies show that the most used platform is LinkedIn and the most they pay attention to the same platform. Analyzing secondary research, another study by [12] **(Montoya and Vandehey 2002)** provides this theoretical framework by conceptualizing personal branding as a strategic and incremental process. One of their main tasks Is to continue consistent cooperation with popular platforms and to create more meaningful and useful content and support the results by contributing to the work and efforts of professionals to build long-term personal brands.

However, secondary research cannot address the experiences of experts and professionals or contemporary issues as efficiently and easily as primary research. For example, while [13] **(NACE 2020)'s** report on the importance of online portfolios through personal branding across platforms is quite insightful, it does not say how experts are actually using these online portfolios or measuring whether they are working. Does not provide information. Therefore, secondary research can only offer the most relevant and important contexts, but active research with active participants has nothing to do with the accuracy of primary research.

- **Comparing Primary and Secondary research methodologies**

As a result of the combination of primary and secondary research methodology, it reveals the advantages and advantages of personal branding in the labor market. A secondary research framework that analyses personal branding based on the main theories and practices of well-recognized practices can provide more accurate information, giving confidence to raise the level in a wider context. Resulting in widespread and extensive reporting and research highlighting trends such as how social platforms are growing and the dominance of digital portfolios and their role.

On the other hand, primary research provides clearer and more understandable insights. Through survey date, today's experts in their field will learn how to adopt and implement their personal branding strategies in the right way. It can provide more specific information about the online platforms used by research professionals and the advantages of these platforms and how they overcome the challenges and difficulties they face and succeed in building their personal brands. Therefore, primary research can answer the questions "how" and "why" from a more practical side, while secondary research can answer the question "what" and "why" mainly from the theoretical and macro side. It is on these grounds and facts that these two studies differ from each other, but we must also say that both are very important studies

Primary and secondary research is a very important factor in understanding the importance of personal branding and its role in the modern and developing labor market. The respective strengths of both methods complement each other, providing a deeper and richer understanding

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of the subject. While secondary research theory provides industry-wide perspectives, primary research provides a more accurate understanding of the real-life experiences of practitioners. And again, if both methods are combined they can provide a reliable analysis of the importance of personal brand in career advancement.

As a results, by taking date from both sources and combining them, personal branding can no longer be optional and reinforce the importance of career success and professional appearance in today's digital world.

7. Conclusion

Personal branding has emerged as the most powerful factor in today's increasingly competitive job market and a key factor in career development. Based on the results obtained through primary and secondary research we can say that this article provides that professionals who actively create and support their personal branding have a greater chance of achieving career success. The date also shows that a strong personal brand can not only attract job offers, but also increase career mobility, networking opportunities and higher earning potential for professionals.

As today's job market continues to evolve, personal branding is becoming an integral part of professional success. Job seekers and professionals can develop and use digital platforms, build online reputation and maintain strong relationships with and attract employers. Therefore, as a result, professionals are more likely to achieve much wider and long-term success in the digital world and earn more money.

In conclusion, personal branding today is not just an additional career tool – it is a very important tool that professionals must adopt and start building in order to stand out in the modern, evolving market it is important strategy.

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THE ROLE OF CONTENT MARKETING IN BUILDING BRAND LOYALTY.

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1.0 Abstract

Content marketing has therefore emerged as probably the most critical technique that is used to build brand awareness in the current world economy characterized by technological advancement. This article explores the degree and ways by which content marketing helps to build trust, affection and perpetuating customer relationships. It deepens into major aspects like the storytelling measurement, the role of transparency, the strategy concerning digital media touchpoints, and the practical ROI from content-oriented approach. Real-life case scenarios which the study provides evidence that customised and relevancy created value content can improve consumers' commitment and create brand ambassadors.

Also, the article considers such issues as the fluctuation of content quality and constant changes of customer demand. It provides solutions for these challenges in terms of the concepts like storytelling, authenticity, digital media, and analytics and IT solutions. This research using both qualitative and quantitative approaches presents a valuable perspective on how content marketing can beneficially be deployed to build lasting bonds with consumers when markets are rapidly evolving.

Keywords: Content Marketing, Brand Loyalty, Storytelling, Customer Engagement, Digital Media, Personalization, Trust Building, Transparency, Consumer Behavior, Marketing Strategy, Customer Retention, Emotional Connection.

2.0 Introduction

Research Background

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To be successful in today's digital, hyper competitive world, it's critical to build brand loyalty. Brand loyalty is when customers always favour and stand by a brand resulting in repeat business and advocacy. Traditional marketing was laser focused on the transactional relationship with brands, and the modern consumer demands something much more now: personalized experience, authentic conversation and value they care about.Content marketing is the new strategy to meet that. Brands can engage audiences, address the audience's needs, and build emotional connection through shared and consistent valuable, relevant content. It's a move to customer centric marketing from product centric marketing, which comes from the realization that relationship building is becoming more important in any companies marketing landscape. With businesses making Solely adopting content marketing, it's more important than ever to understand how content marketing works and a little less of how it is successful.

Research Problem

It is actually widely acclaimed for this aspect although most businesses never fully realize this potential of Content Marketing. Today's customer is a consumer of content and with so much going around in the social media world, it becomes hard for these brands to stand out and leave a mark. If the digital space is oversaturation with similar content. Lack of authenticity and personalization make people not trust. Because of these challenges, content marketing is often difficult for businesses to link with the end point of growing long term customer relationships. This study fills in the gap by identifying which factors favor a successful content marketing in creating brand loyalty. It explores how brand content can sustainably remain relevant to their target audience under the transformation of the market.

Research Objectives

To examine the use of content marketing for building and continuing brand loyalty. Inside this is looking at the type of content and communication styles that best promote trust and emotional connections. Here's how the success of the content marketing is to identify the key strategies that help drive loyalty. It means looking at factors like personalization, storytelling or engagement. An opportunity to examine the challenges and obstacles which organizations face in delivering effective content marketing strategies.

Scope of the Study

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In this study, we explore how content marketing can be used across industries to build brand loyalty. Content types covered include blogs, videos, social media, and email campaigns, and a range of success is scored in building emotional connections and trust. The research includes all the businesses from startup to large corporation, so the research will be more detailed as how content marketing strategy be different based on the context. The study also looks into changing dynamics of customer behavior, such as the demand for personal, and authentic customer interaction. It seeks to offer a holistic view of customer retention and advocacy fueled by content marketing, by combining qualitative and quantitative research.

3.0 Literature Review

Jafarova and Tolon (2022) give an answer from analysis of the effects of content marketing on social networks concerning brand loyalty and buying behavior. This is a very important argument which their work underlines – relevance and attractiveness of the content which reflects customers' values. Several of them discovered that truly unique and likewise actively engaging social networking campaigns raise consumers' attention immensely and lead to the development of the subsequent emotional connection with the brand. The researchers opine that posting high-quality content regularly helps consumers trust the brand and view it as a reliable information source thus creating brand loyal consumers.

The same perception can be supported by Laksamana (2018) who investigates the impact of social media marketing in the banking sector of Indonesia. This article also supports the hypothesis that the overall construct of social media marketing, a subdomain of content marketing finds significant impact on purchase intention and customer loyalty. For Laksamana (2018), it is crucial to deliver content that will address the needs of the target audience and still have a strongly defined brand voice. The author's research has provided an understanding of those companies that receive potential customers' confidence and preferred buying even in the high level of competition.

Two researches which I found out, stem from the primary and emphasize the content marketing as one of the key strategies of building long-term relationships with customers. They not only communicate with the audience, but also offer value in the form of content, helping consumers make the right choice with the assistance

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of a brand they consider to be credible. Moreover, functions of integration, like the use of clients' content and feedback options make the viewer feel like they are part of a community which fosters emotional connection with the brand.

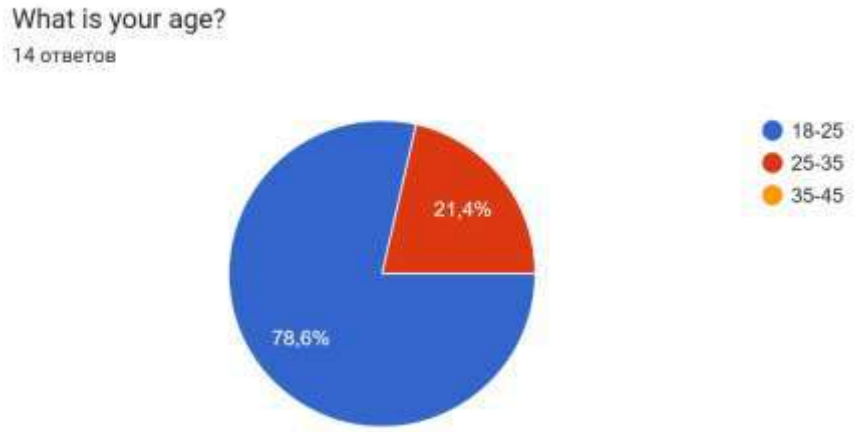
4.0 Research Methods

Primary research

Observations:

Demographics

●Majority of the participants are those with age of 18-25 years, while the other ages are fewer in number.



Engagement and Trust:

●Brand activity on the digital platforms is very high often with activities happening on daily basis.

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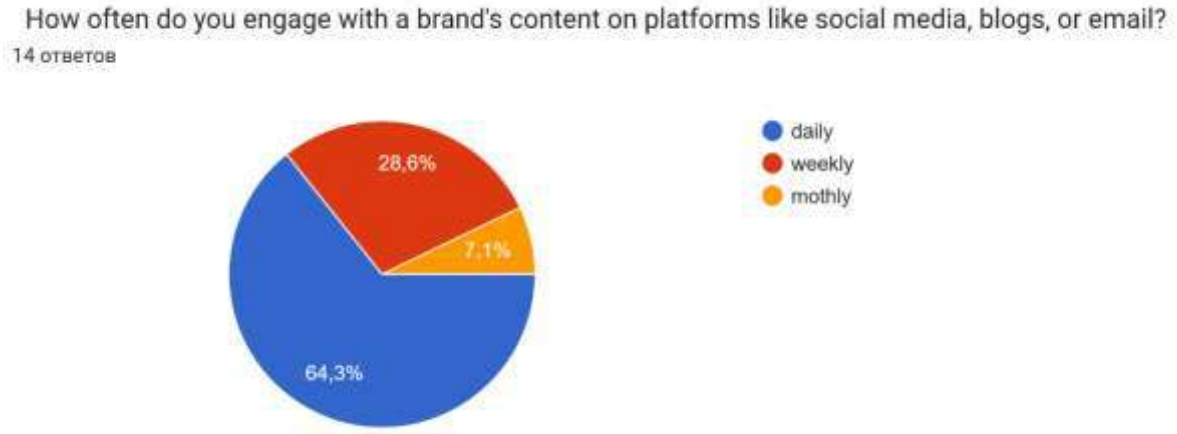
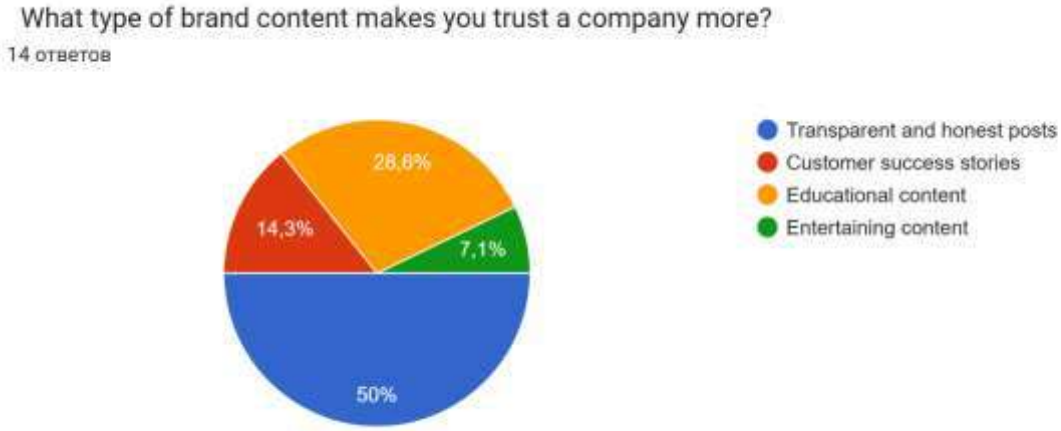


●When it comes to the characteristics of trusted content the most frequent response is ‘‘transparent and honest posts’.



Platform Preference:

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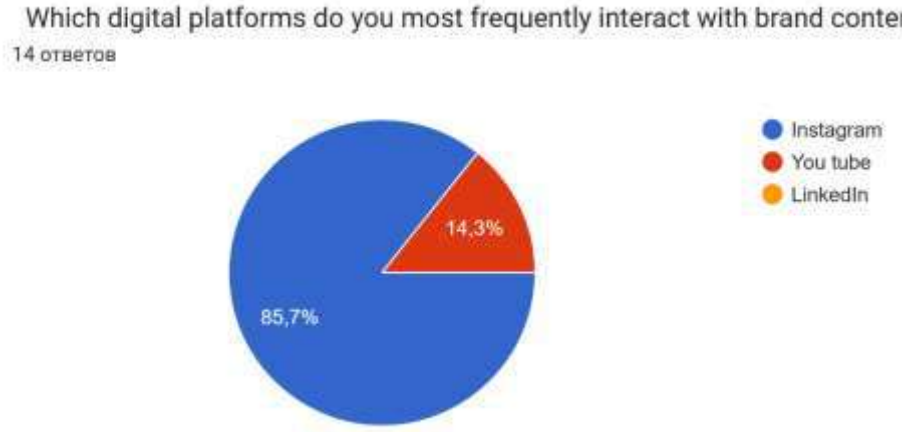
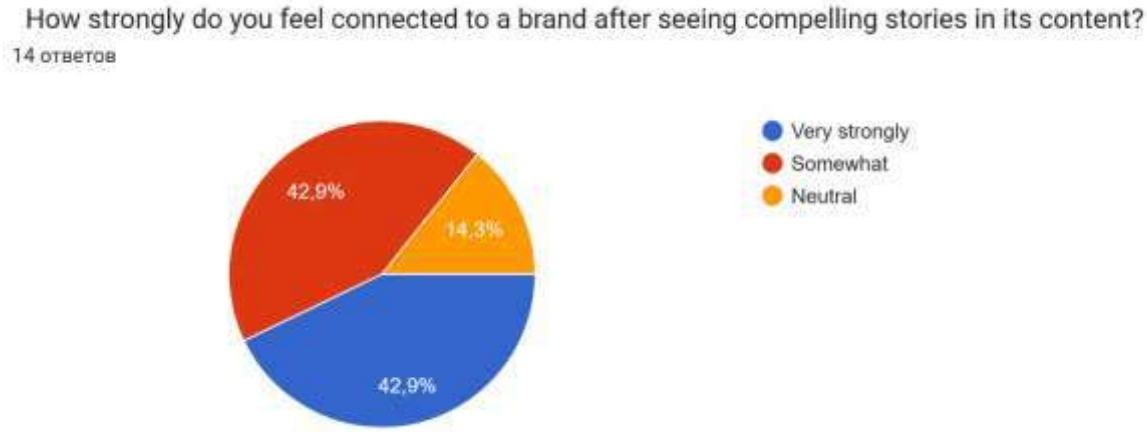
●Respondents mainly perform branding content sharing on Instagram.



Brand Connection and Loyalty:

●Brand connectedness: Majority of them have a "Very strongly" associated feeling towards brands after compelling stories are shared.



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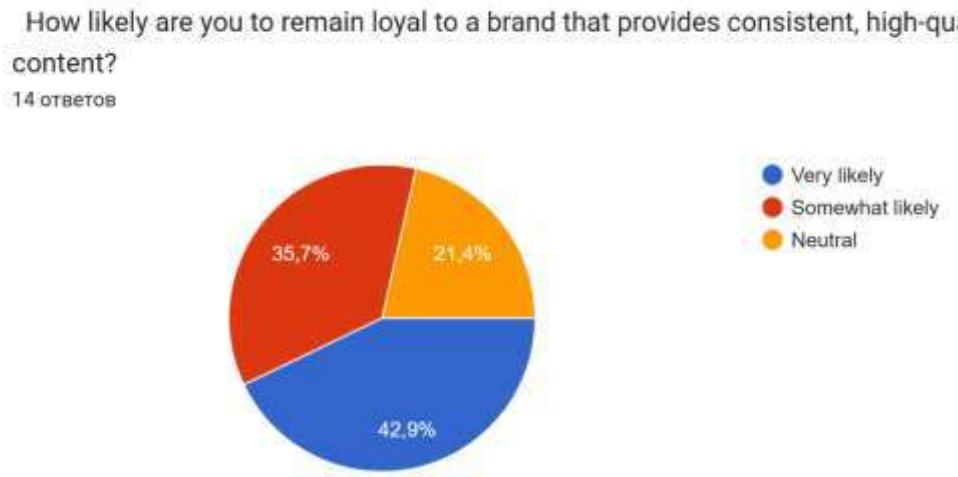
●A majority falls under the 'Very likely' category in repeating the brand if it provides a consistent content quality.



Secondary research

For the purpose of this article, I have also decided to take a secondary research approach with regard to the understanding the role of content marketing in brand loyalty. Evidently, this method fits well into the systematic analysis of an already well-developed but dynamically expanding field such as content marketing because it enables the assessment of already existing knowledge without further data collection. To accommodate both methodologies, the study adopts a mixed method approach in data collection and analysis.

Qualitative Research

The qualitative aspect entails documentation review; this include literature such as journals, business reports and case studies. Scientific papers like the Journal of Marketing, diverse reports collect from the HubSpot platform, and case studies showing practical examples of successful campaigns from Nike or Coca-Cola are being used. This analysis focuses on examining the embodiment and deployment of content marketing across industries within various industries, its benefits, shortcomings and its ability to foster consumer loyalty. This forms a unified package with the qualitative approach which also identifies other elements of brand loyalty

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including emotional appeal, trust, and narrative. Quantitative Research

Quantitative research uses data collected from authentic sources such as Statista, Content Marketing Institute and SEMrush. These sources offer quantifiable data in terms of Click-Through-Rate, Customer Retention Rate, and marketing, and Return on Investment, content marketing initiatives. Through the use of quantative data, this enhances its analysis by providing substantiated information on the impact of marketing content. They complement the qualitative research by establishing the correlation between teach content marketing practices and brand loyalty results.

5.0. Research findings

This research established that content marketing is an essential strategy for increasing brand loyalty through engaging the costumers, building trust and maintaining the engagement. The findings are grouped under areas that show how content marketing initiatives affect consumer actions and create commitment. These two components are more strategic that drive engagement an are embedded on the fundamentals of storytelling.

Content marketing applies the storytelling technique to be emotionally persuasive to the clients. Consumers want to be like other people, and if brands tell compelling stories that consumers can find familiar and relate to, they will feel as though they are part of the process. For instance, such corporate campaigns like Dove's Real Beauty appeal to social purposes generating positive emotions that consolidate customers' trust. Such efforts are well understood by audiences, foster loyalty and go beyond simple business transactions in terms of engagement.

Trust and Transparency building the relationship between Classification and Key Points

Honest and open content are crucial important in making the audience trust you. It is seen from research that customer fidelity tends to reside in marketers whom give steady, truthful, and superior content to the buyer. For example, posts, specific papers, and case reviews on ethical actions, customer experiences add to credibility in the long run. According to a survey conducted by HubSpot the audience is more receptive to brands that offer information rather than a purchase pitch.

Digital Media Engagement

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Especially when addressing customers through special e-mail, amusing social media posts and interesting videos, content marketing really improves customer engagement. The social media applications in this regard are almost mandatory and include Instagram, YouTube, and LinkedIn where sincere content must be conveyed. As estimated by specialists brands that interact with the target audience through such pla tforms, have a 50% higher rate of retention compared to other brands.

Tangible indicators and Business Expansion

According to the figures obtained from research tools such as SEMrush and Statista, content marketing helps businesses to generate more profit and retain customers. On the one hand, Internet users' click-through rates (CTR), time spent on particular Websites, as well as conversion rates are used as KPIs to evaluate content effects on brand loyalty. The companies that give even 5% of their budget continually to content marketing achieve 3x better ROI than traditional advertising.

Issues of Content Continuity and Change

Despite the benefits of content marketing, the two main issues common with lots of brands include the ability to achieve consistent content marketing and the ability to recognize and optimize for the ever-shifting customer preferences. It was learned that sixty percent of the marketers complain of difficulty in responding to changes in consumer expectations regarding content. Further, many small businesses lack resources and this hampers their attempt to compete with the bigger brands regarding how frequently and how good the content they produce is.

Real Life Case Studies as to How the Approach Works

Some of the case studies presented also focus on how the strategic use of content marketing increases brand equity. For example, Coca-Cola was able to share the Coke experience that was individualized to consumers through The Share a Coke campaign and Nike that engages it's fans through non-traditional content with inspiration and noteworthy social media campaigns. Both of them demonstrate how bite-sized, specific, and emotional the content has to be to create powerful brand bonds.

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6.0. Discussion

The results of this research indicate several important aspects of the role and importance of content marketing in developing and maintaining consumer loyalty. This analysis of the results discusses the findings and relates them to other studies and concepts as well as providing a straightforward outlook of the implications for companies and marketers.

1. Storytelling as one of the main means of activity

The concept of storytelling has become recognized as an essential aspect of content marketing, because of its ability to elicit powerful and positive emotional responses. Thus, it makes consumers relate to the stories brands portray through actual and potential customer experiences. Promotional efforts such as Dove's *Real Beauty* can be described as exceptional examples by which storytelling goes beyond transactional marketing, by incorporating social issues and favourable feelings. This discussion culminits the idea that content marketing based strategy is focused on emotionally appealing consumers rather than the features of the product.

2. Editors and authors cannot avoid the mutual feeling of trust and transparency as subcontractors and the provider of the ultimate service.

Trust remains the key message as consumers are eager more than ever to be associated with brands that put out content that is honest, useful, and specific. Customer insights hold true that their attention and loyalty are most likely to be gained by brands that make available honest, accurate, and timely information. This concurs with HubSpot results which pointed towards audiences appreciating brands that spend their time educating and informing the consumer, than focusing on hard selling. Although producing ethical and honest contents fosters trust and brings relationship highlighted marketing that focuses on long-run relationship instead of short-term sale.

3. The purpose of using digital media when communicating with customers.

I have come to realise that having an Instagram, YouTube and LinkedIn account is almost mandatory when it comes to content marketing. They enable unique and interesting communications in the form of advance emails, unique social media updates and exciting videos. That is why the statistics present the fact brands that communicate with their viewers through such channels have higher retention rates. This discussion further shows how digital channels serve as continuous

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engagement tools, which continuously engage consumers within a brand through meaningful interactions.

4. Measurable Effect on Business Development

It may be noted that content marketing not only brings qualitative change but also has quantitative value. Another is that we're able to measure the success of the strategy by looking at numbers such as Click-Through Rates (CTR), conversion rates, and time spent on websites. Business that invest a small amount on content marketing reap much higher return for their investment than they do with other forms of advertising. In fact, this establishes that content marketing has two benefits; it builds loyalty and creates revenue, making it imperative for all sizes and types of companies.

5. Challenges Facing Content Marketing

That being said, there are many challenges that content marketing experiences, these include; The first is that achieving consistency is difficult and; The second is that it is challenging to meet the ever-evolving needs of the customers. The results confirm that a significant percentage of marketers wrestle with how to create adequate frequency and comprehensiveness of content that is appealing to customers. Small businesses in particular, still struggle with resources: it is challenging to be on a par with the competition, either in terms of content quality, as well as the quantity of published materials. Such challenges point to the need for an elaborate content matrix in order to sustain the consistency of the messages and the appeal to the audience's cultures but not at the same time losing the strategic relevancy.

6. Case Studies as Real World Evidence

The case of Coca Cola company's Share a Coke social media campaign and Nike's social media advertising exemplify the extent that strategic content marketing delivers. These campaigns are perfect examples of how shared, significant, touching, and artistically presented material fosters brand believers. Coca-Cola's association with individualisation made the bottles a tool that end-users felt that these bottles belonged to them and Nike spearheaded a social prominent stories. These cases strengthen the research outcomes and prove how various brands can leverage content marketing to obtain both valor and remunerative results.

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Conclusion

As we have seen it is clear that content marketing has turned out to be significant asset for creating and maintaining customer loyalty in the current world that is characterized by high levels of competition and rapidly evolving technology. As a result of paying attention to the ability to offer value-centric, emotionally appealed, and continuous content consumers brands stand to create stronger bonds with the customers. The present article has shed light on the aspects informative for developing consumer loyalty, namely, techniques for storytelling, relationship building, and leverage of digital resources.

From the traditional model of organisations that are providing content to customers that are receiving it, content marketing has moved to a higher level of engaging customer-organisation interactions that engage the trust factor for brand legitimacy. Ideas like Coca-Cola's Share a Coke and Nike's Social Media Marketing show exactly how emotional and purposeful content can influence marketing. Still, analytical data also shows how companies adopting content marketing gain a better understanding of their customers, their engagement rates, and their overall performance to compensate for the costs and investments in the long run of the content marketing journey.The main issues that the article also mentions are the difficulties brands experience – the necessity to develop outstanding content continuously and to address constantly changing consumer preferences. As a result, to manage these challenges, an organization needs to consider a dynamic content marketing approach that is compatible with the organizational objectives and customers.

Recommendation

In order to effectively optimise the opportunities that content marketing offers when it comes to constructing brand loyalty. Brands should be able to have its target market and come up with content that those markets will find useful, relevant, worth their time, and even worth purchasing. Taking time to plan for and execute content activities is an effective way of maintaining relevance in communication. While personal narratives can enhance the emotions within marketing communications, marketers can support them with statistics. Brands need to keep their messages in line with their principles and clients' lives. Stakeholders have to remain truthful to the general public in content production. For this reason, brands should commit to communicating honestly and ethically by sharing insights, promoting ethical

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practices, and sharing customer success stories rather than constantly selling products.Marketing communication channels should also be optimised – social media, blogging, email marketing, etc. Branded content for the channels such as Instagram, YouTube or LinkedIn can be much more effective in growing the customer interest and loyalty Content marketing KPIs includes CTR, conversion rates and customer retention. Constant tracking of the above measures enhances performance and provides a better fit to the customer needs. This translates to the fact that, for small business entities particularly those with little capital, quality should be a priority than quantity. Nostalgic content can be recycled, influencers' support is helping, and cheap tools are effective. Furthermore, brands are indeed to navigate in the connected world and become more attentive to changes in customers' behaviour and trends. Engage collaboration between the related subdivisions, for instance marketing, design and data sciences, to develop effective and engaging content. The concept of creativity and flexibility have to be an inherent part of any content marketing strategy.

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Innovation in Organizational Growth and Sustainability

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Ashurbayev Omar (teacher of Millat Umidi)

Abstract: Change has been the key in every organization as every organization strives to remain nominally competitive and design a better product, service or process. New technologies and non-standard approaches provide an opportunity to save time and means and meet the customer's requirements. Organizations are always innovating and hence are flexible when the market is unpredictable and hence sustainable.

Key words: Innovation, three types of the innovation, Innovations from Google and Netflix

Introduction

What is Innovation? Innovation is the act of creating new ideas, and products, and or services and methods that will drastically alter and enhance the current standards. Issue smarter solutions for problems lies on introducing new ideas or to improve existing technologies, practices, or methods. The innovation could be incremental, with gradual enhancements over time, and radical, with disruptive solutions that transform industries or sectors. It's fueled by imagination, research, and a quest for better solutions to address future needs—and in the process, we're helping catalyze evolution in business and within society.

Importance of Innovation. Innovation is important because it creates change that is positive in terms of growth, production and sustainability. In an organization context, it sustains a competitive advantage by introducing products or services that compel consumers, and increases organizational productivity. It provides the possibility to offer a product differentiation at the time when markets are extremely competitive and shapes long-term outcomes, taking into account the shifts in technology and consumers' needs. Also, innovation fulfills customers' needs and responds to different social needs, and in this way enhance economic growth, human well-being, resource effectiveness across various companies and towns.

Goal of Innovation. Thus, the primary rationale of innovation initiatives and activities is to develop new and benefits by responding to needs and so on. It aims to enhance current solutions, activities, or artifacts based on the accomplishment of users and organizations. Innovation acts at the process level, the cost level, and the market level by seeking to produce more value. In addition, it creates the culture of constant learning and change since it questions the existing practices and introduces new opportunities. Finally, innovation is a primary means by which growth, development and adapting to change is achieved.

The importance of this topic in the present day's business management is easily justified by the presence of several macroeconomic factors. First, through such technological trends as a fast

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pace of AI development, the growth of renewable energy, and the trends in digitalization, new industries are emerging, and existing ones are transforming rapidly. It's suggested that organizations which do not incorporate change are susceptible to becoming irrelevant, on the other hand organizations which adapt to change stand to benefit from enhanced competitive positions, productivity, and customer satisfaction. Second, sustainability is gradually evolving as the core organizational imperative as people and regulators demand more environmentally friendly practices. It has become possible for firms to reduce their overall environmental impacts, improve societal welfare, and depict strong governance structures and standards at the same time in combination with corporate revenue and growth objectives.

Literature reviews

The remaining model is based on "Business Model Genera-tion" by Alexander Osterwalder and Yves Pigneur [2010].

An indispensable guide to business model innovation and containing the Business Model Canvas, this book presents tools in structuring, designing, and experimenting with business models. The book is applied in the corporate and start-up sectors to challenge the current operational business models of creating and delivering value, alongside the methods of capturing it.

"The Innovation Book: Specifically, this paper will focus on the following recommendation contained in "How to Manage Ideas and Execution for Outstanding Results" by Max Mckeown [2014].

In this book, the author defines innovation at the individual level and categorizes innovations as product, process, and business model innovations. A crucial value is that it offers real conceptual tools to grasp how to create, orchestrate, and implement innovation within these areas. They all agree with each other with regard to stressing the need to harmonize all types of innovations for business performance.

Open Business Models: the current paper introduces seven new chapters designed to give readers a more comprehensive understanding of "Open Business Models". "Birth of the New Innovation Champions: How to Thrive in the New Innovation Landscape" by Henry Chesbrough [2006]

Chesbrough looks at open innovation as novelty in product, processes, and business models, a definition I expound on as such. He found that to external sources of knowledge, companies unlock the innovation process, which shift the conventional model to all three types of innovation.

Clayton M. Christensen, Thomas Bartman & Derek van Bever's Strategy & Business magazine article titled "Reinventing Your Business Model". [2016].

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It may be very helpful for anyone who wants to gain more information on business model innovation and know how to approach it as a distinct management discipline and not an act of luck.

Research of methods

For this article, a qualitative methodology was used to explain the literature review and successfully implemented strategies in innovation. Information was collected from various sources, including popular books, articles on innovative product development, process development and business modules. And also an investigation was conducted to accurately analyze the effectiveness of innovation strategies observed in different organizations that adopted these methods.

The main role of innovation in business

Product innovation

Product innovation is the creation of a new product and or enhancement of an existing one. This might be as basic as a development of a new aspect to an already existing good or service, or as complex as development of an entirely unique good or service. In any case, the goal of this type of innovation is to improve the customer's existence by developing a solution that can be easily implemented by them. There are such forces as technology push, changes in the customer needs requirement, product design obsolescence, etc. The product innovation starts with a vast research that analyses opportunities of changes in all these three areas, and how these changes may help a company to enhance the product line for better catering to the customer. Competition also takes place in developing new products which in many respects bring a win-win situation for both the business and consumer. Consequently, an innovative product or service will be useful to the market and people generates more sales and revenues for the firm if successful. Such success is not always expected in the product innovation process and there is always the possibility of failure meriting a topic in this blog. The expenses that accrue from the development of new or enhanced products can get out of hand, and an organization stands to lose if the market does not accept the changes that have been made to the product. Because such a risk is high, some firms will be unable to innovate and will have to go through periods of no development. [Staff, 2019]

Process innovation

Whereas product innovation is about enhancing the tangible good or service, process innovation is about enhancing the creation, provision and maintenance of the good or service.

This type of innovation often falls outside of awareness because it does not immediately or directly create demand or re-velocity. When successful, however, this type of innovation can reduce production costs and translate into increased profits.

Some examples of process innovation include:

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• Upgrading equipment and technology to become more efficient.

• Making the supply chain more predictable and systematic.

• Modifying business processes and workflows to reduce redundancies.

Of all types of process innovation, the one with the lowest risk is usually the least heralded because the advantage of such changes might only ever be recognized or appreciated internally.

Business model innovation

Business model innovation is a more extensive concept than product or process innovation, for that matter**.** This idea of innovation is not new or superior product or service but rather it is how the particular product or service gets to the consumers. At its core, business model innovation refers to the transformation of the value offering that is expecting to be delivered in future and the manner in which the value offering will be delivered to generate revenues**.** An example of a retail business model might be to deliver customer value by offering products that are available for sale within a physical store. In this case, innovation might be something along the line of moving the store to work online with some forms of retail sales. While there might be significant positive outcomes associated with business model innovation, numerous efforts likewise fail. “For business model innovation, it is too significant an initiative that cannot hold its fate in gambles and conjectures,” say Clayton Christensen and his co-authors in one of the issues of MIT Sloan Management Review. “Business leaders must learn about how forms of business models progress in a strategic, structural way over time, especially when it comes to important strategic choices related to new business models.” In fact, when successful, business model innovation could be a major force and leave its mark on an organization, and the national or global economy. According to the analysis made in the article by Christensen, Bartman and van Bever published in 2016.

Real comparing of the popular companies with innovations

Innovations from Google AI:

Google is among the leading global Technology companies that has invested significantly in artificial intelligence innovation that is revolutionizing information interaction and possession. The latest breakthroughs of Google include Google Gemini AI, the new generation of the language model family that will directly confront OpenAI’s GPT. Gemini can comprehend as well as create natural language; these are productisations such as Google Search and Google Assistant. That is why Gemini makes users receive more relevant and accurate answers, so the client satisfaction rate increases. These include: search operations made smarter and easier by AI in Google Search.

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There instead of getting a set of clickable links, the search engine displays rich answers, brief explanations, and summaries that make it much easier to find what's needed. me another major advancement is google bard a conversational AI that has changed substantially by the end of 2024. Bard can now process more multiple input types meaning it can recognize both text and images, making it more proactive in handling users. Finally, Google's DeepMind is still working in the healthcare field; it is seeking to apply AI in the prevention, diagnosis, treatment of diseases including neurodegenerative diseases such as Alzheimer's disease and cancer to mention but a few. These developments show that Google continues steadily to provide more solutions to life challenges by boosting artificial intelligence. [Google, 2024]

Innovations from Netflix:

Netflix has been stretching entertainment in some interesting ways with a couple of features that enhance the show time and even make it more interactive. Something that has recently really taken off is show within a show where the audience gets to make some choices, much like in the recently released films. Netflix is already planning to apply this feature wider, allowing users to have more control over the narration of some shows. The second important innovations are the recommendations based on AI. Currently, the recommendation system of the platform has become wiser the recommendation is provided in relation to the specific client, the program of the client's habits, and even seasonal preferences. Choosing our path of watching episodic content, for example, one of the recent Black Mirror episodes called Bandersnatch. Netflix is increasing this feature to provide the user with even more of a choice as to the plot in some programs. Another key innovation is Netflix's AI-driven recommendations. The platform's recommendation algorithm has become smarter, suggesting shows and movies based on client's individual preferences, viewing patterns, and even seasonal trends. This makes the work of looking for something new to watch as easy as can be. They have also shown their interest in using artificial intelligence to personalize your viewing party with custom thumbnail treatments that are representative of your preferences. This means that the content appears to be more relevant than otherwise would be if it was filtered out thoroughly at each level. Finally, Netflix has entered the mobile gaming space with a choice of games in its streaming service, Stranger Things and The Queen's Gambit among them. It helps make a distinction with placing fresh gaming consoles into home video streaming services since this move unifies them.

Recommendation

In today's fast-paced business environment, the survival and growth of organizations require organizations to have robust innovation frameworks that involve product and process innovations as well as business model innovations. Hence, balancing all three areas of innovation is long term sustainable and only strategy for business growth. First, the need for constantly adapting the product to meet customers' new requirements and internal technological progress should be the primary goal for any business to stay marginal and provide customers with a solution. Secondly, process innovation can improve profitability since it can increase internal efficiency by eliminating

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or reducing costs. Third, the business model innovation is important to implement new strategies by changing the old system of business model. It is now required that businesses must look for new avenues to create value, whether through e-business, freemium, or other value-upon relationships. Also, the companies should go for training on professional development of the image, and innovation to arrest the growing trends in emergence of newer challenges. Hence, through developing competency on these areas of innovations they can gain strategic competitive advantage for customer satisfaction and long term business growth in the global competitive business environment.

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The Role of Religious Factor in Forming Tolerance in Uzbekistan

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Abstract. The article analyzes the role of the religious factor in the formation of a culture of tolerance in Uzbekistan. The article examines historical and modern aspects of religious interaction, as well as the contribution of Islam and other faiths to strengthening interethnic and interfaith harmony. Particular attention is paid to state policy on maintaining freedom of religion and interreligious dialogue. Educational and cultural mechanisms that promote tolerance in society are discussed. A conclusion is made about the importance of religious values and practices in ensuring social stability and peace in a multinational country.

Key words: Uzbekistan, tolerance, religion, Islam, interconfessional dialogue, interconfessional harmony, religious values, state politics.

Introduction. Relevance of the topic. Tolerance as a social and cultural phenomenon is becoming increasingly important in modern societies, where multi-confessionalism and intercultural interaction are becoming an integral part of social life. In the modern world, tolerance is becoming one of the key factors of stable social development, especially in countries with a multinational and multi-confessional population. Uzbekistan, with its rich history of intercultural interaction and diversity of ethnic groups and religions, is a vivid example of how religious values can contribute to strengthening social harmony. "Uzbekistan has long been a country of contact and peaceful coexistence of various peoples professing different religions." [1]

On September 19, 2017, at the 72nd session of the UN General Assembly [2], the President of the Republic of Uzbekistan Sh. M. Mirziyoyev attracted the attention of the entire world community with his initiative to adopt the resolution "Enlightenment and Religious Tolerance". This document calls on all countries to ensure the right to education for all, to help eradicate illiteracy and ignorance, and most importantly, to pay attention to ensuring religious freedoms. As the head of state Sh. M. Mirziyoyev said: “We value our sacred religion as an expression of our eternal values. We strongly condemn those who equate our sacred religion with violence and bloodshed, and we will never be able to come to terms with them. “Islam calls us to goodness and peace, to the preservation of true human qualities” [3]. The great thinker Abu Rayhan Beruni speaks with respect about the merits in the development of human thought and culture of the ancient Greeks, Khorezmians, Persians, Syrians, Arabs and other peoples [4]. In our country there are 2276 religious organizations belonging to 16 religious confessions, about 140 national cultural centers consisting of representatives of more than 130 nations and peoples, the Imam Bukhari International Scientific Research Center, the Center for Islamic Civilization of Uzbekistan, the International Islamic Academy of Uzbekistan, the Imam Termizi International Scientific Research Center, Islamic Institutes in Tashkent, Bukhara (Mir Arab) and Samarkand, religious educational institutions of the Muslim Board of Uzbekistan, Orthodox and Protestant seminaries. Tolerance is

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an integral part of the life of a modern person. Tolerance is especially important today and in the processes that occur in the context of globalization in the Central Asian region. This is due to the fact that, firstly, today only on the territory of our Republic of Uzbekistan live representatives of 16 confessions and more than 130 nationalities. Uzbekistan is a multinational and multi-confessional state. Secondly, since ancient times the Great Silk Road passed through the territory of Uzbekistan, which stimulated the process of communication and mutual influence of various national and religious cultures. Since ancient times such religions as Buddhism, Islam, Christianity, Judaism coexisted on our land. Thirdly, tolerance is one of the main principles of the ideology of national independence [5]. In the context of globalization and the growth of interethnic and interreligious conflicts throughout the world, Uzbekistan demonstrates a unique model of coexistence of various ethnic and religious groups. The state policy of the country, aimed at strengthening interfaith dialogue, in combination with traditional religious values, contributes to the creation of a sustainable culture of tolerance. Studying the experience of Uzbekistan is relevant not only for understanding internal processes, but also for developing models of social stability in other multinational countries.

Islam in Uzbekistan has its own characteristics, different from other Islamic countries, due to the historical connection with Sufism, the wide influence of philosophical and cultural movements, as well as interaction with other religious traditions. Thus, the religious factor in Uzbekistan plays not only a spiritual but also a socio-cultural role, determining many aspects of intercultural communication. **The level of study of the topic and research methods.** The study of the role of the religious factor in the formation of tolerance is widely represented in the works of Uzbek and foreign scientists. Among them, one can highlight the works of R.Kh. Murtazaeva [6], R.R. Nazarov [7], K.Kamilov [8], as well as studies published in international journals by foreign scientists such as A.Yu. Grigorenko [9], G.U. Soldatova, T.A. Nestik, L.A. Shaigerova [10], A.S., Berdalina, L.M. Scarantino [11]. Particular attention is paid to the influence of religious traditions, tolerance, promoting the principles of love, peace and mutual respect. At the same time, there is a lack of systematic comparative studies covering the practical application of religious principles in public policy and public life. The research methods are the analysis of literary sources, including laws and government documents; sociological surveys and interviews with representatives of religious organizations; comparative analysis of tolerance models in Uzbekistan and other Central Asian countries.

Results and discussion. Islam, as the dominant religion in Uzbekistan, promotes such principles as mercy, justice and respect for other religions. In particular, the Sufi tradition, widespread in the region, actively contributes to strengthening intercultural and interreligious dialogue. Great thinkers such as Abu Rayhan Beruni, Abu Ali Ibn Sina and Alisher Navai emphasized the importance of unity and harmony between different peoples.

An important aspect of religious tolerance in Uzbekistan is the development of interreligious dialogue. In recent decades, Uzbekistan has been actively working to create platforms for communication between representatives of different religious communities. This includes holding international forums, conferences and events aimed at strengthening mutual respect and understanding between religions. An example of such a dialogue is the regular holding of international forums devoted to issues of the Islamic world and interreligious communication. For example, the international forum "Dialogue of Declarations" was held in Tashkent, Samarkand

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and Bukhara on May 16-20, 2022. The international forum "Dialogue of Declarations" is part of Uzbekistan's systematic and consistent efforts to practically implement the principles and provisions enshrined in the Special Resolution of the UN General Assembly "Enlightenment and Religious Tolerance", adopted in 2018 at the initiative of President Shavkat Mirziyoyev[11].

The education system also plays an important role in the formation of religious tolerance. Schools and universities in Uzbekistan are actively introducing courses aimed at studying religions, their culture and history. Islamic and interreligious education programs help students develop respect for various religious traditions and strengthen the spirit of mutual understanding and cooperation. School and university programs in Uzbekistan include courses aimed at studying world religions and their role in the development of culture. This helps young people realize the value of mutual respect and tolerance. It is necessary to emphasize that annual events such as the International Forum “Heritage of Great Ancestors – the Basis of the III Renaissance”, organized by the Center of Islamic Civilization of Uzbekistan, create a platform for discussing issues of tolerance and cooperation between different faiths. Religious tolerance contributes to strengthening social stability and harmony in Uzbekistan. Respect for the religious beliefs of each person creates a healthy social atmosphere, where different ethnic and religious groups can coexist peacefully and mutually enrich each other. This creates conditions for the development of the economy, social sphere and strengthening of cultural ties within the country and abroad.

Conclusions. The religious factor plays a significant role in the formation of tolerance in Uzbekistan. Islam, as the main religion, promotes the development of values of peace and mutual understanding, while interreligious dialogue, state support and educational initiatives play a key role in strengthening these values. As a result, religious tolerance in Uzbekistan becomes the basis for the sustainable development of society and peace between its numerous ethnic and religious groups.

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The Impact of Artificial Intelligence on Contemporary Education in Business

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Abstract:

In this study we explore the role of Artificial Intelligence (AI) in the world of contemporary business education. It surveys both sides of the coin, the pros like personalizing learning and increasing engagement, but the cons as well, a loss in interpersonal skills, motivation and critical thinking. The study then through a literature review, presents the benefits of AI in automating tasks and simulating the reality of the business scenario but also points out the shortcomings of AI in developing the key soft skills. Using mixed methods, the research generated qualitative results through interviews with AI and educator experts, and quantitative data from business school faculty and students via survey. With a view to a comprehensive understanding of AI's double impact on the quality and experience of business education, the findings aim at.

Key words: Future of AI in education, AI-powered platforms, ChatGPT in education, AI in business education, AI tools in education

Introduction:

Artificial Intelligence (AI) has become one of the most disruptive technologies of the 20th century transforming industries and redefining the landscape of professional across the globe. Strategic integration of the tool into the educational sector, in particular, business schools, carries apparent significance for the way knowledge is imparted, skills are developed and business students are prepared for the changing face of business environment. According to AI's ability to simulate real world scenarios, to personalise learning experiences and to automate repetitive tasks, AI holds the potential to deliver improved educational outcomes. At the same time, they also rise question about interaction with humans reducing, how will it affect? Nevertheless, it is answer is clear, at very least it will affect social and soft skills of the students which is very important.

In this article we discuss the positive and negative impacts of AI on business education. Through a literature review of how AI is applied and its restrictions in educational contexts plus primary data collection (surveys and interviews), this study aims to understand how AI functions in Business Education today. Institutions are now grappling with the tension between the wondrous promises of technological

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innovation and time-honoured pedagogical methods, and it is important to think about how AI will affect student engagement, interpersonal skill development and what lies in the future of learning.

Literature Review

Particularly in business schools, the transformation of artificial intelligence (AI) has been a revolution. In this of literature review, we examine how AI is impacting both students as well as educators and what are the pros and cons of AI. AI provides efficiency and learning personalized, but long-term effects on learning quality, interpersonal skill development, motivation, and ethics, are of concern.

A growing number of industry experts are seeing artificial intelligence (AI) also as a transformative force in education, business schools more specifically. While many scholars and institutions talk about how AI will revolutionize learning through personalized education and better engagement, there are many concerns about the long term consequences of these technologies. I look at both the positive outlook and critical views as this literature review looks into both the challenges as well as the negative consequences that AI has for business education.

Overview of AI in Education:

Now, AI offers various tools for education – intelligent tutoring systems, automated grading, and learning platforms etc. For these researchers, AI can help with learning outcomes by delivering tailored feedback to students and personalized learning experiences (Holmes et al., 2020). Just as AI can replace the simplest, repetitive tasks, it can also support teachers by removing those tasks from their to do list so they can dedicate more time to the more human centred, creative tasks of teaching (Luckin et al., 2016).

However, AI in education is gaining increasingly mainstream acceptance, but on the other hand, it poses serious doubts as regards the actual efficacy and ethical intervention of the new phenomenon. Some critics devalue that the use of AI systems to promise true learning improvements is overblown. For example, Selwyn (2019) observes that while AI is capable of providing personalised learning paths, they cannot provide necessary business school skills, like deep critical thinking, collaboration and creativity. Also, there is still no clarity on whether AI systems, albeit working on the dynamics, can truly replicate the important interaction between students and teachers that is essential in business education, through soft skills and application of the real world.

AI in Business Education:

AI technologies have been optimistic and sceptical adoption in business education. Proponents say that AI can simulate real world business environment for

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students to experience (Marr, 2018). It is believed that smart tools like business simulations, virtual teaching assistants, as well as automated methods for giving students feedback are more effective for readying them for the challenges of current organization development (Kumar & Sharma, 2021). Davenport and Ronanki (2018) are among the researchers who consider how AI is changing the business decision making process and contend that business schools are obliged to integrate AI into their offerings if they want to remain relevant. As a tool for facilitating business improvement learning, AI can be employed for automating administrative processes or implementing AI supported platforms that create business environments to simulate real business scenarios for students to practice real world decision making in a risk-free context (Chaudhry & Sultan, 2020).

But recent studies have pointed out that AI implementation in business education may put too much emphasis on learning a subject under a specific learning mode. McFarlane (2020) contends, however, that the use of AI to simulate real world scenarios in business education may result in overly simplistic or biased models of decision making. The reality is that AI systems built on pre-established data sets will not be able to handle the complexities and unpredictability of reality in the real world, in industries where such changes or disruptions are normal. On the other hand, customs related with the automation of feedback and assessments risk depersonalising education, demotivating the students and limiting peer and teacher student engagement opportunities (Selwyn, 2019). The concern for AI's overreliance means that systems will reduce human interaction and undermine important business soft skills such as leadership and communication (Brougham & Haar, 2018).

Student Engagement and Learning Quality:

AI in education advocates highlight personalized learning, and other benefits, but contents tailored specifically to a student's needs and speed of learning (Holmes et al., 2020). This approach in theory lets students go through content at their own pace, getting feedback targeted to helping them better understand difficult concepts. However, from the point of view of many students, though this customization may be a good thing, it can be isolating and limiting their social skills.

As several studies have demonstrated, when students use AI heavily, they 'feel disconnected' from their learning experience (Selwyn, 2019). The business environment thrives on critical thinking and collaboration, hence a traditional business education often thrives on dynamic classroom discussion, debates, and groupwork. However, currently, most of the uses of AI revolve around personalised

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learning, sacrificing the potential for collaborative problem solving to some extent. As McFarlane (2020) suggests, students often resent the impersonality of the feedback and interactions when using AI driven learning, and often report losing motivation.

Furthermore, students typically discover that AI platforms fail to deal with complex, open-ended problems typical of business education. Thus, AI systems are deficient in the areas of creative thinking and ambiguity, both of which business students are not only expected to learn, but also develop practical problem-solving capabilities in very business oriented practical problem-solving methods (Williamson et al., 2020). Therefore, students may believe there can be little richness and depth to their learning experience. From Teachers and professors' perspective, AI is a double-edged sword when it's applied into business school education. However, teachers are worried about too much reliance on technology and that it will make creating classroom lessons complicated and overly bureaucratic. According to McFarlane (2020), AI may work as a limitation of teachers' freedom in pedagogy, reducing the freedom of educators to adapt different teaching methods or to experiment with learning, and may force them to only work with preprogrammed curriculums. Business professors worry that AI will train people more on technical proficiencies rather than soft skills like leadership, teamwork and decision making with ethics

Furthermore, AI assessments may possibly overlook the qualitative and interpersonal aspects of business education. Strong leadership, negotiation as well as teamwork skills are often required of the business graduates. AI systems which primarily favour objective, computational outcomes cannot quantify these skills easily (Kumar & Sharma, 2021).

Diminished Motivation and Engagement

First of all, an emphasis on AI in education can threaten student motivation and engagement. But that use of AI tools for personalized learning and task automation can also make students passive in their own educational trip. If the problem solving or the generating of feedback is cast over to AI systems, students may not be feeling the same level of involvement and, without it, critical thinking and ownership of learning are left out. It is because of the lack of spontaneity, human interaction and dynamic and engaging cycle of the learning process, it is often linked to this diminished engagement. This means the student will find it hard to connect with their study and could feel as though they are just ticking the path as they are told to (Williamson, 2020).

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Another large problem is that we are increasingly dependent on AL systems and students are disengaging from those skills essential for problem solving in general. If educators are worried about students completing assignments through the use of AI, then if the tasks seem replaceable by technology, students will begin to wonder about the relevance of their learning (Vladeva, 2021). As students become detached from learning, they become less motivated, because they feel that there is little value in really getting to work on this stuff.

Finally, AI can amplify some aspects of learning but heavy integration could negatively backfire, contributing to decreasing a student's motivation and engagement (PlanIt Teachers, 2024) as a student perceive as feeling separated from the learning process and from developing real world skills.

To address these issues, we must find the balance of artificial intelligence use with human led opportunities for creative learning experiences that keep students intrinsically motivated.

Research Methodology

Research Design: Mixed method approach, which combines both quantitative and qualitative research techniques. In this Mixed-method we will use it for providing comprehensive understanding of how AI is effects on business education

Qualitative method: The qualitative method includes semi structured interviews and survey with experts on AI, business school administrators, educators and students. For this purpose, we designed a set of survey questions that request deep insights about how AI is perceived and used in business education, what challenges and opportunities AI bring to the field. Also, this flexibility of semi structured interviews offers the opportunity for open ended response by which they can present their singular view and at the same time make sure that all the key themes discussed in every interview. This method is possible through the collection of in-depth insights into the use of AI in business education through semi structured interviews using business school administrators, AI specialists and educators

Quantitative method: The research is quantitative in the sense that we used surveys distributed to faculty members and students in business schools. The objectives of these surveys are to gather information about people's experiences both with intelligent tutoring systems and automated grading tools as well as business simulation tools in education. The survey contains closed ended questions and multiple choice formats as well as open ended questions where participants write about the received benefits and problems of AI in learning or teaching.

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We will conduct surveys in various business-related universities, surveys will be distributed among the faculty teachers and students to assess their experience related to usage of AI tools

Combining these two methods will result in more depth and richer analysis, mixing both qualitative and quantitative researches will give more understanding.

Data Collection: sample:

The target for the survey is 10 faculty members and 50 students. To generalize the findings to a wider range of business education settings, stratified random sampling is used to obtain representation from different departments and academic levels.

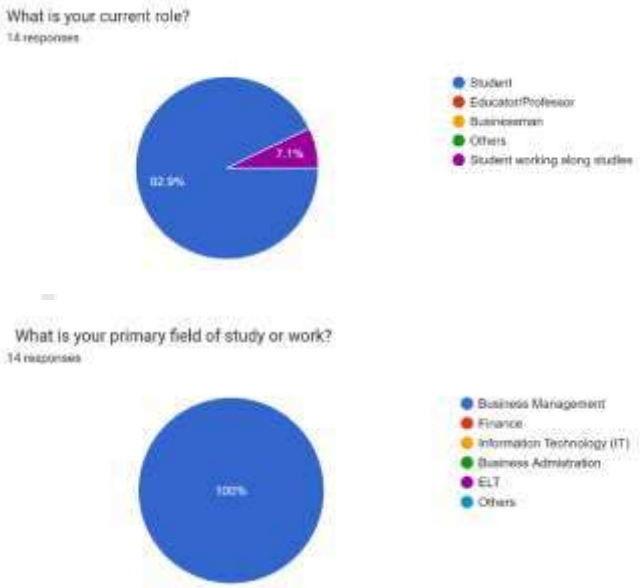
Sample population includes:

Business universities Faculty: Professors and Staff that involves in teaching business curses

Students: Business students

My study target is Millat Umid University, BTEC and Business Administration faculties will be. I will be asking about effects of AI.

Here you may see collected data.



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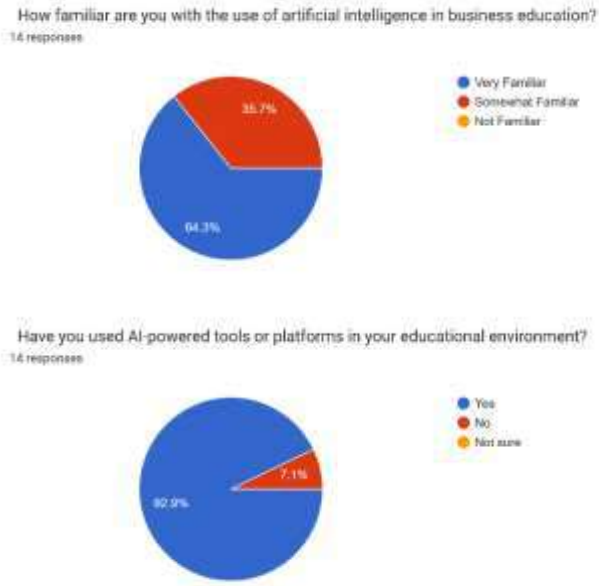

From the survey, the overall conclusion is that AI can play a powerful role of adding value to the current education in business schools rather than being a replacement. AI tools like ChatGPT are gaining interest and momentum among students and teachers, hoping for learning experiences made better by the use of AI. For now, people still worry that AI will take over human work in education, but the technology is evolving. To integrate AI successfully into business education, the considerations should focus on how to make AI tools accessible, affordable and can work in coexistence with traditional teaching tools.

Data collection methods:

Surveys: I will be conducting and distributing survey among the students of two faculties BTEC and BE

Interviews: in order to get more insight, I will be interviewing faculty members about how AI effects on students' university life, education level and other impacts

Tools and Instruments:

Survey tools: I will be using online tools and offline tools: Google Form and paper-based survey.

Interview Protocol: I will develop and provide a semi structured interview guide so that the interviewees can share their unique experiences, yet remain consistent across interviews.

Data Analysis:

Qualitative method: Transcribed interviews are analysed by thematic analysis. The method of coding is used to code the data to discover frequent patterns and themes on the benefits and challenges for the use of AI in business education. In

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depth the themes of "AI and personalized learning," "impact on soft skills," and "ethical concerns in AI" are explored, with representative quotes featured to convey the principal findings.

Quantitative method: Responses from surveys are summarized through descriptive statistics and the whether there are significant difference in perceptions of AI's impact between different groups (e.g., faculty versus students, undergraduate versus postgraduate) is determined using "inferential statistics" (e.g. t tests). It also performs cross tabulations (it is process of organizing obtained data by using systematic rows and columns) to explore how age, academic level and familiarity with AI tools affect responses.

Discussion

Balancing between AI and Human-Centred learning

With AI development dominating the nature of education, business schools struggle to incorporate these technologies into the existing educational system while still trying to increase number of human interaction in the ongoing learning process. AI is excellent at increasing efficiency while offering customized support, but cannot substitute for the benefit of teacher / student interaction, group dynamics or the coincidental learning that takes place through peer collaborating.

Impact of AI on future of the business

The findings imply that business education in the future will probably be a hybrid of traditional models supported by AI rather than being substitute for traditional study by it. However, to fully benefit from AI, teachers and institutions will need to adopt AI strategically, so that students don't only gain technical skills but also soft skills (the critical thinking and ethical decision-making required in the complex business world).

Conclusion

The challenges that education and educators currently facing in today's AI in the field of business education is both an opportunity and challenge. While administrative tasks can be automated and there are personalised learning experiences, this is not enough when it comes to fostering soft skills and deep interpersonal learning. To advance a point in business school education, business schools need to find a balance between adopting and integrating AI's potential into the business school ecosystem, while simultaneously retaining the human dimensions essential to an education that produces well rounded professionals. In the future creating new AI tools that helps to increase the efficiency of the collaboration and soft skills which is impossible to gain anything with current AI.

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ORGANIZING LESSONS FOR STUDENTS USING ART-PEDAGOGICAL TECHNOLOGIES.
(using the example of Kashgar rubab)

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Abstract: This article discusses the significance of the Kashgar Rubob instrument and its cultural and educational functions, such as the development of artistic culture through art-pedagogical means, the acquisition of knowledge in the field of art, the acquisition of practical skills in artistic and creative activities, as well as the moral and aesthetic connection of students.

Key words: Kashgar Rubai, art pedagogy, music education, musical instruments, performance practice.

Introduction.

Rubob is a factor that unites the peoples of the Central Asian region. It promotes cultural and social cohesion and plays an important role in strengthening cultural exchange and solidarity. On December 2-7, 2024, the 19th session of the Intergovernmental Committee for the Protection of Intangible Cultural Heritage of UNESCO is being held in the capital of Paraguay, and on December 4, 2024, at the meeting of the Intergovernmental Committee, at the initiative of Uzbekistan, together with other countries of the Central Asian region, the nomination "The Art of Making and Playing Rubob" was included in the Representative List of the Intangible Cultural Heritage of Humanity with the unanimous consent of all member countries. The committee's decision noted that the rubab is one of the oldest musical instruments in Central, South and Southwest Asia, and the art of making and playing the rubab became the 16th element included in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity at the initiative of Uzbekistan.. [27].

Before discussing how to engage students in musical education in performing musical instruments, let's focus on musical instruments.

Musical instruments are musical tones or musical instruments designed to create specific sonorous sounds and certain rhythmic structures, used for solo or collective (various ensembles, orchestras, etc.) performance of music. The sound of each musical instrument has its own timbre, a certain range of sound lines, and expressive possibilities. The sound quality of musical instruments often depends on the shape, overall structure, device, and material used in its manufacture. Musical instruments have long been made of reed, bamboo, wood, stone, bone, metal, leather, silk, coconut, pumpkin, etc. The characteristics of intonation can be changed with the help of additional means, performance styles (for example, scratching strings, flajolet, etc.), and some musical ornaments. Its emergence dates back to the early stages of human history, and its improvement is linked to the development of musical art and performance, as well as the development of musical instrument production techniques.

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Although the history of the Kashgar Rubob instrument goes back a long way, there is very little information about it in historical sources. One of the scholars who spoke about the Rubob instrument is Farabi. The scholar's treatise mentions a two-string or one-string rubab, the sound of which is said to be close to the human voice. However, research scholars note that the instrument, which al-Farabi called "rubob," may be a ganjak instrument, depending on the characteristics described. Professor U. Toshmatov emphasizes that the basis for this is the fact that the Arabic word "rabab" is still used today. In his treatise, Dervish Ali Changi states that during the reign of Sultan Muhammad Khwarazmshah (1200-1220), the rubab was widely popular, with four strings and one silver string. Over time, the rubab instrument became more sophisticated and widely used in performance practice. Two types of rubabs are practiced in Uzbekistan - Kashgar rubab and Afghan rubab.

Main part.

The process of learning to play a musical instrument is aimed at students' conscious mastery of the basics of performance, the formation of skills necessary for performance and the ability to apply them in practice, and the development of independent creative thinking and observation skills, as well as the formation of an aesthetic taste.[1] Among the general professional disciplines in this field of study, students are given recommendations for performing on the Kashgar Rubob instrument, organizing and working with an ensemble of musicians.

The object, means, goals, and objectives of art-edagogical technologies, as well as the effectiveness of their implementation in the educational process, will have a positive impact on the improvement of the content of education. The process of rapid and intensive development of science, technology and information transfer, exchange technologies at an unreasonable level, in turn, has led to the development of the field of education and traditional methods with innovative, modern and intensive methods.

Existing experience shows that in ensuring the effectiveness of the educational process, the content of education should be improved, improved curricula, textbooks, pedagogical skills of the teacher, mastery of artistic and technical technologies, effective and appropriate functioning in the educational process should be improved.

It is known that the tool of didactics is the content of teaching, learning, and education. Failure to take any of these three components into account contradicts the content of education. Teaching and learning, as well as their final outcome, depend on the content of education. The study of various topics in the educational process, with its own unique methods, is unique in its nature and content, which is mainly dependent on the teacher (teacher) who organizes the study. [3].

Over the years, the instrument of the Kashgar rubab has been formed, its structure and form have been changed. These changes put forward the task of studying the styles, rules, and various performance techniques required in subsequent periods.

Students who have firmly mastered the teacher's performance methods and have achieved a certain level of success in performance should be aware of the experience of other master performers, analyze and apply their performance methods in practice, and further develop their

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performance skills by comparing different performance schools. Experience shows that in some cases, even if the student tries to perform some part of the melody, it is observed that the idea of the author of the work does not meet the requirements. In some cases, teachers in the process of teaching a single melody, even if they notice shortcomings in different performance situations, immediately correct them and do not give the necessary instructions. Due to such neglect, which is allowed from the very beginning of learning, students acquire performance skills incorrectly or superficially. In this process, the teacher must identify specific causes, explain ways to eliminate them, and himself perform and show them. During the performance, the student should focus their attention on the performance of all parts of the melody in the norm, and on the performance of complex parts in clear sounds. To correct these shortcomings, more effective results can be achieved by providing additional exercises.

During the learning period, students need to develop various ways of performing and master the skills of understanding the differences between musical sounds and melodies. Because performance experience is gradually formed, and a certain level of performance skills is developed.

The performer is required to follow a certain order in the process of studying complex musical works in terms of content and form. In other words, to raise the performance of the work to a high artistic level, it is necessary to study the melody by dividing it into parts, repeating and reinforcing various existing ornaments, various melisms [5].

It is known that in the Kashgar rubab, along with Uzbek folk melodies, works by various world composers are also performed. Therefore, it is necessary to master the special ornaments used in traditional performance and in the performance of works of various genres. After all, ornaments ensure that the melody is performed expressively, more impressively, and beautifully.

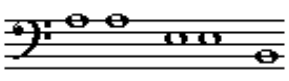
Although each musician has a certain imagination and skill in performing these ornaments, the performance can only be successful if all the performance requirements in their application are fully observed, because the works will be enriched and have full content. Therefore, in the process of working on decorations, it is first necessary to understand their essence and, at the same time, to understand what should be paid attention to when using them. Of course, performing on Uzbek folk instruments, along with all other peoples, requires the use of unique ornaments. The origin of the Kashgar rubab is associated with the name of Kashgar in East Turkestan (now the Uyghur Autonomous Okrug of China). The instrument is strongly attractive, melodious, and resonant.

The Kashgar rubab consists of two parts - a bowl and a dast. It is made of mulberry, plane tree, apricot and other hard woods, and it is covered with a veil of animal skin. Modern rubabs draw a veil from the skin of a cattle's heart and from the skin of a fish. Arc-shaped decorative branches are installed on both sides of the place where the bowl is connected to the handle. They are carved together with the bowl. Five ears are located at the beginning of the handle, which pull the strings. Up to 23 special curtains made of copper are chromatically mounted on the handle.

Today, Kashgar rubab is processed and tempered based on semi-tones. The sounds of the Kashgar rubab cover the middle register. It is considered a transposable instrument and sounds an octave lower than recorded. The notes of this instrument are written in a violin key.

inscription:

playback:



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The range of the Kashgar rubab is nearly three octaves:

The Kashgar rubab has five strings, one made of gut and four made of steel wire. The first and second strings are arranged in a double order and set within a quarter-quint interval. In the Kashgar rubab, voicing is carried out using a mezrob (mediator). In this case, the downward movement of the mesotrope is denoted by the symbol "∏," while the upward movement is denoted by the symbol "V":

and so on.

As a result of tapping the instrument, it is possible to play the tremolo, staccato, pizzicato techniques through the thumb of the right hand. It is also possible to widely use single-stroke, double-stroke, reverse-stroke, reverse-stroke, and counterstroke. The Kashgar rubab has a unique, beautiful sound.

The Kashgar rubab is one of the easiest to learn. Nevertheless, in professional performance, the Qashqar rubai requires great technical skills and many years of experience.

The great contribution of the master artist Muhammadjon Mirzayev to the widespread popularization of the Kashgar rubab today is great. At the same time, Abbas Bakhromov, Suleyman Takhalov, Ari Bobohonov, Tahir Rajabi, Shavkat Mirzayev, Rifatilla Kasimov, and others are contributing to the art of rubab performance.

Conclusion.

Summarizing the research results, it can be said that during its course, we considered the following problems:

The goals, objectives, functions, and main ideas of art pedagogy have been identified and outlined. The goal of art pedagogy is to stimulate students' cognitive activity through the use of various types of art. Objectives: to create favorable conditions for the creative realization of the individual, to develop students' self-awareness as individuals and their role in society, the ability to appreciate high examples of national culture and assimilate spiritual and moral values, and to develop aesthetic taste. The functions of art pedagogy: cultural, educational, upbringing, and corrective. The main ideas of art pedagogy: ideas of humanism, creativity, reflexivity, and integrativeness.

Based on the above, it can be concluded that the use of art pedagogical methods in the lesson can become an effective strategy for the harmonious and comprehensive education, upbringing, and development of students. Their difference from the traditional methods used in classes is that they are based on a person-centered approach, taking into account both mental and developmental characteristics common to all students and individual characteristics. With their help, we can present the material in an easy and interesting way, while simultaneously carrying out the comprehensive development of the emerging personality through artistic means.

Every young artist who wants to master the art of national music should improve their skills, know such characteristics as sound intonation, performance spirit, inner feeling, and, in addition, follow the representatives of a certain school.

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Then, in exchange for years of exercises, one has one's own way, one's own style of performance. Then they will be able to perform our national classical works in their own way without violating the musical text.

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Effective Upselling Techniques in the Automotive Industry

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Norboyev Zohidbek student, Millat Umidi Unversity, Tashkent

Abstract

The exigencies of the automobile industry are constant pressure to increase revenues while providing outstanding customer service and satisfaction. A critical strategy to increasing sales within the industry, is upselling, a sales technique where you encourage customers to buy higher end or additional products. This article applies its craft of studying literature relevant to the automotive sector as an industry model in the consumer service to solve the problem of the effectiveness of upselling techniques on sales profitability. It emphasizes on product knowledge, customer relationship management, systematic and digital tools and individual approaches. It helps us gain a better understanding of how the automotive industry can use upselling as a means for sustainable growth.

Introduction

In the automotive industry, manufacturers, dealerships, and service centers are everbusily looking for ways in which they can increase revenue while enhanceing customer satisfaction at the same time. Upselling is one of the strategies used to increase revenue potential by convincing customers to get a higherend model, more features, or complimenting products and services. The use of upselling is quite popular in a range of industries yet its implementation in the auto sector needs to be implemented considering factors such as the preferences of the customer and his buying traits.

Pushing higher priced products in the automotive industry and calling it effective upselling is a fallacy. It's all about customer profiles, upgrades of products, and long term relationships with customers. The idea is to generate a win-win situation for both the customer and the business, by which value is created for both. According to existing literature, in this article we will explore key upselling techniques in the automotive industry, including challenges and best practices. The focus of this thesis is to see how dealerships and sales teams can adopt and improve their upselling strategies to maximize profitability and increase the overall customer experience.

Literature Review

1. The Concept of Upselling

According to Noble et al. (2006), up selling is a sales strategy whereby a seller motivates a buyer to purchase a higher priced version of a product, or add supplementary products to his purchase, which adds value to the total transaction. In the automotive industry, for example, upselling can mean selling a customer a more expensive model, more vehicle features, extended warranty or service packages Not only is this way to increase sales, this is beneficial in building stronger customer relationships by placing personalized product recommendation.

2. The thesis of Customer Relationship Management (CRM) and Upselling

Upselling techniques are made possible through CRM systems by giving insight into the customer that helps customizing product recommendations. Automotive sales teams can leverage CRM tools to identify customer's preferences, purchase history and behavior which could help them to sell products more effectively. For example, if a service customer comes to the dealership

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frequently, he may be more willing to enjoy a more expensive vehicle with top notch features if the recommendation meets his needs and expectations.

It has been proved that CRM systems help upsell as personalized interactions within the systems enhance the upselling potential. Verhoef et al. (2010) states that using CRM for customer segmentation, sales teams can then identify high value customers more likely to respond well to upselling offers. Dealerships can have increase the conversion rate and loyalty of the customers by offering them personalized incentives such as discount and loyalty.

3. Digital Tools and Technology Role

Recently, plenty has happened with the automotive industry; technological advancements, digital platforms that allow upselling, and much more. Online configurators, virtual showrooms, and digital brochures serve to enable customers to see what they are able to select, and what additional features to choose (Jin & Liu, 2020). But these digital tools not only make the process of the purchase easier, they also give sales teams data to use to tailor upselling efforts.

For instance, customers can use digital configurators to see what they gain if they move to a more expensive vehicle, or add thrills like advanced safety systems, enhanced infotainment, or overall better performance. These tools help make customers happy with a seamless experience that eases the process of customer decision making and subsequently encourages upselling (Lee & Lee, 2020).

4. Sales Training and Product Knowledge is one of the most successful ad placings in the BDC Calendar.

Having a well-trained sales team with the correct product knowledge is one of the key elements to successful upselling. Product and services knowledgeable sales representatives can make confident and relevant suggestions which benefits customers. Training programs for employees should provide the skills needed to recognize what customers need, recommend things specifically tailored to those needs, and show them how to overcome objections.

Best & McGovern (2016) showed that sales teams who had a deep understanding of vehicle specifications, financing options and after sales services could do a much better job of upselling on higher end products and services. Furthermore, training in soft skills, such as active listening, empathy and communication techniques improved customer satisfaction and the probability of upselling.

5. I incorporate a brief review of Psychological Factors and Consumer Behaviour.

As it is with everything, understanding of psychological factors which takes place in influencing consumer behavior is very important in upselling. One of the main factors boosting the upselling chances is if the added products or services will serve to improve customers' experience as a whole or help them satisfy their own needs. This can be in the automotive industry: providing features which enhance safety, comfort or convenience.

For example, the principle of reciprocity may lead customers to be more willing to accept an upselling offer when they view themselves as giving up something, for example, if 'something of value in return is seen as part of the deal – personalized service or special offers (Schindler & Kibarian, 2001). Furthermore, sales teams should not simply push the sale but instead try to frame the upselling offers as ways to solve customer problems, make customers' lives better, or fill some particular want.

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6. Challenges in Upselling

Although upselling in the automotive industry could be valuable for the business, there are hurdles that it faces. The one major issue is the potential alienation of customers that feel threatened into making more purchases (Fitzsimons et al., 2016). Customers will not like when upselling efforts seem too aggressive or just inauthentic as it will result in negative perceptions of the dealership and decrease in customer trust.

The second challenge is that making effective upselling recommendations requires accurate data. Although CRM systems deliver great insights, when customer data is not accurate or complete, the upselling offer that is sent may be irrelevant and bore the customer (Sterne, 2010). In addition, without enough time to make the decision, upselling becomes less effective, particularly when upselling high cost items such as vehicles.

Methodology

An analysis of academic journals, industry reports and case studies from the automotive sector formed the basis for the literature review. Sources include peerreviewed articles from databases such as Google Scholar, JSTOR, ScienceDirect which give a complete overview of upselling techniques and its use in automotive industry. The chosen studies are diverse and focus on CRM systems, digital tools, sales training, customer behavior and psychology of buying decisions.

Results and Discussion

1. Personalized Upselling Effectiveness

In the auto industry, personalized upselling strategies have turned out to be very effective in boosting income. If sales teams know their customers preferences, and use that knowledge to offer relevant upgrades, customers appreciate that kind of product recommendation. This approach not only boosts sales, but customer satisfaction too, because customers feel heard and their 'unique' needs are being catered to (Peppers & Rogers, 2016).

2. The Impact of Digital Tools

The use of digital tools for upselling in the automotive industry has changed from the use of online configurators and virtual reality showrooms. They serve the purpose of allowing customers to have a hands on experience with other features and upgrades that are provided in an easily accessible user friendly way. According to the authors, studies indicate that customers who use these tools are more prone to buy higher end models and features than those who do not use them (Jin & Liu, 2020).

3. Sales Training and Knowledge are the Critical Factors.

Upselling is all about sales training, it relies heavily on sales training. The dealers that have invested in training programs that include both technical education and interpersonal engagement achieve higher upselling conversion rates. Best & McGovern (2016) stated that well informed sales teams can hence be able to identify customer needs, solve their concerns and present upsell opportunities that resonate with the customer’s interests.

4. The second arguments are customer resistance and ethical considerations.

Upselling can, however, be a powerful way to increase sales, provided you do it ethically. They can lead to a dissatisfied customer and in the worst case scenario, affect the relationship with the dealership. As a result, sales teams need to strike a delicate balance between the push for more

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revenue, the need for customer preferences to be respected, and a process of upselling that won't be considered manipulation (Fitzsimons et al., 2016).

Conclusion

One of the keys to thriving in the automotive industry has been and continues to be upselling. With the rollout of personalized recommendations, the use of CRM tools, incorporation of digital technology and effective sales training, dealerships can improve their upselling and ultimately customer satisfaction. But when upselling, it's important to do so sensitively and leave customers with the feeling that it's serving a need of the customer, not just the desire to upsell.

With the automotive industry forever changing, dealerships want to ensure that they have all the tools necessary to stay ahead of the competition and build lasting customer relationships. And effective upselling techniques will continue to be an effective tool for them.

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How Smart Devices Are Revolutionizing Home Workouts

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Abstract

Smart devices have brought a new revolution in smartening up home workouts, making fitness more accessible, more personalized, more engaging. In this article, I explore how smart devices including fitness trackers, smartwatches and virtual fitness platforms are transforming home based activity. By employing advanced sensors, real time data feedback and interactive features, these devices create personalized fitness plans, track performance, and further increase motivation in achieving ones fitness goals. Aside from that, gamification, virtual coaching, and social connectivity elements have helped to keep users more engaged and outcomes of workouts higher. The recent literature on the role played by smart devices in home workouts is reviewed and how such devices can help promote physical activity, facilitate the achievement of health goals, and help adopt long lasting fitness habits are highlighted. Findings show smart devices aren't just changing the way people approach fitness, but are making the work out more effective and fun. Yet accessibility and technology literacy continues to be a challenge of utilizing smart fitness tech, which needs further study to optimize its capabilities.

Introduction

From an industry perspective, the phenomenon of home fitness is changing the way people pay attention to physical activity. The advent of smart devices has rendered workouts no longer a thing for only gyms. Now users can track their progress and their training, and create interactive experiences through technology. Major equipment for smart health has made tracking and improving physical health easier from home. In this article, we look at how smart devices have made home workouts smarter, offering a closer look at how they contribute to improved performance, motivate, and offer personalized training solutions.

Literature Review

There is increasing discussion in academic literature about technology in home workouts. Smart devices, like fitness trackers, smartwatches and smart equipment, are having a huge impact on the motivation and success of home exercise routines, shows research. Popular and growing in use in the fitness landscape, these devices provide a range of functionalites from real time performance tracking to personalized fitness plans, virtual coach, and social integration.

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Smart Fitness Devices: Features and Benefits

Fitness trackers are now becoming mainstream smart devices used by health and fitness enthusiasts. The literature states that fitness trackers track a number of health metrics like heart rate, steps, calories burned and sleep quality (Zhou et al., 2079) These devices have the capacity to immediately give you feedback, to help you fine tune your workouts and a lifestyle to suit your needs. Beyond that, these devices also obtain added utility by being capable of integrating with mobile applications to provide such detailed data analytics, trend analysis and recommendations.

Wearable technology beyond just tracking physical activity actually includes other features like heart rate variability (HRV) and stress levels, which are essential to getting optimal workout efficiency and recovery (Fitzgerald et al., 2020). These metrics have already proven to become solid metrics to help personalize workouts and control people through recovery stages of phases and at what intensity levels are actually optimal.

Virtual and Interactivity Fitness Platforms

Virtual fitness platforms are all the rage right now and especially since the COVID-19 pandemic many people have been forced to take to home workouts. Virtual fitness platforms, as with smart devices, help people participate in live or on demand fitness classes or training sessions at home. According to Rhoden et al. (2021), user engagement was spiked by virtual fitness platforms as they allowed users to feel part of a community and receiving support from the instructors and other participants in a remote environment.

These platforms can also be equipped with smart devices that relay users real time data regarding heart rate, calories burnt or progress towards fitness goals. These help trainers to offer more personalized experiences—the trainers can adapt to a user's performance. Additionally, students can benefit from interacting with virtual coaches and instructors with a dose of intelligent technology typically only available in gyms.

In Home Workouts, motivation and Gamification.

Any successful fitness regimen is based on motivation; smart devices are innovatively working to tackle this key factor to success. The research indicates that the use of gamification in fitness apps and devices can greatly improve user motivation (Barkley, et al, 2018). Game like elements of badges, challenges and virtual rewards that appear on fitness trackers and apps reward users for reaching their goals and staying on top of their routine. For instance, some devices include leaderboards, with which users compare their own progress with their friends and can compete with each other in a certain way.

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Furthermore, wearable devices including smart watches provide reminder and notification prompts to users to reach their daily activity goals resulting in aiding the overall achievement. These nudges are meant to encourage people to stay active throughout the day so it helps promote fitness success.

Aspects of Health and Wellness Integration Smart devices also become tools to track holistic health and wellness, beyond just physical activity, by logging sleep patterns, nutrition, and mental well being. In many studies, use of data from different aspects of health have shown that users are able to collect a more holistic view of their well being, and therefore more informed decisions about their lifestyle. A study carried out by Pelusi et al. (2022) estimates that devices such as the Apple watch can enhance the welfare of its users, using sleep quality, heart rate and physical activity as measures. 'Here you can adjust your routines and behaviors based on data driven insights, which helps you to better understand how small or large factors determine if you get fit or not.'

Entrepreneurship in technology is adding more personalized experiences in fitness with smart devices integrating into apps that focus on wellness. Typically, such apps employ algorithms to provide workouts that are appropriate for the physical capacity of the user; goals and lifestyle. Keeping this in mind, this personalized guidance serves to make workouts more effective with focusing on your own fitness needs and preferences which the conventional gym regulars may not be tailored towards.

Methods Understanding the role of smart devices in home workout has been used a methodology that combines both qualitative and quantitative aspects. This was done by using a combination of surveys, interviews and case studies to evaluate the user experiences and smart devices outcomes. Fitness apps and device data like step count, workout intensity and progress towards goals can be analyzed to better understand the effect of integration of these technologies for fitness outcomes.

Furthermore, use of smart devices is now being studied to assess the long term health outcome effects. The researchers also examined whether consistent use of wearable fitness trackers is related to improved physical fitness, reduced sedentary behaviour, or better mental well being.

Results As it turns out, the use of smart devices has helped people adopt more workout consistency and motivation. Chung et al., 2021 found that when users used fitness trackers and smartwatches, they achieved their fitness goals better than in the group that did not use these devices. A big reason for this is that these instruments give real-time feedback and inspiration to users, that keep them on path, likewise adapted their workouts as should.

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Virtual fitness platforms integrated with smart device have also been linked to better work out performance. According to a report by Rhoden et al. (2021) users that used the smart technology to either join a live or on demand fitness class had better results in that they were motivated and physically performed.

Furthermore, gamification has positively affected user's adherence to fitness routines. Having virtual rewards, challenges and social features in workouts have been shown to make workouts more fun and engaging, which in turn will lead to greater consistency. While it wouldn't necessarily work for every, these features have really helped transform fitness from a solitary activity to a more social and interactive experience.

Discussion

Hence without a doubt, the rise of smart devices has made really a difference in the world of home workout. These devices provide real-time feedback, personalized training and interactive features: making fitness available, engaging and effective. With the addition of gamification integration, virtual coaching, and health tracking into home workouts, it is now much easier for users to achieve their fitness goals, with much higher motivation and performance.

Nevertheless, it is not yet clear whether smart devices are being created in ways that are inclusive for all people — including those who lack technological savvy or economic ability. Additional research is also to be done on the long term effects of home workouts using smart devices on one's general health and wellness.

Conclusion

Home workouts have been revolutionized by smart devices, that provide personalized training, real time feedback and enhanced motivation. Wearable fitness trackers, smart equipment and virtual fitness platforms come together for a more interactive and the data driven fitness experience. However, the role of smart devices in home workouts will probably continue to increase with advancing technology, providing still greater functionality. Ultimately, these devices have helped people become more active, healthy and motivated wherever they are.

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Entrepreneurship and Startups

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Abstract:

Startups ventures are important in today's economies as they bring change through innovation, job creation, and solution of social needs. This paper examines the parameters of startups, focusing on the stages before launching the business that define its fate. This paper qualitative and quantitative review analyses issues like poor market research, lack of adequate financial resources, and the need for flexibility in today's volatile markets. Emergency remote teaching, based on case analyses of firms such as Dropbox, Zoom, and Slack, identifies major components of success including market-product fit, team constitution, and financial vulnerability. In addition, varying degree of persistence, new ideas, and strategic risk-taking are examined to explain the level of growth. Overall, this work highlights the need to adapt, to think in sync with market forces and to have adequate business plans when exploring the murky terrain that is the startup environment. These are including improved emphasis on customer-oriented innovation, optimal funding management and effective utilization of globalization factors. Depicted below are findings meant to help aspiring entrepreneurs avoid common pitfalls to achieve sustainable success in their start-up domains.

Keywords: Startups, Entrepreneurship, Innovation, Risk Management, Funding, Market research, Product-Market Fit, Flexibility, Startup Challenges, Success Factors, Economic Growth

1.Introduction

Research Background Startups have become influential players in today's fast changing society, economy, and market environments. They are often born from a simple yet profound idea: to address an issue, fill a want or an undertaking in order to fashion a superior approach. It remains fun as well as a roller coaster ride when operating or being associated with a startup simply because there is so much invention, calculation as well as determination required along the process. Starting from the noisy streets of California's Silicon Valley through the entrepreneurial Asian cities startup dreams has inspired individuals who are ready to change the world.

The desire to begin a startup stems from the ability to create something, solve a problem, and become financially secure. Journeymen, such as Steve Jobs, Elon Musk, and Sara Blakely are a shining examples of role models, which are proven that even an individual starting without a concept can create a worldwide business. However, often the public does not realize the amount of effort that goes into such success, the questions that the entrepreneur faces, and passion for the job.

Research Problem

For any business person, starting a business is not easy since the risks are very many and sometimes one may be lost on where to start. So most statistics focus on the large numbers of failed start-ups that close their doors within the first 2 to 3 years. Such adversities, though, do not

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discourage potential business starters; instead, such conditions highlight the essence of needing to prepare oneself, to start a business, and to listen and learn from experience – whether they be gains or losses. Being able to establish a corporate narrative for every successful startup is a standard fact; but comprehending this narrative rewards excellent incorporation and may prove helpful for an aspiring entrepreneur.

Research Objectives

In its simplest terms, a startup cannot just be looked at as an enterprise—be it small scale or a large scale business, it is a solution in the making. Startups that reach their goals find out that there is a demand for particular service or product, and the audience for this service or product has specific needs that should be met through a particular approach. But it doesn't end there – having a good idea is just the starting point. To grow that idea into a successful business venture, there must be direction, capital and most importantly a system.

Scope of the Study

Drawing on both theory and practice, this article provides lessons and risk management approaches of a startup, focusing on pre-launch stages. It spans from the concept phase where ideas are incubated and tested up to the moments that matter most — funding, assembling talent and developing a brand message that appeals to the target consumers. Furthermore, it analyzes what makes startups unique with a focus on the competitive threats, funding and working capital issues, as well as growth hurdles and ways to get around them (beatricearonson, 2024)

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2.Literature review

Starting a business requires a mix of ideas, planning and good endurance to survive the harsh initial years. Innovation, according to Steve Jobs, co-founder of the world's Apple was the key that set a leader apart from a follower. This knowledge perfectly sums up the reality of startups having to build their own niches and develop proper value propositions. Studying the Lean Startup method, formulated by Eric Ries, it is necessary to pinpoint the significance of the MVP approach. An MVP is the best approach, as the development of startups entails greater risks than traditional business plans odd as that may sound Jobs, S. (2024).

Other human interest themes include the ability to avoid or hold on regardless of major setbacks or the capacity for organisms to rapidly adjust to environmental pressure. Elon Musk's words that persistence is very important. 'One must never quit no matter what', is the attitude required to cope with the randomness inherent with the process of starting a business. This is why the literature often points that flexibility in business models coupled with a well defined target audience is a winning combination Musk, E. (2024).

Knowledge of when and why these startups fail is equally as important. The quote by Thomas Edison was 'I have not failed. This quote – "I have just discovered 10,000 methods that do not", is often cited when speaking about the values of an entrepreneur. Research shows that many startups fail because they do not conduct proper market research, they lack enough capital, or did not identify the correct product-market fit. As Paul Graham, a startup expert says, "Success in the start-ups is not a question of choosing the right opportunity; it is a question of being ready for it" Edison, T. (2024).

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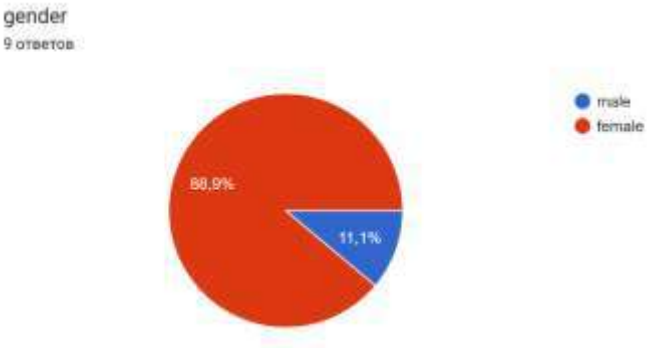
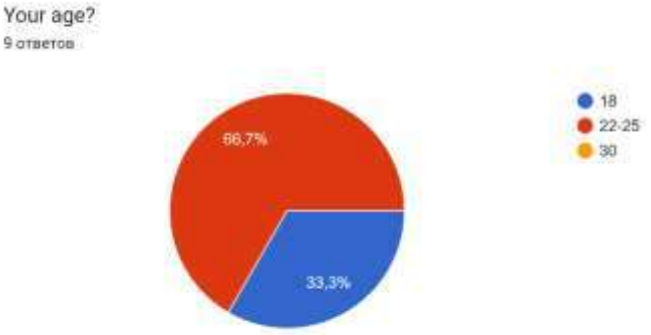
3. Research methodology

Primary research

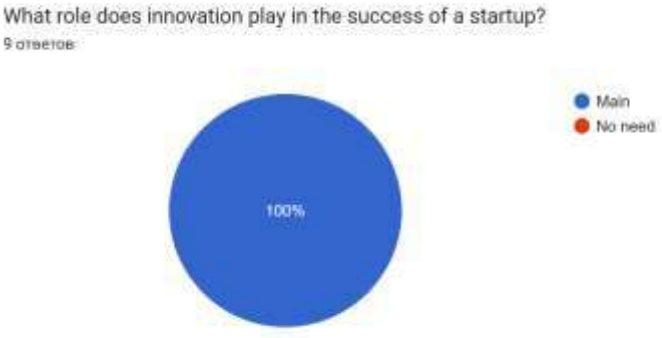
- The majority of respondents (88.9%) are female, while males represent only 11.1%.



- Most participants (66.7%) are aged 22-25, followed by 33.3% aged 18, and a small proportion aged 30.



- All respondents (100%) agree that innovation plays the main role in the success of a startup.



- The majority of respondents (77.8%) have considered their business plan or startup, while 22.2% have not.

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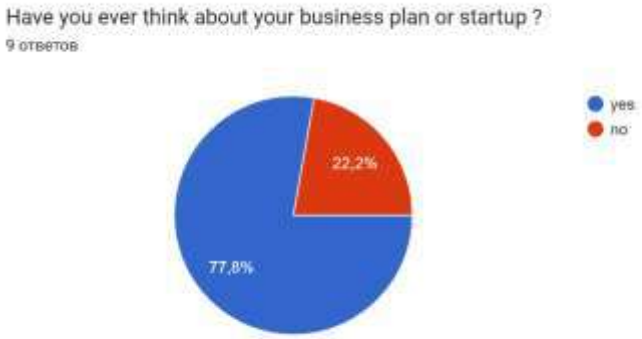

This paper adopted the secondary research method to study startup business ventures with a focus to their pre-startup phases. Some reasoning with this method is that the overall understanding of the startup ecosystem can be derived from existing studies, case analyses and reports, whereas the need to gather primary data upon time constraint is not an issue.

The research integrates both qualitative and quantitative research methods:

Qualitative Research:

Such type of researches gave the understanding of the different stages of start-up's development and more specific – the situation in countries where many start-ups are in pre-venture stage, and the problems which they encounter, and the approaches which are applied by the founders. It explored factors such as:

Customer surveys and market analysis, supporting it by referring to such companies as Dropbox or Warby Parker. Market shifts, for instance, changing the outlook of Instagram from a location-based application to a photo-sharing application and Slack from a gaming firm to a firm that sells communication application. Such fundamental success factors as team composition, financial support, and product creation.

Quantitative Research:

Data from code sources like CB Insights, PitchBook, Crunchbase was used to obtain tangible information on the survival rate of startups, funding, during this research.

Key findings included:

Failure rates: Less than a third of startups achieve sustainable growth as stated by CB insights, outlined by funding and market issues.

Growth trajectories: PitchBook data showed that startups with initial seed funding are likely to get bigger funding later, increasing their potential for success (for instance Zoom, using seed funding to expand its communication platform).

Product-market fit: A survey showing that startups with a good market put fit are 40% more likely to succeed compared to that without, (e.g. the Shopify business satisfied a gap in tools for business).

Finally, this study applies both the quantitative and qualitative research methods in presenting effectiveness of the startup ecosystem with a focus on the success factors and challenges (2U Wordpress, 2022)

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4.Research Findings

This paper provides a understanding of the startup context which is seldom explored and an important focus given to the pre-startup phase. This paper analyses the challenges that can

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encountered by startups and the success factors and research was done using both primary and secondary research. Through the use of secondary research approach the study will give a broad view of startups without being confined by the limited time that is often used by researchers while conducting their research surveys.

The pre-startup phase in the case of startup businesses may present some difficulties in the following aspects.

One of the first conclusions that can be made concerns the problems that newly established startups face. A review of case studies and previous research proves that most emerging businesses encounter multiple challenges such as; inadequate market knowledge, limited funding, and uncoordinated team effort. For example, in countries with the developing startup culture, it is often challenging for the founders to approach the market and analyze it because they do not have enough tools and experienced advisors.

The research also focuses on the issue of market dynamics and mobility as a form of challenge. Some examples of Organizations are Instagram and Slack that have footwear strategies. The core challenges of the companies involved are as follows: Instagram managed to effectively pivot from a location-based application to a photo-sharing application and Slack changed from a gaming firm to the provider of a communication tool. These examples show that one of the key issues that startups need to address is the issues of flexibility and the ability to respond to new market demand, especially before and in the beginning of startups development stage.

Success Factors for Startups

The research outlines a number of essential CSFs that define the performance of a startup organization. Key factors of success in organizing the work of commercial system included the composition of the team, financial assistance, and the product's creation. The support of a mixed group of people is essential for the management of a start-up as it faces various complex issues, and sufficient funding allows receiving the required funds to create and introduce the product. The study also brings focus on novel and customer oriented product development as exemplified by successful ventures such as Dropbox and Warby Parker that applied structural analysis and customer sensitivity to achieve competitive advantage.

Lessons Learned from Quantitative Data

Research data further supports these observations in terms of quantity and quality, since numerical data helps to explain quantitative changes and tendencies in the startup environment. Through published data from CB Insights, PitchBook, and Crunchbase, core metrics pertaining to the survival, growth, and search for a market fit become disclosed.

Here we come across a unique fact that a large number of startups fail. CB Insights found out that only about twenty-five percent of all companies get to experience sustainable growth, and these are usually due to funding and market challenges. This statistic shows that failure should be addressed in the context of these barriers during the pre-startup phase to boost survival.

Unlike in traditional companies, growth trajectories which can be deciphered using PitchBook data show that early seed funding is central for a startup's growth process. Newly formed ventures that received seed capital have a greater probability of receiving the subsequent

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outings, thus increasing their chances of success. The example of Zoom can be used; using the seed funding, the company improved the communication platform and thus gained much deserved growth and market share (communitymanager, 2022)

.

5. Discussion If need to provide a discussion of the topic of entrepreneurship and startups.

Nowadays, both entrepreneurship and startups seem to be inevitable components of the global economy. The innovation, economic growth and new technologies, the creation of employment, and the economic growth of countries is driven by entrepreneurs. One has to drive to spot an opportunity and then have the guts to take risks and successfully fill that void defines an entrepreneur. This part uncovers the aspects of entrepreneurial mindset and startups with thanks to the key definitions, problems, prospects, case studies.

Being briefed on the nature of entrepreneurship,

Existing definition of anticipation specifies entrepreneurship as the creation and management of a new venture. , and it normally begins when someone identifies a new concept, which can be transformed into a business opportunity. Incidentally the word ‘entrepreneur’ is derived from the French word ‘entrepriser,’ which translated literally means ‘to undertake’ or literally ‘to undertake an enterprise.’ There is a focus on the creation of something new by identifying a market opportunity, assembling the correct resources and hadling risk.

Any industry is not restricted by being an entrepreneur. It can transverse industries like technology, health, education, retail, manufacturing industries, and many more. However, it should also be noted that entrepreneurship is not about creating a venture but creating a venture with intention of solving a problem or fulfilling a need.

The overall character of an ‘enterpriser’ is best summarized by such epithets as vision, tenacity, daring, organizational abilities, and creativity. They have to be able to look for solutions, time and again, to the challenge of managing change in an evolving business context. These skills include the areas in finance, marketing, operations and strategic etc all of which are essential in entrepreneurship.

The Role of Startups

Startups can be described as relatively young, dynamic ventures which seek to grow quickly, usually through introducing hi-tech product or service to the market. While traditional companies grow marginally or linearly, startups, think big; they aim to grow exponentially either by revolutionizing an industry or inventing a new one. The key difference to established business lies in the fact that startups have a limited number of employees, restricted fund resources, and high level of risk (Nowack, 2024)

.And one of the primary characteristics of a startup is their ability to scale. A startup in its infancy may not have much revenue or many members on its team, yet it may expand quickly. Some of the goals many aspiring young startups have include the idea of being in a position to attract investors, launch more products and services and employ many people. This means that because of the scalability of a startup, the young firm has the flexibility to seize new opportunities.

Nature and Characteristics of the Challenges Faced by Entrepreneurs

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An attempt to begin a business is a challenging process, and those interested in business formation encounter various challenges. Knowledge of these factors may help explain why so many start-ups never make it and ways that young business owners can overcome difficult circumstances to succeed.

Financial Constraints

But perhaps one of the most difficult things any entrepreneur ever has to do is source for capital. For a beginner there are major capital investments within product development, marketing, employees and any other expenses in the business. The biggest challenge a start-up may face is the problem of funding in that the owner may find it difficult to making someone else finance his/her idea because it is yet to be tested for viability. There is also less availability of loans from commercial banks as most of the start-ups are normally come under the high risk category.

Globalization

This integration has enhanced market opportunities for the international markets to be exploited by the entrepreneurs. Here, it becomes evident that, in today's world of e-commerce, startups can get access to consumers practically from any country and this is the reason it has become much easier for one to expand in this market. It is for this reason that today's marketplace goliaths like Amazon and Alibaba connect the startup to a worldwide marketplace with minimal physical capital investment.

Evidently, with cases like Alibaba contemplating globalization, expansion through increased global interconnectedness and cooperation isn't a bad resourceful idea. Alibaba, begun by Jack Ma in china was initially an online portal selling small merchandise. It gradually metamorphosed into an international online trading platform where retail customers can purchase products directly from manufacturers.

Social Impact

The other opportunity for the leaders is to encourage social entrepreneurship. Social enterprise hence involves an enterprise that has been formed out of development of solutions to a particular social or even an environmental challenge, and it is considered to be financially sustainable. These businesses operate with a dual mission: for the accomplishment of a social goal and for the purpose of making profit.

Viva, an Argentine company dedicated to the production of outdoor wearing apparatuses, is a perfect example of a social business venture with strong concerns on the latter aspect. Patagonia hit on a good strategy to market and sell their products by recycling material in their products and advocating for environmental conservation (Nowack, 2024)

.

6.Conclusion and Recommendation

It is well-known fact that entrepreneurial process is challenging and full of risks and trial and error especially during the period of start-up. Our research has pointed out major success and failure factors in startups, with market research, funding, flexibility and resilience as determinate factors for sustainable core growth. From the analysis of working and failed businesses one can learn that even with the best idea ever, one will eventually fail. The delivery of that dream grounded on appropriate planning, required resources, and appropriate flexibility is what most defines the destiny of a startup.

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Airbnb, Tesla and Slack are some of the vivid examples that explain why market research and adaptability are critical for the growth of a company. For instance, some kinds of entrepreneurship as Airbnb's market trials to get some ideas enabled the organization to become an international player. Likewise, Tesla had been able firstly to survive all of these financial failures, and, secondly to preserve the vision that helped it to become one of the key players within the electric car industry of the contemporary world.

Recommendations

From the research results and analysis of successful and unsuccessful start, it is therefore possible to make the following recommendations for consideration by would-be start up entrepreneurs . The following recommendations are based on best practices that have empirically informed the progression through the most fragile early phases of startups.

Conduction of Market Analysis and Verification Recommendation: Successful new product or service development requires significant marketplace investigation and proof of concept with customers. These are usually keyed by the ability of the organizations to understand the target market, the competition, and available opportunities in the market.

In the consolidation financial discipline, and proven fund management skills will be applied incrementally. Recommendation: It is the duty of the entrepreneurs to manage their startup capital well so that the startup can afford the total cost as well as cutting spending costs at the initial stage of development. This also includes having a good financial direction,the method of cash Control and having little or no huge debt burden.

First, the problem of inconsistency and the ability to be shifted.

Recommendation: This means that among its key values, there must be willingness and capacity to change the business model, product or services offered based on the customer feedback or a change in the market conditions. Flexibility is key especially where an entrepreneur is faced with obstacles or most importantly where he realises that initially made assumptions do not hold.

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The impact of SMM on Students' purchase decision-making process

Farrukh Pardayev – author, student of Millat Umidi University

1. Abstract

This study explores the main impacts of SMM on students' purchase decision. Purchase decision making is made up by 5 stages mentioned by Kotler and Keller (2016). For primary research method, the survey is going to be used to provide quantitative data for this study. Secondary research is also used to get broader knowledge in this field as we are going to look through several studies conducted in Malasia, Indonesia and India. The findings underline the importance of the objectives such as targeted ads, customer engagement used in SMM to impact on students' purchase decision. It contributes for marketing field to understand the effectiveness of SMM for targeting students.

Key words: targeted ads, target audience, customer engagement, customer decision making process.

2. Background

As more people are using social media platforms, the role of social media marketing is increasing day by day in the field of marketing as it promises many advantages for companies.

As the popularity of social media platforms is increasing day by day, the use of social media among people is also rising significantly. According to the statistics provided by DataReportal (2024), as for October, 2024, the number of social media users around the world reached 5.22 billion, equals to 63.8% of the global population [1]. In terms of adults using social media, 86.3% of all adults use social media actively. The average time spent on social media platforms is about 2 hours and 19 minutes. These changes in the way people spend their majority time on social media, it creates advantages for marketers to highly interact with their target audience effectively. As mentioned by Ardiansyah and Sarwoko (2020), the effectiveness of social media has already proven in terms of raising brand awareness and having highly interactive platforms [2].

There are many studies conducted in this field but due to gaps, we can not generalize their results. The gaps might be geographic, the size and group of people studied.

This study aims to explore the main impacts of social media marketing by examining objectives of SMM and customer decision making process in depth. It focuses on deeply each stage of customer decision making process of students. The group surveyed for this study is Business management faculty students at Millat Umidi University in Tashkent.

3. Literature review

As many people use social media platforms these days, marketers now realized that companies should be present in where their target audience are. By interacting with target customers effectively, companies can build high brand awareness, that in turn help them to communicate their services and good effectively. This is the main goal of social media marketing. As Alagar R, (2024) mentioned that there are 6 main objectives (activities) of social media marketing (SMM):

- Brand awareness

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By executing this activity, SMM managers make sure that targeted audience is aware of the brand, services and products their company provides. To do this effectively, they usually inform their target audience about company and its products and services by storytelling, visual contents like informative videos, posts and collaboration with influencers.

- Driving traffic in website

Another important task is working on website where targeted customers take basic and main information about the products and services. To make customers visit the website, SMM managers execute several tasks such as putting links on bios on social media platforms, using search engine optimization, targeted and paid ads.

- Customer engagement

This is the way SMM managers interact with customers through social media platforms. They do not just release the content or posts, they also work with followers' comments, questions. They can interact with them and show respect towards them as they take their comments and questions into account. They also motivate them to share and generate user-generated contents as word of mouth.

- Conversion and leads

Another crucial objective of SMM is generating leads and conversion. This is where sales are made. They usually use special offers, discounts and retargeting ads so as to reach more targeted audience. Special offers and discounts make customers purchase. By calculating conversion rate, they can measure the effectiveness of the actions they are carrying out.

- Customer support

To support customer well, SMM managers always try to answers customers' questions quickly so as to prevent their dissatisfaction. They might sometimes response publicly so that other customers might be informed. These quick and quality interactions help the, to resolve the issues occurred. This is one that prevent customers' dissatisfaction and serve to satisfy them.

- Gathering customer reviews, insights and feedbacks

The last activity taken by SMM managers is to work on gathering customers' reviews, insights and feedback given through social media platforms, website and channels. By gathering those insights, they have enough data to analyze whether their customers are satisfied with the products or services of the company or not. They work on shortcomings and aspects makes customers dissatisfied [3].

Customer decision making process

In terms of customer purchase decision, at first, we should talk about 5 main stages of customer decision making process identified by Kotler and Keller (2016) because social media marketing is without a doubt interconnected with customer decision making process [4]. Social media

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marketing has its of impacts on each stage of this decision-making process. If social media marketing managers miss one of those stages, their whole effort might go waste.

Impacts of SMM on each stage of students' purchase decision:

1. **Problem recognition**

In this stage, customers recognize their needs and problems. These occurred needs and problems might be triggered by internal and external stimuli. External stimuli works when customers see any ads and promotions online (Kotler and Keller, 2016) [5]. Here SMM managers use targeted ads to increase brand awareness as target audience, in our case, students start seeing ads online. As a result of it, they will be informed about the brand, products and services this brand is offering. This serves as external stimuli.

According to the research conducted by Ostojic et al., (2024) among 230 students in the faculty of Economics in Belgrade University, they provided descriptive statistics about the findings [6]. As they provided, one of the best rated variables among students is sponsored ads, with mean 5,29 out of max 6. It means that majority of students out of 230 rated that targeted ads play a big role to make them informed about the products and services and highly impact on their purchase decisions.

Another research conducted by Al-Azzam and Al-Mizeed (2021) also mentioned that targeted ads have a huge impact of students' purchase decision as the effectiveness of targeted ads are so high [7].

2. **Search of information**

In this stage of decision making, targeted audience, students try to find out information about products or services once they are informed in the stage of problem recognition. Marketers should identify where their target customers usually look for the information about products and services. SMM managers use information source called commercial, including web sites, ads, displays (Kotler and Keller, 2016) [8].

In the research conducted by Ostojic et al., (2024) among 230 students at Belgrade University, as they provided in their descriptive statistics, it shows that another highest rated variable is availability of the information about company and products, in mean, 4.57 out of 6 in maximum [9]. It means that students are highly impacted by information provided on social media platforms and websites.

3. **Consideration of alternatives**

In this decision-making stage, customers try to satisfy their needs by looking for more benefits that they can gain from their choices. They tend to compare other alternatives so that they can get more benefits out of it. To win this competition, marketing managers offer discounts, lower prices or as a bundle of attributes as mentioned by Kotler and Keller (2016) [10]. It means additional benefits added to the product or service. SMM managers promote these offers on social media platforms, websites, through targeted ads for their target audience.

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According to the research conducted by Sulaeman and Mujriah (2024) in Mandalika University of Education in Indonesia, they proved that the discounts have highly impact on students' purchase decision making [11].

4. Purchase decision and Post purchase evaluation

In this stage, once customers go through evaluation of alternatives stage, they now take others' opinion, reviews about a certain product or service into account. As Kotler and Keller (2016) called it, "attitudes of others". SMM managers always try to post customers reviews and their positive comments on social media platforms so that potential customers can trust them [12]. According to another research conducted by Yang, Sarathy and Walsh (2016), positive reviews from credible sources about a certain product or service has a positive impact on customers' purchase decision as it serves to raise persuasiveness in students and increase trustworthiness [13].

In this last stage, customers evaluate what they purchased from a certain brand once they used. Customer take post purchase actions whether they are satisfied or dissatisfied. SMM managers take also certain actions to work with their post purchase actions such as negative and positive reviews, quick responses to questions, comments and feedbacks on social media platforms. They also provide personalized messages for customers to keep the close relationship. As Aggarwal and Mittal (2022) researched the impact of relationship and high interaction with customer on their purchase decision by taking 343 respondents in India, they concluded that having close relationship and interaction with customers have a highly positive impact on their purchase intentions [14].

As I mentioned those research studies above conducted by several researchers in different geographic regions, we cannot apply them universally due to the limitations and gaps in those researches. Those studies are conducted in Pakistan, India, Malasia and Indonesia but we cannot apply those results to other universities in other countries. The aim of this study is to explore the impact of SMM on students' purchase decisions.

5. Hypothesis

H1: Social media marketing has a highly impact on each stage of students' purchase decision.

6. Methodology

For this research paper, both primary and secondary methods were used to gather reliable and enough information and data. Quantitative method was employed for primary research while existing studies and article was reviewed as secondary research to thoroughly explore this field. Primary research is made up by survey including 15 questions that are going to be delivered for students to identify the impact of SMM on their purchase decision. The reason why

7. Data collection

The data was gathered through an online survey with the help of Google form. The survey includes 15 questions distributed among 53 students in business management faculty at Millat Umidi University. The questions were allocated into two parts in terms of the data type, background

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information about students and questions directed to identify the factors in SMM affecting their purchase decision.

8. Results

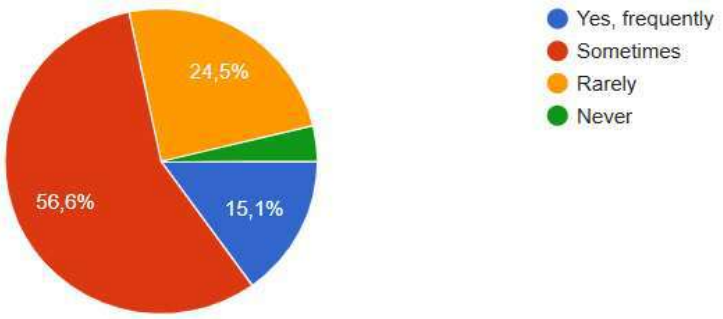
In the survey conducted among 53 students in Business Management faculty at Millat Umidi University, 88.7% respondents are between the age of 17 to 22 while other 2 group ages 22-25 and older than 25 got 5.7% respectively. 66% of all respondents are male whereas 34% are female.

Among those respondents, the most used social media platform is Instagram with 88.7%, you tube with 69,8%, and Facebook and Tik Tok, 13,2% and 7.5%, respectively, respondents use those social media platforms actively.

In terms of the amount of time they spend on those social media platforms, 41,5% of all respondents spend about 2 hours daily, 26.4% of students spend about 2-3 hours while 22.6% students use social media platforms for 3-4 hours. Only 9.4% of all students spend more than 4 hours on social media platforms.

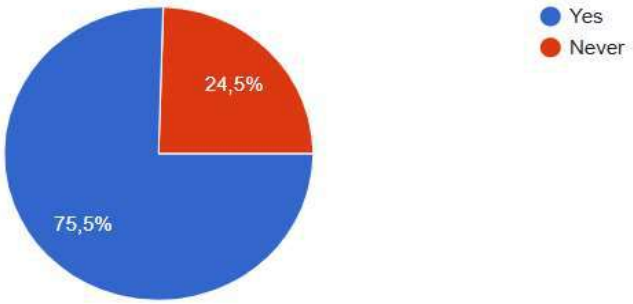
Another result is about how often they receive ads on their social media pages via google and email. The statistics indicates that 35.8% of all respondents often receive ads online while the same percent respondents inform that they sometimes receive those kinds of ads online. 15.1% of students said that they always encounter that type of ads via platforms, google, email.

Fig.1. How often do you feel that those ads match your needs and problems?



In this chart, we can see that 56.6% students notice that targeted ads match their needs and preferences when they receive via social media platforms, google and email.

Fig.2. Have you ever purchased products or services after receiving ads online on social media platforms?



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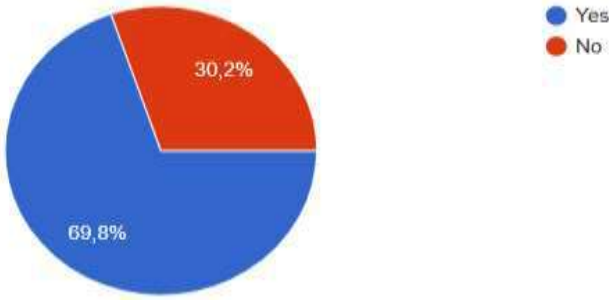
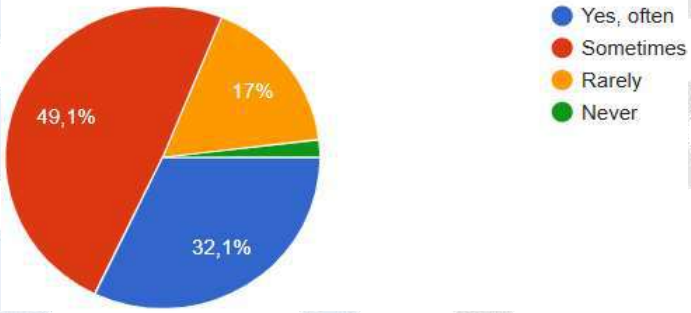
75.5% students purchased products and services after seeing those online targeted ads.

Fig.3. Do you usually visit websites to get more information about the product or service?



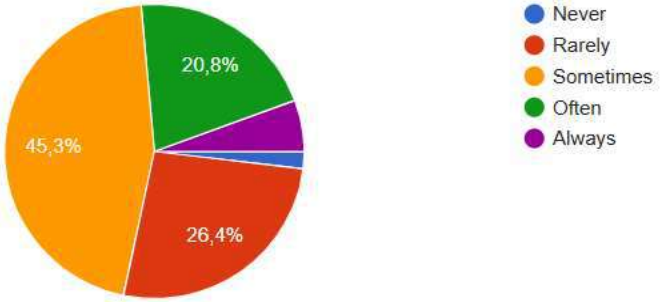
As the chart indicates that 69.8%, almost 70% students usually use links to visit websites to get more information about products and services they are going to purchase.

Fig.4. How often is the information provided on websites, social media platforms helpful for you to make your purchase?



As we see the chart that the information provided on websites, social media platforms is helpful for 49.1%, almost 50% of all students.

Fig.5. How often do you consider discounts, additional benefits before making a purchase on online?



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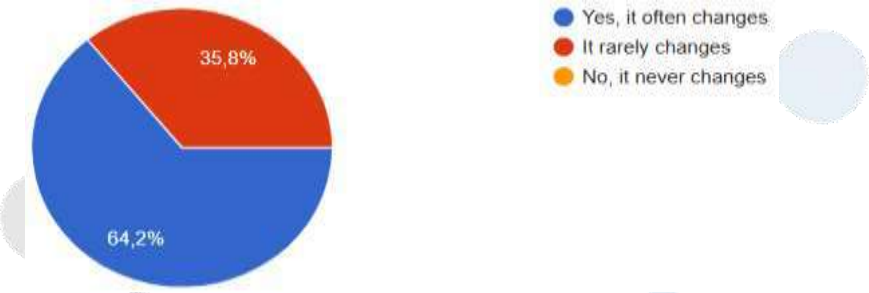
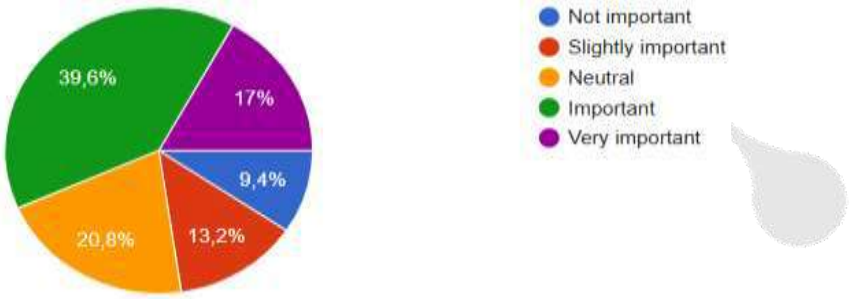
As Figure 5 shows that discounts, additional benefits offered on social media platforms are sometimes important for 45.3% students, while discounts often play an important role in 20.8% students' purchase decision.

Fig.6. Have reviews, comments on social media platforms ever changed your purchase decision positively



It means that 64.2% students also consider reviews and comments made by other customers to make their purchase decision while 35.8% students rarely consider reviews before making their purchase.

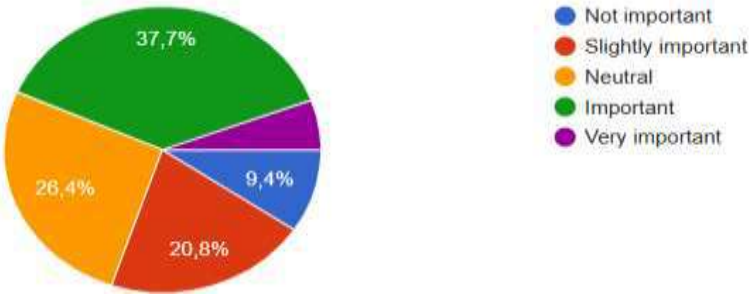
Fig.7. How important are quick responses, interactions to questions you asked on social media platforms to make your purchase decision?



For 39.6% students, the importance of quick responses, interactions provided by SMM managers are so high while for 9.4% of respondents, quick responses are not important.

In terms of other statistics, 52.8% of all students made purchases again once they received personalized messages.

Fig.8. The importance of feedback requesting after the purchase



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The importance of feedback requesting for 37.7% students are important after the purchase whereas 26.4% students are neutral about it.

9. Analysis

The impact of SMM on each stage of customer decision making process:

In this part, article going to analyze the impacts of SMM objectives on each stage of students' purchase decision. As mentioned above, there are 5 stages of customer decision making process mentioned by Kotler and Keller (2016) [15].

- **Problem recognition**

Our respondents are mainly students and 88.9% of those students use Instagram actively and 70.4% of them use You tube as well. This percentages indicates how our respondents are actively engaged with the contents on those social media platforms. In this stage of decision-making process, students are primarily informed about the brands, in other words, SMM managers try to increase the brand awareness of the company. In terms of the results, 88.9% of all respondents are well-informed about the brands and their product, services even if they have not purchased the products and services yet offered by those brands. It means how effective the promotions and informative contents on social media are to raise brand awareness. When it comes to target ads used by SMM managers on social media platforms, google and email, 57.4% of all students informed that most of the time, ads on social media pages match their needs and problems while 14,8% students said that those ads always match their needs as if their smartphones are listening to them. These results show how targeted and sponsored ads are effective in raising brand awareness.

- **Search information**

In this stage of customer decision making process, students usually try to find out appropriate information about the products or services they are considering to purchase. Companies usually use 2 types of SMM objectives to impact on students' purchase decision: Driving traffic in website and customer engagement (Alagar R, 2024) [16]. In these two objectives, SMM managers use their websites, informative contents like posts, videos so that students can get enough information about what they are looking for on social media. As my results in the survey indicated that 37% of all students often receive ads via social media platforms, email and google. This is what SMM managers implement in driving traffic in websites because, as another result shows that 68.5% students said that they use websites to get more information about products and services they are interested in. It means that the appropriate enough information provided on websites is must-have for growing business. Once students are considering any products or services to purchase, having enough information about what they are considering in the websites and informative contents like posts, videos can trigger them to purchase.

Another result proving the effectiveness of providing information and informative contents on social media platforms and websites is that 49.1% students said that information provided on websites, social media pages as informative contents are most of the time helpful for them to make their purchase decision while it is always helpful for 32.1% students.

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- **Consideration of alternatives**

As Kotler and Keller (2016) mentioned in their book called Marketing management, third stage of customer decision making process is consideration of alternatives [17]. In these stages, students compare what they are offered with other alternatives in the market. What SMM managers do on social media platforms, via google and email, is that they usually promote discounts and additional benefits so that students choose their brand over others. According to our survey, 45.3% students sometimes take discounts and additional benefits into account before purchasing whereas those additional benefits play a crucial role 20.8% of all students' purchase decision.

In terms of the impact of customer reviews, comments posted and displayed on social media platforms, reviews and comments can positively change customers' purchase decision. As my survey results show that 64.2% students said that comments and reviews on social media platforms often change their purchase decision while 35.8% students might sometimes change their purchase decision based on reviews and comments posted on social media platforms. Interesting result is that no one has chosen "never" option. Those results indicate that those customers' positive comments and reviews about products and services have enough power to influence students' purchase decision.

- **Purchase decision**

As I have mentioned above the fourth stage of customer decision making process, purchase decision, identified by Kotler and Keller (2016), this is the stage where the main goal of SMM, sales are made [18]. The objectives, taken in SMM are customer engagement and customer support, so that customers make their final decision, whether they buy or not (Alagar R, 2024) [19]. As my survey results indicates that 39.6% of all students consider quick response to their questions important for them to make their purchase decision and they think that quick responses provided on social media reflect how much they value their time. For 17% students, quick responses and close interactions are so important while 20.4% students are neutral about quick responses. It means that providing good customer engagement for students is highly effective to impact their purchase decision.

- **Post-purchase decision**

In this last stage of customer decision making process, students start evaluating what they purchased once they tried. To positively impact on this stage, SMM managers implement some objectives such as feedback requesting and personalized messages, offers. According to the survey results, even though 25.9% students are a little bit neutral, 37% students said that asking feedbacks from them once they purchased products and services are important for them while it is slightly important for 20.4%. These results are the indicators of how feedback requesting is highly important for students to make their purchase from the same brand and staying loyal for that brand because asking feedback from students makes them feel valued and important for brands.

Another main action implemented in SMM is sending personalized messages to those who already bought products and services from companies. It helps brands make their customers return to their companies. As the results shows that 53.7% of all students used the same brand once they received personalized messages and offers on social media. This is what triggers them to be loyal to those

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brands as they feel appreciated and return to the same companies to use their products and services. It also helps companies to keep in touch with those customers for a long time so that those students use more from their products and services.

10. Discussion

As the research conducted by Ostojic et al., (2024) among 230 students in the faculty of Economics in Belgrade University, based on their descriptive statistics with 5.29 variables out of 6, it shows that how highly important target ads are in terms of affecting students purchase decision [20]. As for the survey results conducted in Millat Umid University among 53 students in Business management faculty, 56.6% of students said that most of the time, targeted ads match their needs and problems and 75.5% of all students purchased a product or service once they received targeted ads on their social media pages, google and email.

According to the research conducted by Ostojic et al., (2024) among 230 students at Belgrade University, another highest rated point, 4.57 out of 6, among other factors is the importance of appropriate and enough information provided in the websites and social media platforms [21]. The result clearly indicates how highly impactful the information providing is in students' purchase decision. In terms of the results of the survey conducted in Millat Umid University among 53 students in Business management faculty, 69.8% of the students informed that they visit websites to get more information about what they are going to buy while 49.1% of the students said that the information provided in websites and social media platforms is most of the time helpful for them to make their purchase decisions.

In the research conducted by Sulaeman and Mujriah (2024) in Mandalika University of Education in Indonesia, they proved that for students, the discounts play a crucial role in their purchase decision as it triggers them to purchase if there is the certain number of discounts they want [22]. In our research, 45.3% of the students take discounts into account before purchasing via social media. It means that discounts and additional benefits promoted on social media can highly impact on most of the students' purchase decision.

Another finding in the research conducted by Yang, Sarathy and Walsh (2016) proving that positive reviews have high impact on students purchase decision because it persuade students to purchase by raising trustworthiness of the brand [23]. As the results of our survey, 64.7% of the students said that positive reviews and comments about the products and services on social media can change their purchase decision. It means that providing customers' reviews and positive comments about the brand serve to raise the trustworthiness for brands as students judge by seeing them.

As Aggarwal and Mittal (2022) researched the impact of relationship and high interaction with customer on their purchase decision by taking 343 respondents in India, they concluded that having close relationship and interaction with customers have a highly positive impact on their purchase intentions whereas our research results indicate that 39.6% of the students approved that, quick responses and interactions are so important for them to make their final purchase decision [24].

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11. Conclusion

This study explored the impact of SMM on students' purchase decision by focusing on the specific impacts of each objective in SMM on each stage of customer decision making process. The targeted group was 53 students in Business management faculty at Millat Umidi university in Tashkent. The objectives of SMM explored in this study are the impacts of discounts, additional benefits, reviews and positive comments, targeted ads and feedback requesting. The hypothesis provided in the beginning was that social media marketing has a highly impact on each stage of students' purchase decision.

The hypothesis provided was highly supported as the findings in this research indicated that SMM have high impact on each stage of students' decision-making process.

12. Limitation

This study mainly surveyed the limited number of students from only one university, which might not be representative of all age groups and all students from other universities in Tashkent. As this survey was conducted in one region, Tashkent, it may not be generalized and reflect all regions in Uzbekistan.

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FWAs (Flexible Work Arrangements): Advantages and disadvantages for Employer

Abrorjon Rakhimjonov – author, student of Millat Umidi University

Abstract

This article provides different information about the FWAs (Flexible Work Arrangements) and it advantages and disadvantages for businesses. However, article illustrate purpose, methods, analysis and some discussions about the results that taken by methods. The main purpose of writing this article is that identifying benefits and drawback of FWAs in today's business. When it comes to methods, only two types of method used which are primary and secondary. In primary research article illustrate survey results, on the other hand secondar research give more information through various articles and websites. At the end of the article conclusion is given as recommendation.

Key words – primary, illustrate, on the other hand, various

Introduction

In 21st century most people prefer to work or do their tasks remotely and places that they want. That's why FWAs (Flexible Work Arrangements) are becoming increasingly popular in today's businesses. In this article, some research will be given below based on reliable sources and other articles. In the beginning, literature review gives information about the first adjustment and current acceptance of FWAs, after those types of FWAs will be given such as, remote work, hybrid work, flextime, compressed work and job sharing. In addition, some theories will be added which are related flexible work arrangements and overall HR and Management. Especially, benefits and drawbacks also will be provided for compare it at the end of the article by taking results. One of the most important side of this article is that identifying current gaps in other articles and give them real case information and finding solutions if there are challenges of FWAs both employer and employee. Discussion will be last important part, because in this part will be comparison between real case results and findings.

Literature Review

Thematic Approach:

The beginning of Flexible Work Arrangements throughout history

First adjustment

According to Morgan, 2021 in the end of the 20th century Flexible Work Arrangements introduced to use it. Primarily, it was used in 1967 by aerospace company of German that is named Messerschmitt-Bolkow-Blohm (MBB). This approach helped to solve some problems such as traffic jam, delays to work and so on. In addition, this also helps to workers to select suitable work

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time like starting and finishing hours of their work. There are different concepts of FWAs, which are called “flextime” or “gleitzeit” these are first example of recent FWAs (Morgan, 2021) [1].

Morgan, 2021 stated that in the UK way of the flextime was not common and in 1971 this concept was just known as a trademark. Firstly, individual companies started to use flexible working by creating their own requirements, standards and rules. In the beginning of 2000s, governments started to combine flexible working arrangements (Morgan, 2021) [2].

Contemporary Acceptance

According to Amirul and Shaari, 2021, Flexible Work Arrangements have used significantly and accepted in businesses over the past 20 years. In today’s 21st century, technologies play a huge role in people life, for example mobile phones, laptops and internet make a chance to work remotely. This type technologies can make a process effective in remote working (International Workplace group, 2019) [3].

Types of FWAs and definitions of them

1. **Remote Work**

This type of work gives more opportunity to employees to work from somewhere that they want, such as at their home or even abroad. Nowadays, Remote work is becoming more popular with the help of development in technologies and after the COVID-19 pandemic (ActivTrak, 2023) [4].

2. **Hybrid Work**

Hybrid work is that involves both works remotely and in the office. Employee that works with that type some day at his or her home, another day he or she comes to office (Joyner, 2021) [5]. For instance, employee works from Monday to Wednesday at his or her home, and comes to office from Thursday to Friday or Saturday it depends on working days.

3. **Flextime (Flexible hours)**

This type of working approach makes a chance for employees to choose their comfortable times that are start and finish times (Team, 2022) [6]. Besides this is so helpful for workers to manage and keep well their work and life balance and do some hobbies at their free time.

4. **Compressed Workweeks**

Employee works for longer hours in a short day is called Compressed Workweeks (Joyner, 2021) [7]. For example, employee works 12 hours every day in 3 days instead of 6 hours every day in 5 days.

5. **Job Sharing**

Job sharing works like this, two or more workers divide the responsibilities of one single task or work and do these tasks one by one (ActivTrak, 2023) [8]. For example, from Monday to Tuesday one employee works and other one works from Wednesday to Friday by dividing single job.

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Different theories that is related flexibility

1. Contingency Theory

Contingency theory shows that there is no only one way to control an organization. Instead, practices of management should be suitable for clear business needs and situations. This way helps to control different challenges effectively (Smirti, 2021) [9].

2. System management theory

Systems management theory is that in organization all departments connected with each other and work together. That's why, flexibility is main side to adjust different parts of organization when it come across changes in its environment (Bijisha Prasain, 2023) [10].

3. Strategic Flexibility

According to Xiu et al., 2017, this theory shows us that ability of organization to adjust challenges and changes in the external environment with its way of operations and strategies [11]. Strategic Flexibility is more important for practices of HR. For example, HR managers uses this theory for trainings, hiring process and teams that self-managed.

4. Flexible Firm Model

In 1984 Flexible Firm Model suggested by Atkinson for hiring and adjusting combination of constant and temporary employee to achieve flexibility in organization. This concept also plays a huge role in adopting HR practices with organizational goals (Dettmers, Kaiser and Fietze, 2013) [12].

Benefits of FWAs for Employers

Based on the researches on Indeed Editorial Team, 2023, Flexible work arrangements can improve noticeably productivity and efficiency through giving opportunity to workers to work at places that they feel comfortable and relaxed themselves. In addition, there are another benefit sides for both employee and employer that are working at FWAs will be healthy and successful at their work, because FWAs can help to employee to reduce stresses and finish their work faster. However, employers have enough chance to save money throughout cutting expenses such as, rents, electricity and related this type of expenses. By FWAs companies can keep their employee loyal for a long time, by creating job satisfaction (Indeed Editorial Team, 2023) [13].

Drawbacks of FWAs for Employers

On the other hand, Flexible Work Arrangements introduce a bunch of difficulties for employers. According to Birt, 2021, Companies should add new strategies and approaches for team building, rewarding performance and make better communicational concepts to feel responsibility seriously and develop productivity [14]. There is another drawback for managers that is mistake and oversights in checking employee tasks, responsibilities of them and keep constant and perfect results in work (Schooley, 2022) [15]. Another important point is that there will be more cyber-attacks for remote worker, because networks and devices at home like PC,

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laptop and gadgets are more unprotected. That's why, unique and secret information will be spread and it will bring more damage for company (Lahiri and Schwartz, 2018) [16].

There are several findings and results of research about Flexible Work Arrangements, but as coin has two sides there are enough information that require more studies. While 85% information was provided as general conclusion, remaining 15% studies shows that researched areas about services of finance, hospitality and manufacturing. As you can see the result, it requires more exact information that is covered fully and comprehensive understandings about unique benefits and challenges of FWAs (Brecheisen, 2023) [17].

Methodology

Primary Research

In this article, survey was shared among students and people that worked or working now to identify and collect real opinions about Flexible Work Arrangements and its pros and cons. In addition, survey has a 13 questions and respondents are around 37 people.

Secondary Research

For the secondary research various data was collected throughout different articles, websites and books. However, all data written based on real and reliable sources.

Results

Results show that there are different opinions and recommendations about the FWAs and its prospects. Among respondents 59.5% are young people around 18-20 years-old. 13.5% and 16.2% voters are 21-23-years-old and 24-26-years-old as well. In addition, most of the voter's field is Business Management with 48.6% result and two rest of them work or study on Information Technology and English Language Teaching field with 5.4% and 35.1% as well. Results also show that 64.9% respondents have understanding about FWAs. However, most respondents prefer to work in flexible working environment, while less people are rejecting flexible work arrangements. If you pay attention questions about negative aspects of this, it shows less results about agreed answers rather than disagreed with 13.5% and 40.5% as well, rest of them answered as a neutral.

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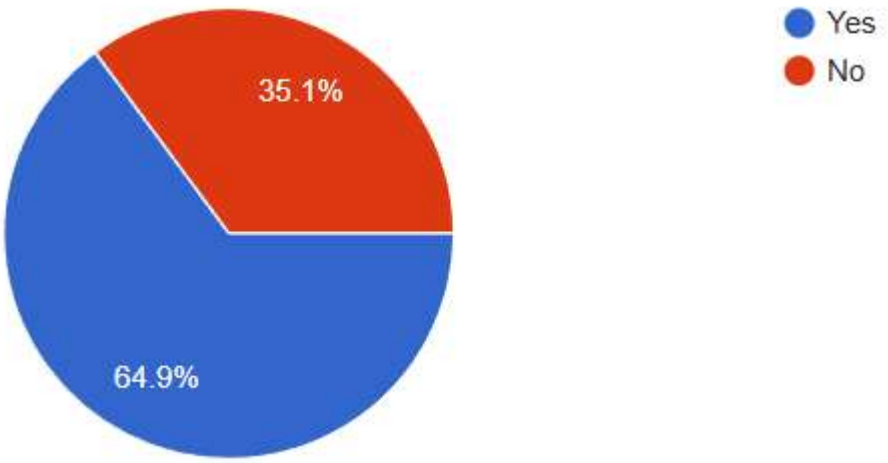
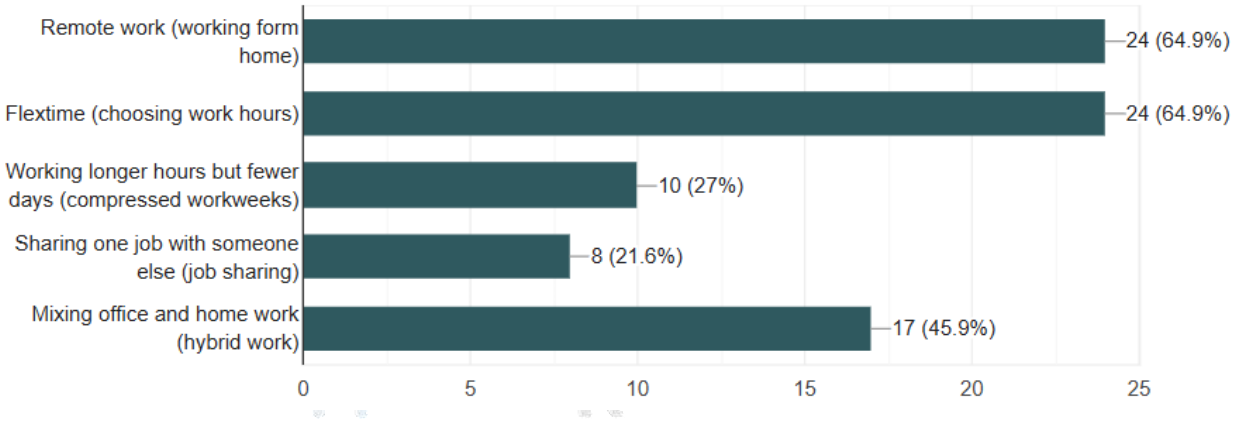
Fig.1. Have you worked in a job with FWAs?



As you can see most of the participants have worked in jobs with flexible work arrangements with 64.9% result.

Fig.2. Which of the examples do you know about FWAs?



Among 37 respondents both Remote work and Flextime are more well-known with 24 respondents and 64.9%. It means there will be more demand for them.

Fig.3. What is the significant advantage of FWAs for employer?

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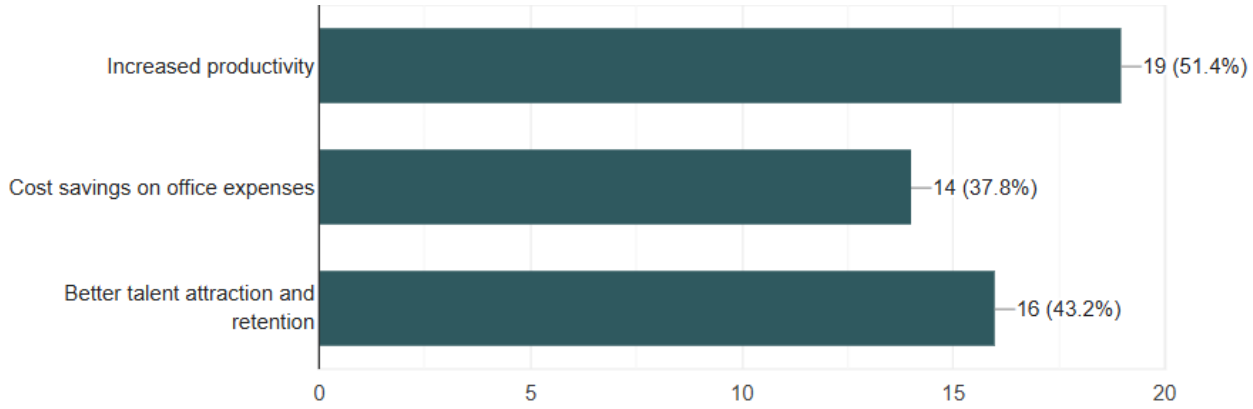
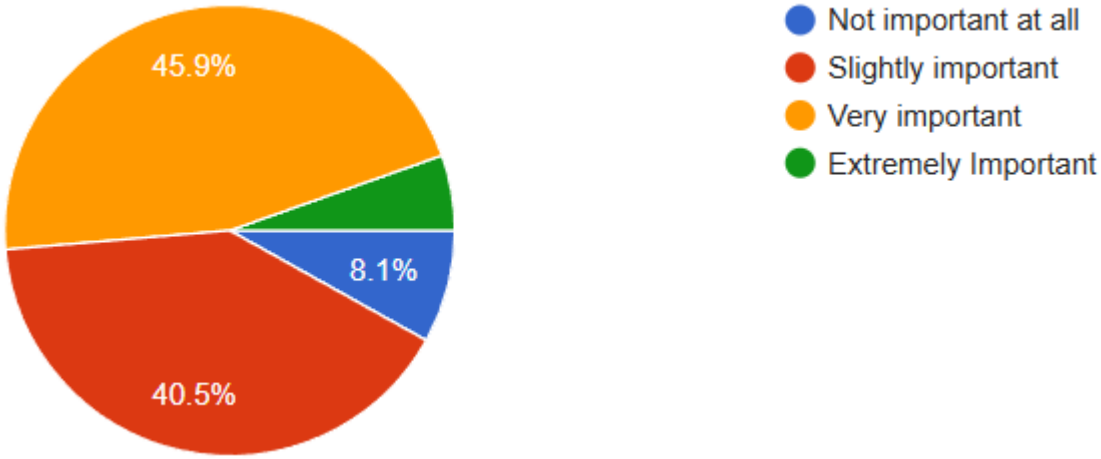


51.4% participants were selected first option and it shows that a lot of people do excellent work with comfortable environment.

Fig.4. How important are FWAs in today's business?



Only two options show almost same results with 40.5% and 45.9% by selecting slightly and very important option as well.

Fig.5. What is the biggest difficulty when offering FWAs?

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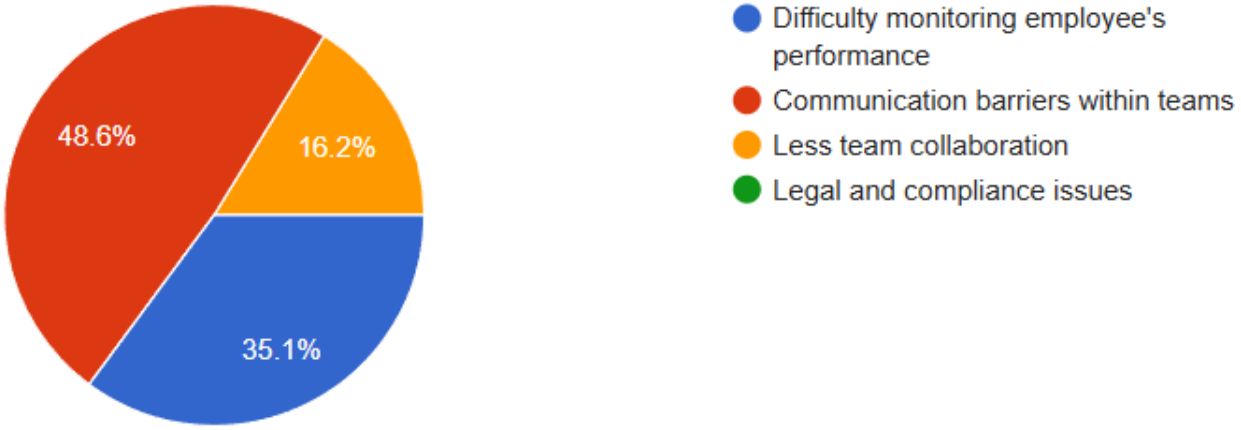
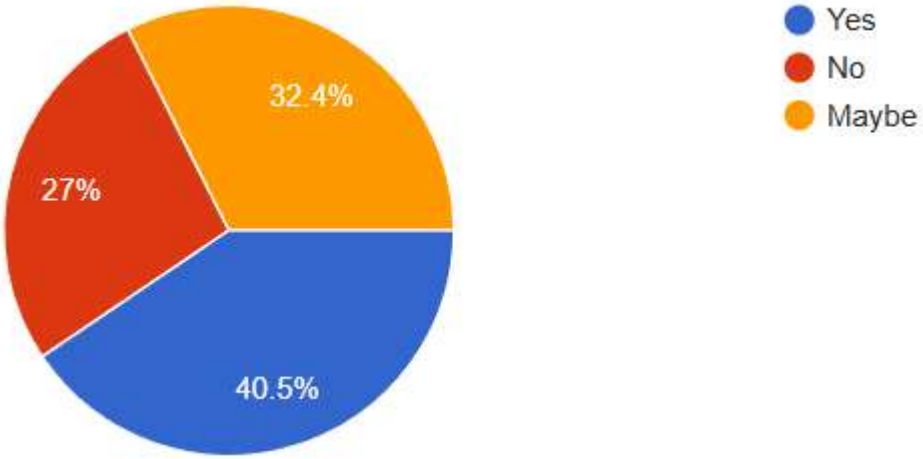


Based on the pie chart, there are difficulties in communication and monitoring performance with 48.6% and 35.1% results as well.

Fig.6. Should all employer offer FWAs?



As result shows that among three options, answer yes shows enough result rather than others.

Analysis

As a results of survey, more difficulties and benefits are identified by many people who are students, teachers and businessman. The first thing I should mention is that among participants most people worked and working in job with flexibility with 64.9%, while 35.1% do not working with flexible work arrangements. It means that, nowadays a lot of people prefer to work with flexible environment. In addition, survey shows that people who know and understand about FWAs with the same results 64.9% and 35.1% as above.

Types of FWAs that people know

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According to the surveys result, only two types of FWAs took a high result that are remote working and flextime with 64.9% respondents among 37 respondents. Mixing office and home work shows slightly lower result with 45.9% and 17 respondents. There also two types of examples which are compressed workweeks and job sharing by showing result among voter with 27% and 21.6% as well. These numbers give an information about the demand for FWAs especially remote work and flextime in today's world (International Workplace group, 2019) [18].

Benefits of FWAs

There are three different plus sides of FWAs on survey and let's look at the votes that participants have responded. Firstly, respondents chose the option that FWAs will increase productivity with result of 51.4%, it means this percentages are point of voters need that FWAs will be beneficial for both employee and employer. Secondly, most people have selected the option that given as a better talent attraction and retention with 16 respondents among 37. This result gives information about people who can their best approaches and talents when they work at home or somewhere that they want rather than office or workplace. Cost savings on office expenses shows low result among mentioned two benefits and only 14 people chose that option. But this option is very helpful if someone think as an employer.

On the other hand, FWAs have an importance level in today's business. By sharing out the survey, various opinions are collected and among them 45.9% and 40.5% participants thought that FWAs are very important and slightly important as well. Only 3 voters chose an option that is named not important at all with 8.1% result.

Biggest challenges for employer when offering FWAs

There are different challenges for employers that they will come across when offering FWAs. Most people chose the section on the survey that is named difficulty monitoring employee's performance through 35.1% result. That means if employer give chance for employee to work remotely, employer or managers will not check their workers performance during the tasks. Besides, less team collaboration shows stable result with 16.2% among 37 participants. Throughout the survey Communication barrier within teams will highly create challenges to employers, because pie chart shows significant high result with 48.6% among 37 participants. Interesting side is that there is an option which called legal and compliance issues, but no one did not choose that option it shows 0% on the survey.

In addition, most of our participants answered to the question that do FWAs can negatively affect company culture by selecting Maybe and No with 45.9% and 40.5% as well. This result means that, a lot of people think FWAs are helpful and create comfortability for both sides employer and employee. Only 13.5% respondents chose the option Yes.

One thing identified by open ended question among participants which they wrote good sides and benefits of FWAs by answering yes, it creates comfortable environment for us in general. And most of them want that all employers should offer FWAs for employee with 40.5% result.

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Discussion

Theoretical comparison or frameworks

Throughout the different research about FWAs (Flexible Work Arrangements) put in order with various HR and Management theories. According to Smirti, 2021, there is no one size fits all approaches of management, instead of industries should identify gaps in FWAs that can fit the main and unique challenges of various sectors [19]. This finding suggested that employers or companies should offer flexible jobs for employee and find the solutions to problems that will arise upcoming tasks. As before mentioned, among respondents of survey most of them have worked in job with FWAs and they are happy their jobs, because almost 87% of respondents wrote positive feedback about future job with flexible work arrangement. In addition, 40.5% participant wants to work flexible job and they thought most employer must suggest FWAs to new workers.

Moreover, there is another theory which Flexible Firm Model presented by Atkinson (1984) suitable for the gaps in demographic sides [20]. The model supports of temporary and permanent employee to achieve effective flexibility in the business. In addition, this concept is flexible and suitable for everyone such as, students, male and female.

Implications

To improve the benefits and minimize the minus sides of Flexible Work Arrangements, there are bunch of practices step by step that employers can use it. Primarily, business or employer should identify the needs of industry to overcome future problems. For instance, hybrid model can be good example for that by mixing remote and on-site working concepts. This also guarantee that FWAs approaches will meet unique demands and needs of various industries.

Second practice is that employers should pay more attention on security of their workers who is working remotely. Because, if someone works as remote worker, he or she cannot ensure keeping data secure, by this more secret data will be shared out and it will bring big damage to the company. So, managers should provide special devices, communicational channels and some training for protecting companies' information.

According to survey result, 86.4% participants wrote about comfortability, suitable aspects and beneficial sides for health. That is why most employer try to more focus on well-being of their workers through offering flextime works. If managers identify the needs of various demographic teams, they can create a job satisfaction among employees.

Conclusion

In conclusion, this article shows that FWAs (Flexible Work Arrangements) are becoming more popular among different industries, in addition survey that was mentioned before can be reliable source for that. Most people moving and choosing works that give them flexible time during the tasks and make them feel comfortable and satisfied, while less people prefer to work on-site, so as a recommendation, companies and employers of them must use helpful approaches

to offer FWAs as soon as possible. Lastly, this article can be helpful for employers to identify needs of FWAs among employee.

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The impact of social media marketing on consumer behaviour.A study of the fashion retail industry

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1. Abstract

In the highly competitive and fast-paced fashion retail sector, "The Impact of Social Media Marketing on Consumer Behavior" is especially crucial. In this digital age, where a growing percentage of consumer contacts take place online, the study's conclusions have significant retail industry for the fashion business. Research is the study of novel and efficient strategies to draw in and keep customers. This enables fashion brands to customize their advertising to appeal to their target market. The interdependence of action is emphasized by research on advertising, social media platform engagement, and consumer decision-making in relation to powerful people's impact. FashionVibe,TrendStyle, StyleSense, and GlamorLook case studies emphasize the value of genuineness, platform-specific tactics, influencer collaborations, and personal stories.

Key words onsumer Behavior, Fashion Retail, Social Media Marketing, Digital Era, Case Study.

2. Background information.

The way customers engage with brands has been significantly facilitated and altered by the quick development of social media as powerful marketing and communication tools in the current digital era (Hudson et al., 2015). Because the fashion retail industry has historically relied on visual and experiential marketing methods, it is therefore receptive to innovation (Urdea & Constantin, 2021). It is becoming essential and vital in the corporate sector to comprehend how social media advertising affects consumer behavior for both theoretical and practical reasons.

The most well-known social media sites that have democratized access to fashion trends, styles, and labels are Instagram and TikTok, which have increased consumer enjoyment of window shopping (Hund, 2023). In the fashion retail sector, user material produced via influencer marketing on social media has a significant impact on consumer choices (Nash, 2019).

Clothing stores today generate a more welcoming and comfortable atmosphere as a result of the fashion business being democratized by well-known social media platforms like Facebook, Instagram, and TikTok. These platforms are used by more than just fashion firms to market their goods and tell their stories.not only offer cutting-edge business development tools, but also enable customers to influence the growth of both (Kozinets et al., 2023). Social media advertising and consumer behavior have a more engaging and immersive link now that the relationship between marketers and consumers is more seamless (Confos & Davis, 2016).

The introduction of user-generated content and influencer marketing has further complicated

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digital marketing, which is already complicated. Influencers' well crafted personalities and devoted fan bases have earned them a stellar reputation in the marketing industry (Bowman, 2021). They have more power than just advertising a product; they may also affect consumer impressions of brands and fashion trends. Customers also started to trust information like user-generated reviews and fashion photographs more because they believe it to be more genuine and trustworthy than traditional forms of advertising.

Additionally, the study fills a pertinent gap in the literature by concentrating on the retail clothes business. Due to the visual and trend-driven nature of the fashion retail industry, the sector is particularly vulnerable to social media exposure; yet, the influence of social media marketing on consumer behavior in this domain has not been well studied. Thus, the findings of this study go beyond the classroom; they contribute to the ongoing discussion about social media and digital marketing, which helps fashion stores survive in a crowded market by providing them with industry insights.

Drawing from theories of consumer behavior and digital marketing, this study attempts to clarify how various social media marketing tactics affect consumers' perceptions, inclinations, and eventually, their purchasing patterns. In addition to adding to the theoretical discussion, this study offers the fashion industry helpful guidance on navigating the rapidly expanding e-commerce market.

3. Literature review.

The impact of social media platforms on consumer choices has been the subject of numerous research during the last ten years. It is possible to derive the concept of social media from Kaplan and Haenlein, who describe it as an ecosystem of web apps that extend the technological and ideological principles of Web 2.0 and have the ability to quickly create and disseminate user-generated content to the general audience. The effect of social media on consumer behavior has since been the subject of numerous research, particularly in relation to the retailing of clothing (Scuotto et al., 2017).

Numerous studies and reports have examined how social media has changed the fashion industry. Traditional mass media are typically used for fashion brand advertising and consumer engagement. The emergence of social networks has made this kind of engagement more dynamic and instantaneous. Influencer marketing and user-generated content are two new marketing strategies introduced by the rise of new digital marketing platforms (Youn & Cho, 2022). Influencer marketing's increasing significance in influencing consumer attitudes and behavior has been the subject of numerous studies.The more they diverge from one another, the more likely influencers are to affect how consumers view brands, their fan base, and their products (Abraham et al., 2022).The consumers' trust and perception of the brand will have an impact on the authenticity and worth of the message that the influencers are presenting. These studies demonstrate the significance of influencers in the fashion industry's retail sector, especially with regard to shifting consumer preferences and choices (Alotaibi et al., 2019).The impact of social media advertising on consumer choices in the clothing and accessory sector has been extensively studied, although the area is still developing and shifting.

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4. Research Methodology

The primary approach to gathering data was to administer a thorough online survey to social media users who work in the fashion industry (Masuda et al., 2022). In addition to questions on buying habits and the amount of time spent on social media, the study asked respondents about their opinions regarding different fashion brands. We were able to ensure that we had a sample that is representative of a huge number of fashion buyers by employing a questionnaire to gather information from various respondents spread across various places.

For the quickly expanding US fashion retail sector to establish a target audience, build brand awareness, and sway consumer attention and purchase decisions, social media marketing is crucial (Hanaysha, 2022). this usefulExamining the export of attraction from social media marketing to assist direct collection fashion companies FashionVibe, TrendStyle, Styleense, and GlamourLook is the aim of the study. doing survey research to learn how companies view and react to social media marketing. qualitative method to find out more about the chances for progress. Find out how people feel about social media marketing in relation to software to understand how important media is for different company decisions (Bilgin, 2018). We performed in-depth interviews to learn more about the thoughts and experiences of a few responders. For example, A thorough examination of the US fashion market shows that FashionVibe has distinguished itself as a trendsetter and a sign of genuine industry involvement. In the ever-changing realm of fashion, this qualitative study delves into the subtleties of the brand's sustained appeal and its role as a cultural landmark. The goal of this case study is to gain a deeper understanding of the relationship between customers and the popular fashion business FashionVibe by examining their interactions with FashionVibe on a variety of social media channels. We were able to learn about respondents' opinions and behavior in reaction to FashionVibe's social media material by using a well-designed poll.

Understanding Metrics for Engagement:

Since FashionVibe's content strategy is so well suited to its target audience, it can stand out like a beautiful song among all the other digital noise. Rather of being passive, their creative approach to social networks guarantees constant connection with their followers. Particularly in a market where consumer attention is ephemeral, this deeper connection is a sign of a brand's capacity to engage its audience over time (Moriuchi, 2019).

From the point of inspiration to purchase:

For many people, Instagram continues to be a great source of inspiration. The environment that fashionVibe and its partners are able to establish is mutually beneficial. In addition to being commended for each update, the brand's visual storylines and other educational activities for students have been identified as crucial in turning indifferent viewers into eager customers.

A brief discussion of sustainability was also included in the research, with the recommendation that ethical ideals be incorporated into brand narratives. investigated a variety of strategies to increase the content's discoverability, such as incorporating interactive components. Providing excellent customer service is essential to fostering relationships with customers.

Overall, the analysis emphasized how these fashion labels developed inside the digital realm, emphasizing the significance of brand evolution and digital innovation as major forces. The integrated word cloud illustrates the intricate connections between customer behavior, social

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media marketing, and the various strategies these businesses employ to remain competitive in the quick-paced fashion retail industry.

5. Discussion

After examining all research about the influence of social media marketing on consumer behavior in the retail fashion sector:

Social media marketing's effects:

Social media marketing and consumer purchasing patterns are positively correlated, according to more than 80% of research. Social media marketing tactics have a major influence on customers' perceptions toward businesses and their purchase behavior, according to the majority of these research.

Most current research indicates that social media marketing has a favorable correlation with customer expenditure. When consumers actively participate in marketing activities, their brand awareness and preference improve (Bilgin, 2018). Customers are engaged on social networks, which explains this.Social media marketing has the power to dramatically change how consumers feel about a good or service.

Llopis-Amoros contends that by fostering an emotional bond between companies and their target markets, interactive and customized content can boost trust and foster brand loyalty (Llopis-Amorós et al., 2019).In recent years, social media platforms' user-generated content (UGC) has gained attention as a factor affecting customer purchasing decisions. Nadzri et al. claim that consumers are more receptive to peer recommendations and experiences than to advertisements. 2023. According to Nadzri et al. (2023), peer review is provided by user-generated content (UGC).

6. Conclusion

This study examined how social media marketing and consumer behavior interact in the dynamic realm of US fashion retail. We gained a great deal of knowledge on how fashion brands interact with, impact, and alter the preferences of their target audiences using a combination of quantitative surveys and qualitative case studies.

According to the quantitative framework used in the survey phase, there is a strong correlation between consumer behavior, brand influence, and social media participation. Social media's wide range and the fashion industry's demographics were examined, and the significance of these platforms as major drivers of user involvement was underlined. Different strategies for engaging customers through social media marketing were identified by our analysis of four well-known US fashion brands: FashionVibe, TrendStyle, StyleSense, and GlamourLook. Customer engagement analysis and platform experience are two examples that illustrate the importance of developing distinctive digital personas and utilizing influencer connections. Each business's narrative emphasized the increasing importance of community, authenticity, and tailored content.

By combining survey data and case study findings, common themes were found, such as engagement, narrative, impactful teamwork, and the message of sustainability. This fresh viewpoint demonstrates the evolving tastes of customers and emphasizes the strategic significance of social media marketing in the contemporary fashion sector.All things considered, our research shows how social media marketing has the revolutionary ability to affect customer choices. Our study emphasizes how crucial flexibility, genuineness, and community involvement are in helping companies build deep relationships with customers as the fashion retail sector develops. In the current information era, this study can offer significant new insights into how the fashion industry,

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technology sector, and consumer preferences interact.

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ADVANTAGES OF STORAGE OF FOOD PRODUCTS IN A MODIFIED GAS ENVIRONMENT

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Abstract

This article discusses the benefits of modified gas environments for long-term storage of meat, milk, and other food products. It has been shown that it is important to use films with a thickness of 15-50 microns that transmit oxygen gas.

Key words: sanitary requirements, meat, milk, sausage, product storage procedure, temperature standard, relative humidity, film storage, refrigerator.

Enter. In order to ensure the microbiological safety of food products, the production process of products must be carried out in strict accordance with sanitary and hygienic requirements. In food industry enterprises (milk, meat, fish, bakery products, confectionery, fruits and vegetables, etc.) it is required to be stored based on the relevant sanitary rules and norms. General sanitary and hygiene requirements are listed below:

- availability of relevant technical regulations, sanitary rules and norms, other necessary regulatory documents for the food industry;

- sanitary requirements of the territory of economic and production zones; appropriate sanitation areas (cleaning, location and condition of garbage cans, their cleaning and disinfection);

- the presence of production and household buildings in accordance with the capacity of the enterprise, and the presence of a special laboratory in food enterprises and organizations that control the quality of products.

The tasks of the special laboratory are as follows:

- quality monitoring of raw materials, semi-finished products and auxiliary materials entering the enterprise, as well as materials stored in warehouses (input control);

- analysis at intermediate stages of the production process to prevent unusability of the finished product, check compliance with technological parameters (intermediate control);

- control the quality of the finished product and establish compliance with indicators and standardized requirements.

Also, general requirements include the cleanliness of the area where garbage, dust and other impurities can enter, as well as the cleanliness of auxiliary and household buildings. Sources of indoor air pollution with microorganisms, cleanliness of toilets and trash cans are special requirements.

These buildings should fulfill sanitary requirements and act as a reliable barrier to access the territory. Observance of personal hygiene rules by food production specialists and employees (cleaning shoes with disinfectant solutions, changing clothes, washing hands); regime of strict access to the territory and production buildings; ventilation in rooms additional requirements, such as the presence of fences at channels and technical entrances, also affect the quality of food products.

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Analysis and results. The temperature of the warehouses where the products are stored is one of the main factors affecting their shelf life, because the increase in temperature accelerates the activity of enzymes and chemical processes in the products, and leads to the increase of microorganisms. As a result, the acceleration of these processes leads to a deterioration of product quality and a decrease in shelf life. Therefore, the temperature of warehouses where food products are stored should be such that there are no conditions for the development of microorganisms, and there should be no changes in their physical and chemical state.

Depending on the types and characteristics of food products, they can be stored at temperatures ranging from -18 °C to +25 °C. For example, the best temperature for storing frozen meat, fish, fruits and vegetables is -18 °C and lower. Microbiological, chemical and physical changes that occur during the storage of food products at such temperatures become very difficult and help them to be preserved well.

The most convenient temperature for storing most food products is between 0 °C and +4 °C. This temperature is the best temperature for milk and dairy products, most fruits and vegetables, eggs, vegetable oils, meat and meat products, and perishable products in general. Products with a very low water content (flour, semolina, sugar, starch, tea) can be stored at a temperature of up to +20 °C.

It should also be said that when storing food products, sometimes high and sometimes low temperatures lead to the acceleration of chemical and biochemical processes in them, the increase of moisture in the product, the rapid growth of microorganisms and the rapid deterioration of product quality.

Effect of relative air humidity on food storage.

In the storage of food products, the humidity of the places where they are stored is as important as the temperature. Air humidity is measured by absolute humidity and relative humidity.

The absolute air humidity is measured in grams of water vapor in 1 m3 of air amount is understood.

Recently, special attention has been paid to the storage of food and agricultural products in a modified gas environment. The method of storing food products in a variable gas environment is related to their storage in wrapped or refrigerated chambers and in a reduced concentration of oxygen and nitrogen, and an increased concentration of carbon dioxide (C02) gas. This method is economical and promising.

A modified gas environment is created by active and passive methods. Special generators are used for this. The work of generators is based on the burning of natural or liquefied gas.

Nowadays, mainly 3 types of gas environments are used in the preservation of food products by this method.

1. The sum of the concentration of oxygen (O2) and carbon dioxide (CO2) gases should be 21% (percent) as in normal air. However, the percentage of carbon dioxide (CO2) is much higher than in air, and the amount of oxygen (O2) is slightly lower. Most often, a gas environment with a carbon dioxide (CO2) content of 5-10% (percent), and an oxygen (O2) content of 16-11% (percent) is used. The amount of nitrogen (N2) gas is 75%.

2. A gas environment in which the sum of the concentration of oxygen (O2) and carbon dioxide (CO2) gases is less than 21% (percent). For example, it is recommended to use a gas environment with a carbon dioxide (CO2) content of 5% (percent) and an oxygen (O2) content of 3% (percent)

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for the storage of many apple varieties. This gas environment is not available for storing all food products. Gas environments with different proportions of oxygen (O2) and carbon dioxide (CO2) gases are used depending on the type of products, variety and climatic conditions.

3. An environment with very little oxygen (O2), often 2-3% (percent), and no carbon dioxide (CO2) gas. It can be seen that in this environment, mainly nitrogen (N2) content is high.

Research related to the preservation of food products in modified gas environment in our country and abroad and the industrial use of this method in the preservation of some products show that the shelf life of products is 1.5-2 ,0 times longer, their

the quality is maintained much better, and the additional costs incurred will be covered within 2-3 years, and warehouses working with gas environment will start to show economic results.

As we said above, a modified gas environment can be created using passive methods. A passively modified gas environment is created mainly due to the respiration of fruits and vegetables, as well as the properties of polymer packaging materials.

One of the simplest methods of storage in a modified gas environment is the method of storing products in hermetically sealed polyethylene bags.

It is known that polyethylene and other polymer materials have the property of selectively passing gases from the air through their surface.

Only polyethylene materials with a thickness of 30-60 μm have the ability to pass gases in the air to a certain extent. Polyethylene materials of high thickness, for example, 100-200 μm thick, do not transmit gases at all. That is why it is so thick products cannot be stored in hermetically sealed polyethylene bags, because due to lack of oxygen (O2), incompletely oxidized compounds of carbohydrates are formed in the products, which lead to a decrease in product quality. Summary. Recently, research conducted in different regions of our country has shown that it is possible to extend the shelf life of food products by widely using polymer materials in creating a modified gas environment.

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OBTAINING THE WEAVING PATTERN OF NEW STRUCTURED SHIRT-LIKE FABRICS AND ANALYZING THE CONSUMPTION PROPERTIES OF THE FABRICS

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Abstract. In the article we have developed a method for creating new patterns and designs of Sarja, Satin (Atlas) T-shirts based on existing theory of welding techniques with the use of modern computerized cordless weaving machines. The peculiarity of this method of obtaining a knitting pattern is that under a certain law, a knitting Sarja, a torn-type Sarja, is chosen as a base. It is possible to obtain a new rotation pattern by placing the base axis in the coordinate arrows and diagonal arrows that are in between them. When creating a new knitting pattern, the base is formed by shifting the direction of movement of the joints, body, rope coatings in the base braiding cells. The base rotation placed in the center of the coordinate axis cannot be changed. The base around the obtissa and the ordinate and the diagonal axes are altered according to a specific law, until the design of the pattern is well polished. The base at the center of the coordinate axis indicates that the base bracket is reinforced once for all axes around the axis.

In the second variant of the method, the rotation pattern is adjusted by rotating the rotation sliding or coating clockwise or to the right of the base around the center. It is shown that different patterns can be obtained using the methods mentioned above. There is also a formula for defining the pattern of body and weave braiding patterns in the formation of these joints.

Keywords: body twine, rope, weaving, texture, knitting, wrapping, satin knitting, satin weaving, standard, weaving loom, rapport, roll, coating, knitting pattern, coordinate axis, diagonal, glossy texture, foundation, method, candle, seamless machine.

Rational use of dressing modes is important in enhancing consumer properties of new textured shirts and other fabrics. Tissue joints are divided into four types. These consist of fundamental clusters [1], [2], and the ability to form infinitely more complex braiding patterns depending on the type of tissue they produce. Nowadays, there is a small amount of joy in the work of shaping different weaving textures. Up to 28 horns can be incorporated in modern sewing machines [3]. Increasing the number of rhizomes in the production will increase the design and attractiveness of the fabric. The competitiveness of the textile appearance depends on the design of the knitting. Only one type of headgear, for example, the Sarja 1/4 weave, can be mixed with the stranded Sarge 4/1, or by using the number of shifts, it can be formed from the same number of strands of different shapes and colors in a different texture.

The possibilities of the knitting machines of the modern weaving machines are much greater, with the body twisting rate up to R_t = 28, with the wheel R_ (a) = 6400. Increase of the R and displacement C of these folds has a positive effect on their appearance and hygiene.

The dependence of the slope S = 1 and rapport R on the theory of spin-folding is expressed as follows:

$R_T = Ra$, $S = \pm 1$

The minimum build-up rate should be three or more times in the Sarja Rocks,

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$3 \leq R_T = Ra$

In this case it is necessary to have R 3 otherwise it will not be possible to arrange the sowing.

With the use of modern equipment, it is also possible to create new regularities of the Sargean winding.

Development of R_ (t)> R_as type of weaving on the basis of changing the ratio of body and rope ropes in construction.

Making patterns based on the first coating roll across the Rapport. Arrange the axes in the direction of the axes passing through the selected center of formation to create an optimal pattern. Increase the body and rope rope rackage by more than 12 current rivets.

The combination of the above methods 3 and 4 is formed as follows. First of all, its pattern for the pattern of re-creation is drawn (Figure 1 a) and b)). Figure 1. a)). Figure 1 a) Preparation of its pattern for the creation of a new pattern of rotation in the presence of nine bases of rotation and Fig. 1. b) Provides preparation of the pattern for the twenty-five basic rehearsals for the newly created method of knitting pattern.

Depending on the number of threads in the base weaving, the templates will continue to increase with respect to the first one. The number of cells in the first drawing is always nine. If the pattern is to be increased after drawing a pattern, that is, to obtain a larger pattern design than in the previous one, the number of base brackets in the nine cells is increased once. As a result, the number of cells is twenty-five. Thus, in this method, the pattern can be calculated by combining the base joints with unlimited reinforcement when necessary, and by combining the base rotation with the need for combing.

When preparing (drawing) a pattern of construction patterns, the number of knobs, multicolored tool, the basis of the knitting rack and the pattern pattern are taken into account. Selected baseline drawings are drawn (for example, Sarja 1/4, 4-wrap capsule in Figure 1) (Figure 2). Then coordinate systems are used. From the center of the coordinates, the coordinate axes are drawn and the diagonal lines passing through the center of the coordinate axes are drawn, ie the base of the coordinate system is laid (Fig. 3).

In this method, the pattern pattern is placed on each side of the coordinate and diagonal axes, as shown in Figure 1 a). On the basis of the sparse and elongated Sarja curves, the pattern is created on the basis of the joint arrows and diagonal arrows, mixed tweezers, tandoor, arched.

The pattern is generated as follows. First, the base is placed in the center of the axis of the axial coordinate. At the end of the base Sarja's 1/4 rotation rack, the Slave Sarge 4/1 bends are placed on either side of the obtissa axis. Arrange the Srja 4/1 curve to the right and left of the obtissa axis from the center of gravity chosen by the pattern pattern (Figure 4).

Then the two-axis 4/1 torsion bends on both sides of the axis of the ordinate are arranged in such a way that the symmetry of the pattern is outlined. Place the Srja 4/1 bracket at the top and bottom of the ordinate at the center of the ordinate, selected from the center of rotation (Fig. 5). The pattern according to the pattern is shown in Fig. 6, where the obverse 4/1 twisting obverse and the axis of the ordinate are fully positioned on both sides. Figure 7 shows a pattern drawn on the diagonal axis passing the center of the coil 1/4 of the base in accordance with the pattern pattern.

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Figure 8 shows a pattern drawn on the diagonal axis passing the center of the coil 1/4 of the base in accordance with the pattern pattern. Figure 9 shows a pattern drawn by two diagonal arrows that pass through the center of the coordinate axes of the base Sarge 1/4.

This pattern will continue if there is a need to increase the size of the pattern. Using the regularity of this method, it is possible to obtain different patterns in the texture, making the texture attractive and attractive. Using the same method, we present the Satin (Atlas) 5/3 curves (Fig. 11) by rotating the center axis and rotating along the diagonal axes. Figure 12 shows a copy of the shirt embroidery Dorne weaved in modern reproduction by placing the base on the coordinate and diagonal arrows according to the pattern.

In this case, the first base line is drawn, and the second one is drawn from the end of the rebound. Then the counterclockwise axes are positioned along the arrows in the direction indicated by the S_ (alternating) shift sequence. The same method can be used in another way. In this case, the rotation axes are placed first on the diagonal arrows of the base and then on the coordinate axes in the alternating motion. At the same time, the general rate of rotation can be determined as follows.

Example-1: Spinner 1/4 rotation is selected. The shift is assumed to be a variable S = ± 1. Baseline Cutting Rope Ras = 5 The best weaving pattern on the body and the rope is defined as follows:

Rт.н.= Ra.н. = $\sum_{R_{ac}=1}^{n} R_{ac}$ / Rac.-2=

(Rac+2 Робц.ac+2Рорд.ac. +4 Rдиог.ac)/ (Rac-2).= (5+2·5+2·5+4·5) / (5-2)=15 ип.

See: Baseline Rapport, Rdiog.as. - Reversal of base joints found in diagonal arrows, Robts.as - Reversal rods located on obtsissa axis, Rord.as - rudder repositioning on axinatin axis.

Example 2: Fix the base brackets twice. At the same time, the first amplification of the body and rope raises is K = 1 and the second increase is K = 2, and so on. will be examined separately.

1. Based on the fact that the first amplification is considered above, we determine the rapport.

Rт.н.= Ra.н. =(K· 2Rac)+ Rac =(1·5·2+5)=15 thread.

Where K = 1

2. Define the second reinforcement

Rт.н.= Ra.н.=(K· 2Rac)+ Rac = (2·2·5+5)=25 thread

Where K = 2. There is an opportunity to increase K by the number of threads on the reel. In our example, if we make a tertiary loop increase, then K: 3: the pattern reversal is Rt.n. = Ra.n. = 35 threads. So the formula has proof.

Where: Number that indicates how many times it has been enhanced.

This method is simple and easy to use, without the need for a separate formula for each amplification of the more comfortable folding detection.

See: Baseline Rapport, Rdiogas. - Reversal of base joints found in diagonal arrows, Robts.as - Reversal rods located on obtsissa axis, Rord.as - rudder repositioning on axinatin axis.

As can be seen from the above formula, this method has the law of rotation. The number determined by the pattern reversal is equal to the number of body and weft threads in the joints in Figures 10 and 11. This method is useful for designing and retrieving the cutting pattern.

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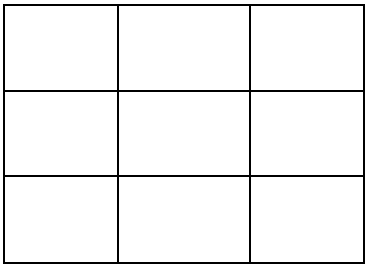

Figure 1. a) Prepare a model for the creation of a new pattern of spinning in the presence of a nine-base welding rack.

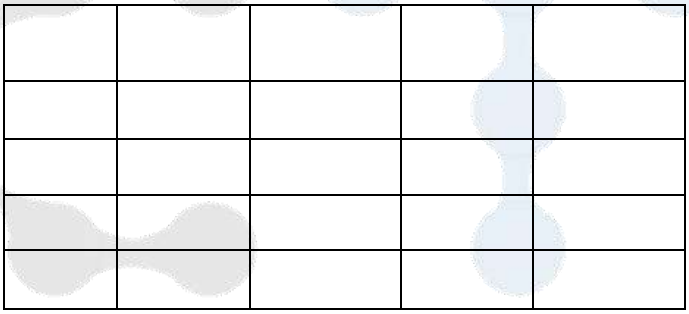

Figure 1b) Prepare the model for the twenty-five baseline rip-offs to create a rotation pattern in the newly created method.

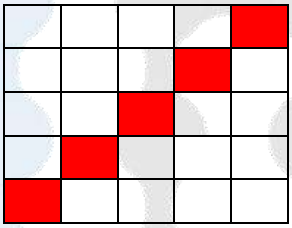

Figure 2. The basis for the method being created is choosing the backend.

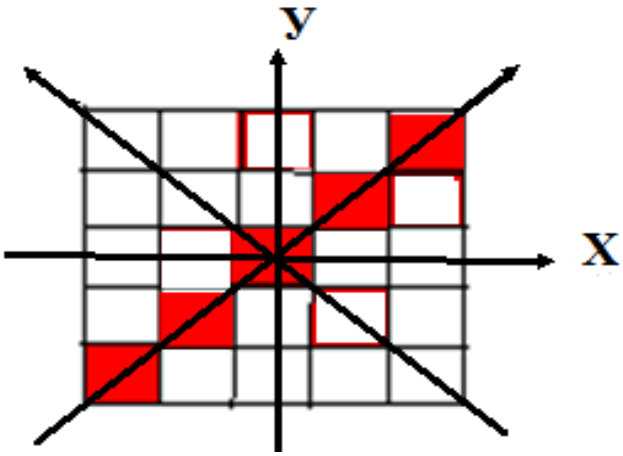

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Figure 3. Plant coordinate arrows and diagonal arrows from the selected center of gravity.

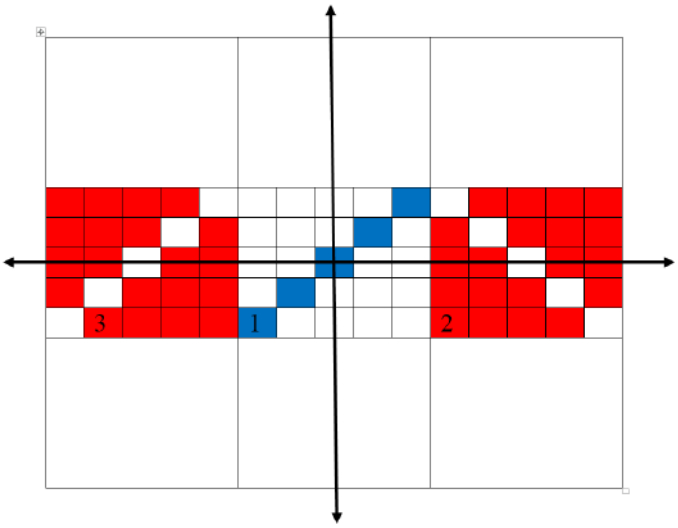

Figure 4. Place Srja 4/1 brackets on the right and left of the obtissa axis from the center of gravity chosen by the pattern.

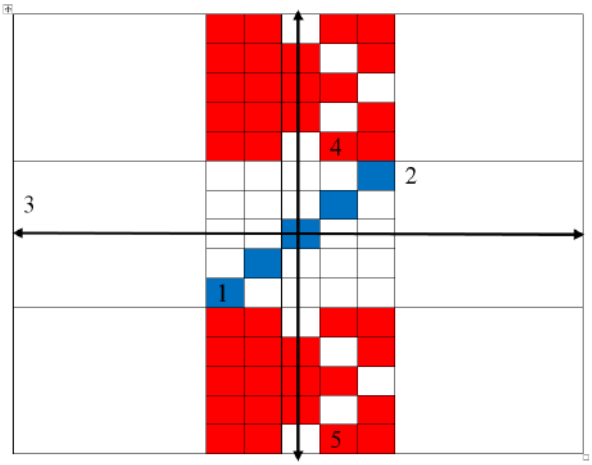

Figure 5. Place the Srja 4/1 bracket on the top and bottom of the ordinate, from the center of gravity chosen by the pattern.

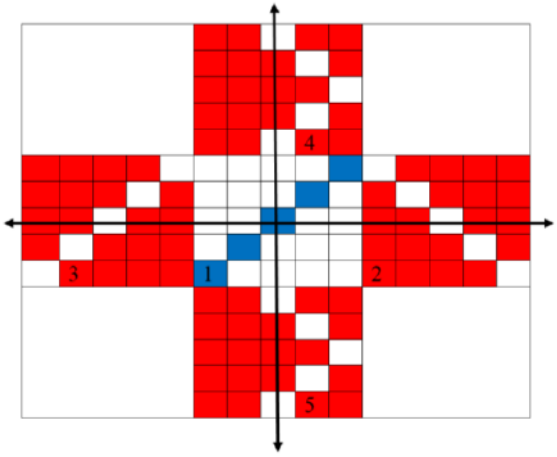

Figure 6. The base according to the pattern is a rawing of the 4/1 twisting obstruction and fully embedded on both sides of the axis.

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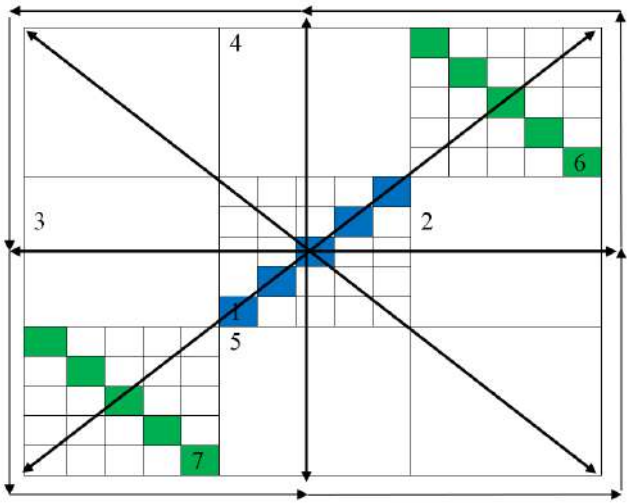

Figure 7. The base according to the pattern is a pattern drawn on the diagonal axis passing the center of the coil axis of 1/4 wrap.

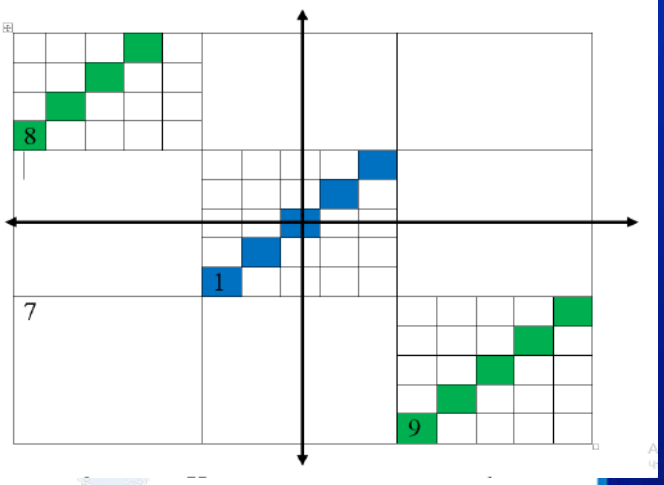

Figure 8. The base according to the pattern is the pattern of the wrapping of 1/4 wrap fully placed on two diagonal arrows that pass through the center of the coordinate axes.

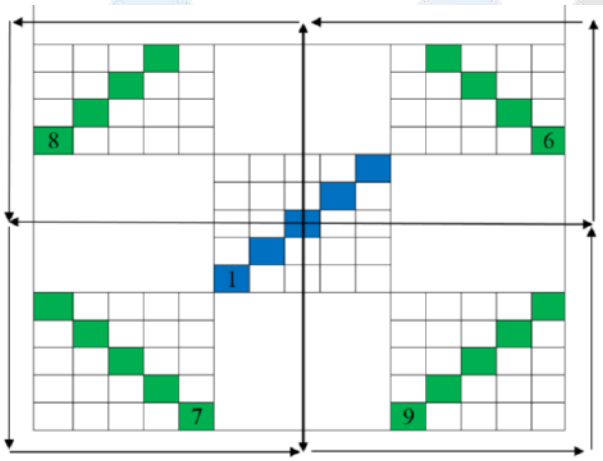

Figure 9. The base according to the pattern passes through the center of the coordinate axes

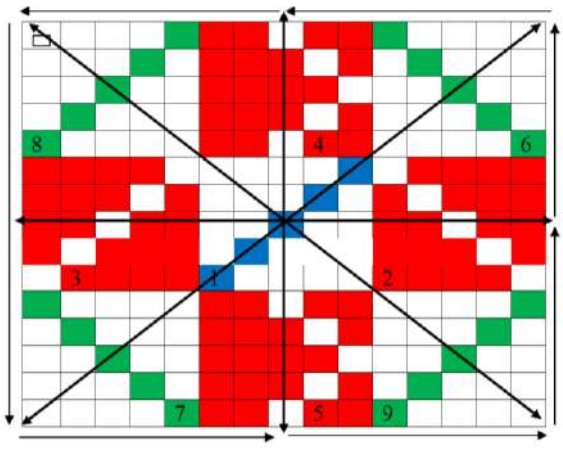

Figure 10. The base according to the pattern is the pattern of the wrapping of the wrapping in the coordinate and diagonal axes.

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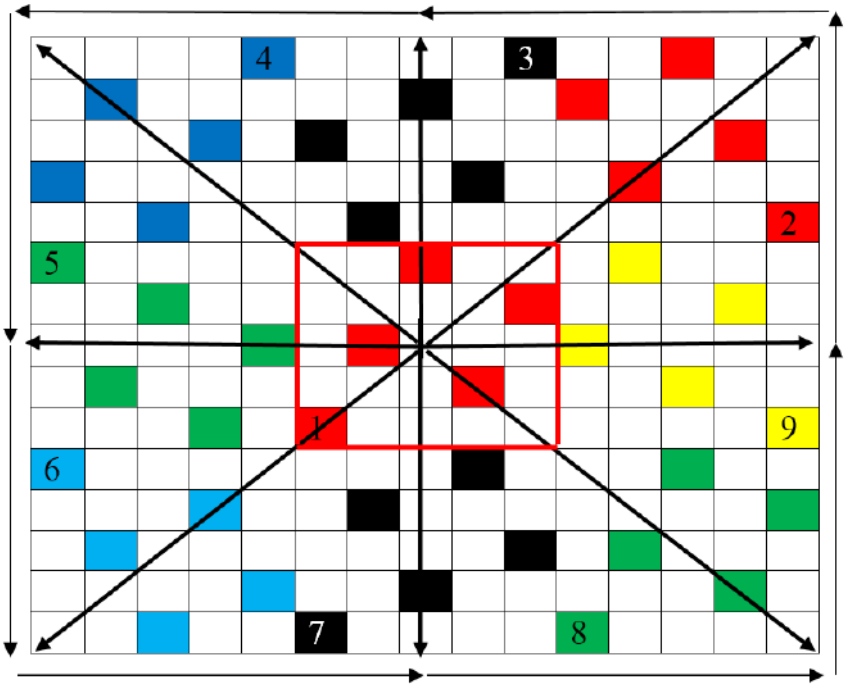

Figure 11. The pattern according to the pattern 5/3 The pattern obtained by rotating the satin axis around the counterclockwise and rotating it on the diagonal axis.

Figure 12. Copy T-shirt embroidery on a modern reproduction machine by placing the base on the coordinate and diagonal arrows according to the pattern. Conclusion: This method allows enterprises to quickly design new woven fabrics on computers based on software, and to enhance their theoretical and practical knowledge for researchers.

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ИССЛЕДОВАНИЕ СТРУКТУРНЫХ ПОКАЗАТЕЛЕЙ ФИЛЬТРОВАЛЬНЫХ ТКАНЕЙ

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Аннотация: *В статье представлены результаты исследования физико-механических свойств фильтровальных тканей, предназначенных для очистки промышленных газов в химической и нефтегазовой промышленности.*

Ключевые слова: *технический ткань, пористость, качества фильтрации, основа, уток.*

Текстильные фильтровальные материалы относятся к классу технического текстиля и применяются практически во всех отраслях легкой и тяжелой промышленности для фильтрования жидкостей, аэрозолей, газов. В ряде производств, где необходимы высокая прочность и стабильная структура пористой перегородки, применяются ткани из синтетических нитей и пряжи [1].

Значительное расширение области применения фильтровальных тканей и внедрение в различные области промышленности новых технологий привело к необходимости разработки новых фильтровальных тканей, обладающих комплексом необходимых свойств, отвечающим требованиям технологического процесса, имеющих невысокую стоимость и доступность.

В значительной степени качество фильтровальных тканей определяется структурой самой ткани, поэтому выявление и обоснование рациональной структуры, обеспечивающей необходимые эксплуатационные свойства, является основной задачей при создании фильтровальных тканей. Поэтому, целью данной работы является разработка фильтровальных тканей по заданным свойства с учетом технологических параметров изготовления, параметров строения тканей, а также с учетом технологических параметров процесса фильтрования.

Хлопчатобумажные фильтровальные ткани имеют следующие наименования: фильтровальный бельтинг, бельтинг БФ-БД, фильтродиагональ, фильтромиткаль, фильтросванбой суровый, комбинированная для нефтепродуктов – ТФНП, техническая фильтровальная – ТТФ-11. По физико-механическим показателям данные ткани должны соответствовать нормам по ГОСТ. Как правило, толщина ткани в среднем должна быть 2мм в зависимости от структуры нити и вида волокна [2].

В настоящей статье описываются фильтровальные ткани, разработанные нами с применением х/б пряжи. В зависимости от назначения ткани изготовляются различной структуры и пористости с целью обеспечения оптимальных условий фильтрования, что учитывается при проектировании пряжи и тканых полотен.

Нами была проведена работа с целью создания тканых фильтрующих материалов для очистки промышленных газов в химической и нефтегазовой промышленности,

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разработка и производство фильтрующих тканей различного ассортимента с «финишной» обработкой, для обеспечения наиболее оптимальных параметров фильтрации и достижения высокоэффективных результатов технологического процесса.

Образцы ткани вырабатывались на станке “Somet Super Excel Thema” сложным переплетением, линейная плотность нитей базового основа T_O=25x2 текс, для настила $T_н$=25x12 текс (хлопчатобумажная пряжа) и нитей утка $T_у$=25x2 текс, плотность ткани по основе и по утку составляла соответственно P_O=240 н/дм, $P_н$=120 н/дм, $P_у$=320 (160x2) н/дм [3].

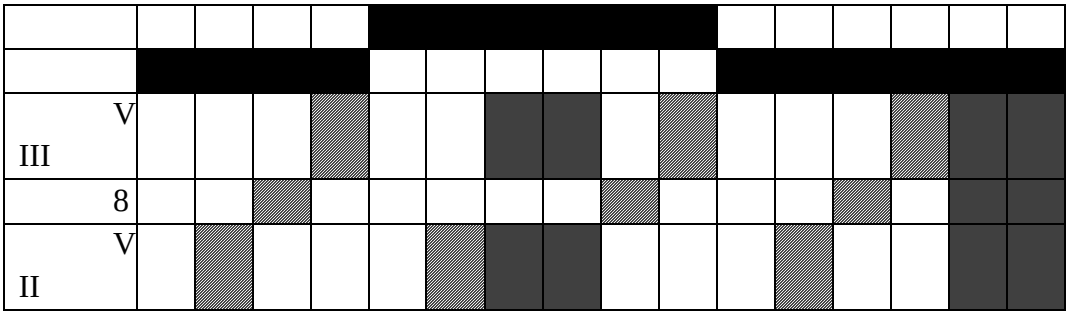
Характеристику заправочных данных ткани приведем в таблице 1.

Таблица 1. Характеристика заправочных данных ткани

	Наименование показателя		Численное значение
	Наименование ткани		Фильтровальное
	Ширина ткани в см		180
	Линейная плотность пряжи, текс	Основной	25x2
		Уточной	25x2
		Настилочной	25x12
	Плотность (число нитей на 10 см)	по основе P_o	240
		по утку $P_у$	320 (160x2)
	Количество нитей в основе	Всего	5240
		Настилочное	1080
	Бердо, зуб/дм	Номер	60
	Переплетение		Сложное
	Тип станка		Рапирное
	Поверхностная плотность ткани г/м^2		750

В работе использована местной сырья (хлопчатобумажная пряжа) и высокоскоростной ткацкой станок.

В рисунке 1 приведена заправочная рисунка фильтровальных ткани. Для выработки ткани использовано ремизоподъёмная каретка на 16 ремизок (для фоновых нитей 12, для настилочных 2 и для кромочных 2).



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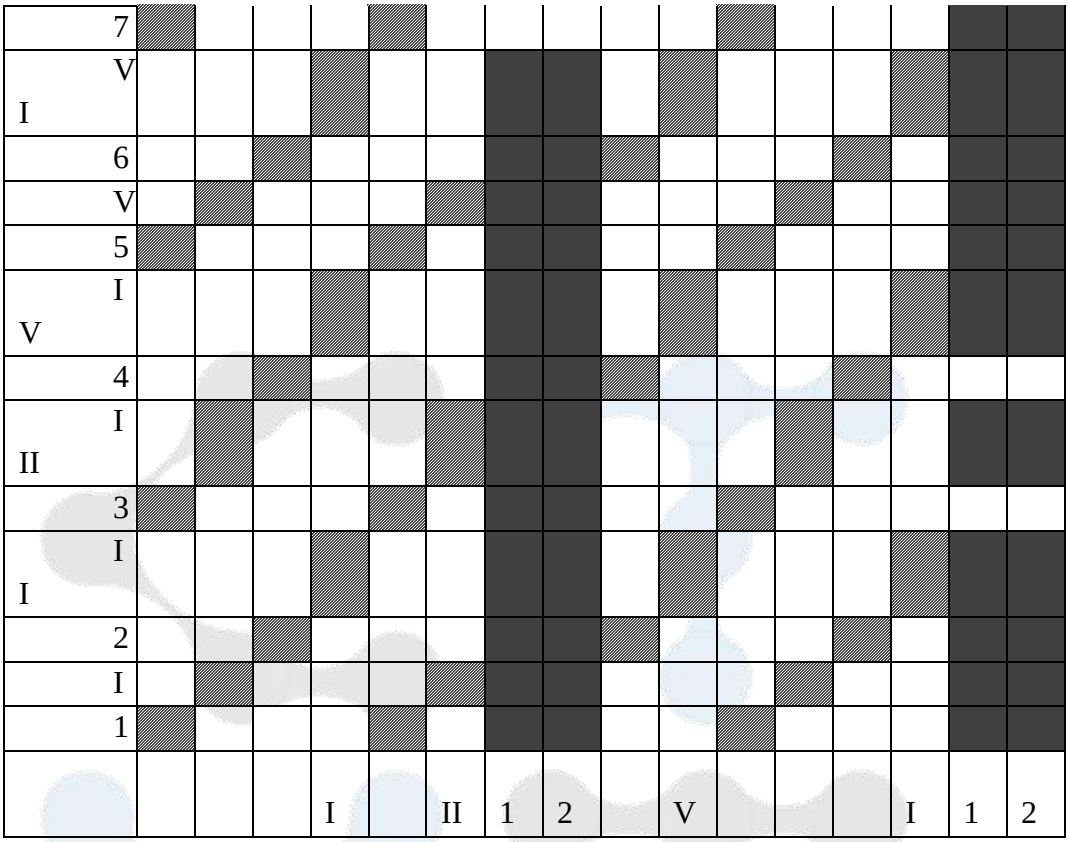

Рис.1 Заправочная рисунка ткани

В рисунке 2 приведена технологическая схема расположения нитей основы и утка в ткани. Для выработки данной ткани необходимо ткацкой станок оснащенной с дополнительной основной нитей. Предлагаемая нами новая ткань специального назначения обладает следующими свойствами (таблица 2):

Таблица 2.Физико-механические свойства специальной ткани

№	Характеристики ткани	Величина	Показатель
1	Поверхностная плотность	г/м^2	750±25
3	Разрывная нагрузка: по основе по утку	Н	 3700 2900
	Толщина ткани	мм	2,2
4	Разрывное удлинение: по основе по утку	%	 48 36
5	Истирание	цикл	136000
6	Воздухопроницаемость	дм^3/м^{2}с	128
7	Водоупорность: лицевой стороны изнаночной стороны	мм вод.ст.	 225 186
9	Усадка по основе по утку	%	1,5 2,8

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Из проделанной работы видно, что данной ткань обладает высокими свойствами такими, как прочность, воздухопроницаемость, что отвечает требованиям ГОСТа «Специальные ткани» и позволяет ее применение в массовом производстве.

Ткань можно широко применят в химической, металлургической, горной, цементной, энергетической и других отраслях промышленности для обеспыливания технологических и отходящих газов, а также для обеспыливания воздуха в системах вентиляции. Они могут длительно эксплуатироваться в газовых средах при температурах до 150^0C и кратковременно до температуры 170^0C.

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ТИПЫ ПРИЕМНО-ПЕРЕДАЮЩИХ УСТРОЙСТВ ХЛОПКА И ИХ АНАЛИЗ

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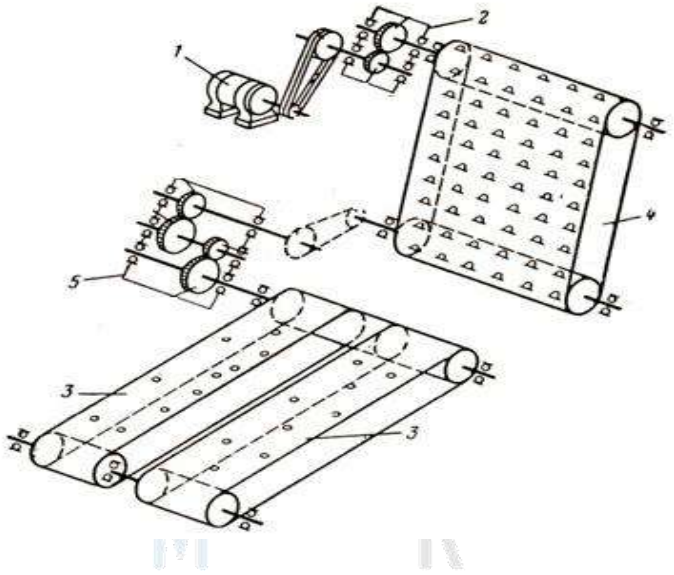
Абстрактный. В статье проведен анализ передаточных устройств приема хлопка-сырца и определено, что можно снизить влажность хлопка-сырца за счет удаления части его примесей перед джинированием.

Ключевые слова: хлопок-сырец, гарам, поставщик, конвейер, роликовый, пл.

Впервые в 1964 году были разработаны новые питатели типа ПЛ для использования во время сезона сбора хлопка и установлены на самосвальные прицепы.

Поставочные хлопкоочистители ГСКБ типа ПЛ были разработаны в Государственном конструкторском бюро, а их серийное производство освоено «Узбекхлопкомашем». В связи с простотой конструкции, легкостью массы и существенно низким энергопотреблением даны рекомендации по серийному производству фидеров ПЛ взамен готовых приемно-обеспечивающих устройств типа ПТХ-20 . Питатель ПЛ представляет собой конвейер, установленный на двухленточной платформе с широкой горизонтальной лентой и включающий штабельный наклонный ленточный конвейер Рис. 1.



1-электродвигатель, 2-редуктор РНН -125А, 3-ленточный,
4- хлопковый элеватор , 5- редуктор.

Рисунок 1. Кинематическая схема ленточного питателя ПЛ

При приеме хлопка прицеп устанавливают вблизи горизонтального конвейера. При опрокидывании прицепа хлопок падает на ленту и постепенно подается на наклонный конвейер , который своими ворсами прочесывает хлопок из общей массы, захватывает его и подает на вертикальный конвейер для передачи на комбайн . В процессе использования поставщиков ПЛ в производственных условиях был выявлен ряд недостатков, затрудняющих нормальную работу станков. Важнейшим из них является боковое смещение

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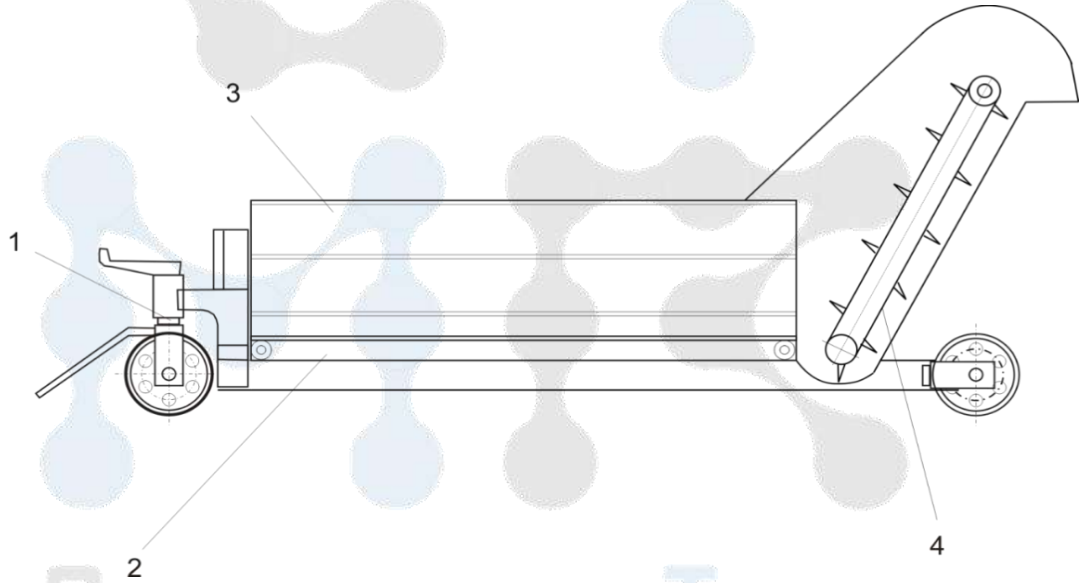
барабанов горизонтального конвейера . В ряде случаев также наблюдалось, что барабаны терлись о стены, что приводило к нагреву ваты и усилению огня .

Еще одним недостатком ПЛ является сложность регулировки горизонтального ремня, даже хорошо отрегулированный ремень будет смещаться при насыпании хлопка прямо на ленту с самосвалов. Часто лента повреждается острыми краями и складками рамки . Повреждение ремня происходит также при попадании посторонних предметов в пространство между приводным и нажимным барабанами горизонтального конвейера. В процессе работы механизма возникают заторы на участке между горизонтальным и вертикальным конвейерами .

равномерно сократить ручной труд и хлопок-сырец. для приема и выдачи была разработана новая конструкция приемного устройства ПЛА рус у мл (рис. 2.), основанная на конструкции ПЛ, где установлены широкие ленточные конвейерные площадки шириной 1400 мм .приема хлопка было установлено, что машины подачи ленты ПЛА не обеспечивают быструю разгрузку грузов , в зависимости от влажности хлопка-сырца эта операция занимает 15-20 минут .



1 — рама, 2 — ленточный конвейер , 3 — борта , 4 — элеватор .

Рисунок 2. Принципиальная схема приемника хлопка PLA

В целях повышения производительности существующих приемно-передающих устройств и обеспечения непрерывной выгрузки хлопка из хлопкоприцепов на «ТГСКБ» было изготовлено хлопкоприемно-передающее устройство с поставщиком ТП типа «ХПП» и роликово-роликовой платформой. Предприятие «Переработка хлопка». Ресивер ХПП и более поздние усовершенствованные модели (ХПП-II, ХПП-III) отличаются количеством роликов роликовой платформы. Данное устройство предназначено для приема хлопкового сырья, транспортируемого насыпью, и доставки его последующим транспортным средствам, загружающим хлопок на склады или склады перерабатывающих центров. Хлопкоподборщик XPP используется совместно с переносным ленточным конвейером KLP-650 или конвейером TLX-18.

Это мобильное приемно-перегрузочное устройство для перегрузки хлопкового сырья (ХПП), включающее корпус, нижняя часть которого представляет собой горизонтальный ленточный конвейер, торцевая стенка боковой части ленточного конвейера

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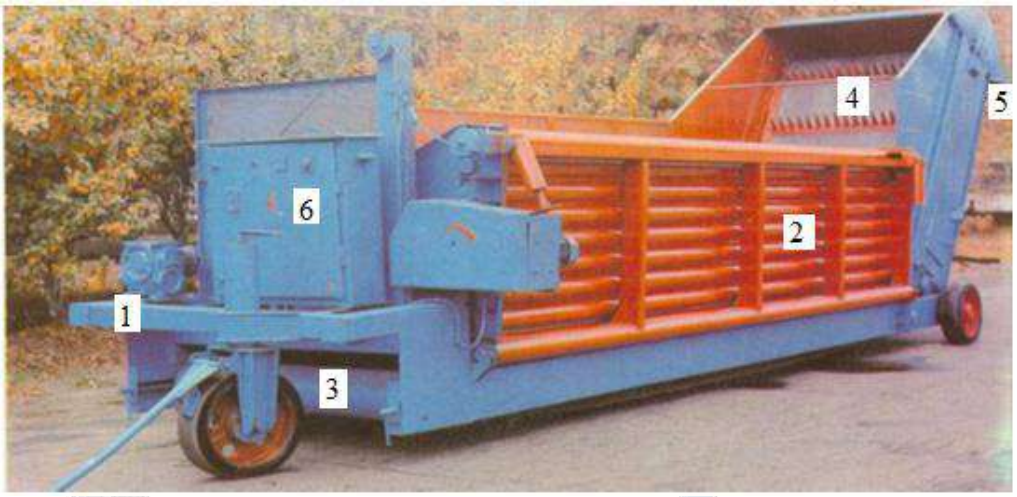
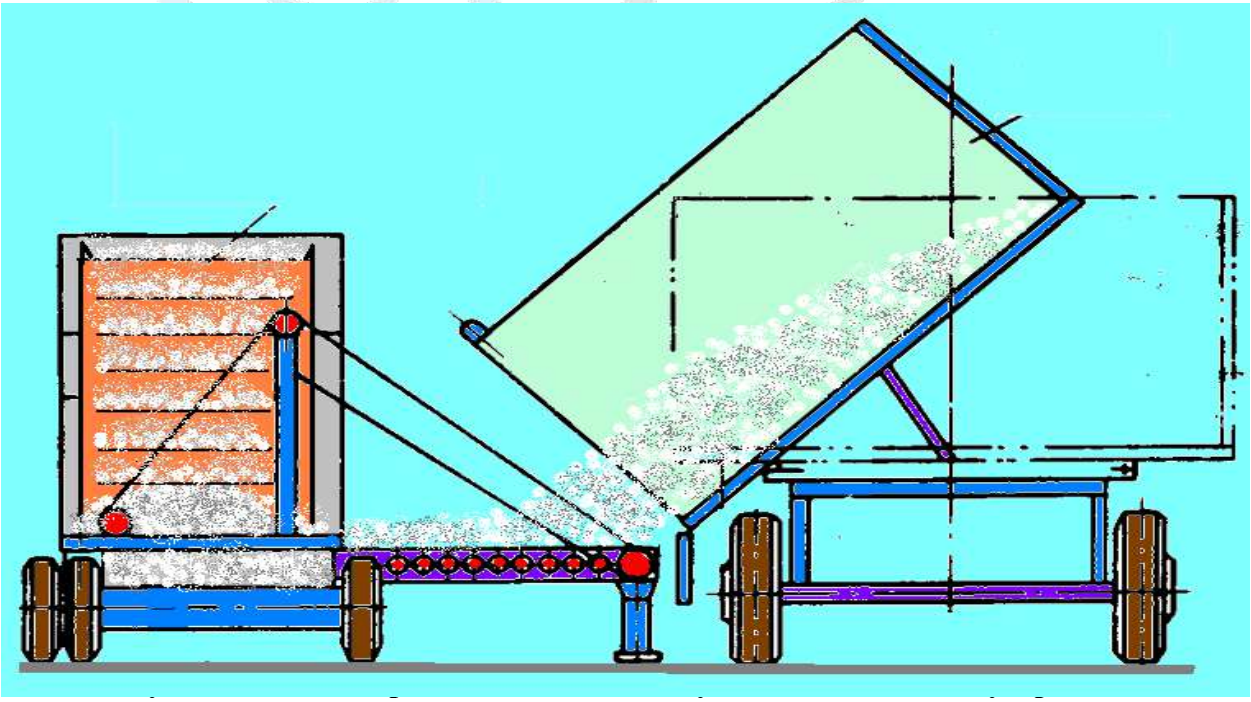
со штабелями на ленте, и одна из Буфеты складные рольганговые, изготавливаются по рис. 3.



1-тележка 2- роликовый ; 3- ленточный конвейер горизонтальный ; 4- наклонный конвейер (элеватор); 5- хлопкозагрузочная машина ; 6- ящик управления .

Рисунок 3. Приемно-передающее устройство хлопка ХПП- III

Схема выгрузки хлопкового сырья из кузова автомобиля представлена на рис. 4, кинематическая схема - на рис. 5.



III

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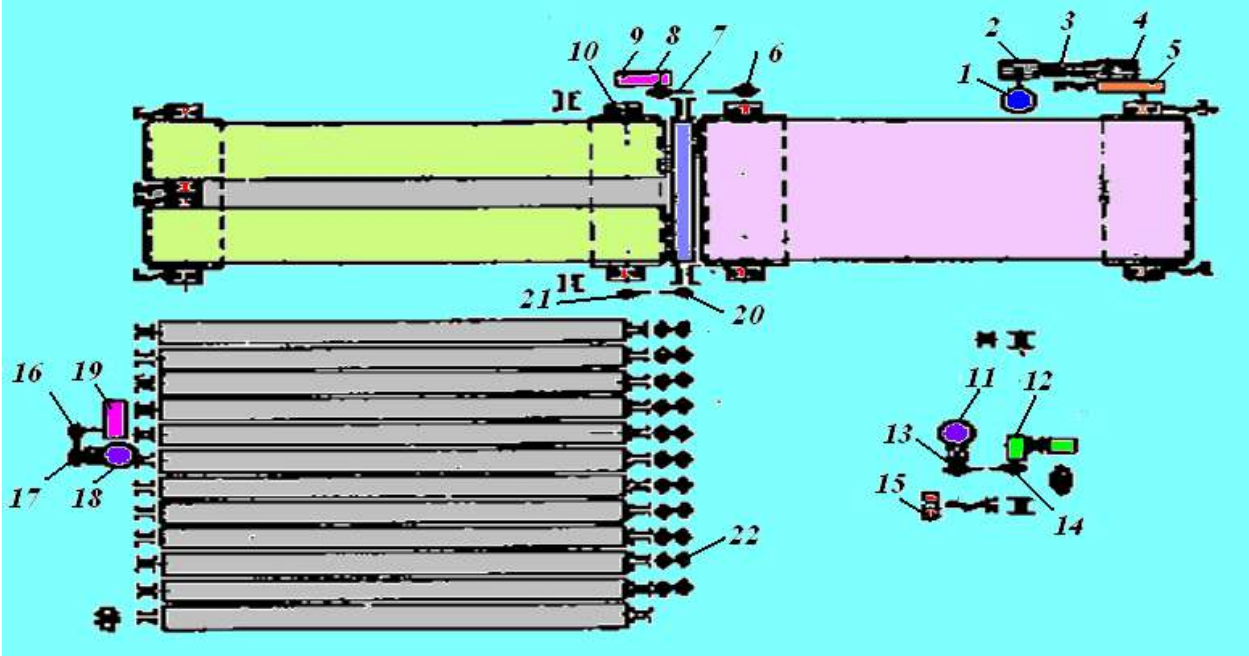

1- электродвигатель 4А100 14 У3 (4 кВт ; 1430 *мин* $^{-1}$); 2- шкив 2Б.125; 3-я лента Б – 2000 Т; 4- шкив 2 В .200; 5- лифт редуктор ПЛ 2-12-03; б 14,17,21- звездочка (2 25; I=25,4); 7- цепь ПР -25,4; 8, 20- звездочка (2-13; I=28,4); 9, 19- редуктор ПЛ 1-15А (I°25,7); 10– подшипник №11210; 11, 18– мотор - редуктор МС 2 С -63-71 ОСЕНЬ ; 12- редуктор ; 13-я звезда (I=17; (=25,4); 15-й подшипник №72811; 16-я звезда (2=15; I =25,4); 22-я звезда (2 -11).

Рис. 5. Кинематическая схема ХПП устройства

Кузов транспортного кузова с хлопковым сырьем устанавливается рядом с погрузчиком ХПП-III, после чего он наклоняется и хлопковое сырье опускается на рольганг. Масса хлопка-сырца через вращающиеся ролики рольганга подается на горизонтальный конвейер и поступает в стопки элеваторной ленты, поднимающей хлопок для выгрузки в приемное устройство.

При хранении хлопкового сырья, полученного в хлопковых центрах в гараме, оно уплотняется, влага, содержащаяся в примесях, переходит в волокно и читгит, а примеси проникают глубже в волокно. В результате в процессе хранения значительное количество хлопка переходит из одного сорта в другой, в убывающем направлении. Это влияет на урожайность и качество волокна, вид семян и, соответственно, на рентабельность хлопкового комплекса.

Исходя из вышеизложенного, повышение качества хлопкового сырья перед длительным хранением на складах и складах является перспективным направлением. Поэтому перед джинированием рекомендуется удалить из хлопка-сырца часть посторонних примесей и тем самым снизить его влажность.

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USE OF THE "GREEN GARDEN PROJECT" FOR THE PURPOSE OF GREENING THE ENVIRONMENT IN PROVIDING ECOLOGICAL EDUCATION TO STUDENTS THROUGH CONSERVATION AND RESPECT FOR NATURE

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ANNOTATION: This article discusses the current issue, namely, the importance of educating students in the protection and respect of nature through the national technology project "green gardens", and the importance of preserving the purity of the atmosphere as an important resource for creating a healthy environment in the future.

KEYWORDS: Ecological education, ecological education, "green garden" "green space" ecological worldview, atmospheric air, public health, nature protection.

INTRODUCTION: The great attention paid to environmental education of students in our country through the preservation and respect of nature, the development of new methodological approaches to ensuring the interaction and integrative connection of the ecological worldview with national and universal values. 2025 was named the "Year of Environmental Protection and the "Green" Economy". It is necessary to plant trees within the framework of the "Green Space" project not for their name, but "for our lives, for the cleanliness of our lungs, because we need it for ourselves, our society, and our health," said the President of Uzbekistan. Shavkat Mirziyoyev. Therefore, improving the didactic support of technologies for increasing the efficiency of environmental education of students through the preservation and respect of nature is of great importance. As our President Sh.M. Mirziyoyev noted: "The effectiveness of the reforms being carried out in our country today directly depends, first of all, on expanding the ranks of young cadres with high spirituality, independent thinking, capable of taking responsibility for the fate and prospects of our Motherland." After Uzbekistan gained independence, serious attention was paid to the issues of environmental education and nature protection through the preservation and respect of nature for students, and several laws and decrees were promulgated, and measures were taken to implement them. The following decrees and laws can be cited as examples in this regard.

The Decrees of the Republic of Uzbekistan "On Nature Protection" of December 9, 1992, "On Water and Water Use" of May 6, 1993, "On Subsoil Resources" of September 22, 1994, "On Air Protection" of December 27, 1996, "On the Protection of the Animal World and Its Rational Use" and "On the Protection of the Plant World and Its Rational Use" of December 26, 1997, as well as a number of other laws and decrees issued in this regard are among them. This research work will to a certain extent serve to ensure the implementation of the tasks set out in the Resolution of the President of the Republic of Uzbekistan No. PF60 dated January 28, 2022 "On the Development Strategy of the New Uzbekistan for 2022-2026", Resolution No. PF-5712 dated April 29, 2019 "On Approval of the Concept for the Development of the Public Education System of the Republic of Uzbekistan until 2030", Resolution No. 434 of the Cabinet of Ministers of the Republic of Uzbekistan dated May 27, 2019 "On Approval of the Concept for the Development of Environmental Education in the Republic of Uzbekistan", and other regulatory legal acts related to this activity.

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The Strategy for the Preservation of Biodiversity in the Republic of Uzbekistan for 2019-2028, the implementation of the national project "Green Space" initiated by our President, is significant in that it serves such noble and human values. Among them, a number of traditions aimed at ensuring the harmony of man and nature still accompany our lives. For example, when a child is born in a family, with good intentions, grandfathers and fathers plant a tree in his honor, creating both sustenance and beauty for the world. As a powerful sanitizer, the green surface of trees and shrubs absorbs carbon dioxide and releases oxygen necessary for human life. Trees, like all living things, have their own source of energy.

Because people enjoy the aroma emanating from trees and their mood improves. The nationwide project “Green Space” being implemented in our country is an important factor in ensuring the continuity of such noble values and achieving sustainable development. Within the framework of this ecological project, which has become a tradition at the initiative of our President, it is planned to plant 200 million tree and shrub seedlings annually, thereby increasing the green areas of our country from the current 8 percent to 30 percent. As our President noted, the national project "Green Space" is not a one-year event. It is also worth recognizing that this noble initiative, which is being implemented with tomorrow in mind, is highly appreciated by many international organizations. All information in this regard is provided in the model of providing students with environmental education through the preservation and respect of nature.

Today’s reforms in the field of education in the newly developing Republic of Uzbekistan are changing the practical forms, methods and means of providing students with environmental education through the preservation and respect of nature in accordance with the requirements of the times. Communication with nature is of great importance in the moral development of a person. Love for Mother Nature, preservation and protection of all its wealth are an impetus for the formation of ecological concepts.

CONCLUSION: In conclusion, nature conservation has always been relevant. Developing ecological education for the growing younger generation through the preservation and respect of nature is a fascinating and attractive way to preserve, protect and appreciate nature and flora, and how important the work carried out to develop environmental protection is for society and for people. Therefore, providing students with ecological education through the preservation and respect of nature is an important and urgent issue.

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ПОРАЖЕННОСТЬ ПАУТИННЫМ КЛЕЩОМ СОИ И МЕРЫ БОРЬБЫ С НЕЙ.

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Аннотация. *В статье приведены сведения о пораженности паутинным клещом сои и мерах борьбы с ней посаженной в различные сроки в условиях такырно-луговых почв Сурхандарьинской области. Полевые опыты проводились в экспериментальном хозяйстве "Научно-исследовательский институт тонковолокнистого хлопка" в 2021-2023 гг.*

В исследования изучено сорт сои Нафис, посев производили 20-25 марта, 5-10 апреля и 20-25 апреля из расчета 350-500 тыс. шт./га. По полученным результатам установлено, что при посеве 20-25 апреля меньше поражаются паутинным клещом, по сравнение более ранней посевом.

Ключевые слова: *соя, сорт Нафис, сроки посева, вредитель, паутинный клещ, инсектицид, насекомое.*

Annotation. *The article provides information about the infestation of soybeans by spider mites and measures to combat them planted at different times in the conditions of takyr-meadow soils of the Surkhandarya region. Field experiments were carried out at the experimental farm "Research Institute of Fine Staple Cotton" in 2021-2023. The soybean variety Nafis was studied in the study; sowing was carried out on March 20-25, April 5-10 and April 20-25 at the rate of 350-500 thousand units/ha. Based on the results obtained, it was established that when sowing on April 20-25, they are less affected by spider mites, compared to earlier sowing.*

Key words: *soybean, Nafis variety, sowing time, pest, spider mite, insecticide, insect.*

Введение. В нашей республике принимаются комплексные меры по удовлетворению потребности населения в растительном масле за счет выращиваемых в нашей стране масличных культур. По данным ФАО, 24-47% сельскохозяйственных культур ежегодно погибают из-за болезней и вредителей. Это, в свою очередь, увеличивает использование пестицидов, что приводит к увеличению себестоимости урожая и отрицательному воздействию на окружающую среду [1].

Паутинный клещ- (Tetranychus witicae Koch). Это насекомое серьезно повреждает сои, маш и является их самым опасным вредителем. Паутинный клещ начинает наносить вред полям сои еще во время развития первого тройчатый листа. Наличие насекомого определяют по появившимся на листе белым точкам. Появление насекомого приходится на конец мая – начало июня, цвет листьев сои меняется, на листьях начинают появляться пятна. По мере размножения пятен листья растения начинают желтеть. Это свидетельствует о том, что на растение попал паутинный клещ. Насекомое питается соком растений и очень

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быстро распространяется, оно едва заметно невооруженным глазом. Когда число насекомых на одном листе достигает 50, заражается 100% листьев [2].

Этот вредитель размножается на вишне, шелковице, люцерне, акации, сорняках, попадает в тень сам или с помощью ветра и дает 10-12 поколений. Паутинный клещ поглощает воду (сок) и все вещества, хлорофилл, из клеток листьев. Лист белеет, прекращается фотосинтез, листья опадают. Незрелые зерна размножаются. урожайность снижается. Ущерб увеличивается в сухую и жаркую погоду. Развитие каждого поколения зависит от температуры.
В кратчайшие сроки одно поколение развивается при температуре воздуха 25 °C [3].

В настоящее время актуально проведение научных исследований, направленных на разработку агротехнологий для получения высококачественного урожая сельскохозяйственных культур и снижения ущерба, наносимого различными вредителями и болезнями.

По результатам наших исследований поражение сои паутинным клещом в период ветвления-цветения составило 20% при посеве 20-25 марта, 10% при посеве 5-10 апреля и 5% при посеве 20-25 апреля (табл. 1).

В более поздний период развития, т. е. в период цветения - образование бобов, паутинный клещ повреждает сравнительно большую часть соевой площади, эти показатели составляют 30% в варианте, посаженном в первый период (20-25 марта), 15 % во втором периоде (5-10 апреля), а в последующем периоде (20-25 апреля) было отмечено на уровне 10%. Вред в период созревания бобов сои составил 5% во все сроки посадки.

Таблица-1

Повреждение сои с паутинный клещом (2023 й)

№	Срок посева	Нормы высева, тыс. шт./га	Степень повреждения, %		
			Период ветвление-цветение	Период цветение-образо-вание бобов	Период образо-вание бобов-созревание
1	20-25 март	350	20	30	5
2		500			
3	5-10 апрел	350	10	15	5
4		500			
5	20-25 апрел	350	5	10	5
6		500			

В ходе исследования химический препарат «Омайт» против паутинного клеща применяли 3-4 раза через 7-8 дней из расчета 1,3 л/га на гектар. Кроме того, полезно частое мытье листьев сои с помощью специального устройства.

Вывод. Повреждаемость сои паутинным клещом менялась в зависимости от срока посева, причем с опозданием срока посева он уменьшался. Также при раннем посеве сои на

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ранних стадиях развития высока зараженность паутинным клещом, что, в свою очередь, приводит к сильному повреждению растения, что приводит к снижению урожайности.

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ФИЗИОЛОГИЧЕСКИЕ СВОЙСТВА ПИЩЕВЫХ ВОЛОКОН

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Аннотация. Пищевая клетчатка в определенных количествах присутствует в ежедневной растительной пище человека. Количество пищевых волокон в стенках растительных клеток зависит от их состава и структуры. Пищевых волокон больше в древесных частях растения и меньше в развивающихся частях растения.

Annotation. The number of plant fibers and plant cells depends on the composition and structure. Dietary fiber is more in the woody parts of plants and less in the developing parts of plants.

Ключевые слова. Кишечная микрофлора, рафинат, стрептококки, лактобактерии.

Keywords. Intestinal microflora, raffinate, streptococcus, lactobacillus.

Введение. Долгое время пищевые волокна считались ненужными и предпринимались попытки удалить их из продуктов, чтобы снизить их пищевую ценность. Соответственно, был разработан ряд рафинированных продуктов, в которых пищевые волокна полностью очищены. Сахар, кондитерские изделия, мука высшего сорта, осветленные фруктовые и овощные соки, их потребление составляет около 60% общей калорийности рациона населения высокоразвитых стран, что обусловлено снижением потребления натуральных растительных продуктов (крупы, овощи, хлеб грубого помола) в рационе вызывало снижение количества пищевых волокон в 2-3 раза.

Добавление пищевых волокон в пищевые продукты усиливает кишечный синтез витаминов B_1, B_2, B_6, PP и фолиевой кислоты кишечными бактериями. Они влияют на микрофлору кишечника, увеличивая процент полезных лактобактерий и стрептококков. Это особенно важно для пожилых людей, у которых с годами склонна к ухудшению микрофлоры кишечника.

Медико-биологические и физико-химические свойства пищевых волокон зависят от их способности удерживать воду, связывать жиры, поглощать патогенную микрофлору и тяжелые металлы.

Пищевые волокна являются пребиотиками. В результате различных негативных воздействий и патологических состояний в нормальной микрофлоре кишечника могут возникать качественные и количественные изменения. Биологически активные вещества, содержащиеся в пищевых продуктах, способны поддерживать и регулировать физиологические функции и биохимические реакции организма при систематическом употреблении. Это способствует повышению здоровья человека и устойчивости к болезням. Важнейшие физиологические функции растворимых пищевых волокон обусловлены их пребиотическими свойствами.

Пребиотики — это неперевариваемые ингредиенты пищи, которые способствуют здоровью посредством метаболической активности одной или нескольких групп бактерий, живущих в толстом кишечнике.

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Для того чтобы пищевой компонент можно было отнести к пребиотику, он не должен гидролизоваться пищеварительными ферментами и не адсорбироваться в верхнем отделе пищеварительного тракта, а должен быть субстратом для бифидо- и лактобактерий, обитающих в толстой кишке человека. Пребиотики не относятся к лекарственным препаратам.

Пребиотики присутствуют в зернах кукурузы, крупах, хлебе, луке, чесноке, фасоли, горохе, бананах и многих других продуктах. Помимо увеличения роста и активности бифидо- и лактобактерий, инулин увеличивает всасывание кальция в толстом кишечнике, снижает. риск развития остеопороза и снижает риск развития диабета.

В качестве добавок к функциональным продуктам могут быть использованы комбинации пробиотиков и пребиотиков, синбиотики, улучшающие жизнеспособность живых бактериальных добавок в кишечнике и избирательно стимулирующие рост и метаболизм лактобацилл и бифидобактерий.

Источники пищевых волокон. Ежедневная растительная пища человека также содержит пищевые волокна в определенных количествах. Количество пищевых волокон в стенках растительных клеток зависит от их состава и структуры. Пищевых волокон больше в древесных частях растения и меньше в развивающихся частях растения.

В зависимости от типа используемого пищевого компонента овощные растения делятся на плодовые и вегетативные. В группе плодовых культур (томаты, бобовые, сахарный тростник) пищевые волокна сосредоточены в бессемянной части растений. Их наиболее много в листьях, стеблях, поверхностных слоях зерен и семенах. Съедобные части растений, относящихся к вегетативной группе овощей, находятся в их корнях, стеблях и листьях (кочанная капуста, салатные изделия, листовые пряные овощи).

Пищевые волокна отделяются от вторичного сырья, образующегося при переработке овощей, ягод и фруктов, но из-за их малого количества концентрируются во влажном состоянии при переработке овощей и фруктов на предприятиях и быстро портятся. Чтобы их сохранить, необходимо их высушить или законсервировать химическими методами.

Все виды изученного сырья различаются по доле растительных биополимеров. Наиболее богаты целлюлозой сосновые опилки, в среднем 51,0 %, тогда как содержание целлюлозы в других видах сырья колеблется от 32,0 до 43,0 %.

Таблица 1

Биохимический состав пищевых волокон в целлюлозосодержащем сырье Тип сырья

Вид сырья	Количество компонентов,%*			
	Количество - 100%			Зольные вещества
	Целлюлоза	вещества	Лигнин	
Сосновая стружка	51,0	26,0	23,0	2,0
Экстракт берёзы	43,0	30,0	27,0	4,0
Тополь	35,0	35,0	30,0	7,0
Пшеничная солома	42,0	28,0	30,0	5,0
Стебель подсолнуха	32,0	32,0	36,0	2,5

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При использовании пищевых волокон и богатых ими различных видов растительного сырья необходимо оценивать уровень их загрязнения микроорганизмами и токсическими веществами.

Это позволяет решить вопросы стерилизации или очистки. Санитарное состояние сырья, хранящегося длительное время, меняется. Большое количество пищевых волокон содержится преимущественно в одревесневшем растительном сырье зерновых культур, лиственных и хвойных породах, целлюлозе и лигнине, тростнике, травах и других сельскохозяйственных культурах.

Для извлечения пищевых волокон из растительных субстратов используются различные методы. Они основаны на экстракции из измельченных растительных волокон низкомолекулярных веществ: моносахаридов, гликозидов, алкалоидов, минеральных соединений или гидролизе и сопутствующей экстракции крахмала. В зависимости от вида перерабатываемого сырья, его экстракция путем нагревания в воде разбавленных растворов минеральных кислот (сера, хлористая, фосфорная), щелочей (отруби, мука, отходы овощепереработки), солей серной кислоты, перекисных кислот (стебли зерновых культур), шелуха зерна, травы, древесина) или амилолитические ферменты (крахмалсодержащее сырье).

Пищевые волокна можно выделить путем нагревания их с поверхностно-активными веществами в небольших концентрациях при низких температурах, что происходит за счет распада макромолекул в жестких условиях. Выделенные таким способом пищевые волокна отличаются от исходного сырья увеличенной площадью поверхности, повышенной сорбционной способностью и высокой чистотой. При этом происходит полная инактивация патогенной микрофлоры, что повышает качество получаемой пищевой добавки.

Наименее разрушаемые пищевые волокна в больших количествах отделяются от сырья ферментативными методами. Они основаны на последовательной обработке амилолитическими (для удаления крахмала), а затем протеолитическими (для удаления белков) ферментами.

Но стебли растений устойчивы к действию различных гидролизующих агентов, а чистая природная целлюлоза и лигноцеллюлоза являются субстратами с низкой реакционной способностью.

Резюме: Недостаток этих веществ в пище приводит к нарушению обменных процессов и появлению различных заболеваний. Для их профилактики и эффективного лечения необходима разработка и создание продуктов нового поколения с высокой пищевой ценностью.

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ХРАНЕНИЕ ПЛОДОВ КЛУБНИКИ В СИСТЕМЕ ХОЛОДИЛЬНОЙ ЦЕПИ И ПОЛУЧЕНИЕ СОКА

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Аннотация. *В диссертации даны рекомендации о значении плодов земляники, лечебных свойствах, химическом составе и технологии приготовления земляничного сока и земляничного варенья из продуктов земляники.*

Ключевые слова: *клубника, состав плодов клубники, корень, лист, клубничный сок, температура, клубничное варенье, сироп, плоды, банка, крышка.*

Annotation. *This thesis provides recommendations on the importance of strawberry fruit, medicinal properties, chemical composition and technology of preparation of strawberry juice and strawberry jam from strawberry products.*

Keywords: *strawberry, the composition of strawberry fruit, root, leaf, strawberry juice, temperature, strawberry jam, syrup, fruit, jar, cover.*

Плод содержит 4,5-11% сахара, 0,28-1,5% различных кислот, 0,12-0,41% добавок и красящих веществ. Помимо никс будет солью, фосфором, калием, кальцием, 50-75 мг% витаминов А, В, С. Плоды клуба непригодны для транспортировки и хранения. выращивается на одном месте 2-3 года. Клубника цветет рано, с конца марта до начала апреля. В зависимости от периода цветения его делят на раннецветущие и позднецветущие сорта. Период цветения длится 20-45 дней. От начала цветения до созревания плодов проходит 20-35 дней. Клубнику можно хранить всего 3 дня. За это время витамин С, полифенолы и антиоксиданты, содержащиеся в клубнике, не исчезают. Хранить клубнику в холодильнике можно 4-5 дней, но пользы от плода, когда в нем исчезнут полезные вещества, нет.

2. Прежде чем положить клубнику в морозилку, удалите все подгнившие. Затем поместите его в герметичный контейнер, чтобы он не потерял влагу. Не храните клубнику при комнатной температуре и под прямыми солнечными лучами, иначе она придет в негодность в считанные часы.

3. Прежде чем есть клубнику, тщательно вымойте ее и подождите, пока она высохнет. Выложите их на плоское блюдо в ряд, а не друг на друга, и полейте лимонным соком, чтобы цвет не изменился.

4. Цвет вкусных и полезных плодов ярко-красный, а полоска зеленая. Кроме того, свежая клубника будет блестеть на солнце, а ту, что с желтыми или зелеными пятнами, лучше не покупать. Коричневое пятно на плодах – признак того, что клубника гниет. Не стесняйтесь нюхать клубнику, она должна быть ароматной. Темно-красная клубника либо перезрелая, либо перезревшая нитратами. Не пытайтесь съесть такую клубнику. Также, если стебель отцвел, значит клубника уже срезана. Если семена у клубники находятся

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глубоко внутри, плод считается вкусным и спелым, наоборот, если он находится на поверхности, не погружаясь, значит, клубнику собрали, не дожидаясь ее созревания.

5. Самый простой способ почистить клубнику для варенья или печенья — использовать трубочку. От кончика клубники вниз вставьте трубочку и надавите на дно. Помните: тонкая трубка не подойдет, более широкая.

К сожалению, если вы не скажете «да», сезон клубники закончится. И нам, садоводам, не хочется прощаться с такой вкусной ягодой. Заморозка клубники – способ сохранить ее на зиму, не потеряв полезных свойств.

К сожалению, если вы не скажете «да», сезон клубники закончится. И нам, садоводам, не хочется прощаться с такой вкусной ягодой. Заморозка клубники – способ сохранить ее на зиму, не потеряв полезных свойств.

Клубника Rosaceae B.Jues принадлежит к роду Fragaria L семейства розовых. Это многолетнее травянистое растение с коротким корневищем.

У основания каждого бутона образуются дополнительные корешки. Существует несколько видов клубники: лесная, горная, равнинная, восточно-бухарская, сахалинская. Лечебные свойства клубники зависят от содержащихся в ней биологически активных (защитных) веществ-витаминов.

Одним из главных качеств клубники является наличие в ее плодах витамина «С» (аскорбиновой кислоты). В зависимости от условий выращивания и сорта витамин «С» составляет от 25 до 130 мг%. По количеству витамина «С» в его составе клубника занимает третье место среди плодовых растений после чакана и черной смородины. Плод содержит витамины В1, В2, Е, РР, К. Радиоактивные вещества, пектины и фолиевая кислоты, содержащиеся в плодах, способствуют выведению радиоактивных веществ из организма и обновлению крови.

Плоды клубники содержат богатый набор макро- и микроэлементов: кальций – 40 мг, фосфор – 87 мг, калий – 126 мг, железо – 22 мг, марганец – 22 мг, кобальт – 10 мг и др. Листья земляники содержат витамин С, каротин, алкалоиды, эфирное масло, летучие вещества и фитонциды.

Корень содержит вещества. Плоды клубники считаются ценными в переработке, из них производится большой ассортимент продуктов переработки. В настоящее время благодаря строительству новых холодильных камер можно обеспечить население плодами клубники в течение всего года.

Ягоды очень важны в рационе человека, но их нельзя долго сохранять свежими, поэтому срок их хранения невелик. Срок хранения можно продлить, выжимая из них сок или высушивая и используя в качестве консервов.

Очень питательной пищей считаются приготовленные по правилам консервы и соки, полезные свойства которых хорошо сохраняются во влажном состоянии. Они содержат витамины, сахара, кислоты, минеральные соли, пигменты, красители, пектины, эфирное масло и др. Сок многих ягод является лечебным и питательным продуктом и обладает фитонцидными свойствами, с помощью которых можно остановить деятельность болезнетворных микробов, предотвратить и даже вылечить некоторые заболевания.

Клубничный сок. Клубничный сок будет приятным и ароматным. Содержит 0,3-1,1% органических кислот, 4-15% сахаров, 30-100 мг% витамина С и минеральных солей.

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Покрасневшие цельные мясистые плоды отделяют для получения сока. С плодов удаляют промытые и высушенные чашелистики (сок листьев чашелистиков имеет неприятный запах травы), складывают в эмалированную емкость, измельчают деревянным ситом, накрывают крышкой и выдерживают при комнатной температуре 3-4 часа. Это снижает вязкость сока.

Затем к одному кг сочной массы (мяса) добавляют 100 г воды, нагревают при температуре 600 в течение трех минут, затем отжимают и пропускают через три-четыре слоя марли. Сок пастеризуют в бутылках или банках при температуре 85-90°. Клубничный сок полезен больным, страдающим подагрой, заболеваниями сердца и печени.

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СОВЕРШЕНСТВОВАНИЕ ПЕРВОНАЧАЛЬНОЙ ОБРАБОТКИ ПРИ СТОЯНОЙ СУШКЕ БЕССЕМЯННЫХ СОРТОВ ВИНОГРАДА

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Абстрактный. В данной статье проанализированы результаты экспериментов по изучению влияния щелочной обработки на качество продукта и скорость процесса при сушке бессемянных сортов винограда штабельным методом. В результате экспериментов изучены критерии показателей, важных для оценки органолептических свойств винограда после сушки стопки. В результате исследования были сделаны научно обоснованные выводы.

Ключевые слова. Виноград, изюм, урожайность, сухое вещество, качество, осенние и озимые сорта, технология сушки, стог, щелочь.

Входить. В настоящее время в мире ежегодно выращивается около 73 миллионов тонн винограда. Китайская Народная Республика, Италия и Испания являются мировыми лидерами по объёму производства, и в этих странах ежегодно собирают 11,2 млн, 8,1 млн и 6,1 млн тонн винограда соответственно. Также в число крупнейших производителей винограда входят такие страны, как США, Франция, Турция и Индия.

Ежегодно в Узбекистане выращивают более 1,7 миллиона тонн винограда. Для рационального использования всех их необходимо наладить выращивание сортов, предназначенных для потребления, экспорта и промышленности. Наша страна имеет уникальный опыт приготовления сушеной виноградной продукции, а производство сушеной продукции методом Сояки является уникальным методом региона.

Цель и конкретные вопросы исследования. Для повышения качества готового продукта при сушке бессемянных сортов винограда необходимо изучить значение технологических свойств и биохимического состава сырья.

Материал и методы. Для исследования были выбраны бессемянные сорта винограда: «Кишмиш белый», «Кишмиш Ботир», «Кишмиш розовый», «Кишмиш Согдиана», «Кишмиш черный». По способу проведения исследования: Исследования по определению наиболее эффективной концентрации раствора щелочи при первичной обработке при сушке отдельных сортов. С целью ускорения процесса получения сушеного продукта из бессемянного винограда были проведены эксперименты по образованию микроразрезов в кожице виноградных косточек путем обработки их щелочным раствором.

Были проведены эксперименты по определению оптимальной концентрации раствора щелочи. Включая Na OH

1% ли

2% ли

3% ли

4% ли

- Определена эффективность лечения 5% раствором.

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Эти эксперименты проводились в 4 повторениях.

РЕЗУЛЬТАТ ИССЛЕДОВАНИЯ И ОБСУЖДЕНИЕ

При анализе времени, необходимого для образования микротрещин в период 2020-2022 гг. при применении различных концентраций раствора NaOH к бессемянным сортам винограда штабельным способом, с целью сокращения продолжительности строительства молодых сортов винограда с различной концентрацией За счет увеличения количества трещин, образующихся на поверхности виноградных зерен при использовании раствора NaOH, т.е. 1%, 2%, 3%, 4%, 5%, удалось сократить период их образования. (Таблица 1). В зависимости от особенностей разных сортов винограда временной интервал образования дисперсий в растворе NaOH различался из-за разной степени толщины кожицы. Например, при обработке сорта Кишмиш Ботир 1%-ным раствором NaOH трещины образовались за 8 секунд. При обработке 2% раствором NaOH трещины образовывались через 7 секунд, причем даже при таких концентрациях временной интервал сокращался, а при обработке 5% раствором NaOH трещины образовывались через 2 секунды. При обработке раствором NaOH в концентрации 5% на толщину кожуры сорта Кишмиш Розовый для образования трещин потребовалось 5 секунд. Аналогично, у сорта Кишмиш белый при обработке 5% раствором NaOH через 3 секунды появились трещины.У анализируемого сорта Кишмиш черный при обработке раствором NaOH с концентрацией 1% трещины образовывались за 11 секунд, а при обработке раствором NaOH с концентрацией 5% - за 3 секунды. Аналогично эта закономерность повторилась и у сорта Кишмиш Согдиана. Согласно ему, при обработке раствором NaOH с концентрацией 1% трещина образовывалась за 7 секунд, а при обработке раствором NaOH с концентрацией 2% трещина образовывалась за 6 секунд. Установлено, что при обработке 4% раствором NaOH трещина образовывалась за 4 секунды, а при обработке 4 и 5% раствором NaOH трещина образовывалась через 3 и 2 секунды. По результатам нашего анализа доказано, что при обработке раствором NaOH концентрацией 5% для тонкостей кожицы опытных сортов Кишмиш черный и Кишмиш Согдиана трещины образовывались через 2 и 3 секунды. удалось получить качественный и качественный готовый продукт.

При сушке бессемянных сортов винограда штабельным методом анализировали выход готового продукта с использованием раствора NaOH различной концентрации, в зависимости от толщины кожицы сортов винограда, обрабатывали раствором NaOH различной концентрации и определяли выход продукта. По его словам, сорт изюма толстокожего сорта Кишмиш Ботир при простом методе штабелирования (контроле) давал 22,8 процента готовой продукции, а при сушке 1-процентным раствором NaOH выход готовой продукции составил 24,0 процента. При обработке этого сорта раствором NaOH концентрацией 2% и высушивании выход готового продукта составил 23,5%.Выход готового продукта при обработке 3% раствором NaOH составил 23,0%, при сушке 4% раствором NaOH – 22,6%. После сушки раствором NaOH выход готового продукта снизился на 22,1%. (Таблица 7)

У сорта роза Кишмиш она составила 24,7% при сушке простым штабельным (контрольным) способом, а при сушке 1%-ным раствором NaOH выход готового продукта увеличился на 26,0%, при обработке 2%-ным раствором NaOH. выход готового продукта при сушке - 25,5 процентов, после обработки раствором NaOH концентрацией 3,4 и 5

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процентов выход готового продукта снизился. Таким же образом случаи редукции были обнаружены у сорта Кишмий Белый. Среди анализируемых сортов наибольший выход готовой продукции наблюдался у сорта Кишми Белый. По сравнению с другими сортами можно заметить, что выход продукта выше на 5-6 процентов. Из-за тонкости кожицы изучаемых сортов Кишмиш черный и Кишмиш Согдиана выход готового продукта снижался при обработке этих сортов раствором NaOH. Из перечисленных в таблице сортов винограда кишмишбоп только сорта Кишмиш Ботир, Кишмиш розовый и Кишмиш белый получили высококачественную готовую продукцию за счет толщины кожицы или, наоборот, 20 и 15% готовой продукции. у тонкокожих сортов, т. е. сортов Кишмиш черный и Кишмиш Согдиана, а концентрация увеличилась, установлено, что количество качественной продукции снизилось. По данным анализа, при сушке сортов Кишмиш черный и Кишмиш Согдиана путем обработки раствором NaOH простым штабельным способом произошло дробление зерен винограда, потеря их цвета и установлено, что невозможно получить высокосортный продукт. качество готовой продукции. Проведено влияние различных концентраций раствора NaOH на органолептические оценки конечного продукта при сушке сорта винограда Кишмишбоп штабельным способом (табл. 3) в сравнении с простым штабелем (контроль). Если органолептическая ценность сушки в обычном штабеле оценивалась от 87,6 до 91,2 балла, то органолептическая ценность готового продукта, высушенного с использованием 1% раствора NaOH, оценивалась по коэффициенту важности. По оценке сорт Кишмиш Ботир получил 91 балл, при обработке и сушке в растворе NaOH 2% концентрации - 94,1 балла. Аналогично, 92,2 балла набрали 3 процента, 90,4 балла — 4 процента и 88,5 балла — 5 процентов. По данным этого анализа обработка и сушка 1% раствором NaOH набрали на 7,5 баллов больше, чем обработка и сушка 5% раствором NaOH. На 2,7 пункта ниже по сравнению с обычным стеком (контроль). При обработке и сушке в растворе NaOH с концентрацией 1 процент по сравнению с обычной стопкой (контроль) она набрала на 4,8 балла больше. По оценке по коэффициенту сущности сорт Кишмиш розовый оценивался 95 баллами при обработке и сушке в 1% растворе NaOH и 93,1 балла при обработке и сушке в 2% растворе NaOH. Аналогичным образом, 3 процента набрали 91,2 балла, 4 процента набрали 89,4 балла и 5 процентов набрали 87,6 балла. По данным этого анализа обработка и сушка 1% раствором NaOH набрали на 7,4 балла больше, чем обработка и сушка 5% раствором NaOH. На 2,6 пункта ниже по сравнению с обычным стеком (контроль). При обработке и сушке в растворе NaOH с концентрацией 1 процент по сравнению с обычной стопкой (контроль) она набрала на 4,8 балла больше. По оценке по коэффициенту мохильности сорт Кишмиш розовый оценивался 95 баллами при обработке и сушке в растворе NaOH с 1% концентрацией и 93,1 балла при обработке и сушке в растворе NaOH с 2% концентрацией. Аналогичным образом, 3 процента набрали 91,2 балла, 4 процента набрали 89,4 балла и 5 процентов набрали 87,6 балла. По данным этого анализа обработка и сушка 1% раствором NaOH набрали на 7,4 балла больше, чем обработка и сушка 5% раствором NaOH. На 2,6 пункта ниже по сравнению с обычным стеком (контроль). При обработке и сушке в растворе NaOH с концентрацией 1 процент по сравнению с обычной стопкой (контроль) она набрала на 4,8 балла больше. Сорт Кишмиш черный оценивался 94,6 балла при обработке и сушке в растворе NaOH с 1% концентрацией и 92,7 балла при обработке и

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сушке в растворе NaOH с 2% концентрацией. Аналогичным образом, 3 процента набрали 90,9 балла, 4 процента набрали 89,0 балла и 5 процентов набрали 87,3 балла. Согласно этому анализу, 7,3 балла были набраны выше при обработке и сушке в 1% растворе NaOH по сравнению с обработанными и высушенными в 5% растворе NaOH. На 2,5 пункта ниже по сравнению с обычным стеком (контроль). При обработке и сушке в растворе NaOH с концентрацией 1 процент по сравнению с обычной стопкой (контроль) она набрала на 4,8 балла больше.

Сорт Кишмиш Белый оценен на 93,7 балла при обработке и высушивании в растворе NaOH с 1% концентрацией и 91,8 балла при обработке и высушивании раствором NaOH с 2% концентрацией. Аналогично, 90,0 балла набрали 3 процента, 88,2 балла — 4 процента и 86,4 балла — 5 процентов. Согласно этому анализу, 7,3 балла были набраны выше при обработке и сушке в 1% растворе NaOH по сравнению с обработанными и высушенными в 5% растворе NaOH. На 2,6 пункта ниже по сравнению с обычным стеком (контроль). При обработке и сушке в растворе NaOH с концентрацией 1 процент по сравнению с обычной стопкой (контроль) она набрала на 4,7 балла больше. Сорт Кишмиш Согдиана оценивался в 92,3 балла при обработке и высушивании в растворе NaOH с 1% концентрацией и 90,5 балла при обработке и высушивании раствором NaOH с 2% концентрацией. Аналогичным образом, 3 процента набрали 88,6 балла, 4 процента набрали 86,9 балла и 5 процентов набрали 85,1 балла. По данным этого анализа обработка и сушка 1% раствором NaOH набрали на 7,2 балла больше, чем обработка и сушка 5% раствором NaOH. На 2,5 пункта ниже по сравнению с обычным стеком (контроль). При обработке и сушке в растворе NaOH с концентрацией 1 процент по сравнению с обычной стопкой (контроль) она набрала на 4,7 балла больше.

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ВЫРАЩИВАНИЕ СЕЛЬСКОХОЗЯЙСТВЕННЫХ КУЛЬТУР, РАЦИОНАЛЬНОЕ ИСПОЛЬЗОВАНИЕ КРУП И ВТОРИЧНЫХ ПРОДУКТОВ

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Ключевые слова: злаки, эндосперм, гидротермальная обработка, алейронный слой, отруби, мука, шелуха, сухая шелуха, ценные аминокислоты, минералы.

Введение. Крупа-это целое ядро зерна (эндосперм) или его крупные фрагменты. Процесс производства крупы включает в себя процессы подготовки зерна к переработке, а также его переработку в виде крупы. Процесс подготовки зерна к переработке заключается в отделении зерна, очистке его от различных примесей путем гидротермальной обработки (ГТИ), предварительной сортировки. ГТИ используется не для всех видов сельскохозяйственных культур, а только для мармелада, пшеницы, кукурузы, овса, ячменя и гороха. Также для риса полезно проводить ГТИ, но при этом крупа приобретает желтый оттенок. Предполагаемая цель выдачи ГТИ на крупяных заводах отличается от цели выдачи ГТИ на мукомольных заводах. На предприятиях по производству круп необходимо повышать прочность сердцевины и уменьшать прочность скорлупы (пленки), благодаря чему облегчается отслоение скорлупы, а в дальнейшем значительно увеличивается выход крупы, особенно крупы высшего сорта. В процессе подачи ГТИ зерно выпаривается под давлением в течение 3-5 минут, и достигается его значительное увлажнение и нагрев. ГТИ способствует улучшению свойств крупы: повышается ее спелость, сокращается время созревания, повышается.

Переработка зерна в крупу включает следующие операции: побелка и сортировка полученных продуктов, шлифовка и отбеливание крупы, сортировка (нумерация) крупы в зависимости от ее крупности. Как мы знаем, все пленочные культуры отбеливаются, а затем проводится сортировка для разделения полученных продуктов на цельнозерновые, колотые, крупяные, скорлупные и небеленые. При побелке мармелада снимается шелуха с зерен, при этом учитывается, что сердцевина не очень твердая, что при неправильном выборе режимов обработки она может быть повреждена. Зерно риса также невероятно нежное, а цветочные пленки на нем очень жесткие.

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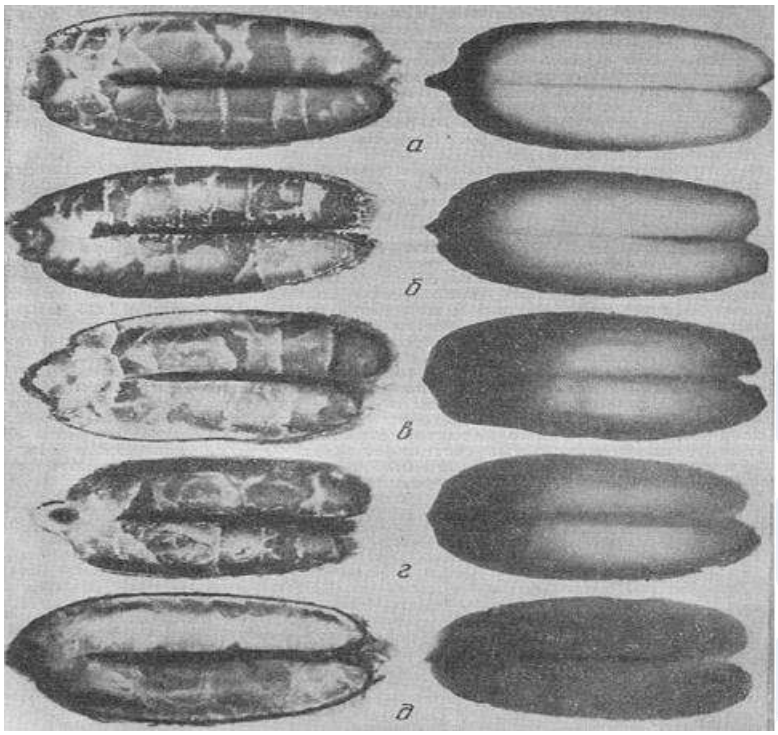

Стеклосодержащий пар из эндоспермических вод растрескивается и дает микроклимат при гидротермальном воздействии, а-2 часа, б-4 часа, в - 8 часов, г - 16 часов, д – 48 часов. усвояемость белка и крахмала.

Цветочные пленки овса относительно легко отделяются. Для обработки зерен различных культур следует применять подходящие для них отбеливающие машины, работающие по принципу трения за счет ударной или сдвиговой деформации (роликовое оборудование, обоймочные машины и др.). При последующих сортировках снимают шелуху и шелуху, целые и сломанные ядра отправляют на окончательную обработку, а небеленые продукты извлекают для повторной побелки. Для сортировки можно использовать сита, триеры и другое оборудование. При побелке и сортировке сердцевина зерна всех злаковых культур, кроме мармелада, еще не будет готовым продуктом. Чтобы получился готовый продукт, необходимо отделить от них плодовые и семенные оболочки, а также слой алейрона. Это достигается за счет измельчения крупы.

Таким образом, крупа будет состоять из цельного, измельченного, измельченного мака. Зерно колосовых культур каллы получают из цветочных оболочек плодов маржумака и семян бобовых культур, частично или полностью из плодовых и семенных оболочек, алейронового слоя и кожуры. Крупа отличается высокой питательностью, легкой усвояемостью и высокой потребительской ценностью. Крупа относительно проста в хранении и транспортировке. Поэтому крупа широко используется в домашнем, общепите, детском и диетическом питании. Он также используется в качестве сырья в промышленности по производству пищевых концентратов и консервов.

Для получения крупы используется зерно различных культур, что, в свою очередь, приводит к увеличению видов крупы. Кроме того, крупы, полученные из одного и того же зерна, могут сильно отличаться друг от друга в зависимости от способа обработки.

Поэтому крупа дифференцируется по форме, размеру, химическому составу обработанных частей зерна и, как следствие, ее потребительские свойства определяются и сортируются по видам. Сортировка производится на основе анализа готовой продукции. Сорта крупы отличаются друг от друга по таким показателям, как содержание в них посторонних примесей, невидимых, битых, гниющих зерен и хорошего, качественного, количества сердцевины.

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Мы предоставляем информацию о технологическом процессе приготовления различных видов и сортов крупы в нашей стране, а также о правилах утилизации этих процессов. Сорта и виды крупы следующие:

просо-просо белое (пшеница высшего, первого, второго сорта) ,

овсяные — крупа нерафинированная, пропаренная-высшего и первого сорта, листовые (хлопья) огурцы, овсяные хлопья, крупа колотая (высшего и первого сорта);

ячмень-Перловская крупа номер пять, ячменная крупа номер три;

рис-побеленный и полированный рис (высшие, первые, вторые сорта), битый рис;

горох — измельченный, полированный горох (цельный и измельченный), гороховая мука;

кукуруза — это полированная крупа номер пять, а измельченная крупа номер три;

твердая пшеница — манная крупа молотая крупа„Полтава" № 1, 2, 3 и 4, крупа „Артек"

Виды крупы

Ячменная крупа Манная

крупа

К общим показателям качества для всех видов круп относятся такие показатели, как цвет, запах, вкус, влажность, количество посторонних примесей, количество зерна хорошего качества, крупность, количество металлических примесей, а также степень поражения складскими вредителями. Однако в кукурузной и маниевой крупах содержание дополнительного зольного вещества также определяется.

Цвет крупы у разных видов злаков разный, что в основном зависит от типа пигментов, присутствующих в зерновом сусле и эндосперме.

При производстве муки и круп образуются отруби, Отруби, мука, скорлупа, при этом рациональное их использование считается важным. Зерновой муртак отличается высокой питательной ценностью. В зависимости от культуры в ее составе 18...До 30% белка, 12...Может содержать до 30% жира, при этом белок хранит в своем составе незаменимые аминокислоты, а жир отличается наличием большого количества жирных кислот. В муртаке нет крахмала, но в нем в больших количествах содержатся сахара (до 21-30%) и около 20 видов макро-и микроэлементов, в частности фосфор, калий, магний, железо, значительно выше содержание меди, цинка, кобальта и других элементов. Кроме того, муртак содержит комплекс следующих витаминов: тиамин, рибофлавин, ниацин, пиридоксин, холин, пантотеновую и фолиевую кислоты. Однако муртак особенно примечателен тем, что сохраняет в своем составе токоферол. Токоферол замедляет развитие атеросклероза и стабилизирует работу нервной системы. Современные технологии позволяют извлекать

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хрупкое изделие с чистотой 80% и выше. При сушке продукта до влажности 5 / 7% его можно хранить в течение 3 месяцев и даже более. Для улучшения вкусовых характеристик муртак обжаривают при температуре 130 °C, в результате чего он начинает пахнуть орехами и служит ценным сырьем для производства кондитерских изделий: шоколадных конфет, тортов, тортов,кондитерских изделий ,халвы и других изделий. Для обогащения хлебобулочных и кондитерских изделий витаминами, микроэлементами и другими биологически активными веществами используют отруби грубого помола и молотые. На своем месте хрупкая диета считается полезной при приеме пищи, болезнях системы кровообращения, нервных расстройствах, дерматитах, а также для профилактики атеросклероза и переутомления. Потребление 50 г муртака удовлетворяет суточную потребность взрослого человека в витаминах.

Отруби-омухта используются в качестве субстрата при производстве кормов, а также в микробиологической промышленности. Мука, особенно рисовая, служит хорошим сырьем для фармацевтической и микробиологической промышленности. В последнее время к пшеничным отрубям относят (16-18%), в которых помимо целлюлозы (5-15%), крахмала (14-26%), минеральных веществ (2-7%), витаминов (тиамин – 2,29 мг%, рибофлавин – 0,56 мг%, ниацин – 34,6 мг%, токоферол – 6,8 мг%) также содержится белок особое внимание уделяется. Из отрубей получают белковую муку с содержанием белка 45%, белковый концентрат с содержанием белка 60%, крахмало-белковые пищевые продукты для использования при производстве сахара, колбасных изделий, сухих завтраков, белково-масляные продукты для использования в качестве загустителей, эмульгаторов, пенообразователей, заменителей орехов в различных отраслях пищевой промышленности. продукты, а также корма для комбикормовой промышленности омухта (сухая кора) могут быть получены. Белковые продукты на основе отрубей хорошо усваиваются и предпочтительнее исходного продукта с рядом аминокислот, витаминов, особенно V2 и RR, минеральных веществ (калий, кальций, железо), которые ничто не может заменить в составе.

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DISTINCTIVE FEATURES OF REPEATED FEEDING OF WORMS IN SURKHANDARYA CLIMATIC CONDITIONS

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Abstract*: In the conditions of climate, breed and and on behalf of the user Ushbu tour finishing articles about IP Surkhondar, however, we cannot repeat until mavsumlard, hususiyatlari kilingan bilib duraga pillalar bokilgan kur pillalaring research is posted here, heads of cities and districts, kobigi weight of silkworm cocoon, cocoons of raw materials and ip by ip uzun umumiy, however, we cannot.*

Keywords: Temperature, cocoon, shell, climate, season, drying, hot air, mulberry silkworm.

Methods. One of the main conditions for the development of the economy of our republic is the systematic increase in the quality of products. Improving the quality of products, expanding their assortment and meeting consumer demand are some of the important tasks of the current market economy. The quality of the products is guaranteed as a standard and a technical specialist for compliance with regulatory requirements. A number of practical work on the development of silk production is being carried out in our republic. Since 2017, silkworms have been bred in our Republic 2 times, and in 2022, silkworms have been bred 4 times, and SAWS have prepared more than 22 thousand tons of sawdust raw materials. There is no separate food base for summer-fed worms, since all mulberry leaves are eaten by worms that are fed in the brood (in the first season). Consequently, in the summer (repeated) feeding of worms, mulberries are used a second time, that is, branches from the trunk of a mulberry tree and the base of mulberry bushes are cut off, branches in the head are thinned out. The use of mulberries twice a year in the same way provides an opportunity to feed (repeatedly) 10-15% of the amount of worms in the brood compared to caught worms in the summer. But if more than 15% of the branches in the Mulberry head are cut off during repeated worm feeding, as well as the Leaf is prepared incorrectly, then the next year there may be a lack of leaves when feeding worms in the cocoon. Therefore, the correct distribution of the work of repeated weevil feeding between all brigades and werewolf zvenos, as well as the correct preparation of mulberry leaves in summer and autumn weevil feeding, has an enormous limescale. At the same time, as in any other city in the country, the area has many amenities and leisure facilities to help you relax and unwind in the hot and cool weather. In the summer and autumn seasons, the buildings where the worm is fed should be thick-walled, doors and windows should be densely blocked, with holes in the wall. At the same time near this building, there should be a ditch, a pond, the water of which is constantly flowing. For feeding in the summer period, breeds and hybrids are selected in which the worm can withstand summer heat and air dryness. In surkhandarya climatic conditions, Ipakchi-1, Ipakchi -2 and foreign Chinese hybrids tolerate well. Summer-fed worms are artificially exposed to worm eggs by exposure to chloratic acid. 9-10 days after exposure of chloritic acid to the worm egg, the worm emerges from the egg. When hatching worms, which are fed in summer, the temperature is set at 24-26 degrees, the relative humidity of

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the air is 70-80%. In the summer, it is not difficult to make the tepmerature of the incubator at this level, for this there is also no point in burning the stove of course. It is not so difficult to keep the temperature of the incubator and the relative humidity of the air at the appropriate level by using the coolness of the night, the heat of the daytime correctly and spraying water on the floor of the building. But this should not be forgotten that it is necessary to check the temperature of the interior of the building and air humidity more often around the clock, since the dryness of the summer heat and air can dry out the worm egg, as a result of which fewer cocoons can come out of them. All buildings where worms are fed in the summer are necessarily disinfected with a 4% Solution of formalin or monochloramine, regardless of whether the worms fed in the first season are sick or not. These buildings are disinfected even after the end of summer worm feeding so that the infection of the disease does not persist in the subsequent feeding worms.

The place for worms that are fed in the summer should be prepared in the following size. A box should be 2 square meters for worms of the first age, 5-8 square meters for the second age, 12-15 square meters for those of the second age, 30-35 square meters for the Fourth Age, 60-70 square meters for the fifth age. In summer worm feeding, the temperature of the wormhole (until the worm is introduced into it) is supplied to 28 degrees, and the relative humidity of its air is 50-55%. This heat and moisture will be stored until the worms reach the Third Age. The worm's temperature is 27 degrees Celsius at the third age, relative humidity is 50-60 %, Fourth-Age heat is 27 degrees Celsius, relative humidity is 55-60 %, fifth-age heat is 24 degrees Celsius, relative humidity is 65-75%, and peak-wrapping period heat is 21-23 degrees Celsius, relative humidity is 65-75%. It is necessary to attach special importance to the good quality of the leaves, which are made in the method of repeated cultivation of worms. Worms of the first and second age are fed with young leaves from bachki branches and branches that come out from the bottom of the Mulberry head. Worms of the third age are given small bachki branch leaves, worms of the fourth and fifth age are given large bachki branch leaves, as well as Horn leaves, which are cut by thinning the Mulberry Calla. In this case, the Mulberry branches cut thinly should not exceed 10-12% of the main branches in the head.

The leaves that are given to the worms daily are cut from 5 am to 10 am, and the leaves that are eaten at night are cut from 6 pm until the eyebrow darkens. The cut leaves are quickly transported to the leaves or to a cool cellar. Here, the top of the leaves is wrapped with a hopped sheet or tent. When rearing worms, yellow Wasps and brown wasps do a lot of damage, as these wasps transport silkworms and cause a decrease in Cocoon yield. When rearing worms, yellow Wasps and brown wasps do a lot of damage, as these wasps transport silkworms and cause a decrease in Cocoon yield. A fine-eyed wire mesh, gauze, or fine-perforated paper is caught against these wasps in wormhole Windows, Windows, and other ventilation holes. Old gannas are quickly burned along with worm droppings after the Ganna has been changed to prevent Wasps and other insects from coming to the rearing worms. Other procedure rules for repeated worm feeding do not differ from larval (first season) worm feeding procedures. In our research work, we aim to study the technological indicators of silkworm cocoons bred in repeated seasons, along with domestic breed hybrids, foreign breed and hybrid cocoons. Currently, in our country, almost 70-80% of silkworm seeds are imported from the people's Republic of China. Accordingly, in our research work, the worms obtained from The brought seed were fed at different temperatures in the spring and summer season. (Table 1).

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In different seasons, the air temperature of the rooms where silkworms are raised by young

Table 1

№	Age of worms	In spring and summer, the air on the roof of the cottage burns at a temperature of ^{0}C			
		Spring	Spring	Summer	Summer
		Recommended	Fed	Recommended	Fed
1	first	26±2	26-27	26±2	28-32
2	second	26±2	26-27	26±2	29-33
3	third	24±2	24-23	24±2	30-31
4	fourth	24±2	24-26	24±2	31-33
5	fifth	24±2	24-26	24±2	33-34

We can see that the feeding conditions of silkworms bred in the spring season are fed under normal conditions, and the air temperature does not exceed the recommended norm.

In conclusion, the features of repeated worm feeding agrotechnics include:

-using mulberries in summer and autumn feeding to worms so that their leaf harvest next year does not decrease;

-making the temperature of the wormhole and the relative humidity of the air at the appropriate level;

-the use of roughened succulent leaves to increase the level of leaf spotting as well as to give to the worms by taking good care of the mulberries;

We can see that the air temperature of The Silkworm raised in the summer season rises sharply, and the conditions of feeding in the room are not well established.

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IMPROVING THE IMPORTANCE OF THE ROLE OF MICROORGANISMS IN ENVIRONMENTAL PROTECTION IN THE MIND OF STUDENTS

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Annotation. Today, the important role of microorganisms in environmental protection is one of the modern problems, it is necessary to form in the minds of students the concepts of intensification of production processes, increase of producers with high productivity, creation and implementation of effective biotechnological methods.

Introduction: Modern society requires the educational system to educate highly qualified, ambitious, competitive, enterprising, spiritually and physically healthy individuals. In the 2017-2021 action strategy for the further development of the Republic of Uzbekistan, the task of "educating a highly educated and intellectually developed generation, creating a reserve of competent scientific and pedagogical personnel in higher education institutions" was set. Accordingly, the technology of processing plant waste, citrus fruit waste, whey, and also agricultural animal waste is one of the important issues in biotechnology. Accumulation of this type of waste in some places has a serious impact on environmental pollution.

Many wastes and by-products can be recycled. According to information, about 1,700 million of various spiky plants. t. straw comes out and most of it is not used. Or, only 20% of pineapple is used in canning, and most of it goes to waste. Its fruit, peel and other waste are crushed to get juice, and the dried remains are fed to cattle. It is possible to reduce the amount of waste discharged from these factories with alcohol fermentation.

Biotechnological processes associated with the exchange of various organic substances during fermentation pollute the environment both chemically and biologically. According to studies conducted in the early 1970s, fermentation used in pharmaceuticals was highlighted as the main source of contamination. For example, this idea was mainly derived from observing the activities of antibiotic companies. Fermentation wastes are microbial cells of certain metabolic products and unused components of the nutrient medium.

Carbohydrate-containing waste and by-products can be processed by conventional microbial digestion or biotechnological processes. For example, molasses, which is the starting syrup for crystallization of sucrose and is removed from the technological cycle, is a by-product of sugar production. In addition to sugar, it contains sulfites, carbonates and calcium and magnesium salts. Not all of the remaining sugar is used during the fermentation of molasses.

Starch makes up 50% of the dry mass of other plant grains, potatoes and cassava. This product is mainly obtained from johor, potato and cassava. It is easily subjected to acid or enzymatic hydrolysis and dextrin and glucose are obtained from it. These hexoses are used to produce alcohol and fructose syrup.

Cellulose and hemicellulose can be subjected to microbial degradation and conversion to obtain ethyl alcohol or raw materials for the chemical industry. The cellulase and hemicellulase genes contained in Clostridium thermosellum can be transferred to other species of Slostridium,

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and cellulose and hemicellulose can be converted into ethyl alcohol, acetone, vinegar and lactic acid.

Bioconversion is the conversion of metabolites into similar compounds with the help of microbial cells. At the same time, microorganisms affect a certain stage of important and complex processes of chemical synthesis.

An ancient type of bioconversion is the process of obtaining vinegar, which is the conversion of ethyl alcohol into acetic acid.

Bioconversion is unique because it is associated with one type of reaction and a certain structure (stereospecificity). Bioconversion to isopropanol-acetone, glycerol-dihydroacetone, L-tyrosine-L-dioxyphenylalanine, glucose-gluconic acid and finally to 2-ketoglucon or 5-ketogluconic acid and is converted to sorbitol-L-sorbose. The bioconversion of sorbitol to sorbose is the only biological reaction in the chemical industry.

Steroid hormones were synthesized using methods based on bioconversion. In the early 1930s, Kendall and Reichstein isolated cortisone from the adrenal gland, which was used to treat rheumatoid arthritis. The first intermediate product of cortisone synthesis is progesterone. Bioconversion is carried out in an aqueous environment at a temperature of 370C and atmospheric pressure. Currently, it is possible to hydrolyze the carbon atom of the steroid nucleus with the help of certain microorganisms and obtain the desired steroid.

Microorganisms are also used in the production of raw materials (such as sterols) to obtain steroids.

In some cases, the sequential addition of mixed cultures or microbial strains is necessary to achieve bioconversion. Each of these performs its own stage of bioconversion. The use of immobilized cells increases the efficiency of bioconversion compared to enzymes and reduces its consumption.

2 methods are used to apply strains of microorganisms used in industry: screening of strains and mutations in specific regions of DNA to overcome difficulties in isolation. induction; genetic engineering and the addition of protoplasts to augment the natural reproductive process; methods of creating recombinant DNA are used to transfer natural genes and reconstruct new genes.

Increasing the number of copies of a certain gene in microbial cells is carried out by gene amplification, and as a result, the production of the product encoded by this genome increases dramatically. This technical approach is related to increasing the number of plasmids in the cell. There are usually 1-30 copies per cell and 2-250 genes. At the same time, plasmid genes are increased to 3000 copies in the cell. The process of gene amplification has been well studied in E.coli and is widely used. So far, it has been possible to transfer any chromosomal gene or group of genes into a plasmid, and then transfer the plasmid to Escherichia coli for amplification. In addition, the transfer of genes from one cell to another was carried out by transformation in the presence of polyethylene glycol. In this way, some genes were also transferred to the Bacillus plasmid. Pseudomonas plasmids were transferred to other gram-negative bacteria. This method is used very effectively in biotechnology. For example, it is possible to obtain a large amount of antibiotics in this way.

Conclusion: Increasing the number of copies of a certain gene in microbial cells is carried out by gene amplification, and as a result, the production of the product encoded by this genome increases dramatically. This technical approach is related to increasing the number of plasmids in

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the cell. Currently, thousands of strains of microorganisms belonging to hundreds of species are used in the microbiology industry. These strains of microorganisms were originally isolated from natural sources based on their beneficial properties and their properties were improved using various methods. In order to increase the type and quality of products produced in the microbiology industry, continuous research is being carried out on the use of new types of microorganisms.

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PRELIMINARY RESULTS OF TECHNICAL ACCOUNTING OF TECHNOLOGICAL FACTORS OF "CHOYSHABBOP" FABRIC.

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Abstract. *The article developed a technical solution, and in the educational MST-910 experimental bedding items. Technical accounting of the objects of experimental weaving was carried out, the results of the factor were determined.*

Keywords: *body, arch, fabric, fabric, tex, cotton, yarn, density.*

Experimental research works were carried out on the equipment of the preparation department and weaving looms installed at the production enterprise of "Surxontex" LLC. The factors of raw material preparation for weaving, re-wrapping, sorting and carding processes were determined. During the selection process, the number of yarn breaks was determined and measures to reduce it were given. Prepared weaving reel Experimental samples of bedclothes were developed at the weaving loom of the "Surxontex" LLC enterprise. 15,4x2 tex warp yarn 100% cotton yarn was used as raw material for production of fabric samples, and 20 tex cotton yarn was used for weft yarn. The calculation of the technical shrinkage of the experimental fabric samples was performed and the results of the shrinkage factors were determined.

The fabric design process is divided into the following stages:

1. Determining the task of design, the use of fabric; technical requirements (strength, resistance to decay, flexibility, surface density, aesthetic characteristics, etc.); attention is paid to the type of finishing or the artistic decoration requirements of the fabric. For example, the following tasks are set: creating a tissue according to a certain structural phase, a given tissue surface density, increasing the wear resistance without changing the tissue surface density, low consumption of raw materials and effective surface appearance. etc. to form a tissue;
2. The compatibility of fabric construction: the selection of raw materials, the creation of a design method for the thickness of the fabric and its characteristics (filling the fabric with fibers, taking into account the change in finishing);
3. Drafting of technical documents in the production of textiles: accounting for textile ironing, equipment and technological factors of textile ironing, textile production in weaving and finishing enterprises;
4. Production of tissue samples, their testing, enterprise inspection and selection of an alternative option in the production of the tissue to be tested;
5. Creation of technical conditions for the production of new fabric at the enterprise.

From the received high-quality yarn, fabric samples were taken on the MST-910 loom and its technical calculations were made.

Same composition, cutting and filling; The ratio of the thickness of warp and weft yarns (T_T; T_a) and their density (R_T; R_a) is proportional. These fabrics are called similar fabrics. The

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thickness of warp and weft yarns is disproportionate to their density and these tissues are called inhomogeneous.

1. Conducting sample tissue analysis and creating a complete tissue analysis program.
2. Determine the linear density (T) of the thread according to the formula; text

T_t=15,4x2 tex

T_a=20 tex

The average linear density ($T_{o'r}$) of the raw material was determined.

$$T_{o'r} = \frac{2T_T \cdot T_a}{T_T \cdot T_a} = 24\ tex$$

in this,

T_T – linear density of warp yarn, tex

T_a – linear density of weft thread, tex

3. Determination of the actual density of the fabric in the warp (R_t) and weft (R_a) in 1 sm, the number of threads.
4. Determination of tissue filling percentage (Z_{toq}), filling coefficient ($Q_N toq$) and coupling coefficient (Q_{bog}) according to the following formula:

according to warp:

$$Z_T = P_T \cdot d_T = 200 \cdot 0{,}22 = 43\%$$

according to warp:

$Z_a = P_a \cdot d_a = 200 \cdot 0{,}18 = 42\%$

in this,

P_T, P_a – the density of the tissue in the warp and weft;

d_t, d_a – diameters of warp and weft threads;

$$d_T = 0{,}0316C \cdot \sqrt{T_T} = 0{,}0316 \cdot 1{,}25 \cdot \sqrt{15{,}4 \cdot 2} = 0.22mm$$

$$d_a = 0{,}0316C \cdot \sqrt{T_a} = 0{,}0316 \cdot 1{,}25 \cdot \sqrt{20} = 0.18mm$$

in this,

C– coefficient depending on the fiber content of the yarn (indicator accepted from the reference)

The percentage of filling the fabric with warp and weft threads

$Z_{to'q} = (Z_T + Z_a) – 0{,}01 Z_T Z_a$

$Z_{to'q} = 66{,}96\%$

Tissue filling coefficient:

according to warp:

$$K_{ht} = \frac{P_T \cdot (R_T \cdot d_T + t_a \cdot d_a)}{100 \cdot R_T} = \frac{240 \cdot (2 \cdot 0{,}22 + 2 \cdot 0{,}18)}{100 \cdot 2} = 0{,}9$$

according to warp:

$$K_{ha} = \frac{P_a \cdot (R_a \cdot d_a + t_T \cdot d_T)}{100 \cdot R_a} = \frac{230 \cdot (2 \cdot 0{,}18 + 2 \cdot 0{,}22)}{100 \cdot 2} = 0{,}83$$

in this,

R_T, R_a – report of the tissue on the warp and weft;

t_T, t_a – the average cross section of the warp and weft threads in the rapport interval.

For tissues of order I-IV, the tissue structure phase should be less than the maximum warp and the weft should be less than the maximum value for the trunk:

–according to warp: must be greater than one ($K_{Na} > 1$)

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–according to warp: must be less than one (K_{NT} <1)

The structure phase should be for tissues of the VI-IX order, their density should be the maximum in the trunk, and less than the maximum in the neck

–according to warp: must be greater than one (K_{Na} >1)

–according to warp: must be less than one (K_{NT} <1)

For tissues of structural phase V order, the coefficient of tissue coverage should be less than one in terms of weft and fiber (K_{NT} <1, K_{Na} >1), because the tissue in warp and fiber the actual density should be small compared to the maximum density.

Another important indicator of fabric production on a loom is the coefficient of binding coupling coefficient:

$$Q_{bog'} = \frac{P_T \cdot P_a \cdot T_{o'rt}}{F \cdot 1000} = \frac{24 \cdot 23 \cdot 24}{2 \cdot 1000} = 5{,}5$$

$$F = \frac{2 \cdot R_T \cdot R_a}{r_T + r_a} = \frac{2 \cdot 2 \cdot 2}{2+2} = 2$$

in this,

R_T, R_a – report of the tissue on the warp and weft;

T_T - indicator of dependence of warp and weft yarns in the rapport interval;

T_a - indicator of the relationship of warp and weft threads in the rapport interval.

The binding coefficient of linen fabrics has a high index, while satin fabrics have a low coefficient.

In sparse tissue, the coupling coefficient is small, and in dense tissue, it is high.

5. Shrinkage is the main factor that evaluates fabric in the first place in the production conditions of the loom. The shrinkage rate determines the consumption of raw materials. Shrinkage is affected by the type of raw material, the linear density of the yarn, the cross-sectional shape of the yarn, the warp, the density of the fabric on the warp and weft, the phase order of the structure, the loom factors and the production of the fabric.

The difference between the length of the thread before the weaving process and the length of the thread in the fabric is called shrinkage.

Theoretically, yarn shrinkage can be determined by the interposition of yarns within the fabric, while the following precision can be introduced.

1. The shape and cross-sectional surface of the thread should be unchanged along the total length of the fabric;

2. Two systems in the fabric are proportional to the distance between the thread centers at the intersection of the threads and the coverage coefficient of each system in the coverage.

It is planted based on the experience of shortening the threads in the fabric. A thread is pulled from a fabric sample of 10x10sm^2 and the length is measured, then the calculation is performed according to the formula:

according to warp:

$$a_T = \frac{L_T - B_{tuq}}{L_T} \cdot 100\% = \frac{10{,}4 - 10}{10{,}4} \cdot 100\% = 3.84\%$$

according to warp:

$$a_a = \frac{L_a - B_{tuq}}{L_a} \cdot 100\% = \frac{11{,}4 - 10}{11{,}4} \cdot 100\% = 12{,}28\%$$

in this,

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L_T, L_a – warp and weft thread length (the length of the thread pulled from the fabric).

B_{tuq} – tissue length and width (tissue sample size in 10x10 sm^2).

Based on the order of the experimental tissue structure phase, we found the analytical calculation and the ratio of the diameter of the threads d_T, d_a.

Wave height of threads in fabric:

according to warp:

$$h_T = \frac{d_T + d_a}{2} \cdot Q_{ht} = \frac{0{,}22+0{,}18}{2} \cdot 0.75 = 0{,}147mm$$

according to warp:

$$h_a = \frac{d_T + d_a}{2} \cdot Q_{ha} = \frac{0{,}22 + 0{,}18}{2} \cdot 1{,}25 = 0{,}247mm$$

in this,

Q_{ht}, Q_{ha} – a coefficient that takes into account the change in the wave height of warp and weft yarns depending on the phase of the fabric structure.

$$Q_{ht} = \frac{9-F}{4} = \frac{9-4}{4} = 0{,}75$$

$$\mathrm{Q_{ha}} = \frac{9-F}{4} = \frac{9-4}{4} = 1{,}25$$

in this,

F – the order of the structural phase of the tissue (from 1 to 9).

Analysis of the obtained sample results

Table №1

Indicator name	**Available fabric**	**Engineered fabric**
Surface density of tissue, g/m^2	127	124
Linear warp of threads T_t, tex	29	15,4x2
Linear weft of threads T_a, teks	25	20
Linear density of threads , yarn/dm: according to warp , P_T according to weft , P_a	 238 220	 240 230
Coefficient of connection	5,8	5,5
Fabric filling coefficient:: according to warp according to weft	 1,03 0,72	 0,9 0,83
Fabric filling percentage , %: according to warp according to weft	 50 35	 43 42
Percentage of total filling of fabric, %	67,5	66,96
The diameter of the threads in the fabric, mm: according to warp according to weft	 0,21 0,2	 0,22 0,18
Wave height of threads in fabric, mm: according to warp	 0,15	 0,147

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according to weft	0,25	0,247

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МОРФОЛОГИЧЕСКИЕ ПРИЗНАКИ СОРТОВ СВЁКЛЫ СТОЛОВОЙ ВИРАЩЕННЫХ В УСЛОВИЯХ СУХИХ СУБТРОПИКОВ УЗБЕКИСТАНА

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Аннотация. В статье представлены результаты наблюдений за развитием морфологических показателей пяти сортов свёклы столовой. Сделано описание признаков корнеплода, розетки и формы листьев. Наиболее выровненные корнеплоды (5 баллов), в нашем исследовании сформировали сорта: Столовая, П-2-90, Любава и Бордо односемянная. Для механизированного возделывания важно и такой показатель, как погружённость корнеплода в почву.

Ключевые слова: свёкла столовая, сорт, корнеплод, розетка листьев, признак, форма, длина.

Annotation. The article presents the results of observations on the development of morphological indicators of five varieties of table beet. A description of the signs of the root crop, rosette and leaf shape is made. The most aligned root crops (5 points) in our study were formed by the varieties: Canteen, P-2-90, Lubava and Bordeaux single-seeded. For mechanized cultivation, such an indicator as the immersion of the root crop in the soil is also important.

Keywords: table beet, variety, root crop, leaf rosette, feature, shape, length.

Свёкла столовая является значительно менее распространённой культурой, чем морковь. Основные площади посева и основное производство данной культуры сосредоточены в России, Белоруссии, Польше, Германии, США и на Украине [1].

Климатообразующие факторы играют важную роль в подборе, акклиматизации и введении в сортимент сортов столовой свёклы для условий южной части Сурхандарьинской области.

Свет, тепло, вода, элементы питания оказывает на биохимические процессы, происходящие в период роста и развития растений определённое влияние. Эти изменения, в свою очередь, влияют на приспособительные реакции растений к условиям среды возделывания. Под влиянием абиотических факторов происходит изменение морфологических признаков, присущих растению или возделываемому сорту. Знание таких возможных изменений очень важны и для учёных, занимающихся данной культурой, и для производственников, возделывающий эту культуру [1,2].

Целью нашего исследования формирование показателей морфологических признаков сортов свёклы столовой в условиях сухого пустынного климата Сурхандарьинской области Республике Узбекистан.

Условия, методы и объекты исследований. Полевые опыты проводились на опытном участке Сурхандарьинской научно-опытной станции НИИ овоще-бахчевых культуры картофеля, расположенном южной части Сурхандарьинской области (37°13' Северной широты; 67°16' Восточной долготы, высота над уровнем моря 320 м) в весенний период 2023 года.

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За период проведения опытов средняя температура составила 18,5±0,5°С, а общее количество осадков составило 73 мм. Климат территории Термезского района является субтропическим внутриконтинентальным, со знойным и жарким сухим летом при холодной зиме. Почвы опытного участка – серо-бурые, обыкновенные среднемощные слабосуглинистые и слабо выщелоченные. В наших исследованиях закладку опытов, учеты и наблюдения проводили согласно методических указаний [4, 5].

Для проведения исследований было взято 21 сортов свёклы столовой: из них 12 сортов репродукции НИИР Республики Узбекистан и 9 сорта ВНИИССОК (Россия) (Одноростковая, Несравненная А-463, П-155, Гаспадыня, Любава, П-506, Нежность, Грибовская плоская А-473, П-2-90, Бордо односемянная).

Посев семян производили вручную 20 февраля 2020 года. Опыт проводили без повторности. Площадь учетной делянки 2,8 кв.м. Расстояние в ряду между растениями 8-10 см с междурядьем 45 см. Расположение делянок в два яруса, длина каждого яруса 2 м, ширина 0,7 м. Фенологические наблюдения проводили по одному повторению. Отмечали дату начала (10-15%) и полных всходов (75%), а также начала полной технической (товарной) спелости.

Полная техническая спелость характеризовалась сформировавшимися и соответствующими ГОСТу корнеплодами. К уборке урожая приступали помере достижения корнеплодами каждого сорта технической зрелости, когда не менее 75% корнеплодов достигает размеров товарных.

Весь урожай сортировали на товарный и нетоварный (больные, поврежденные, треснувшие, недогон, уродливые и разветвленные). Каждую фракцию взвешивали и вычисляли долю ее содержания в общем урожае корнеплодов с делянки.

Результаты исследований. Результаты показали, что реакция сортов свёклы столовой была различной на условия их возделывания (табл. 1 и 2). По реакции генотипов сортов и формирования признаков, следует отметить, что в целом сорта показали довольно хорошую выровненность корнеплодов, развитие розетки листьев можно отнести к достаточно умеренному. Довольно развитая и крупная, относительно сортов в опыте, розетка листьев отмечена у сорта Ягона. Количество листьев у сорта Ягона составило 17,05 шт. (сорт Бордо 237 (2) – 16,65 шт.) Длина и ширина листа у сорта Бордо 237 (1) были максимальными, соответственно 20,57 см (стандарт – 19,37 см) и 14,75 см (стандарт – 13,22 см). Компактная розетка листьев была отмечена у сорта Одноростковая, у которого сформировалось минимальное в опыте количество листьев (9,3 шт.), длина черешка 30,15 см (стандарт – 36,83 см). Определяя параметры корнеплодов у сортов, в период их полного созревания, во время уборки были проведены биометрические замеры.

Таблица 1. Характеристика сортов свеклы столовой по формированию листьев и корнеплода

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Название образца	Количество листьев (шт.)	Длина листов пластинки (см)	Ширина листов пластинки (см)	Длина черешка, см	Длина корнеплода, см	Диаметр корнеплода, см	Индекс корнеплода	Выравненность, балл
Диёр, стандарт	14,9	19,70	14,92	37,3	6,43	7,58	1,17	4
Ягона, стандарт	17,05	19,37	13,22	36,83	6,53	7,22	1,10	4
Бордо 237 (1)	13,95	20,57	14,75	32,48	6,61	6,97	1,05	4
Бордо 237 (2)	16,65	19,85	17,00	35,47	5,83	7,45	1,27	4
Северный шар	12,30	18,72	15,20	35,28	5,50	6,44	1,17	4
Little Ball	15,15	16,75	15,45	31,70	6,48	6,35	0,97	4
Rouge Nail Egypto	15,15	18,42	14,12	36,48	6,38	6,35	0,99	4
Столовая	14,90	16,32	12,10	30,31	6,21	6,45	1,03	5
Crapov Dine	14,20	14,45	9,15	23,33	8,1	3,68	0,45	4
Пабло F_1	15,20	18,80	14,52	35,40	5,78	7,15	1,23	4
Ронда F_1	10,55	17,50	13,20	31,75	5,36	6,19	1,15	4
Однорostковая	9,30	19,07	12,27	30,15	5,75	5,80	1,00	4
Несравненная А-463	10,6	16,22	11,80	28,30	4,595	5,38	1,17	4
П-155	13,05	18,00	13,70	26,75	6,34	6,37	1,00	4
Гаспадыня	12,20	16,05	12,60	31,85	5,41	6,32	1,16	4
Любава	11,45	14,12	10,65	26,63	6,01	5,60	0,93	5
П-506	13,95	14,00	11,82	27,86	5,37	6,26	1,16	4
Нежность	9,80	14,07	8,40	21,58	8,50	5,54	0,65	4
Грибовская плоская А-473	12,25	13,60	10,47	25,32	3,93	4,91	1,24	4
П-2-90	12,85	14,30	10,95	28,45	5,73	6,44	1,12	5
Бордо односемянная	12,90	15,37	12,12	31,43	6,38	7,04	1,10	5

В результате было определено, что 7 из 21 го сорта: Бордо 237 (1), Little Ball, Rouge Nail Egypto, Столовая, Однорostковая, П-155, Любава по рассчитанному индексу корнеплода, соответственно: 1,05; 0,97; 0,99; 1,03; 1,00; 1,00; 0,93 формируют корнеплод округлой формы. На сорте Crapov Dine и Нежност были получены корнеплоды с индексом формы соответственно: 0,46 и 0,65, такая форма корнеплода, согласно классификации относится к конической. Корнеплоды остальных сортов согласно классификации относится к округло-овальной форме. Наиболее выровненные корнеплоды (5 баллов), в нашем исследовании сформировали сорта: Столовая, П-2-90, Любава и Бордо односемянная, стандарт и остальные сорта – 4 балла [6].

Форма розетки листьев сорта важна при выборе агротехнологии применяемой, в дальнейшем, при его выращивании (табл. 2). Все изучаемые сорта имеют достаточно компактную розетку листьев. Форма розетки 13 из 21 сорта (Диёр, стандарт,

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Ягона,стандарт, Бордо 237 (1), Бордо 237 (2), Северный шар, Little Ball, Rouge Nail Egypto, Столовая, Crapov Dine, Пабло F_1, Однорostковая, Гаспадыня, П-506) прямостоячая, средней величины, что важно при проведении междурядных обработок. Окраска листовой пластины зелёная и тёмно-зелёная, что означает хорошую фотосинтетическую активность листового аппарата и соответственно хорошее развитие растений. Окраска корнеплодов Северный шар, Однорostковая, Нежность, Грибовская плоская А-473 – черно-красная; Столовая, Гаспадыня – бордовая; П-506 – темно-бордовая, что важно для потребительских качеств корнеплодов.

Таблица 2. Морфологические признаки сортов свёклы столовой

Название образца	Розетка		Окраска листовой пластинки	Форма листовой пластинки	Окраска корнеплода	Погруженность корнеплода в почву
	форма	вели-чина				
Диёр, стандарт	прямо-стояча я	средня я	темна-зелёная с красным и жилками	промежуточно -удлененная	красная со слабо-фиолетовы м оттенком	1/3
Ягона, стандарт	прямо-стояча я	средня я	темна-зелёная с красным и жилками	удлиненная-треуголная	красная с сильно-фиолетовы м оттенком	полностью
Бордо 237 (1)	прямо-стояча я	средня я	темна-зелёная с красным и жилками	промежуточно - треуголная	красная со слабо-фиолетовы м оттенком	полностью
Бордо 237 (2)	прямо-стояча я	средня я	темна-зелёная с красным и жилками	промежуточно - треуголная	светло-красная	3/4
Северный шар	прямо-стояча я	средня я	темна-зелёная с красным и жилками	укороченная-треуголная	черно-красная	полностью

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Little Ball	прямо-стоячая	средняя	темна-зелёная с красными жилками	промежуточно-овальная	красная с сильно-фиолетовым оттенком	полностью
Rouge Nail Egypto	прямо-стоячая	средняя	темна-зелёная с красными жилками	удлиненная-овальная	красная со слабо-фиолетовым оттенком	полностью
Столовая	прямо-стоячая	средняя	темна-зелёная с красными жилками	промежуточно-овальная	бордовая	1/3
Crapov Dine	прямо-стоячая	средняя	темна-зелёная	укороченная-овальная	светло-красная	полностью
Пабло F_1	прямо-стоячая	средняя	темна-зелёная с красными жилками	удлиненная-треуголная	светло-красная	1/3
Ронда F_1	полу-стоячая	средняя	темна-зелёная с красными жилками	промежуточно- треуголная	красная со слабо-фиолетовым оттенком	1/3
Однорасткова я	прямо-стоячая	средняя	темна-зелёная с красными жилками	промежуточно- треуголная	черно-красная	полностью
Несравненная А-463	полу-стоячая	средняя	темна-зелёная с красными жилками	промежуточно- треуголная	красная с сильно-фиолетовым оттенком	полностью
П-155	полу-стоячая	средняя	темна-зелёная с красными жилками	промежуточно- треуголная	красная с сильно-фиолетовым оттенком	1/3

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Гаспадыня	прямо-стоячая	средняя	темна-зелёная с красными жилками	укороченная-треуголная	бордовая	полностью
Любава	полу-стоячая	средняя	темна-зелёная с красными жилками	укороченная-овальная	красная со слабо-фиолетовым оттенком	полностью
П-506	прямо-стоячая	средняя	темна-зелёная с красными жилками	промежуточно-овальная	темно-бордовая	полностью
Нежность	полу-стоячая	средняя	темна-зелёная с красными жилками	укороченная-треуголная	черно-красная	наполовину
Грибовская плоская А-473	полу-стоячая	средняя	темна-зелёная с красными жилками	укороченная-треуголная	черно-красная	наполовину
П-2-90	полу-стоячая	средняя	темна-зелёная с красными жилками	укороченная-треуголная	красная со слабо-фиолетовым оттенком	1/3
Бордо односемянная	полу-стоячая	средняя	темна-зелёная с красными жилками	промежуточно- треуголная	красная со слабо-фиолетовым оттенком	1/3

Для механизированного возделывания важен такой показатель, как погружённость корнеплода в почву. При механизированной уборке сильно погруженные в почву корнеплоды или наоборот выступающие из почвы могут повреждаться. В нашем случае погружённость в почву округлых корнеплодов (Столовая, П-155) и округло-овальной (Диёр, стандарт, Пабло F_1, Ронда F_1, П-2-90, Бордо односемянная) составила 1/3, у сорта Бордо 237 (2) 3/4.

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Заключение. Таким образом, сорт Ягона, в нашем исследовании, сформировал крупную розетку листьев. Семь сортов: Бордо 237 (1), Little Ball, Rouge Nail Egypto, Столовая, Одноростковая, П-155, Любава по рассчитанному индексу корнеплода, соответственно: 1,05; 0,97; 0,99; 1,03; 1,00; 1,00; 0,93, формируют корнеплод округлой формы. На сорте Crapov Dine и Нежност были получены корнеплоды с индексом формы соответственно: 0,46 и 0,65, такая форма корнеплода относится к конической форме. Корнеплоды остальных сортов относится к округло-овальной форме. Наиболее выровненные корнеплоды (5 баллов), в нашем исследовании сформировали сорта: Столовая, П-2-90, Любава и Бордо односемянная, стандарт и остальные сорта – 4 балла.

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ВЛИЯНИЕ СРОК ПОСЕВА И НОРМЫ ВЫСЕВА НА УРОЖАЙНОСТЬ И КАЧЕСТВО СЕМЯН СОИ НА *ТАКЫРНО-ЛУГОВЫХ ПОЧВАХ*

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Аннотация. *В статье рассмотрено срок посева, нормы высева семян сои на ее урожайность и качество семян на* такырно-луговых почв Сурхандарьинской области. Посев производили 20-25 марта, 5-10 и 20-25 апреля с нормами 350 тыс. шт/га и 500 тыс. шт/га. Результаты исследования показали, что при возделывании сои сорта Нафис в условиях Сурхандарьи в разных срок посева и норме высева для получения наибольших урожаев зерна определено 5-10 апреля при норме высева 350 тыс. шт/га.

Ключевые слова: *соевые бобы, жирность, срок посева, норма высева, почва такырно-луговых*

Введение. Соя находится на следующем месте после пшеницы, риса и кукурузы по посевным площадям в мировом сельском хозяйстве и выращивается на более чем 121 млн га.

Норма высева семян-важнейший фактор формирование высокого урожая сои. От количества высеваемых семян на единицу площади зависит густота стояние растений, которая является условием роста урожайности. При недостаточной густота стояния растений посевы сои зарастают сорняками, а поэтому ее выращивание без применения гербицидов затруднительно. При чрезмерном загущении растения сои страдают от недостатка света и часто полегают. От затенения нижних листьев в густых посевах бобы бывают щуплыми, а иногда опадают и урожай снижается. В связи с этим выбор наилучших норм посева семян сои для получения высокого урожая зерна имеет большое значение [2].

За оптимальную норму высева семян принимают такую, при которой урожай сои формируется в основном за счет главных стеблей. Посевы, состоящие из главных стеблей, дружнее и быстрее созревают, улучшается процесс механизированной уборки урожая, снижается влажность семян [1].

Нормы высева сои изменяются по зонам и зависят от плодородия почвы, сорта, способа посева, ширины междурядий [3].

Методы исследования. Целью наших исследований стало изучение влияния нормы высева на урожайность и качество семян сои на такырно-луговых почвах Сурхандарьинской области. Для достижения цели были поставлены следующие задачи: изучение влияние фаз роста и развития, полевую всхожесть, густоту стояния и выживаемость растений; засоренность посевов; структуру урожая; урожайность и качество семян сои.

Полевые опыты проводились в экспериментальном хозяйстве “Научно-исследовательский институт тонковолокнистого хлопка” в 2021-2023 гг.

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Почвы опытного участка тяжелосуглинистые, среднезасоленные. В пахотном слое почвы содержится гумуса-0,88 %, общего азота-0,08 %, фосфора-0,14 %, калия-1,9%. Реакция почвенного раствора - слабощелочная (pH 7,5-8,0). Площадь посевной делянки 48 $м^2$ (4*0,6м*20 м). Повторность – трехкратная. Мы изучали три срока посева; 20-25 марта, 5-10 и 20-25 апреля, два норма высева; 350 тыс. шт./га и 500 тыс. шт./га.

Технология возделывания включала следующие операции. С осени сразу после уборки предшественника проводилось вспашка плугом ПЯ-35 на глубину 25-27 см. Под основную обработку почвы вносили также аммофос (N-12%, P_2O_5-48%), калий (KCl-60 %) и аммиачную селитру (N – 34,4%) в дозе $N_{60}P_{90}K_{60}$.

Весной при наступлении физической спелости почвы проводили боронование. Затем осуществляли предпосевную культивацию на глубину заделки семян (3-5 см) поперек предшествующей обработки. Все остальные операции: посев, уход за растениями, уборку проводили вручную.

Мероприятия по уходу за посевами сои включали те же операции, что и при механизированном возделывании данной культуры.

Результаты. В проведенных исследованиях наименьшая полевая всхожесть семян наблюдалась 20-25 апреля при высева 350 тыс. шт./га составила 76,7 %. С увеличением нормы посева увеличивалась и полевая всхожесть семян. Так, полевая всхожесть семян в среднем за три года исследований 5-10 апреля при норме высева 350 тыс. шт./га составила 86,7 %, а при посева 500 тыс. шт./га – она увеличилась 2 % и составила 88,0 %.

Густота стояния растений по всем вариантам возрастала с увеличением нормы высева 350 тыс. шт./га семян – 21 шт на погонный метр; при посева 500 тыс. шт./га – 30 шт на погонный метр.

Соя относится к культурам со слабой конкурентной способностью по отношению к сорнякам. Высокая чувствительность сои к сорнякам объясняется неглубоким проникновением корневой системы, слабым затеняют сою и ослабляют её фотосинтез, поглощают воду и питательные элементы, снижают температуру почвы, удлиняют вегетацию сои. В опытах посевы сои были засорены преимущественно однолетними и многолетним сорняками – куриным просом (Echinochloa crusgalli), редькой полевой (Raphanus raphanistrum), марью белой (Chenopodium album), щетинником сизым (Setaria glauca), вьюнок полевой (Convolvulus arvensis L), свинорой пальчатый (Cynodon dactylon L) и некоторыми другими. За период вегетации количество сорняков уменьшилось примерно в 2 раза. Наименьшая засоренность посева была при норме высева семян сои 500 тыс. шт./га.

Продуктивность растений зависит от взаимодействия комплекса факторов, включая агрометеорологические условия, питание растений, уровень агротехники, сортовые особенности и т.д. Каждому сорту присуще определённая высота растений, площадь листьев, число узлов и цветков и целый ряд других показателей. Анализ элементов структуры урожая сои показал, что с увеличением нормы высева число бобов на одном растении и семян в бобе уменьшается. Наибольше количества бобов на 1 растение формировалось на 5-10 апреля при норме высева – 350 тыс. шт./га и составляет 31,5 шт, а 500 тыс. шт./га 20,9 шт. Масса 1000 семян при норме высева 350 тыс. шт/га составила 146,0 гр, а при норме высева 500 тыс. шт/га 135,5 гр. Биологическая урожайность сои по мере

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увеличения норм посева возрастала до определенных пределов загущения растений на единице площади.

Таблица 1

Влияние срок посева и нормы высева на урожайность (2021-2023 гг)

№	Срок посева	Норма высева, тыс/га	Полевая всхожесть, %	Бобов на растении, шт	Масса тысячи семян, гр	Урожай-ность, ц/га
1	20-25 марта	500	83,7	17,9	130,4	17,5
2		350	85,2	25,9	136,8	19,1
3	5-10 апреля	500	86,7	20,9	135,5	22,2
4		350	88,0	31,5	146,0	26,3
5	20-25 апреля	500	76,7	18,9	132,2	19,1
6		350	79,4	30,2	139,4	23,1

Анализ урожая зерна сои в среднем за три года исследований показал, что наибольшая урожайность 26,3 ц/га была получена 5-10 апреля при норме высева 350 тыс. шт./га, а прибавка урожая зерна составила 3,9 ц/га (18%) по сравнению с 500 тыс. шт/га.

Важным показателем является содержание белка и жира. Анализируя полученные данные, можно сказать, что в среднем за два года исследования наименьшее содержание белка в семенах было при высеве 500 тыс. шт./га (32,7 %) а при норме высева 350 тыс. шт./га было 33,8 %. Наивысшее содержание жира в семенах (21,5 %) в среднем три года находились при норме высева 350 тыс. шт/га.

Выводы. На основании проведенных исследований, можно сделать следующие выводы:

1. С увеличением норм высева на такырно-луговых почвах полевая всхожесть семян и густота стояния растений возрастает, а выживаемость растений к уборке, наоборот, снижается.

2. Сорт сои Нафис обеспечивает достаточно высокий уровень урожайности – 26,3 ц/га 5-10 апреля при норме 350 тыс. шт/га. При увеличении нормы высева 500 тыс. шт/га наблюдается тенденция к снижению урожайности до 22,2 ц/га.

3, Содержание белка в сое в пределах 32,7-33,8 %, а жира – 21,1-21,5 %. Набольшее содержание белка и жира было отмечено у растений с нормой высева 350 тыс. шт/га.

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ADDITIONAL SEED EXTRACTION DEVICE FIXED SAW GENIE IN WORKING CAMERA INVESTIGATION OF RAW MATERIALS

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Abstract: Based on the analysis of the movement of the raw material shaft by theoretical methods, mathematical models expressing the rotation movement of the raw material shaft with the seed release device were developed.

Keywords: saw genie, front fart, working kamera, seeding machine, saw, well grille, fibre, seeds.

Introduction: It is known that the medium fiber cotton fiber is separated from the seed by a sawed fiber separator machine, the long time of hairless seeds separated from the fiber in the working chamber has a negative effect on the productivity of this machine, fiber and seed quality. In addition, hairless seeds are removed through the seed comb.

T has been determined that the long-term persistence of the seed in the cotton field is one of the factors affecting the productivity of the saw gin. Ensuring faster release of germinated seeds from the working chamber of the gin is the main way to increase the productivity of the gin. According to the conducted theoretical and experimental studies, it is possible to increase gin productivity and fiber quality by installing an additional seeding device in the central part of the working chamber [1].

Methods and materials: Among other factors that determine the state of the cotton ball, the distribution of its speed along the walls of the chamber is of great importance. The main goal of the issue is to determine the calculation parameters for improving the parameters of seed germination in the working chamber. To solve the problem, we analyze the cotton flow between two curved walls (L1 and L2). Cotton flow passes easily through the holes. Its movement is mainly influenced by gravity and centrifugal force. For example, it is solved by the small parameter method [2]

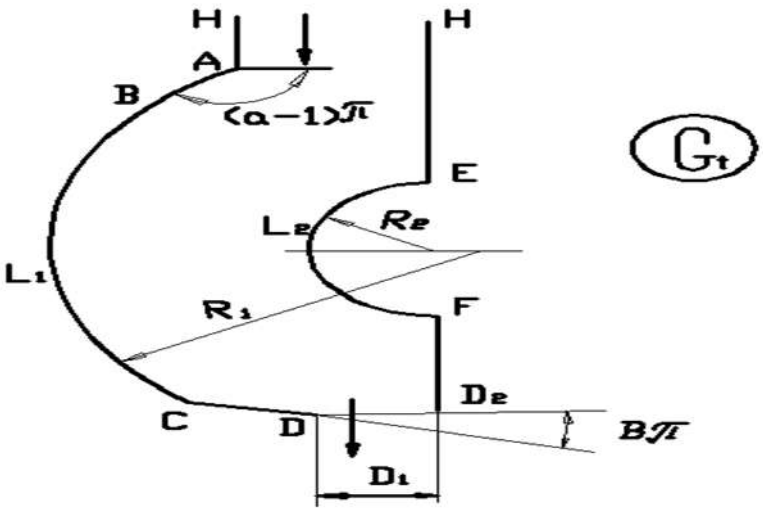

Figure 1. The flow square.

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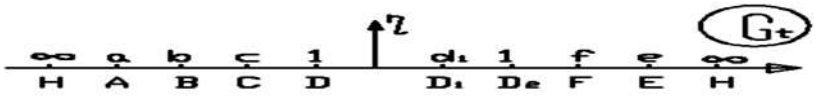

Fig. 2. Konanic region.

Result and discussion: Current potential, we consider its movement to be stable. In this case, taking the upper half-plane of the parametric variable G_t(t=ξ+Lē) as an auxiliary area (Figures 2 and 3), and $\frac{dw}{dt}$=(w= $\varphi + \iota\Psi$)) using the method of separate points for derivative functions of the complex potential, we have the following we will be:

$\frac{dw}{dt}$=-$\frac{q_H}{\pi(t-d_1)}$ (1)

Here $q_H = L_H * V_H$ (m^2/s) (NN) cotton flow rate.

L_n, V_n (NN) cotton flow width and speed at the beginning of the section. (1)

according to the formula (L_1 va L_2), we determine the angular vector of the speed of cotton pieces along the curves using the last dimensional approximation method.

Θ(t)=At+B (2)

With the boundary values of the Zhukovsky function:

$\omega = \tau + \iota\Theta$,=ln$\frac{v}{v}$ (3)

$$\text{Jm}\omega(t)=\begin{cases}(a-1)\pi & pri\ \eta=o,-a<\xi<-B,\\ \Theta_1(\xi) & pri\ \eta=o,-B<\xi<-C,\\ -\beta\pi & pri\ \eta=o,-C<\xi<-1\\ \theta_2(\xi) & pri\ \eta=o,f<\xi<-C,\\ -\frac{\pi}{2pri}\eta=o,-\infty<\xi<-a,1<\xi<f\\ ye<\xi<\infty\end{cases} \quad (4)$$

By introducing a new function, $\omega_1(t)=\frac{\omega(t)}{R(t)}$, R(t)=$\sqrt{t^2}$-1 (4) we will have

Using the Schwarz integral formula, we get the following:

Jmω_1(t)= Jm$\frac{\omega(t)}{R(t)}$ (5) Then: $\Theta_1(\xi)=\frac{[(a-1+\beta)\xi+(a-1)C+B\beta]\pi}{C-B}$ (6)

$\Theta_2(\xi)=\frac{(2e-f-\xi)\pi}{e-f}$ (7) According to the calculated integral included in formula (4). or the joint complex velocity of the flow V=$e^{-\omega(t)}$ taking into account we get the following : $\tilde{v}=\sum_{\iota=1}^{G}(I_O^{\iota})^{-1}=\frac{1}{I_O^1*I_O^2*I_O^3*I_O^4*I_O^5*I_O^6}$ (8) Here : $V=\frac{\tilde{v}}{V_O}$,

V_O--flow rate V- cotton velocity from the formula (1) and (8) for the geometric problem $\frac{dz}{dt}=-\frac{L_H}{\pi(t-d_1)}*[\tilde{v}(t)]^{-1}$ (9) originates.

The results of the experiment show that the following factors affect the average time of hairless seeds in the working chamber of the 4DP-130 saw fiber separator. Machine performance (X1), the number of rotations of the auxiliary fertilizer equipment (X2) and the amount of hairless seeds coming out of the auxiliary fertilizer equipment (X3).

Based on the experimental results, its mathematical model is represented by the following formula:

$$Y = 61.7 - 3.58X_2 - 2.27X_3 + 2.65X_1X_2 + 2.85X_1X_3 + 14X_1X_3 + 2.25X_1X_2X_3$$

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where: Y- the average residence time of hairless seeds in the working chamber (seconds).

As can be seen from equation (1), the factors X_2 and X_3, that have the most influence on the average residence time of hairless seeds in the working chamber, and the least influencing factors X_1, X_2, X_3 and thus, using the equation, we calculate the average residence time of the seeds in the working chamber and see its graph (Fig. 2).

The correlation graph of the average residence time of hairless seeds in the working chamber with the machine performance is drawn. The graph consists of 5 Y=Y(X1) shaped curves. The first curve shows the smallest index of the factors X_2, X_3, and the fifth curve shows the largest index, the rest of the curves are intermediate.

In the second curve, it increases from 67.6 seconds to 68.5 seconds when X_2== 200 rpm, X_3=210 kg.

The third curve does not change when X_2=250 rpm X_3=280 kg.

In the fourth curve, when X_2=300 rpm, X_3=350 kg, it increases from 61.6 seconds to 62.9 seconds. The fifth curve increases from 67.4 seconds to 72.3 seconds when X2 = 350 rpm and X3 = 420 kg.

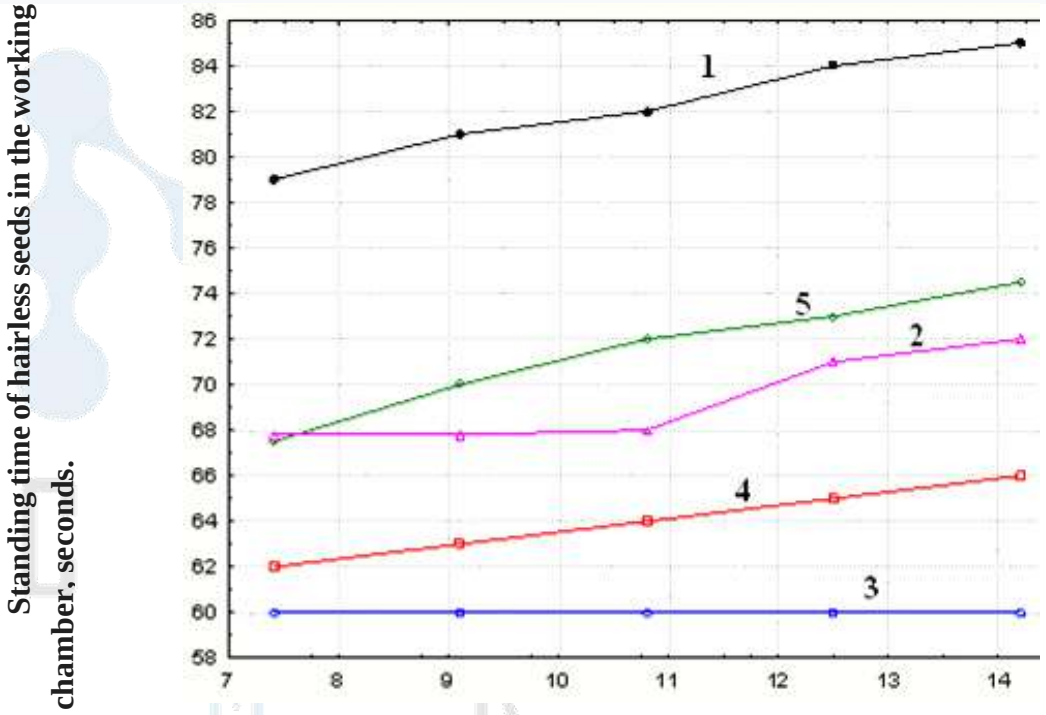

Figure 2. Correlation graph of the average residence time of hairless seeds in the working chamber of the sawing machine

Graphs of correlation between the number of revolutions of the seeding equipment and the average residence time of hairless seeds in the working chamber are presented (Fig. 3).

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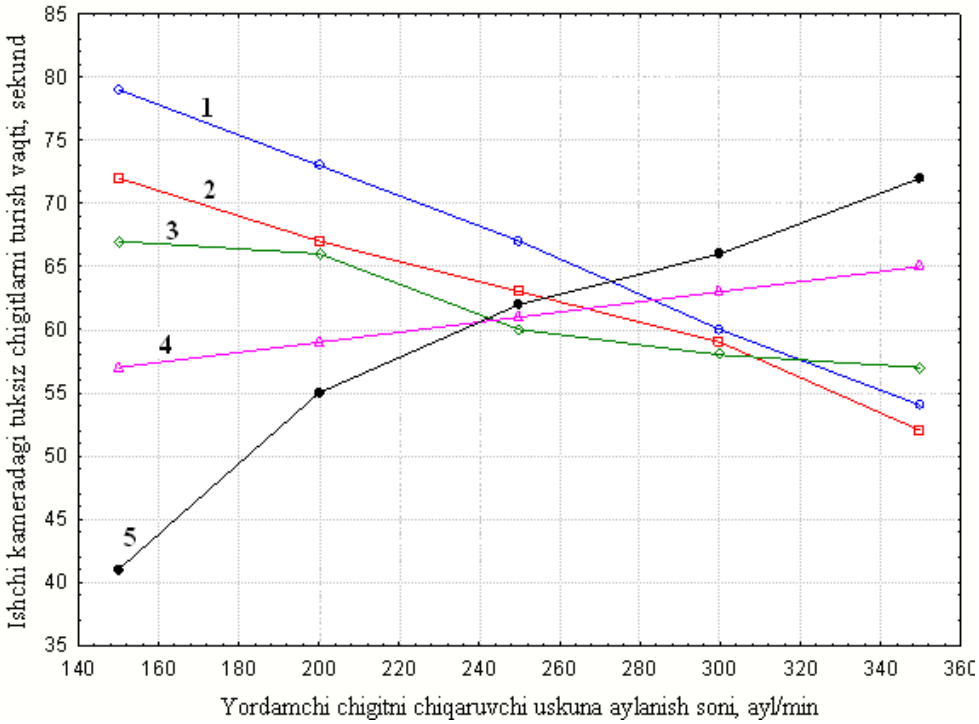

Figure 3. Correlation graph of the average residence time of seeds in the working chamber in the auxiliary seeding equipment

As can be seen from the graph, as can be seen in the first curve, when X_1=7.4 rpm kg/saw-hour, X_3=140 kg, the average residence time of hairless seeds in the working chamber is 54 out of 79.4 seconds, Decreases to 3 seconds. The third curve in line X_1=10.8 kg/saw-hour, X_3=280 kg decreases from 65.3 seconds to 58.1 seconds. In the fourth curve, when X1=12.5 kg/saw-hour, X_3=250 kg, it increases from 58.6 seconds to 63.9 seconds. In the fifth curve, when X_1=14.2 kg/saw-hour, X_3=420 kg, it increases from 52.3 seconds to 72.3 seconds.

Conclusion. According to calculations, the effective seed separation from the working chamber of the saw gin depends on the number of revolutions of the seed separator and the speed at which the depilated seeds are ejected from the device. As a result of the conducted research, the most optimal values of the main factors in the working chamber of the saw were determined.

Based on the production results, the positive change in the composition of the raw material shaft is due to the increase in its rotation speed, as well as the reduction of the time of seed and fiber in the raw material shaft, which causes a decrease in the mass and density of the raw material shaft, and an increase in the level of fiber.

At this point, it can be said that it is possible to increase the productivity of the machine, the quality of fiber and seed, only at the expense of reducing the average residence time of hairless seeds in the working chamber of the sawing machine. It can be concluded from the figures 1, 2, 3 that the best indicator of the average residence time of hairless seeds in the working chamber is X_1=12.5 kg/saw hour, X_2=300 rev/min and X_2= 350 kg It will be.

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ANALYSIS OF COTTON DRYING METHODS

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Abstract: *The article presents an analysis of convective, conductive, layer-by-layer drying of cotton, drying in infrared light, high frequency current and combined drying methods. The possibility of drying cotton with a layer in a stationary, boiling and suspended (fountain) state has been studied.*

Key words: *Cotton layer, mesh surface, hot air, stationary layer, hot air velocity, aerodynamic mode, channel formation rate, fountain formation rate.*

More than 10,000 types of materials are known to be dried. A large number of drying nozzles have been developed based on the characteristics of such materials, their properties, and the technological requirements for the drying process.

Foreign and local researchers have created various tips and tips for drying cotton, of which the following tips have been studied [1-3]:

- drying using a high voltage current;
- drying using infrared rays;
- layer drying;
- convective;
- conductive;
- combination tip.

During drying with the help of high-frequency current, it heats the wet material and evaporates the moisture due to the conversion of electrical energy into thermal energy.

Placed between the high-frequency oscillating circuit capacitor plates, the wet material heats up due to dielectric loss. As a result of the dielectric loss, the separation occurs as a result of the vibrational movement of the molecules of the material placed in the capacitor gap. Heat is collected throughout the entire volume of the material.

During the construction process, the temperature and humidity of the surface of the material and the temperature and humidity of the interior due to moisture evaporation will be proportional to the temperature and humidity of the interior. As a result, there are positive temperature and humidity differences that accelerate the exit of moisture from the inside to the surface.

Heating wet materials with the help of an electric current passing through dielectrics and semiconductors is extremely difficult, as long as there is an internal source of heat in the material.

The heating temperature is very high and the consumption of the drink is low. The use of high-voltage current in drying materials with a high contact surface and low thermal conductivity is recommended.

When drying with the help of infrared rays, the heat needed to evaporate moisture is provided by a radiant energy source.

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In determining the drying temperature of wet materials with the help of infrared rays, it is necessary to determine the surface of the radiation energy generator, that is, the dimensions of internal radiation.

Optical radiation occurs as a result of electronic excitation of molecules and atoms of various radiating bodies, as well as vibrational and rotational movements of molecules and nuclei, and depends on the degree of blackness of the wet material. Quantitative measurement of radiation is called irradiance [4-6].

Because cotton is a porous, colloidal material, light penetrates into certain layers of it.

In radiation drying, the temperature gradient in the material is not high in the soft mode, and the mechanism of moisture movement inside the material is similar to convective drying.

In most cases, the temperature gradient is 20-50 °C/sm, as a result, at the beginning of the drying process, moisture moves from the surface to the interior, that is, from the cotton fiber to the seed cell, at the beginning of the drying process [7-9].

Under the influence of these factors, significant moisture differences appear in the fiber and between the fiber and the seed coat, that is, the surface of the fiber dries out, there is more moisture inside, as a result, the moisture release in the seed coat becomes slower because its temperature is lower than that of the fiber. Eca, temperature and moisture gradients are high in the seed coated with colloidal material, and the moisture is released slowly.

In many cases, the high radiant temperature causes the material to overheat, because the high temperature gradient is opposite to the moisture gradient, the movement of moisture from the inside to the surface of the material is slow.

These conditions limit the scope of application of the infrared drying tip for cotton. Because in this case, the surface of the fiber heats up quickly, the fiber dries quickly and causes excessive drying, the construction process is uneven, and the seed does not dry well. Convective drying is common in which hot air is used.

The kinetics of convective tip formation is highly dependent on the moisture and heat exchange between the warm air and the surface of the material, as well as the processes of moisture and heat movement within the material.

The most important factor in convective drying is the heating temperature of the material and the kinetics of its change, as well as the moisture gradients and movements on the surface of the material and inside it. Because the quality of the material being dried in many cases depends on its heating temperature, humidity and evenness of construction.

When cotton is dried, the fiber basically dries during the initial speed period, the temperature of which depends on the drying mode.

The drying mode can be hard or soft depending on the air temperature. In the soft mode, that is, when the air temperature is not high, the temperature of the fiber does not change almost and is equal to the wet temperature of the pichometer, and the vapor pressure on its surface is equal to the saturated vapor pressure at the wet bulb temperature.

In the hard drying mode, i.e. when the air temperature is high, the fiber temperature stop is switched off. As a result, the difference in temperature and humidity between fiber, seed coat and pith increases. Moisture is reduced more in the fiber than in the seed coat and pulp, resulting in a moisture gradient.

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In order to ensure the uniformity of the construction process, it is necessary to accelerate the heating of the seed and to ensure that the moisture separation from the fiber and the seed is carried out in parallel, not in series.

In layer drying, moisture is released from cotton more quickly than in suspension drying.

Therefore, during layer drying, the air flow is filtered through the cotton layer, increasing the heat and moisture exchange surface, and increasing the air velocity at the surface of the seed and fiber.

This allows you to control the performance and moisture absorption over a wide range, taking into account the change in the cotton layer and drying time. However, despite the fact that the layer drying tip has a number of advantages, it was not used in production due to the uneven drying of cotton by the layer and the lack of development of the camera drying tip.

K.Sh.Shakirov, M.I.Ismoilov, B.E.Erofeeva, A.R.Suetin, A.R.Umarov and others worked on improving cotton drying in layers.

K.Sh.Shakirov studied the introduction of warm air from above during layer drying of cotton, and as a result, the optimal indicators of drying were determined: warm air temperature 120-130°C, speed 0.6-1 m/s, layer thickness 100 mm. But the recommended drying method was not applied to the production due to the unevenness of the construction layer by layer, insufficient productivity and drying speed.

M.I.Ismoilov, M.M.Niyazov, B.E.Erofeeva, A.R.Suetin in his research, the hydrodynamics of airing the cotton layer through the holes and the hydraulic resistance of the layer were studied, but no practical recommendations were developed [10-13].

The “Cotton Industry Research Center” studied the drying of cotton in layers, and recommended the optimal parameters of the drying process, air speed, and drying time (7-9 min). As a result of the study of internal moisture exchange in the cotton layer, an air distribution machine with a camera made in the form of a 100 mm diameter, 6 m long tube grid installed at an interval of 10 mm, cotton packing weight 30 kg/m^2, drying agent consumption 15000-17000 m^3/hour, drying temperature 150-170°C was determined. But the maximum moisture content during the recommended drying cycle was 4-5,5%, which is certainly low. Increasing the moisture content only increased the build temperature, causing the fiber to overheat and dry out.

Studies studied the cycle mode of drying cotton in layers, in order to prevent overheating of the fiber, the “hot air-hot air-hot air” mode is used, the construction process continues even when hot air is supplied, and the possibility of using a high-temperature drying agent it was cleaned.

In this case, as a result of the decrease in the temperature of the fiber during the heating process, the temperature gradient $\Delta t_{гр}$-$t_ч$-$t_м$ between the fiber and the seed takes the opposite direction due to the fact that the temperature of the fiber is less than the temperature of the seed, as a result, it does not prevent the release of moisture from the seed, but accelerates it. It was recommended to dry cotton in layers in a cycle mode on a belt conveyor. But it was not put into practice because it could not provide the required productivity (10 t/h) and moisture extraction (10%). Further studies drying cotton in a layer in a simple and cyclic mode, it was found that the uniformity of moisture extraction from fiber and seed is good in the cyclic mode: hot and hot air supply times are 2030 seconds, hot air mechanical speed 0.48-0.7 kg/m^2 s, cooling air temperature from 20 to 50°C.

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As a layer (at a certain height on the end of the mesh surface), convective (using air) and combined (simultaneously convective, conductive and layer drying) with cameras.

It should be noted that researchers have only studied drying of cotton in a stationary state by filtering warm air through it.

It is known that cotton can be in three states: stationary, boiling and suspended.

At the speed of hot air pact, the position and size of the cotton layer on the end of the mesh surface does not change, it remains motionless.

The increase in air speed causes the cotton layer to vibrate, and this vibration deepens, as a result, the cotton layer, its porosity and thickness increase, is in a state of boiling water. The air velocity at which the cotton layer begins to boil is called the critical boiling velocity $\upsilon_{кр}$. In this case, the passage of warm air through the cotton is smooth, the moisture separation is accelerated, and the further increase of the air speed causes the cotton layer to separate from the mesh surface and become suspended. The speed of air reaching this position is called the cotton lifting speed $\upsilon_{к}$. In this case, the cotton pieces are separated from each other, the height and size of the layer increases, and the cotton surface exposed to air increases.

The rate of drying cotton in a fluidized bed is much higher than drying in a stationary bed.

The experimenter of drying cotton in conductive and convective tips showed that it is possible to ensure uniform drying of fiber and seed by using them without cof.

It takes a certain amount of time for the cotton seed to dry, and as a result of continuous exposure of the inner air to the fiber, the temperature of the fiber increases, as a result, the fiber becomes excessively dry and its quality deteriorates. is several times higher than the air velocity during drying in $_{a}$ stationary bed. As a result of the up and down movement of the cotton pieces, the surface area of the cotton exposed to indoor air increases.

Cotton drying in the “boiling layer” is of scientific and practical importance. In the research in this direction, it is required to determine the mesh surface and its aerodynamic resistance, which ensures uniform boiling of cotton in the basically, determine the optimal thickness of the cotton layer, the limit of air speed change and the laws of their interaction with the moisture content of cotton, and develop a drying process in this basically.

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STUDYING OF POMEGRANATE IN UZBEKISTAN. A REVIEW

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Abstract. This article provides detailed information about the types of pomegranates grown in the southern region of Uzbekistan and their geographical importance. According to the results of the research, today most of the pomegranates grown in Surkhandarya belong to Sherabad district. Pomegranate here has found that it meets all the standards of the climate in order to grow more comprehensively than in other regions. In addition, it was found that the content of biologically active comonenets is higher than that of anorla grown in other regions. Detailed information about pectin is also given.

Keywords: Pomegranate, Surkhandarya, Sherabad, pectin, biological substances.

ИЗУЧЕНИЕ ГРАНАТА В УЗБЕКИСТАНЕ. ОБЗОР

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Аннотация. В данной статье представлена подробная информация о видах гранатов, выращиваемых в южном регионе Узбекистана, и их географическом значении. По результатам исследований, сегодня большая часть гранатов, выращиваемых в Сурхандарьинской области, относится к Шерабадскому району. Гранат здесь обнаружил, что он соответствует всем стандартам климата, чтобы расти более комплексно, чем в других регионах. Кроме того, установлено, что содержание биологически активных комонетов выше, чем у анорлы, выращиваемой в других регионах. Также дана подробная информация о пектине.

Ключевые слова: Гранат, Сурхандарьинская область, Шерабад, пектин, биологические вещества.

O‘ZBEKISTONDA ANORNI O‘RGANISH. SHARH

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Annotatsiya. Ushbu maqolada O‘zbekistonning janubiy mintaqasida yetishtiriladigan anor turlari va ularning geografik ahamiyati haqida batafsil ma’lumot berilgan. Tadqiqot natijalariga ko‘ra, bugungi kunda Surxondaryoda yetishtirilayotgan anorlarning asosiy qismi Sherobod tumaniga to‘g‘ri keladi. Bu yerdagi anor boshqa hududlarga qaraganda kengroq o‘sishi uchun iqlimning barcha me’yorlariga javob berishini aniqladi. Bundan tashqari, biologik faol komonetlarning tarkibi boshqa hududlarda yetishtiriladigan anorlanikidan yuqori ekanligi aniqlandi. Pektin haqida batafsil ma’lumot ham berilgan.

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Kalit so‘zlar: Anor, Surxondaryo, Sherobod, pektin, biologik moddalar.

Introduction. Human beings have cultivated pomegranate (*Punica granatum* L.) for its medicinal and nutritious properties for over 4000 years. The pomegranate has significant importance in the ancient cultures of the Mediterranean countries. Pomegranate fruit with 2.5–three million tons of annual global production is used to manufacture a wide range of food products such as fruit juice, concentrate, anardana, jam, candies, toppings, and canned arils besides its fresh consumption. Industrial processing reveals a large amount of by-products or wastes, including peel, pulp membrane, seed, and aril pomace[1,2]. Among industrial residues, the peel is the most abundant part by weight, constituting 30–50% of the total fruit weight[3,4]. Studies showed that the phenolic compounds (flavonoids and hydrolyzable tannins) present in pomegranate peels have antioxidant, antiproliferative, antidiabetic, antiallergic, anti-influenza, antimalarial effects as well as antimicrobial activity, which may, in turn, extend the shelf life of foods as well as provide health-promoting effects[5,6]. The pomegranate juice waste, seed, is another considerable part (3.7–7.9% total weight), which yields up to 20% oil[7]. The antioxidant potential of pomegranate rind powder extract (PRP), pomegranate juice (PJ), and pomegranate seed powder extract (PSP) was evaluated in raw ground pork meat stored at 4±1°C for 12 days. The pH values decreased from 5.88 to 5.61. The standard plate count in the PRP group was significantly (p<0.05) lower than that in all other groups[8].

In studies on pectin yield from different pectin sources, it is 18-20% in apple pomace [9], 15.70% in lemon, orange and grapefruit peel [10], 10.83-13.13% in lemon pulp [11].

Durian fruit 8.7-9.3%, banana peel 11.87-16.54%, sour orange peel 6.2-26.2%, 5.2-Banana peel, potato pulp 4 .08-14.34% was determined as [12,13]. Considering the pectin yield of the pomegranate peel used in the study, it seems to be a very good source for pectin production.

4 varieties of pomegranate are included in the state register of agriculture recommended for planting in the territory of Uzbekistan. Due to favorable conditions, the following varieties of pomegranate are grown in our republic: "Ulfi", "Pushti Gulosha", "Aq dona (appetizing)", "Achchik dona", "Desertniy", "Kazakh pomegranate", "Dashnobad" variety and others. Today, 82,900 tons of pomegranates are grown in our country every year, and 19,400 tons of them are exported[14].

Figure 1. At the Pomegranate Festival held in Surkhandarya

Extraction of pectin from pomegranate peel and its properties.

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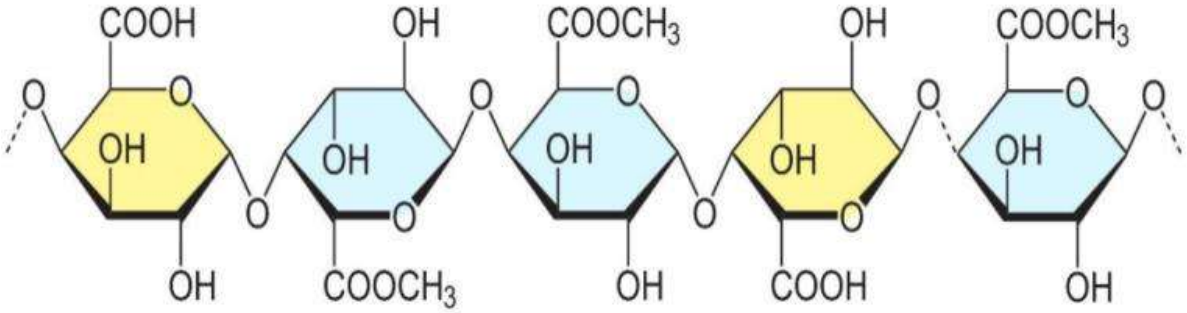
For example, Sherabad, Muzrabod districts in Surkhandarya region, Kitab district in Kashkadarya, Chust district in Namanganda, Mirzaabad, Sardoba districts in Syrdarya, and some areas of Kuva and Tashloq districts in Fergana were specialized in pomegranate cultivation. Currently, more than 30 varieties of pomegranate are being cultivated in Kuva district. The part of the grown crop that exceeds the domestic demand is exported to Korea, Russia and other countries. "Kuva Pomegranate Agrofirm" pomegranate cluster was established, with a total of 409 hectares and 56 pomegranate farms attached to it. Today, gardeners in the Kuva district of Fergana region are engaged in the localization and propagation of the ancient seedless (seedless) variety of pomegranate. All plant tissues, including pomegranate, contain the naturally occurring carbohydrate pectin. Pectins are a class of structural heteropolysaccharides found in the middle lamellae and primary cell walls of higher plants. They are mainly composed of units such as covalently linked D-galacturonic acid. For a long time, the food and beverage sectors have used these polysaccharides. Pectin is mainly used as a thickening, stabilizing, emulsifying and gelling agent. In the food industry, this traditional use of pectin is widely used as a fat substitute and functional component to promote health [14].

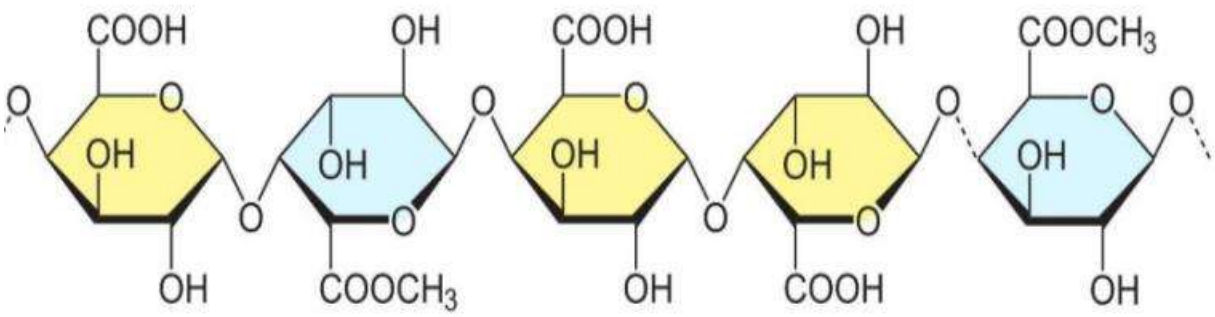
Classification of pectins. When classifying pectins, they are calcified according to their methoxylation level. Methoxylation was calculated as the percentage of esterified galacturonic acid units relative to the total galacturonic acid units in the pectin molecule. This is determined by the effect on the solubility of pectin and the ability to form a gel.

High methoxyl pectin - in which pectin has more than 50% methoxyl groups.



Structural formula of high methoxyl pectin

Low methoxyl pectin - in which pectin has less than 50% methoxyl groups.



Structural formula of lower methoxyl pectin

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Physico-chemical properties of pectin. If pectin is sufficiently dissolved in water and stored in a cool, dry environment, it has gel-forming, thickening, and stabilizing properties. The general properties of pectin are: Pectin dissolves in hot water (85-90 ° C), pectin should be stored in a cool and dry place. This is because the decrease in pectin molecular weight leads to decomposition at high temperatures. The optimal pH range of pectin is 2.8-4.7. Pectin solutions have a lower viscosity than other thickeners. The viscosity of low molecular weight pectin solutions increases with bivalent salts (eg, Ca^{++} and Mg^{++}). Acidity increases in calcium-free solutions, which leads to a decrease in viscosity [15,16].

Pulsed ultrasound-assisted extraction, using just water as solvent, and spray-drying microdispersion, using low methoxyl pectin as polymeric matrix, have been employed, respectively, to extract and formulate the water-soluble bioactive molecules from these by-products. From 100 g of pomegranate fresh marcs, almost the same quantity of phenolic compounds found in 100 mL of the corresponding juice can be extracted with similar antioxidant activity, but with higher content in vitamin C and practically without total soluble solids. The extracts have been sprayed obtaining powders with an encapsulation efficiency of about 50%. Finally, fresh-cut apple wedges were enriched by vacuum impregnation with the formulated extracts, tentatively used as potential novel ingredients, obtaining “polyphenol-enriched” apples [17]. This study was aimed to evaluate the antibacterial and antioxidant characteristics of incorporated pomegranate juice (PJ) and pomegranate rind powder extract (PRPE) into meat burgers. The peroxide value, thiobarbituric acid reactive substances, and metmyoglobin content for different burgers during 90 days storage at − 18 °C were evaluated. Total anthocyanin content, total phenolic content (TPC) and free radical scavenging activity (RSA or IC50) for PJ and PRPE were measured as 18.90 (mg/mL), 4380 ppm, 0.136 (mg/mL) and 0.40 (mg/mL), 5598 ppm, 0.084(mg/mL), respectively [18]. This review intends to provide a general and organized overview of the accumulated knowledge on pomegranates, the identification of the most bioactive varieties, their potential consumption pathways and seeks to provide knowledge on the present gaps to guide future research[19]. Punicalagins are the main ingredients of phenolic compounds in pomegranate (Punica granatum L.) husk. A simple and accurate method for punicalagin analysis based on ethanol extraction and RP-LC using linear gradient of methanol in 0.1% TFA solution was established. The mean value of punicalagins content in pomegranate husk was 82.4 mg g−1[20].

Conclusion. This article examines the pomegranates grown in Surkhandarya and provides information about pectin in order to extract pectin from them.

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PROVIDING EFFECTIVE WORK ON THE CARDINAL ROOT

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Abstract: The long-known conservation methods include increasing the shelf life of products by drying them. There are several drying methods, each of which has its advantages.Special requirements are imposed on the drying of food products and raw materials.

This article analyzes the change in glycyrrhizin content after drying licorice roots, which are raw materials for the food and pharmaceutical industry, according to various signs. According to the results of the analysis, the duration of the process with microwave drying of raw materials was 80 minutes per 200 g, with drying using IR rays - 240 minutes (4 hours). According to HPLC analysis, it was found that the content of glycerizin in licorice was more preserved during microwave drying.

Key words: drying, licorice, microwave drying, infrared rays, glycyrrhizin, moisture, mold, dry matter.

Entry. The drying process is a complex process that involves heat and condensation. Drying is carried out for different purposes in various fields of chemistry, food, pharmaceuticals, construction, textiles, and public housing.

The purpose of desiccation of agricultural raw materials and foodstuffs, in other words, is to stop the biological processes in their composition, thereby extending their shelf life, reducing the costs of storage and transportation, increasing the concentration of useful components in their composition.

The moisture content of raw materials and products leads to the decrease of useful components, accelerating the biochemical reactions in them, without creating the necessary environment for the activity and growth of microorganisms that lead to their degradation. In order to avoid confusion and to give the product a special specific taste, the moisture content of raw materials and products is dried using natural and artificial methods.

Food additives play a major role in the production of food, and are used to improve the color, taste, aroma, consistency, and shelf life of food. In the food industry, red pepper is used as a flavor enhancer. Red clover (or “солодка” in Russian) is one of the oldest medicinal plants known to mankind. In Chinese medicine, the medicinal properties of the radish were discovered as early as the 3rd millennium BC, and it has been used successfully as a medicine, and is still used today.

In the food industry, it is used in coffee, cocoa, marinades, compotes, jellies, flour products, holba, caramel, saffron and chocolate, as well as in the processing of fish, salted cabbage, apples and bruschetta, as a flavoring additive, as a tea additive, in Japan - as a food antioxidant additive, and in Japan and Egypt - as additives with bactericidal and fungicidal properties for food and beverages[4,5].

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Licorice root extract is a unique and highly versatile substance containing a large complex of biologically active compounds, many of which have been studied as independent substances, and most of which are currently used in combination.

Glycyrrhiza glabra extract is extracted from the root of the plant. Red clover extract has anti-inflammatory, antibacterial, antiviral, restorative and protective effects due to the presence of essential oils, glycosides and flavonoids.

It is proposed to use extract of red currant in the technology of baking, regulate the quality of bread products and improve their microbiological purity. The addition of licorice root and its extract to bread and bakery products prevents potato disease, which is caused by the bactericidal and fungicidal properties that resist the growth of these bacteria. The work uses generally accepted and specialized chemical, physical-chemical, organoleptic methods for studying the properties of raw materials, finished products [4].

After the roots are collected from the soil, they are thoroughly washed with water to remove soil residue. The washed-cleaned roots are well dried to a moisture content of 8% before being sent to production plants. If the raw material is not properly dried, it can become moldy, and if it is stored for a long time, it can turn brown, produce an unpleasant odor and become unusable (Picture-1).

a) b) c)

1st picture. Figure 1 Changes while maintaining cherry root:

a) condition after removal and storage in a cool place for 5 days;

b) washed and stored at room temperature for 5 days;

c) washed and dried to 50% humidity, condition after 7 days.

This results in a decrease in the quality of the raw material, leading to a breakdown of its useful components.

There are several ways to extend the shelf life of food raw materials, materials and products, i.e. to conserve them, which differ from each other in different properties. One of the simplest and most reliable ways to extend the shelf life of food raw materials and products is the drying process. The moisture content of these products plays a key role in the development and

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proliferation of microorganisms, which can lead to rapid degradation of the product. During the drying process, the moisture in them is removed by various methods, thus preventing the breakdown of useful components in the composition of raw materials and food, stopping the activity of microorganisms that lead to their deterioration[3].

Drying itself is divided into two types, natural and artificial. The advantages of artificial drying over natural drying are the ability to control the temperature, short duration of the process, high efficiency, continuous operation, and the possibility of obtaining a high quality product. There are several methods of drying, which differ from each other by different parameters (type of energy, methods of energy transfer, etc.).

Depending on the type of energy and the method of transmission, there are conductive, contact, radiation, dielectric, sublimation drying methods [2].

Drying is the most convenient and cost-effective method of preserving red algae, and is currently carried out in a variety of drying facilities, relying on a variety of drying methods. Given that the roots are harvested in autumn, when there is less sunlight and heat, they are less likely to dry naturally, which means they take longer to dry. Therefore, the roots are artificially implanted only with the help of special devices[3].

The thoroughly washed and cleaned roots were cut into small pieces and 5 g of the roots were weighed using a scale to determine the moisture content, and the moisture content was measured using the Moisture Analyzer MA110-3H-T. The humidity in the experimental carrot root was 51.69% (Picture 2).

2nd Picture. Determining the moisture content of cinnamon root.

3rd Picture. Measure the weight of the raw material for the sample on a scale.

A sample of 200 grams of sugarcane roots was extracted from the coconut tree, divided into 2-2.5 cm thick pieces, using a sample scale.Sample 1 was dried in an infrared dryer for more than 4 hours at 65 - 70°C until 20% moisture remained. The change in mass (in terms of humidity) of the sample was determined by weighing it every hour using a scale.

Experiments were conducted with two drying units running in parallel. A 200 g sample of roots taken with a scale was processed in a 2 microwave dryer in a discrete mode at 60-62° C. The microwave temperature drying process was controlled by the on-off mode using a model calculation program [6]. When the temperature of the sample reached 60 °C, the power supply was

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stopped and the temperature of the sample in the microwave chamber was measured using a thermometer and then measured using a mass scale. When the temperature of the sample dropped to 40° C, the energy transfer was resumed. This is how microwave drying was done in a discrete mode.

Table-1

№	The initial mass, g	The time it takes to give the energy, s	the temperature, °C	Mass after drying, g.	The time to cool, s	Mass after cooling, g
1.	200	30	60	198	117	196,7
2.	196,7	30	57	195,6	122	193,1
3.	193,1	35	62	191,3	165	187,4
4.	187,4	25	62	185,8	198	182,7
5.	182,7	25	61	178,8	220	176
6.	176	25	60	175,6	230	172,6
7.	172,6	25	59	171,3	260	167,7
8.	167,7	25	62	166,7	230	163,7
9.	163,7	30	65	162,3	255	158,8
10.	158,8	25	62	157,6	250	154,8
11.	154,8	25	59	153	240	150,8
12.	150,8	25	60	148,9	220	146
13.	146	25	61	144	230	142
14.	142	25	62	139	235	137
15.	137	25	61	134	230	131,9
16.	131,9	25	61	129	236	126,5
17.	126,9	25	62	125	230	121,7
18.	121,7	27	63	118	250	113,6
19.	113,6	26	62	110,9	253	107,3
20.		503			4171	

Conclusion: The article suggests that drying cinnamon root using ultra-high frequency waves has significant advantages over infrared drying and other drying methods. Microwave drying has the potential to save energy due to the short duration of the process, the rapid drying time in the raw material, and the short energy delivery time.

It took 4674 seconds (80 minutes) to dry 200 grams of candy beans in a microwave dryer with 51.69% moisture content, of which 503 seconds were spent on power supply and 4171 seconds were spent on cooling, which consumed no energy. It took 14,400 seconds (240 minutes) to dry 200 grams of candy root with the same initial moisture in an infrared dryer. The dryer worked continuously during this period.

The roots of the candy, dried in both ways, did not differ in appearance. The dried samples were analyzed using high-performance liquid chromatography to determine quality parameters. According to the results of the analysis, the glycyrrhizic acid content of the sample dried in a

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microwave oven was 5.92%, and the glycyrrhizic acid content of the sample dried in an infrared dryer was 4.83%.

So the conclusion is that microwave drying is much more effective than other methods in extending the shelf life of candy root.

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Determination of the main parameters and operating mode of a hexagonal mixing drum with additional agitators

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Abstract. The article provides determination of the main parameters and operating mode of a hexagonal mixing drum with additional agitators. This indicates the reliability of the data obtained during experimental studies, since the time of mixing treated seeds in a hexagonal mixing drum affects the performance of seed treatment. The results obtained are influenced by other factors, which also play an important role in the values of the productivity of seed dressing in a hexagonal mixing drum, therefore, with the values of the mixing time of treated seeds in a hexagonal mixing drum from its base value to its maximum value, the productivity of seed dressing leaving the hexagonal mixing drum mixing drum was obtained with a slight decrease, for example, by 0.3 t/hour.

Key words: seeds, dressing, complex microfertilizers, individual microelements, productivity, mixer, factors, tubular bars, mixing time.

Introduction. Modern pre-sowing treatment of seed (planting) material is a more complex measure than dressing, since during this process, in addition to fungicidal or insect-fungicidal disinfectants, protective and stimulating materials containing plant growth stimulants, complex microfertilizers, individual microelements and film-forming substances that provide both protection and stimulation of plant growth processes.

Increasing the yield of agricultural crops should be based on reliable protection of plants from pests, diseases and weeds, through the use of highly effective, low-toxic, environmentally friendly chemical and biological agents [1].

Currently, a certain set of physical, chemical and biological factors has been tested that make it possible to have an active influence on the productivity of agricultural crops. Many years of practice and world experience prove that about 30% of the preserved harvest depends on high-quality seed dressing with a correctly selected disinfectant [2].

Cotton seeds sown to be treated must comply with the state standard [3] in Table 1 in terms of quality indicators.

Table 1.

Quality indicators of sowing seeds

he name of indicators	Norm, %		
	For hairy seeds	For slightly hairy seeds	For bare seeds
Germination, no less	90,0	90,0	90,0
Humidity (mass fraction of moisture), no more	10,0	10,0	10,0
Clogging (mass fraction of mineral and organic litter), no more	0,7	0,5	0,3

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Mechanical damage, no more	7,0	8,0	8,0
Pubescence, no more	-	2,5	0,5
Residual fiber, no more than: - for the pubescent - for naturally naked	0,8 0,4		

The quality of dressing depends on many factors related to the condition of the seed, the characteristics of the dressing agent and its formulation, and the design and technological design of the dressing machine. It should also be noted that high-quality etching is only possible if it is performed by qualified personnel, taking into account the correct combination of all the listed components.

Methods. In the laboratory conditions of Paxtasanoat ilmiy markazi JSC, experiments were carried out to determine the completeness of dressing of pubescent cotton seeds on a drum mixer, inside of which strips made of ferrous metal sheets were installed. In the experiments, pubescent seeds of the selection variety S-6524, prepared for dressing, were used. The experimental results are shown in Table 2.

Table 2.

The influence of the angle of installation of the slats relative to the walls of the drum for the completeness of dressing of pubescent cotton seeds

Rotation frequency of the drum mixer, rpm	Angle of installation of the slats relative to the drum walls, degrees	Completeness of treatment of pubescent seeds, %
11	90	78
	120	92
	150	83

As can be seen from the results of the experiment (Table 2), there was an increase in the degree of sliding along the surface of the bar when the angle of installation of the bar for auxiliary mixing was 900 relative to the drum wall, when the angle of installation of the bar to the drum wall was 1500, auxiliary mixing bars installed in relation to walls of the hexagonal mixing drum, an increase in the sliding speed along the surface of the slats was observed. When the auxiliary mixing bars were set at an angle of 1200 degrees, the completeness of treatment was 92 percent due to the high degree of friction of the seeds on the surface of the bars [4].

However, the laboratory experiments were carried out incompletely, since the work carried out did not take into account the productivity of the mixer, the number of installed slats and their main parameters - length, height, location of the slats inside the drum, etc. In addition, the slats have a passive effect on seed mixing, since the seed on their surface is located in heaps and falls from them faster and is slightly loosened.

Based on the above, our research task is to improve the quality of cotton seed dressing by increasing the intensity of its mixing inside a hexagonal mixing drum.

The problem is solved by the fact that the mixing working body is made in the form of a hexagonal cylinder, inside of which, instead of slats, round pipes arranged in a checkerboard pattern will be fixed along the length of the cylinder, assembled, for example, in the form of a

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lattice, with gaps between the pipes from the condition of gradual falling out and mixing pubescent seeds with a disinfectant [5].

In this case, the length of round pipes, diameter, quantity, angles of their installation are selected from the condition of the maximum required quality of mixing of pubescent cotton seeds. The essence of the developed mixing drum for treating pubescent cotton seeds is illustrated by drawings, where Fig. 1 shows a general view of the mixing drum, Fig. 2 drum with round pipes fixed from the inside and a view of the installation of round pipes on rolling bearings.

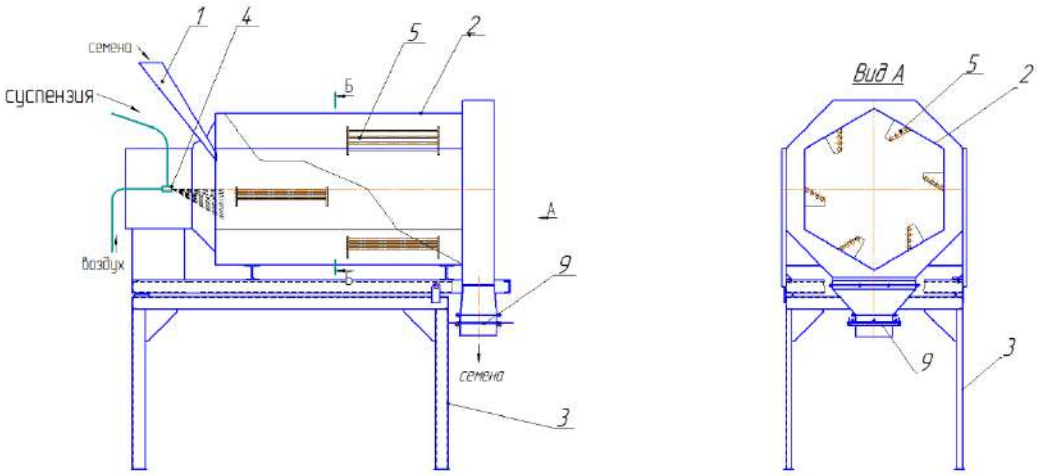

Fig.1. General diagram of a hexagonal mixing drum

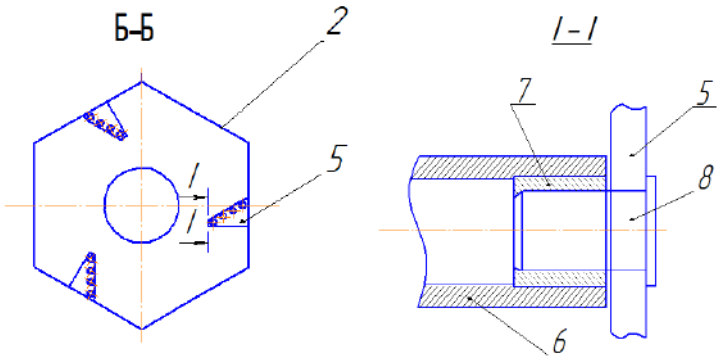

Fig. 2. Section of the drum and view of round pipes installed, for example, on rolling bearings

The developed dresser for pubescent seeds (Fig. 1 and 2) will contain a seed tray 1, a mixing hexagonal cylindrical drum 2 mounted on a frame 3, a nozzle 4, gratings 5, round pipes 6. To reduce friction and possible rotation of round pipes 6 under the influence of force gravity of the pickled pubescent seeds, they can be installed on gratings on rolling bearings 7 using an axis 8. There is an unloading chamber 9 to release the pickled seeds.

The technological process of the device is performed as follows.

Seeds through seed tray 1 enter a mixing hexagonal cylindrical drum 2 mounted on frame 3. A nozzle 4 is installed under the tray to spray the suspension. As the sprayed suspension passes from the torch zone, the seeds are covered with drops of liquid and then, passing inside the hexagonal cylindrical drum 2, are mixed. When the multifaceted cylindrical drum 2 rotates, the seeds are mixed until uniformly coated with the dressing agent. Fixed inside a hexagonal

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cylindrical drum 2, assembled in the form of a lattice 5, round pipes 6 serve to wrap the seeds while mixing to evenly distribute the drug over the surface of the seeds. In this case, pipes installed at different angles create radial and axial flows of seeds, as well as intensive wrapping as seeds gradually fall between the gaps of round pipes, and thereby ensure a convective mixing process. Pipes 6 can be installed on rolling bearings 7 using an axis 8. The processed seeds from the hexagonal cylindrical mixing drum fall out through the unloading chamber 9.

Fixed in a checkerboard pattern inside the hexagonal cylindrical mixing drum, round pipes fixed in the form of a lattice create additional mixing of seeds during its rotation, since as the round pipes are raised and the angle changes, the pickled seeds gradually fall out into the gaps between the pipes, which is impossible when installing a bar [6, 7], and this ensures uniform distribution of the suspension over the surface of the seeds with increased processing efficiency.

Discussion. To finally determine the main parameters and operating mode of a hexagonal mixing drum with additional mixers, experimental studies were carried out using mathematical experimental planning, and a full-factorial experiment plan B3 was selected [6, 7]. The factors that have a significant impact on the process of mixing treated seeds are the rotation speed of the hexagonal drum X1, the angle of installation of the tubular bars to the walls of the hexagonal drum X2 and the mixing time of the treated seeds X3. The response criteria were the completeness of seed treatment and the performance of seed treatment.

The intervals for varying factors were selected taking into account the influence of each factor on the optimization criteria and based on the results of preliminary studies [6].

After implementing the planning matrix, processing the experimental results, calculating regression coefficients, assessing their significance, checking the reproducibility of the process and the adequacy of the resulting equation were carried out according to the well-known [6] method on a computer using a computer.

Factor levels and variation intervals are given in Table 3.

Table 3

Levels of factors and intervals of their variation

№	Factors	Unit change	Designation factors		Inter-variation shafts	Levels of variation		
			Natural Coding	Coded		-1	0	+1
1	Hex Drum Speed		ω	X_1	3	7	10	13
2	Coal installation of tubular strips to the walls of the hexagonal drum	rpm	α	X_2	30	90	120	150
3	Mixing time for treated seeds	hail	t	X_3	58	40	98	156

After processing the experimental results and assessing the significance of the regression coefficients, the following regression equations were obtained that adequately describe:

Completeness of seed treatment:

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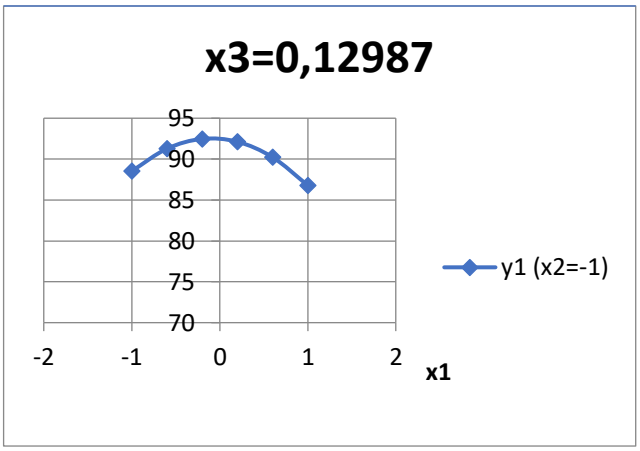
$$Y_1 = 96{,}746 + 0{,}470\ X_1 + 2{,}060\ X_2 + 4{,}593\ X_3 - 4{,}829\ X_1^2 + + 1{,}542\ X_1X_2 + 1{,}550\ X_1X_3 - 2{,}579\ X_2^2 + 0{,}617\ X_2X_3 — 7{,}946\ X_3^2$$

Seed productivity:

$$Y_2 = 4{,}262 + 0{,}177\ X_1 + 0{,}170\ X_3 - 0{,}273\ X_1^2 — 0{,}240\ X_3^2$$

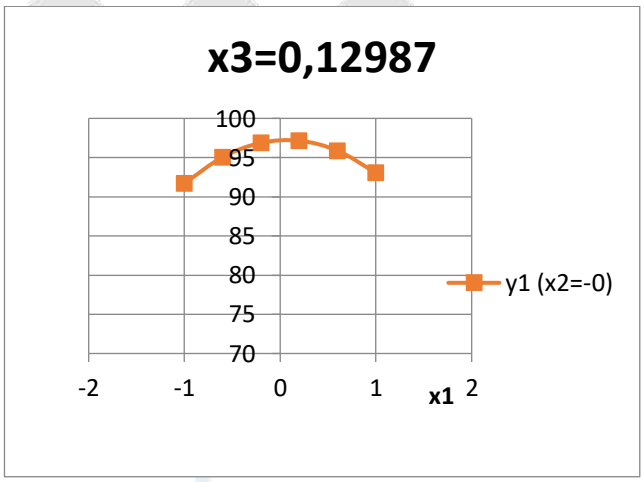
For clarity, Figures 3 and 4 show graphs of changes in output parameters depending on changes in input parameters selected for mathematical planning of experiments.

X_1	X_2	X_3	$У_1$
-1	-1	0,129866	88,53104
-0,6	-1	0,129866	91,27332
0,2	-1	0,129866	92,47032
0,2	-1	0,129866	92,12204
0,6	-1	0,129866	90,22847
1	-1	0,129866	86,78963



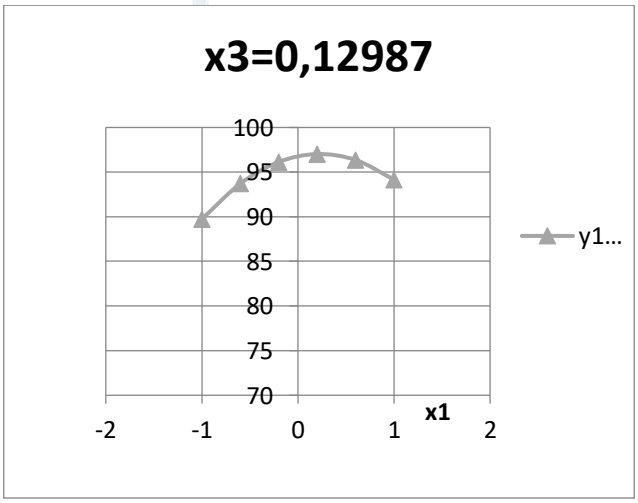
A)

X_1	X_2	X_3	$У_1$
-1	0	0,129866	91,70817
-0,6	0	0,129866	95,06725
-0,2	0	0,129866	96,88105
0,2	0	0,129866	97,14956
0,6	0	0,129866	95,8728
1	0	0,129866	93,05076



B)

X_1	X_2	X_3	$У_1$
-1	1	0,129866	89,7273
-0,6	1	0,129866	93,70318
-0,2	1	0,129866	96,13377
0,2	1	0,129866	97,01909
0,6	1	0,129866	96,35913
1	1	0,129866	94,15388



V)

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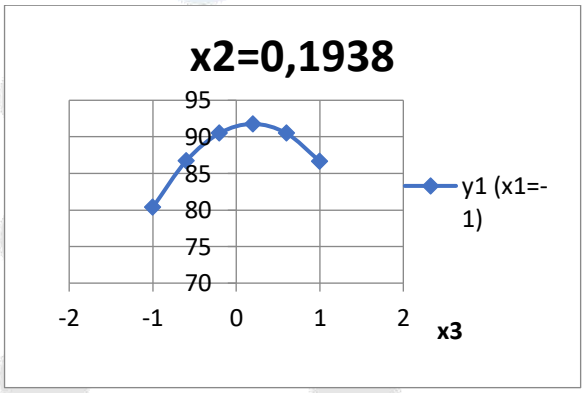
Fig.3. Graphs of changes in the completeness of seed treatment depending on the rotation speed of the hexagonal drum with fixed values of other input factors

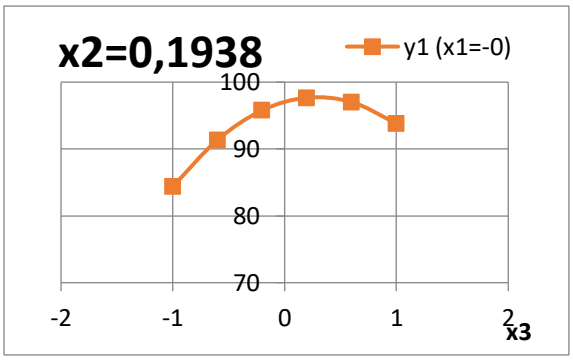
As can be seen from Fig. 3, from the graphs of changes in the completeness of seed dressing depending on the rotation speed of the hexagonal drum with fixed values of other input factors, an increase in the rotation speed of the hexagonal mixing drum from its minimum value to the base value, the completeness of dressing of seeds leaving the hexagonal mixing drum , tends to increase. With an increase in the rotation speed of the hexagonal mixing drum from its base value to its maximum value, the completeness of seed dressing leaving the hexagonal mixing drum tends to decrease. However, the difference in the completeness of seed treatment is insignificant at a fixed value of X2 = 0, as can be seen from the graph shown in Fig. 3 with the value X1=-1, the completeness of dressing of seeds coming out of the hexagonal mixing drum is equal to 91.7%, with a value close to the base X1=0.2, the completeness of dressing of seeds coming out of the hexagonal mixing drum is 97.1%, and at maximum value X1 = +1, the completeness of treatment of seeds leaving the hexagonal mixing drum is 93.0%. From these data it follows that the desired installation angle of additional tubular strips to the walls of the hexagonal mixing drum is within 120^0.

x1	x2	x3	y1
-1	0,193802	-1	80,34195
-1	0,193802	-0,6	86,69242
-1	0,193802	-0,2	90,50017
-1	0,193802	0,2	91,7652
-1	0,193802	0,6	90,48751
-1	0,193802	1	86,6671



A)

x1	x2	x3	y1
0	0,193802	-1	84,38979
0	0,193802	-0,6	91,36026
0	0,193802	-0,2	95,78801
0	0,193802	0,2	97,67304
0	0,193802	0,6	97,01535
0	0,193802	1	93,81494



B)

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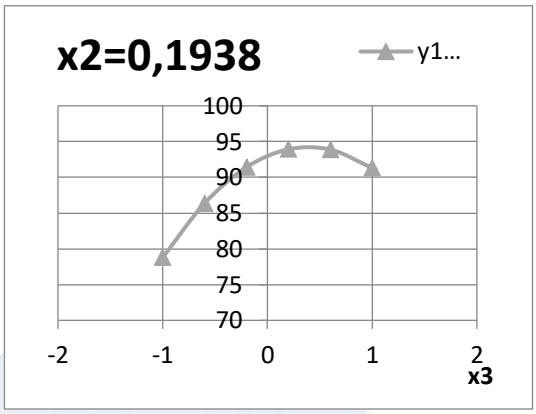
x1	x2	x3	y1
1	0,193802	-1	78,77963
1	0,193802	-0,6	86,3701
1	0,193802	-0,2	91,41785
1	0,193802	0,2	93,92288
1	0,193802	0,6	93,88519
1	0,193802	1	91,30478



V)

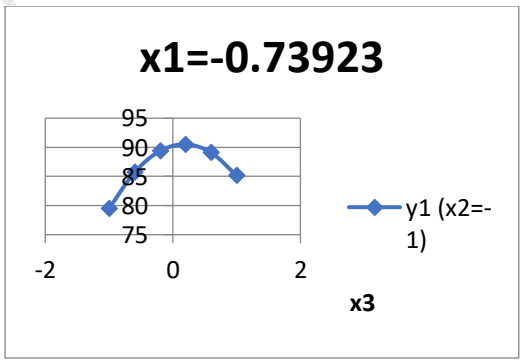
Fig.4. Graphs of changes in the completeness of seed dressing depending on the time of mixing the treated seeds in a hexagonal mixing drum with fixed values of other input factors.

As can be seen from Fig. 4, from the graphs of changes in the completeness of seed dressing depending on the time of mixing the treated seeds in a hexagonal mixing drum, with fixed values of other input factors, an increase in the mixing time of the treated seeds in a hexagonal mixing drum from its minimum value to the base value, the completeness of dressing of seeds leaving hexagonal mixing drum tends to increase and is in the range of 91.7-97.6%. With an increase in the mixing time of the treated seeds in the hexagonal mixing drum from its base value to the maximum value, the completeness of the treatment of seeds leaving the hexagonal mixing drum also tends to increase, but with a slight decrease in values close to the maximum value of this factor and decreases to 86.1- 91.3%.

This indicates the reliability of the data obtained during experimental studies, since logically, the longer the mixing time of the treated seeds in the hexagonal mixing drum, the better the mixing and the higher the completeness of seed treatment. However, in the obtained results there is the influence of other factors, which also play a significant role in the values of the completeness of seed dressing in a hexagonal mixing drum, therefore, with the values of the mixing time of treated seeds in a hexagonal mixing drum from its base value to its maximum value, the completeness of seed dressing leaving from a hexagonal mixing drum, was obtained with a slight decrease, for example, by 5-8%.

Thus, we can say that the longer the mixing time of the treated seeds in the hexagonal mixing drum, the better the mixing of the treated seeds and the higher the completeness of seed treatment.

x1	x2	x3	y1
-0,73923	-1	-1	79,48438
-0,73923	-1	-0,6	85,70189
-0,73923	-1	-0,2	89,37669
-0,73923	-1	0,2	90,50876
-0,73923	-1	0,6	89,09812
-0,73923	-1	1	85,14475



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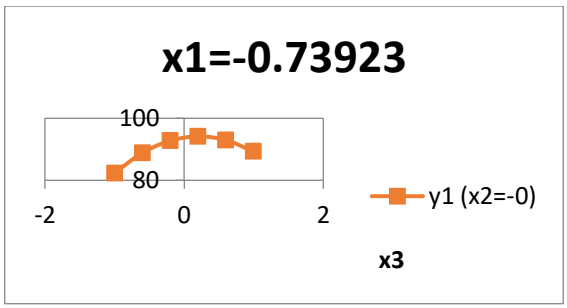
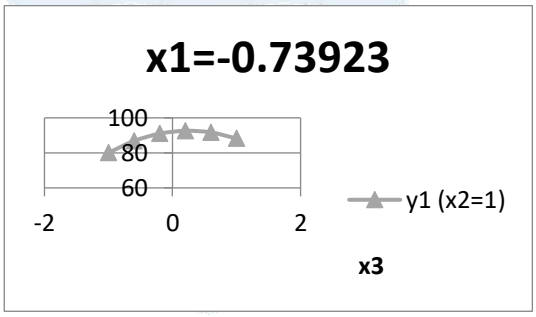
A)

x1	x2	x3	y1
-0,73923	0	-1	82,36648
-0,73923	0	-0,6	88,83079
-0,73923	0	-0,2	92,75239
-0,73923	0	0,2	94,13126
-0,73923	0	0,6	92,96742
-0,73923	0	1	89,26085



B)

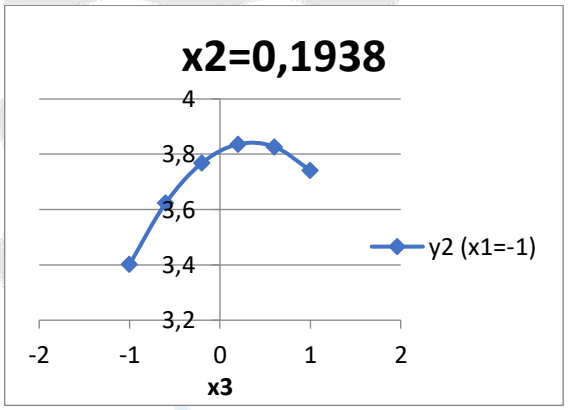
x1	x2	x3	y1
-0,73923	1	-1	80,09058
-0,73923	1	-0,6	86,80169
-0,73923	1	-0,2	90,97009
-0,73923	1	0,2	92,59576
-0,73923	1	0,6	91,67872
-0,73923	1	1	88,21895



V)

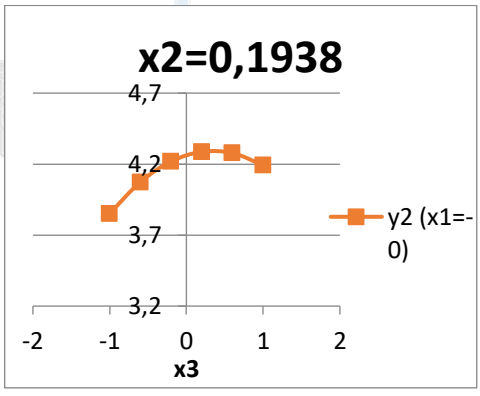
Fig.5. Graphs of changes in the cleaning effect depending on the input factors

x1	x2	x3	y2
-1	0,193802	-1	3,402
-1	0,193802	-0,6	3,6236
-1	0,193802	-0,2	3,7684
-1	0,193802	0,2	3,8364
-1	0,193802	0,6	3,8276
-1	0,193802	1	3,742



A)

x1	x2	x3	y2
0	0,193802	-1	3,852
0	0,193802	-0,6	4,0736
0	0,193802	-0,2	4,2184
0	0,193802	0,2	4,2864
0	0,193802	0,6	4,2776
0	0,193802	1	4,192



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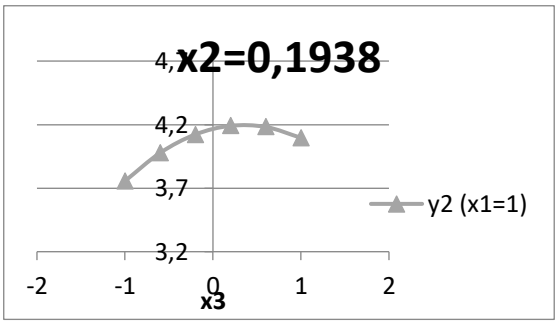
1	0,193802	-1	3,756
1	0,193802	-0,6	3,9776
1	0,193802	-0,2	4,1224
1	0,193802	0,2	4,1904
1	0,193802	0,6	4,1816
1	0,193802	1	4,096



V)

Fig.6. Graphs of changes in the productivity of seed dressing depending on the time of mixing the treated seeds in a hexagonal mixing drum with fixed values of other input factors

As can be seen from Fig. 6 from the graphs of changes in the productivity of seed dressing depending on the time of mixing the treated seeds in a hexagonal mixing drum with fixed values of other input factors, increasing the time of mixing the treated seeds in a hexagonal mixing drum from its minimum value to the base value. The productivity of seed treatment coming out of the hexagonal mixing drum tends to increase and is in the range of 3.8-4.2 t/hour. With an increase in the mixing time of the treated seeds in the hexagonal mixing drum from its base value to the maximum value, the productivity of the treatment of seeds leaving the hexagonal mixing drum also tends to increase, but with a slight decrease in the values of this factor close to the maximum value, at minimum values of the drum rotation speed decreases to 3.7 t/hour. At basic and maximum values of the rotation speed of the hexagonal mixing drum, the productivity indicators are within 4.0 t/hour..

Conclusions. This indicates the reliability of the data obtained during experimental studies, since the time of mixing treated seeds in a hexagonal mixing drum affects the performance of seed treatment. The results obtained are influenced by other factors, which also play an important role in the values of the productivity of seed dressing in a hexagonal mixing drum, therefore, with the values of the mixing time of treated seeds in a hexagonal mixing drum from its base value to its maximum value, the productivity of seed dressing leaving the hexagonal mixing drum mixing drum was obtained with a slight decrease, for example, by 0.3 t/hour.

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INDUSTRY-SPECIFIC TERMINOLOGY IN ENGLISH FOR CIVIL ENGINEERING STUDENTS.

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TDMAU student: QM24B group student **Raxmonov Javoxir,**
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Keywords: Structural Engineering, Construction Materials, Hydraulic Engineering, Building Codes and Standards

Annotation: This article discusses the ways to write and read terms related to the field of Civil Engineering in English. Detailed information on building codes and standards

Here are some key industry-specific terminology and concepts in English for civil engineering students:

1. Structural Engineering

Beam: A long, horizontal structural element designed to support loads.

- Column: A vertical structural element that transfers loads from beams to foundations.
- Load-bearing capacity: The maximum load a structure can safely carry.
- Shear Force: A force that causes two adjacent parts of a material to slide past each other.
- Moment of Inertia: A measure of an object's resistance to bending or rotation.

Structural engineering is a sub-discipline of civil engineering in which structural engineers are trained to design the 'bones and joints' that create the form and shape of human-made structures. Structural engineers also must understand and calculate the stability, strength, rigidity and earthquake-susceptibility of built structures for buildings and nonbuilding structures. The structural designs are integrated with those of other designers such as architects and building services engineer and often supervise the construction of projects by contractors on site. They can also be involved in the design of machinery, medical equipment, and vehicles where structural integrity affects functioning and safety. See glossary of structural engineering.

Structural engineering theory is based upon applied physical laws and empirical knowledge of the structural performance of different materials and geometries. Structural engineering design uses a number of relatively simple structural concepts to build complex structural systems. Structural engineers are responsible for making creative and efficient use of funds, structural elements and materials to achieve these goals.

2. Construction Materials

- Concrete: A composite material made of cement, sand, gravel, and water. Rebar (Reinforcement Bar): Steel bars used to reinforce concrete.
- Asphalt: A mixture of bitumen and aggregate used for road construction.
- Masonry: Construction using stone, brick, or concrete block.
- Timber: Wood used as a construction material.

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3. Surveying and Measurement

- Total Station: An optical/electronic instrument used in surveying to measure distances, angles, and elevations.
- Leveling: The process of determining the elevation of points on the ground.
- Benchmark: A reference point with known elevation used in surveying.
- Planimeter: A tool used to measure the area of irregular shapes on maps or blueprints.

4. Geotechnical Engineering

- Soil Mechanics: The study of the physical properties of soil and its behavior under different conditions.
- Bearing Capacity: The ability of soil to support the loads applied to the ground.
- Retaining Wall: A structure designed to hold back soil or rock from a building site.
- Permeability: The ability of soil to transmit water or air.

5. Hydraulic Engineering

- Flow Rate: The volume of fluid passing through a given point in a system per unit of time.
- Drainage System: A system designed to manage the removal of surface water or groundwater.
- Culvert: A structure used to allow water to flow under a road, railway, or other infrastructure.
- Floodplain: Land that is prone to flooding due to its proximity to a body of water.

6. Transportation Engineering

- Pavement Design: The process of designing the structure of roads and highways.
- Traffic Flow: The movement of vehicles or pedestrians in a specific direction along a road or path.
- Interchange: A system of connecting roads, often with overpasses or underpasses, to allow traffic to change routes.
- Accident Analysis: The study of road accidents to improve safety and traffic management.

7. Environmental Engineering

- Sustainable Development: Designing and building with minimal environmental impact, ensuring resources are available for future generations.
- Water Treatment: The process of removing contaminants from water to make it suitable for consumption.
- Wastewater: Water that has been used and contaminated by industrial, household, or agricultural activities.
- Landfill: A site for the disposal of waste materials by burial.

8. Construction Management

- Project Scheduling: The process of planning the timeline of a construction project, including milestones and deadlines.
- Blueprint: A detailed technical drawing or plan for construction.

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- Bill of Quantities (BOQ): A document that provides a detailed breakdown of the materials and labor required for a construction project.
- Change Order: A formal document that alters the original terms of a construction contract.

9. Building Systems

- HVAC: Heating, Ventilation, and Air Conditioning systems in buildings.
- Fireproofing: The process of making structures resistant to fire through materials or treatments.
- Electrical Load: The amount of electrical power required for a building or system.
- Plumbing: The system of pipes and fixtures used for the distribution of water and removal of waste.

10. Construction Safety

- PPE (Personal Protective Equipment): Gear worn to protect workers from injury on construction sites, including helmets, gloves, and safety boots.
- Risk Assessment: The process of identifying hazards and evaluating risks on a construction site.
- Fall Protection: Systems designed to prevent falls from heights in construction.
- Scaffolding: Temporary structures used to support workers and materials during construction.

11. Building Codes and Standards

- ASCE (American Society of Civil Engineers): A professional organization that sets standards for civil engineering.
- IBC (International Building Code): A set of standards and regulations for building construction.
- Seismic Design: Designing structures to withstand earthquakes.
- Fire Safety Code: A set of regulations to prevent fires and ensure safety during emergencies.
- These terms represent various aspects of civil engineering, providing a foundation for students to understand the complexities of the profession.

USED LITERATURE

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2. **Uniform Plumbing Code [electronic resource]** Call Number: KF5709.I65
3. Facility Management · For Enterprises · HSB (Munich Re) Partner · Cooling Towers

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АНАЛИЗ ОБРАЗОВАНИЯ СОДЕРЖАНИЯ ПОРОКОВ И СОРНЫХ ПРИМЕСЕЙ В ПРОЦЕССЕ ДЖИНИРОВАНИЯ ВЛАГИ ВОЛОКНА.

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Ташкентский институт текстильной и легкой промышленности

Аннотация. В процессе джинирования невозможно полностью описать процесс по влажности хлопка. Образование пороков и сорных примесей в волокне может быть отражено в исследованиях влажности волокна, влияния влажности на количество дефектных и сорных примесей в волокне.

В статье изучено влияние влажности волокна в процессе джинирования на образование пороков и сорных примесей в составе выпускаемого волокна. Отдельно проанализировано влияние влаги на дефектные фракции и результаты представлены в виде гистограммы.

Ключевые слова: Хлопок, температура хлопка, засоренность, порок, влажность волокна, качество волокна, производительность джина.

В мировой текстильной промышленности необходимо совершенствовать технологические процессы производства готовой продукции из хлопкового волокна и, в частности, провести теоретический и практический анализ основных рабочих органов джинного оборудования, производящего качественное волокно для прядильных процессов, особенно глубже изучить факторы, влияющие на снижение количества пороков и сорных примесей в волокне [1,2].

Проведены экспериментальные испытания по определению влияния процесса джинирования волокна при различной влажности на качество волокна в производственных условиях. Экспериментальные испытания проводились в производственных условиях на хлопке с исходной влажностью сырья 11%, влажностью волокна 8,7%, влажностью семян 11,6%, засоренностью 4,3%, из них мелкие засоренности 2,4%, крупные засоренности 1,8%. Температура горячего воздуха, подаваемого в сушильный барабан, составила 100 ^{0}C, 150 ^{0}C и 200 ^{0}C. Затем высушенный хлопок очищали на очистителе УХК и джинировали в джине ДП-90, а также отбирали образцы выделенного волокна [2,3].

После начала процесса джинирования волокно брали в качестве образца каждые 30 минут в течение 3 часов.

Показатели качества образцов волокна определялись в соответствии с требованиями стандарта [4,5]. Количество пороков и сорных примесей в волокне выделялось вручную и определялся состав структуры. Эксперименты по изучению влияния влажности волокна на процесс джинирования проводились в 3 повторностях. Массовая доля пороков и сорных примесей после джинирования волокна при различных влажностях представлена в виде графика.

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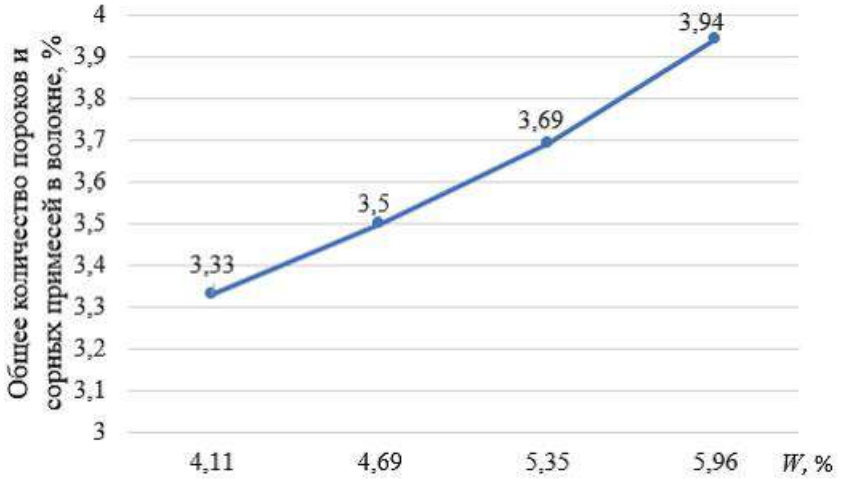
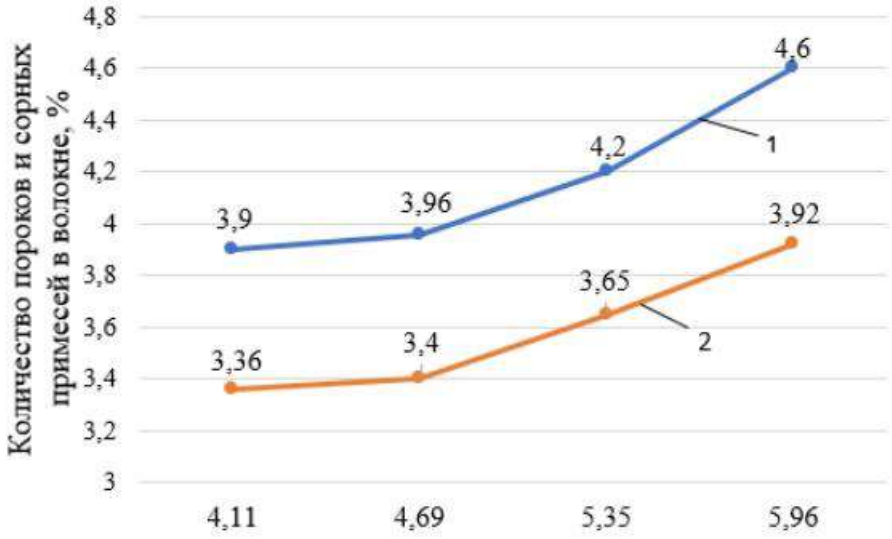


Влажность волокна, %

1-рис. Зависимость массовой доли пороков и сорных примесей волокна от влажности волокна.

Как видно из рисунок 1, при снижении влажности волокна от 5,96% до 5,35% массовая доля пороков и сорных примесей в волокне интенсивно снижается с 3,94 до 3,69% соответственно. При снижении влажности волокна с 5,35% до 4,69% массовая доля пороков и сорных примесей в волокне снизилась с 3,69 до 3,5%. Также при влажности волокна 4,11% количество дефектных примесей уменьшилось до самого низкого показателя, т.е. на 3,33%.



Влажность волокна, %

1-после джина; 2- после волокноочистителья.

2-рис. Зависимость массовой доли пороков и сорных примесей волокна от влажности волокна после процессе джинирование и волокноочистителья.

Для анализа вышеизложенного рассмотрим следующий после джина волокноочиститель с массовой долей пороков и примесей в волокне.

Анализ графиков на рисунок 2 показывает, что при снижении влажности волокна с5,96% до 4,69% массовая доля пороков и сорных примесей в волокне после очистки снизилась почти по той же тенденции. При снижении влажности волокна от 4,69% до 4,11%

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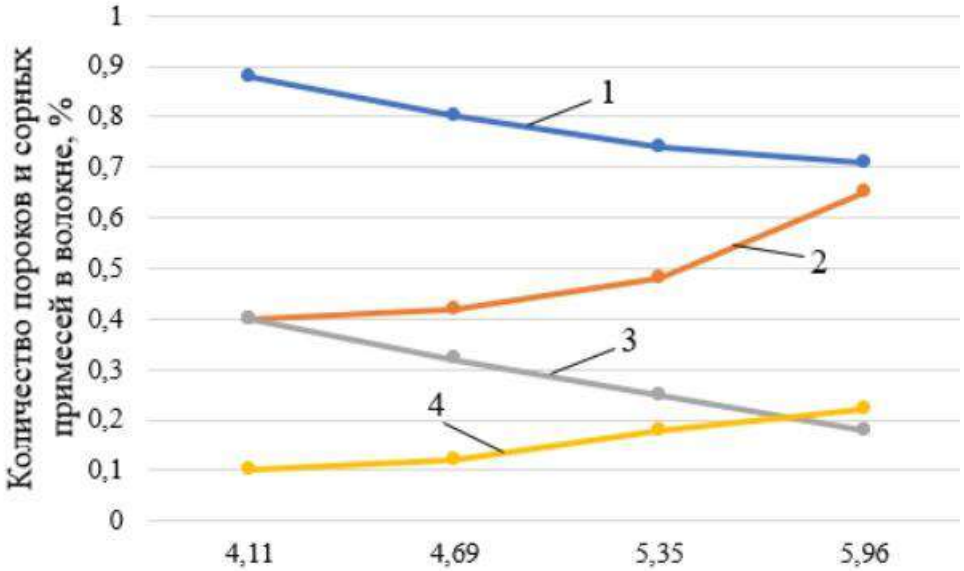
интенсивность очистки волокна несколько увеличивалась по сравнению с массовой долей пороков и сорных примесей в волокне после джина.

Для изучения сущности этого необходимо проанализировать изменение массовой доли пороков и сорных примесей волокна по фракциям. Как видно из рисунок 3, основная массовая доля пороков и сорных примесей в джинированном волокне приходится на массовую долю сорных примесей. Их массовая доля составила 2,53% при 5,96% влажности волокна, 2,44% при 5,35%, 2,1% при 4,69% и 2,02% при 4,11%.

Из этого видно, что с уменьшением влажности волокна уменьшалась и массовая доля сорных примесей.



Влажность волокна, %

1-битые семена, %; 2 - улюк, %; 3-кожура волокнистого семени, %; 4 мелкие сорные примеси.

3-рис. Распределение массовой доли пороков и сорных примесей в джинированном волокне по фракциям в зависимости от влажности волокна.

Точно так же массовая доля крупных и мелких загрязнений уменьшилась по мере снижения влажности волокна. Однако, по мере снижения влажности волокна массовая доля сломанных семян и волокнистой семенной коры, являющихся с точки зрения переплетения и технологии вредными, увеличивалась, наоборот.

Из рис. 3 видно, что массовая доля сломанных семян и корковых волокон увеличивалась по почти одинаковой тенденции в сторону снижения влажности волокна.

Массовая доля битых семян и волокнистой семенной кожуры, вредных с точки зрения поворотно-технологической обработки, в волокноочистителе лучше очищается по сравнению с другими фракциями при пониженной влажности волокна. Массовая доля битых семян 5,96% уменьшилась на 0,08% (абс), 5,35% уменьшилась на 0,09% (абс), 4,69% уменьшилась на 0,10% (абс) и 4,11% уменьшилась на 0,12% (абс), массовая доля кожуры волокнистых семян 5,96% уменьшилась на 0,01% (абс), 4,69%.

Из опытов установлено, что при джинировании хлопка-сырца влияние влажности по волокну на образование пороков и сорных примесей в волокне ярко проявляется. различное

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распределение влаги в компонентах хлопка-сырца приводит к ошибкам при анализе процесса.

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АНАЛИЗ РЕЗУЛЬТАТОВ ПРОИЗВОДСТВА СОВЕРШЕНСТВОВАННОГО СУШИЛЬНОГО ОБОРУДОВАНИЯ

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Аннотация: в настоящее время себестоимость сушки на сушильных установках, используемых на хлопкоочистительных предприятиях, остается высокой, в связи с чем внедрение усовершенствованного ресурсосберегающего и энергосберегающего сушильного оборудования является актуальной проблемой.

Ключевые слова: хлопок, горячий воздух, лента, сушка, движение хлопка, усовершенствованное сушильное оборудование.

Поставлены задачи по внедрению эффективных технологий сушки хлопка-сырца, разработке усовершенствованного ресурсосберегающего, энергосберегающего оборудования для сушки хлопка-сырца, отвечающего современным требованиям [1]. Выявление факторов, отрицательно влияющих на качество продукции на каждом этапе производства, и выявление технологических решений, устраняющих их, определение техники и технологических показателей качества хлопка-сырца в процессе сушки, определение параметров его выработки и применение технологических параметров, позволяющих снизить параметры выработки топлива и электроэнергии в процессе сушки, применение технологических параметров, позволяющих контролировать качество хлопка-сырца, применение технологических параметры [2, 3].

Создание в республике текстильных кластеров и передача в их ведение хлопкоочистительных предприятий требует пересмотра вопроса по снижению затрат на производство технологических режимов предварительной обработки хлопка [4].

Вместе с тем, внедрение энергоемких сушильных установок усовершенствованной конструкции, разработка их параметров, сохранение качества волокна в процессе производства и обеспечение ресурсосберегающих затрат и снижение энергопотребления, повышающих эффективность оборудования [5].

Для определения эффективности работы рекомендованного усовершенствованного сушильного оборудования было изготовлено оборудование, которое было установлено и испытано на "Семенном Хлопко перерабатывающем предприятии," расположенном в Андижанском районе Андижанской области. Хлопок-сырец, высушенный в эксперименте, прошел технологические процессы предприятия, и были определены влажность и температура хлопка, вышедшего из усовершенствованного сушильного оборудования.

Практические эксперименты проводились на усовершенствованном сушильном оборудовании на хлопке-сырце Андижан-35 с влажностью 10,2% и техническом хлопке IV-го сорта с влажностью 15,6%. В каждом процессе измеряли влажность и температуру хлопка и определяли его показатели.

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В экспериментальном испытании на усовершенствованном сушильном оборудовании в сушильное оборудование подали горячий воздух объемом 3200 м3/час. Производительность работы в сушильном оборудовании устанавливалась инвекторным оборудованием на 4-5-6 т/ч, а температура горячего воздуха составляла 70-75-80°C. Проводились экспериментальные испытания.

Измеряя скорость выхода воздуха из передней части агента, подающего горячий воздух в устройство сушки расхода горячего воздуха, определяли по следующей формуле

$$Q = F \cdot V \quad (1)$$

при этом: F - поверхность зоны выхода воздуха (Dt=1110 мм); V - скорость горячего воздуха, м/сек.

Скорость воздуха измерялась с помощью анемометра марки UNI-T-8.

В опытных испытаниях, проведенных на предприятии, эффективность сушки измерялась на оборудовании ВХС-М1 и определялась по следующей формуле

$$W = \frac{m_н - m_к}{m_к} \cdot 100 - 0{,}6\% \quad (2)$$

при этом, $м_н$ - влажность хлопка-сырца перед сушкой, %; $м_к$ - влажность хлопка-сырца после сушки, %; 0,6-коэффициент погрешности сушильного оборудования.

Высушиваемые сорта хлопка использовались сначала без подачи горячего воздуха на установку, а затем путем подачи горячего воздуха, остальные технологические процессы использовались в одинаковом режиме. Перед включением сушильного оборудования в производственный процесс был определен процесс его прихода в рабочее состояние. При этом первоначально к сушильному оборудованию был включен теплоотводящий агрегат ПГС-10, во внутреннюю часть сушильного оборудования были установлены кабели передачи от термометра марки ХТ-9815 отдельно на каждый метр, и было определено время нагрева оборудования.

Процесс определения времени и температуры нагрева внутренней части сушильного оборудования осуществлялся следующим образом

Перед зажиганием установки ПГС-10 измеряли начальную температуру с помощью установленного термопара. При этом соответственно начальный 16,2-16,4-16,1-16,9°C и каждые 5 секунда определялись температуры нагрева внутренней части. К 55 и 60 секунда процесс нагрева внутренней части пришел в нормальное состояние, и температура, необходимая нам мы можем видеть, что он достиг 80,6-80,4-79,8-78,5°C. Анализ результатов на рисунке 1 представлен график.

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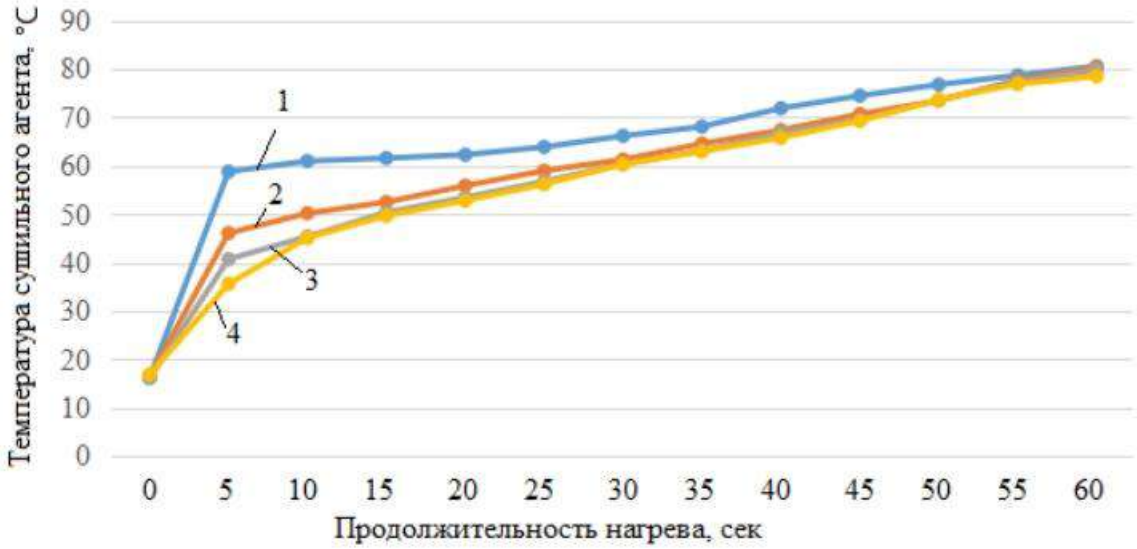
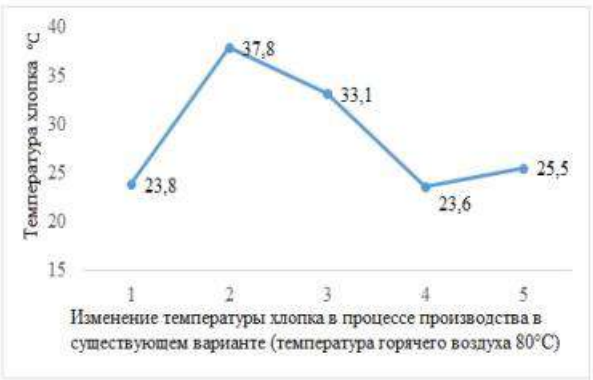
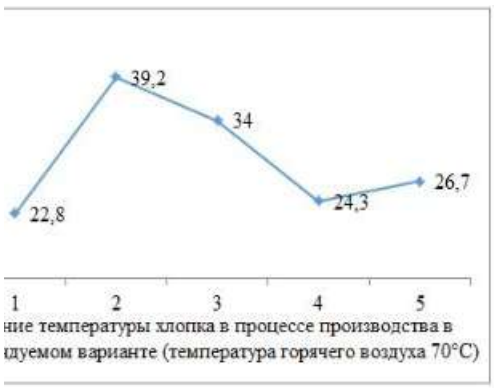


1-начальная часть сушильного оборудования, 2-первый метр оборудования, 3-второй метр оборудования, 4-третий метр оборудования.

Рис. 1. График нагрева внутренней температуры усовершенствованной сушильной установки во времени

Эффективность сушки усовершенствованного сушильного оборудования проведены эксперименты с использованием существующего сушильного оборудования барабана 2СБ-10, и полученные результаты сравнивались. Вначале измеряли температуру перегрева высушиваемого хлопка-сырца (рис.2). Если при введении исходной влажности хлопка I-го сорта, высушенного на существующем сушильном оборудовании 2СБ-10, от сушильного агента до 10,3%, влажность снизилась до 8,4%, а влажность выделилась от накипи до 1,9%, то при сушке хлопка с влажностью 15,4% при этой температуре влажность снизилась до 13,2%, а влагоотдача составила 2,2%. После процесса сушки хлопка I-го сорта и IV-го сорта, высушенного на сушильном барабане 2СБ-10, из хлопка выделилась влажность 1,9% и 2,2% соответственно, а влажность хлопка снизилась на 8,4% и 13,2%, что было выше требований технологического регламента (7-8%), что свидетельствует о том, что последующие процессы очистки хлопка имеют естественное влияние на эффективность очистки и плодородие. Тавсия вариантда ишлаб чиқариш жараёнида пахта температурасининг ўзгариши (Иссиқ хаво температураси 70°С)





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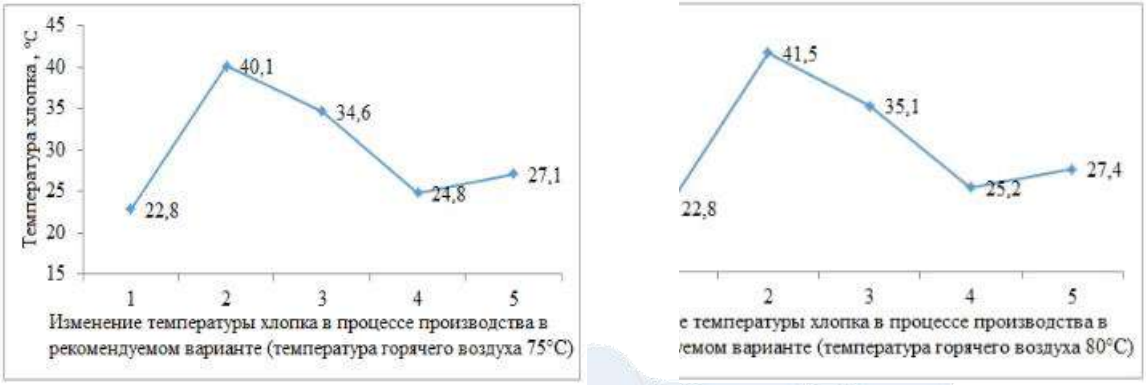

На рисунке 2. График температуры хлопка на каждом этапе производственного процесса в экспериментах, проведенных на существующем сушильном оборудовании и рекомендуемом варианте

При проведении практических опытов на усовершенствованном ленточном сушильном оборудовании семена и технический хлопок с исходной влажностью 10,2% и 15,6% были подвергнуты 70-75-80° тепла и продолжены опыты. При высушивании и переработке хлопка-сырца на рекомендуемом оборудовании исходная влажность составила от 15,6% до 13,7-13,3-13,0% соответственно, а выделение влаги составило 1,9-2,3-2,6%. Из хлопка с влажностью 10,2% соответственно высушивалось от 8,9-8,4-7,9% и влагоотделение составило 1,3-1,8-2,3%, в результате чего можно увидеть, что эффективность сушки намного эффективнее по сравнению с существующим вариантом 2СБ-10.

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ЛЮБОВЬ КАК ОБЩЕЧЕЛОВЕЧЕСКАЯ ЦЕННОСТЬ

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Аннотация: В данной стате любов анализируется как высшая и неповторимая сенност человечества. Любов рассматривается не толко как личное чувство, но и как важный фактор, влияющий на духовно-нравственное развитие человека. Автор, освещая сотсиально-психологическое, духовное и философское значение любви, отсенивает её как силу, которая объединяет человечество и ведет к счастю в общем смысле.

Ключевые слова: Любов, дружба, сенности, духовно-нравственные качества, счасте, миграция, источник вдохновения, источник духовного развития.

Abstract: This article analyzes love as the highest and incomparable value of humanity. Love is considered not only a personal feeling, but also an important factor influencing the spiritual and moral development of a person. The author, highlighting the socio-psychological, spiritual and philosophical significance of love, evaluates it as a force that unites humanity and leads to happiness in a general sense.

Keywords: Love, friendship, value, spiritual and moral quality, happiness, movement, source of inspiration, source of spiritual development.

Любовь — это одна из самых исследованных и обсуждаемых тем в истории человечества. Она рассматривается не только как личное чувство или романтические отношения, но и как основа духовности человека, важный фактор стабильности общества и прогресса. Любовь выражает самые глубокие потребности и качества внутреннего мира человека, придавая его жизни смысл и содержание. Любовь проявляется как универсальная сила, объединяющая людей и связывающая все нации и культуры. Она становится толчком для осознания своей индивидуальности, для того, чтобы относиться к другим с любовью и уважением. В этом смысле любовь является не только центральным элементом личной жизни, но и основным фундаментом общего духовного прогресса общества. Любовь служит источником вдохновения в человеческих отношениях, науке и творчестве, через нее человек осознает и развивает свою внутреннюю сущность.

В этой связи можно продолжить наши размышления, приведя взгляды великого философа своего времени В. Франкла. В своей теории о любви Франкл детально излагает свои мысли, связывая любовь с врожденной мотивационной тенденцией человека, которая стремится найти и осознать смысл своей жизни. Он подчеркивает, что любовь является одним из главных факторов, определяющих поведение человека и его личностное развитие.

Л.Н. Толстой считал любовь смыслом жизни, высшим законом, который должен управлять ею. По его мнению, любовь является высшей целью и сущностью человека, и она составляет основной этический и моральный принцип как в личной жизни, так и в обществе. Толстой видел любовь как единственную силу, которая ведет человечество к духовному развитию. Он также подчеркивал необходимость уважения и единства людей для того, чтобы любовь и мир могли господствовать в обществе. Для этого он

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пропагандировал честность, искренность и гуманизм как в личной, так и в социальной жизни.

Л. Баева понимает содержательную жизненную ценность как стремление наполнить жизнь особым смыслом. По ее мнению, содержательная жизнь дает человеку возможность осознать свои истинные возможности и достичь их. Этот процесс приводит к развитию новых качеств и росту творчества. Для Баевой выражение своих мыслей и оставление следа через действия являются важным путем к осознанию настоящего смысла жизни и его реализации. Это, в свою очередь, открывает возможности для личностного роста человека и внесения его вклада в мир.

В современной культуре любовь изучается как процесс, все больше приближающийся к чувственности (З. Фрейд, К. Юнг). Фрейд рассматривал любовь и сексуальность как основные факторы психики человека, объясняя их взаимоотношения как сложные, часто основанные на подавлениях и желаниях. К. Юнг, исследуя психологические и архетипические аспекты сексуальной энергии, оценивал любовь и чувственность как процесс роста внутреннего мира личности и ее взаимосвязей.

Как исследователь этого феномена, Э. Фромм утверждает, что разрушение любви приводит к появлению различных ее форм. По его мнению, такие факторы, как привязанность ребенка к матери или отцу, существование безответной любви, а также фантазии о любви, связанной с прошлым или будущим, являются примерами таких причин. Э. Фромм в своих исследованиях работает как защитник любви, определяя любовь как ценность и подчеркивая глубокую потребность человека в любви.

В ходе исследования отношений к любви, любовь часто интерпретируется как яркое, иногда глубокое и страстное отношение, являющееся процессом самопознания личности. Рассмотрение разнообразия интерпретаций любви приводит нас к выводу, что любовь является содержательной ценностью в жизни человека.

Философ В. Франкл подчеркивает, что если рассматривать ценности отношений в связи с другими ценностями, становится очевидным, что существование человека никогда не может быть бессмысленным в своей внутренней сущности. Таким образом, любовь, по мнению В. Франкла, обладает богатым ценностным потенциалом и, вместе с ценностями отношений, помогает человеку занять содержательную позицию по отношению к жизни. Этот процесс включает в себя ощущение красоты жизни и ценностей через наблюдение за природой, восприятие искусства, наслаждение отношениями любви и дружбы, и, принимая прекрасные стороны жизни, через вдохновение от них человек находит свой смысл.

Одним из видных представителей своего времени, Людвиг Фейербах, связывает свои взгляды на любовь с философскими размышлениями о человеке и религии. Фейербах считает любовь важнейшим выражением сущности человека. По его мнению, любовь — это не только личное чувство, но и универсальное явление, раскрывающее духовную и социальную природу человека.

М. Гершензон считает, что ценность любви бесценна, поскольку любовь — это "главное оружие для познания мира людьми". Для Гершензона любовь — это центральный элемент человеческой жизни, который воспринимается не только как эмоциональный опыт, но и как основной инструмент познания мира и его более глубокого осознания. Эта любовь имеет значение не только для индивидуального человека, но и для всего человечества.

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С. Рубинштейн утверждает, что любовь является подтверждением человеческого существования. Это чувство позволяет человеку глубже понять себя, развиваться и строить осмысленные отношения с другими людьми.

В заключение можно сказать, что любовь как универсальная ценность является высшим принципом, который объединяет человечество. Она является основой не только личного счастья, но и морального и духовного развития общества. Через любовь человек находит глубокий смысл своей жизни и наполняет её содержанием. Поэтому любовь — это бесценное богатство человечества и сила, ведущая к совершенному прогрессу.

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DEVELOPING DIGITAL MEDIA COMPETENCE IN FUTURE TEACHERS IN A DIGITAL EDUCATIONAL ENVIRONMENT

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Abstract: This article provides a comprehensive overview of media competence, digital and media literacy, digital media literacy, digital media competence, digital technology, basic principles, main paths of development, basic principles, stages of implementation in the educational process, the role of learning platforms and resources in developing digital media competence in future teachers in digital education.

Keywords: Media competence, digital and media literacy, digital media literacy, digital media competence, digital technology, basic principles, main paths of development, basic principles, stages of implementation in the educational process, learning platforms and resources

Аннотация: В данной статье медиакомпетентность, цифровая и медиаграмотность, цифровая медиаграмотность, цифровая медиакомпетентность, цифровые технологии, базовые принципы, основные пути развития, основные принципы, этапы внедрения в образовательный процесс, цифровое образование образовательных платформ и Ресурсы Широко освещена роль цифровых медиа в развитии цифровой медиакомпетентности у будущих учителей.

Ключевые слова: Медиакомпетентность, цифровая и медиаграмотность, цифровая медиаграмотность, цифровая медиакомпетентность, цифровые технологии, базовые принципы, основные пути развития, базовые принципы, этапы внедрения в образовательный процесс, образовательные платформы и ресурсы.

Media competence means the ability to “act competently, independently, creatively and socially responsibly in relation to the media”. Another study identified 5 blocks of skills that form the basis for the formation of media competence, including selecting and using what the media provide; developing one’s own media product, etc. Media competence as an integral quality of a person is manifested through the following indicators:

• motivational (motives for communicating with the media and media texts);
• contact (frequency of communication with media texts);
• informational (knowledge of media culture, theory of mass communications);
• perceptive (ability to perceive media texts);
• interpretative/evaluative (ability to critically analyze the process of media activity in society and media texts);
• practical and operational (ability to select media and media texts, create / distribute one’s own media texts);
• creative (the manifestation of creativity related to the activities of the mass media).[1]

Nowadays, media competence is considered a competence that includes a set of knowledge about creating, transmitting, exchanging, analyzing and selecting media texts in various forms in complex processes.[2]

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Rene Hobbs considers it necessary to "support the construction of interdisciplinary bridges in higher education to integrate the basic principles of digital and media literacy education into teacher training programs." [3]

Digital media competence is a part of media competence. Both of them consist of the idea of media and information literacy, which is to evaluate, identify, effectively find and use media to contribute to oneself or others.

MediaSmarts defines digital media literacy as "Digital literacy" and does not replace or parallel media literacy, but rather builds on it, while incorporating new concepts that arise from the distinction between traditional and digital media. However, many digital issues cannot be understood without the basic concepts of traditional media literacy.[4]

Digital media literacy is not limited to the traditional technology or "information literacy" parts of the curriculum: rather, it is "a fundamental part of learning and teaching history. For it is learning about ICT (information and communication technologies) and learning the skills to use ICT. Indeed, acquiring digital media literacy is an essential set of life skills that complement and extend the skills and knowledge taught in school.[5]

Ultimately, the most important consideration when developing a definition of digital media literacy in a pedagogical context is whether it is useful: useful for teachers to design, adapt, and implement activities and resources, and is the online world important as a lens for students to ask critical questions? Traditional media literacy is of little help in analyzing issues such as cyberbullying and online privacy, but at the same time, similar issues require a media literacy lens to go beyond simple (and quickly outdated) technical instructions. Furthermore, there is increasing evidence that issues such as checking and sharing false information depend on skills related to digital literacy and traditional media literacy.[6]

To remain current and relevant, media education needs to update the foundations of media literacy to reflect the unique aspects of digital media and apply media literacy practices to digital literacy: "Learning how to use and manipulate digital technology is essential.[7]

Digital media literacy is the ability of an individual to use digital media, to acquire, analyze, evaluate, and create information from them. These skills are necessary for effective functioning in a digital environment, which includes the responsible and ethical use of technology.

Preparing future teachers for the digitalization process and developing their digital media competence plays an important role in improving the quality of education. The following are the proposed models, stages and strategies for implementing this process:

1. Basic principles.

The following principles should be taken into account in order to develop digital media competence.

Integration: The application of information technologies and digital tools in the educational process.

Interactivity: The interaction of teachers and the active application of their knowledge.

Adaptability: The ability to use digital tools in different situations.

Critical thinking: The ability to analyze information and identify reliable sources.

2. Main areas of development.

a) Formation of digital literacy. Using computers and mobile devices, searching, analyzing and synthesizing information, developing and evaluating media content, introducing technological

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tools, MS Excel, Google Workspace, Learning Management Systems (Moodle, Edmodo), interactive presentation tools (Kahoot, Mentimeter, Canva), pedagogical capabilities of social media platforms.

b) Developing critical and axiological thinking. Using digital tools to verify the veracity of information (e.g., FactCheck platforms), protecting against information manipulation by developing a critical approach to information consumption.

c) Studying digital pedagogical strategies. Interactive methods:

• Gamification and game technologies.

• Project-based learning.

• Organization of distance learning.

• New approaches:

• Hybrid teaching methods.

• Use of AR/VR technologies (e.g., virtual laboratories).

d) Media ethics and safety. Explaining the rules of conduct and ethical principles on the Internet, teaching the rules of personal data protection and cybersecurity,

3. Stages of implementation in the educational process

1. Diagnostics and identification of needs. Determining the level of digital literacy among teachers. Identifying individual needs using special questionnaires and tests.

2. Training and curricula

• Basic courses:

• Practical exercises in working with digital tools.

• Special training in media and information literacy.

• Developing critical thinking and creativity.

3. Practice and reflection. Using digital tools in a real lesson, exchanging experiences (peer learning), analyzing activities and receiving feedback for improvement.

4. Monitoring and evaluation. Monitoring factors affecting the development of media competence, developing a system of special indicators to assess teachers' skills.

4. Learning platforms and resources

Recommended tools

1. Google Classroom – Managing distance learning processes.

2. MS Excel – Systematizing and analyzing information.

3. Kahoot and Quizizz – Game-style applications for conducting tests.

4. Padlet and Trello – Project and teamwork management tools.

Creating resources

1. Canva and Genially – Creating media content.

2. Audacity and OBS Studio – Recording audio and video materials.

5. Expected results

Teachers learn to use digital tools effectively, develop skills in critical analysis and creation of media content, improve the quality of the educational process with the help of information technologies, and future teachers are ready to organize education using innovative tools.

In conclusion, digital media literacy plays an important role in improving the digital learning environment by increasing student engagement, facilitating personalized learning,

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fostering critical thinking and creativity, and fostering communication and collaboration between students and teachers.

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TEACHING STRATEGIES FOR ESP

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Abstract: *This paper explores effective teaching strategies for ESP, emphasizing the importance of needs analysis, curriculum design, and the integration of authentic materials. It discusses the role of communicative competence, task-based learning, and technology in enhancing ESP instruction. By highlighting case studies and practical applications, this research aims to provide educators with actionable insights to improve their ESP teaching methodologies and better equip learners for their specific linguistic demands.*

Keywords: *English for Specific Purposes (ESP), Teaching Strategies, Needs Analysis, Task-Based Learning, Authentic Materials, Technology in Education.*

The goal of English for Academic Purposes (EAP) is to satisfy the academic requirements of English language learners for the purpose of study. Students' writing, speaking, listening, and reading skills are taught and improved in this way, and they are assisted in applying these talents to the academic setting. EAP offers instruction in the English language skills required for academic study, such as reading, writing, grammar, vocabulary, fluency development, and listening comprehension. English for Specific Purposes, or ESP, is a method of teaching English that is focused on business, technology, and scientific fields.

The foundation of the ESP is the creation of specialized courses to address the demands of students who need practice in particular professional domains in addition to studying the common language. To put it briefly, English for Specific Purposes (ESP) is a language method that aims to give students the clear objectives and linguistic components they require in order to operate as professionals. Every ESP course ought to be customized to fit the unique requirements of the students. Poetry and short stories won't be sufficient for students who want to become engineers; if the class is made up of biologists, they should be studying specialist language from works pertaining to that field. Teaching ESP courses still presents several difficulties for instructors and trainers. They use a variety of techniques to instruct ESP classes both online and in classrooms. EAP is intended for students who wish to increase their vocabulary, grammar, and language proficiency. In fields like science and technology, information technology, health, aviation, tourism, the army, etc., ESP is made to help students meet their unique needs. This study looks at how popular ESP is and how trainers and teachers use different approaches in ESP classes. It also sheds insight on the difficulties faced by ESP teachers and the methods they use in ESP classes [1].

ESP is a part of ELT like EAP. Hutchinson and Waters (1987, p. 19) define ESP as "an approach to language learning which is based on learner need. The foundation of all ESP is the simple question: Why does the learner need to learn a foreign language? ... ESP, then, is an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning''. Robinson (1980) has defined it as the teaching of English to learners those who have specific goals and purposes. According to him, these goals might be professional,

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academic, scientific, etc. Mackay and Mountford (1978, p. 2) have referred to it as the teaching of English for "clearly utilitarian purposes". Dudley-Evans and St. John (1998, p. 4- 5) have presented a modified definition of ESP which is also comprised of absolute and variable characteristics of ESP that are as follows:

Absolute Characteristics ESP is defined to meet the specific needs of the learner ESP makes use of the underlying methodology and activities of the discipline it serves ESP is centered on the language (grammar, lexis, and register), skills, discourse, and genres appropriate to these activities.

Variable Characteristics ESP may be related to or designed for specific disciplines • ESP may use, in specific teaching situations, a different methodology from that of general English ESP is likely to be designed for adult learners, either at a tertiary-level institution or in a professional work situation. It could, however, be for learners at the secondary school level ESP is generally designed for intermediate or advanced students Most ESP courses assume some basic knowledge of the language system, but it can be used with beginners the sphere of teaching English language including Business English, Technical English, Scientific English, English for medical professionals, English for waiters and many English for Specific Purposes (ESP)is designed for learners for special purposes, such as science and technology, IT, medicine, aviation, tourism, army, etc. ESP is a part of ELT like EAP. Hutchinson and Waters (1987, p. 19) define ESP as "an approach to language learning which is based on learner need. The foundation of all ESP is the simple question: Why does the learner need to learn a foreign language? ... ESP, then, is an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning''. Robinson (1980) has defined it as the teaching of English to learners those who have specific goals and purposes. According to him, these goals might be professional, academic, scientific, etc. Mackay and Mountford (1978, p. 2) have referred to it as the teaching of English for "clearly utilitarian purposes" [2].

Dudley-Evans and St. John (1998, p. 4- 5) have presented a modified definition of ESP which is also comprised of absolute and variable characteristics of ESP that are as follows: I. Absolute Characteristics ESP is defined to meet the specific needs of the learner ESP makes use of the underlying methodology and activities of the discipline it serves ESP is centered on the language (grammar, lexis, and register), skills, discourse, and genres appropriate to these activities. II. Variable Characteristics ESP may be related to or designed for specific disciplines ESP may use, in specific teaching situations, a different methodology from that of general English ESP is likely to be designed for adult learners, either at a tertiary-level institution or in a professional work situation. It could, however, be for learners at the secondary school level ESP is generally designed for intermediate or advanced students Most ESP courses assume some basic knowledge of the language system, but it can be used with beginners based on the content material presented by experts in the subject. What do they teach? They teach English for the profession and encourage their students to use their background knowledge along with their academic skills in dealing with all sorts of authentic information in their profession. ESP teachers design courses according to their students' professional needs, and keep in mind their target language use situation [3].

In conclusion there is a thorough discussion of the role of ESP teachers. Compared to teaching general English, the duty of ESP teachers is more intricate and accountable. In addition to teaching, the ESP teacher also creates a curriculum, works with subject matter experts, performs

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research, supplies materials, and assesses the students and the course. He or she should be flexible with the students, have a solid grasp of the course material, and be knowledgeable of the course objectives. A professional ESP instructor needs to be able to transition quickly between several professional fields. He or she merely applies the required frameworks, tools, and course design concepts to new content. Three factors - the learners' needs, their target circumstance, and the language employed in that context -are closely related to the methodology of teaching a foreign language for particular purposes, according to the analysis of its characteristics conducted in this paper. An analysis of these factors enables the ESP teacher to establish teaching aims, choose an appropriate syllabus, make an appropriate choice of teaching content and employ suitable teaching methods and materials. Teaching ESP should be based on a functional syllabus, the purpose of which is to develop communicative competence in the area of the target profession.

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AB ANCIENT, MODERN INNOVATSION THAT IMPROVES SOIL FERTILITY METHODIS, TECHIQUIS.

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Abstract: Ensuring food security in the worlt in the next years, soil Along with mineral fertilizers, great attention is paid to the use of organic fertilizers in farming to increase the productivity and productivity of agricultural crops. Among the organic fertilizers, manure, humus, compost, soil exstracted from manure, ash green fertilizers (siderates) are widely used. Because organic fertilizers are always a problem and are always in short supply due to the dwindling stock of gung, which its basis. Therefore, the use of green manures,precursors and straw of grain residues compensates for the missing organic matter in the soil, and at the same time has a positive effect on the agrophysical, agrochemical, microbiological properties of the soil As a result, improving technology of using siderates, growing them and using them in practice, regardless of the type, type, composition of the tupe,tupe, composition of the soil, is considered one of the important and urgent issues of farming.

Key words: Microbiological, agrochemical, biofertilizer, amino acid, intensive, innovative, siderate crops, green manure, predecessor, straw, millet, meadow gray soil, blue pea, white mustard, mush, summer plow, biohumus, biomass, mountain, desert, forest, swamp.

Enter: People have been engaged in agriculture since ancient times, and until now, farming has been carried out in four methods - systems of agriculture. They are as follows:

1 - Method, primitive - ancient method of farming. In this case, soil fertility is restored without human intervention. Farming is done on small plots of land in forests, mountains, reserves, deserts, steppes and swamps.

2 - Method, extensive - medieval method of farming. In this, soil fertility is achieved partly by humans, partly by the laws of nature. Soil fertility is restored and maintained by humans through plowing and partly by land reclamation.

3 - Method, the current method of farming. In this, all fields are planted with crops that are cultivated between rows. Large amounts of mineral fertilizers are used to increase soil fertility. It requires high-quality soil cultivation, chemical control of weeds, diseases and pests, and mechanization of work, which increases and maintains soil fertility.

4 – Method, is an innovative future method of farming. In this case, soil fertility is increased naturally with the participation of people in the cultivation of agricultural crops. Instead of chemical mineral fertilizers, natural fertilizers are used, and biological natural means are used to combat weeds, diseases and pests. As a result, it allows for the possibility of increasing soil fertility in a short time, which will lead to a several-fold increase in productivity compared to the current one, and the restoration of soil fertility.

Compared with the intensive method of farming, the innovative method has the following advantages:

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Firstly, soil fertility increases significantly, and the quantity and quality of high-quality ecologically pure agricultural products increase several times.

Export products are grown; Secondly, when cultivating the soil, plants are replaced with natural biohumus instead of chemical mineral fertilizers;

In the fight against weeds, diseases and pests, chemical means are replaced with biological natural means.

Due to the increase in soil fertility and the use of cheap natural biohumus and biological natural means, the cost of agricultural products produced will decrease several times compared to the current one, and the efficiency of soil use will increase several times.

As a result, new innovative methods of farming will enhance the farming culture in the countryside, open up opportunities for the further development of diversified farms, and ensure financial independence.

What are the innovative and future methods of increasing soil fertility?

In the modern intensive farming method, high yields of agricultural crops are achieved mainly as a result of the use of large amounts of mineral fertilizers. Plants absorb 10-12 percent of these mineral fertilizers, 20-22 percent evaporate into the air, the atmosphere, and the remaining 70-74 percent remain in the soil, affecting soil fertility, leading to soil structure destruction, and a decrease in soil fertility. Therefore, crop yields are decreasing year by year. For several decades, farmers in the grain-cotton sector have been alternating the same agricultural crops, namely cotton and wheat, which has led to a decrease and deficiency of microelements in the soil, which has led to a decrease in the soil's fertility by 2-3 points every year. This is evidenced by the fact that in the last five years, cotton and grain yields in some regions have decreased by 5-10 centners.

An innovative method of increasing soil fertility is the cultivation of agricultural crops in the future. In this method, soil fertility is increased naturally with the participation of people. Instead of chemical mineral fertilizers, natural fertilizers, namely biohumus, are used.

First, let's study biohumus (humus), which is a high-molecular, dark-colored organic substance of the soil, its composition is complex and has not been fully studied so far, it contains: Humic acids and Fulvic acids.

Humins and fulvones are composed of a number of substances. In addition, humus contains many aromatic compounds, amino acids, lipids, organic acids and their derivatives. All elements of the periodic system are found among the mineral components of the soil. It contains nutrients that are absorbed by plants, and their decomposition leads to an increase in productivity. Humus contains a complex of amino acids that are very necessary for plants, formed as a result of the combined decomposition of algae and minerals.

Where is biohumus found naturally? There are melioration ditches dug around the arable land of farms to drain stormwater, which are dug and cleaned every 5-6 years.

The mud that comes out of them is converted into biohumus by nature itself in 5-6 years. It is known that nitrogen in the atmosphere, along with precipitation, i.e. snow, rain, hail and mudslides, brings 5-8 kilograms of nitrogen per hectare per year to the soil, which is absorbed by plants, as a result, 25-36 kilograms of nitrogen accumulate in the soil over 5-6 years. In addition, over the course of 5-6 years, weeds grow, their roots and free-living microorganisms also absorb atmospheric nitrogen, producing 6-8 kilograms of fertilizer per hectare of land per year in the soil, of which 36-48 kilograms of nitrogen, phosphorus and potassium compound fertilizers are

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produced in 5-6 years. In total, 51-84 kilograms of natural nitrogen, phosphorus and potassium fertilizers are produced in the soil, which are absorbed by plants.

– One of the advantages of biohumus is that it enhances the activity of soil microflora, dissolves complex salts that have passed into the state of gypsum in the soil, and turns it into a state that is easily absorbed by plants.

– Since 2007, experiments have been conducted on growing cotton and grain from biohumus - natural humus - on an area of 10 hectares, and later on an area of one hectare, and its usefulness has been proven. The following conclusions were drawn from the experiments:

– for wheat cultivation, 2 tons of decomposed 5-year-old sod soil are sown on each hectare of sod land before sowing wheat. During the wheat cultivation period, 1 ton per hectare is sown before each irrigation, 5 tons per 5 irrigations, a total of 7 tons of decomposed sod soil are sown. This is 800 kg of pure nitrogen per hectare, 200 kg

– is considered a natural fertilizer that can replace 50 kg of pure phosphorus and 50 kg of pure potassium fertilizers.

– In cotton cultivation, 1 ton per hectare of land was applied 5 times, a total of 5 tons of water, to the soil to a depth of 10-15 cm by mixing rotted manure with running water. The result was proven to increase cotton yield from 26 to 33 centners..

– Instead of fighting diseases and pests, a stimulant, i.e. “Bioenergy-M” bioproducts, was used to prevent them. It was used to increase seed germination, and during the cultivation of cotton and grain, it was fed with a suspension 3 times and water at the rate of 5 kg per hectare per irrigation.

– Instead of chemical agents, i.e. insecticides and fungicides, the “Umid” preparation prepared from natural plants was used to combat pests and insects, i.e. sucking and rodents, and diseases, because the preparation prepared from seven types of naturally growing plants is used to prevent diseases and protect against pests.

With this method, the cotton yield at the “Naynavo Akshomi” scientific experimental seed farm increased from 28.1 centners in 2011 to 38.2 centners by 2022, and the wheat yield from 38.2 centners in 2011 to 63.3 centners in 2022, while the soil fertility index increased from 42.1 points in 2011 to 68.8 points by 2022, which is a guarantee of the farm’s achievements.

It is appropriate to make the following conclusion in the future innovative method of increasing soil fertility and increasing the productivity of agricultural crops: Cotton and grain farms, in the first year, 7 tons of rotted ditch soil per hectare are given to the land areas planted with cotton. planted kashqarbeda is processed. After two harvests, the third harvest is plowed in the fall. In the third year, cotton is planted again and the process continues. It is observed that the soil fertility will increase by two points compared to the previous year.

One of the methods of increasing the productivity of cotton, grain and fodder crops from agricultural products in the republic is to organize crop rotation and repeated planting of crops in the fields of farms where cotton, grain and vegetable crops are grown. In the harvested fields, the remains of plant stems and straw of grain crops are plowed into the ground or mixed with the soil with a tiller, which gives effective results in increasing soil productivity.

The methods of increasing soil productivity in farms that are already known to us include double-layer plowing of the land, the application of organic and mineral fertilizers, leaching of the soil, and crop rotation. However, these methods have not yet allowed farms to obtain high

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yields of cotton, grain, and fodder crops. At the same time, increasing soil fertility remains one of the urgent tasks facing cotton and grain farms across the republic

Another way to increase the soil fertility in the fields of cotton farms is to crush the stalks of the harvested cotton fields and scatter them on the field, and then plow the land. But this method, like the above methods, has become ineffective to date.

In cotton and grain farms, according to the crop rotation scheme, after harvesting the grain in some cotton-picked fields in May-June using "Case" and "Class" grain combines, the straw mulch is plowed together with the straw mulch and prepared for cotton production next year. Straw mulch in the fields is considered an effective method of increasing soil fertility or the agglutinous layer of the soil.

It has been observed that it is possible to accelerate the increase in soil fertility by plowing the land in place without removing the straw from the field. For this, in many farms of the republic, seeds of siderat crops imported from foreign countries are sown and grown in the fields where cotton is harvested at a rate of 10...20 kg per hectare of land in the winter-spring, spring-summer and summer-autumn seasons of the year, and then plowed in place, and the soil fertility is increased.

Siderat crops are plants that are sown in order to naturally increase soil fertility by enriching the soil with organic matter and nitrogen compounds, and legumes, namely lupine, kashkarbeda, seradella, millet, rapeseed, exparcet, etc., are added to the soil with their green mass and plowed. Crop rotation scheme - in order to increase soil fertility, it is necessary to organize a plan to plant cotton in the first year, winter wheat and one of the siderat crops in the second year, and in the third year, cultivate the siderat crops, incorporate them into the soil in the fall, and plant cotton again in the fourth year..

The current world wheat crop is 776.5 million tons. While the area under wheat has increased by 2.8 million hectares in Australia, 2.8 million hectares in India, and 2.0 million hectares in Russia, there has been a trend of decrease by 1.5 million hectares in the European Union. Currently, countries such as India (31.4 million hectares), Russia (28.7 million hectares),China (23.4 million hectares), the USA (14.9 million hectares), and Australia (13.0 million hectares) are leading in terms of the size of the area under wheat, while countries such as Germany (75.3 tons/hectare), France (68.0 tons/hectare), Egypt (64.0 tons/hectare), and China (57.0 tons/hectare)are distinguished by their high productivity. In these countries, such high results are achieved due to the fact that 472.5 kg/ha of Biogums - humus remains in the soil in return for 2 t of organic carbon input to the soil (4.5*0.42=1.89 t) from the plowing of 4.5 t/ha (42% S) of straw in the autumn wheat field.

S.Soldatov [2011, 20-6] stated that siderate crops - green fertilizers are the only means and source of increasing soil fertility in European and Asian countries and play a decisive role in the development of agriculture.

V.G. Loshakov [2018 [pp. 28-31] studies show that in medium-loamy soils around Moscow, applying 20 t/ha of manure increased potato yield by 48%, applying an equivalent amount of mineral fertilizers by 36%, applying 15-20 t/ha of white mustard green mass increased potato yield by 49.8%, and applying 5-6 t/ha of white mustard green mass in combination with straw increased potato yield by 58.6%.

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In the experiments of N. Usmonov [2007, 24-6.], it was found that due to the use of green fertilizers, the bulk density of the soil decreased from 1.27 to 1.19 g/cm, porosity increased by 6-11%, earthworms increased by 7-8 times, soil structure improved, and potatoes grew and developed favorably,and their yield increased.

When straw was used in combination with mineral fertilizers, it was observed that the yield of winter wheat was 22% higher than when straw was used alone. When growing spring wheat, the use of straw in the fall without mineral fertilizers allowed to obtain an additional 9-24% grain yield [Sorokin I.B., Titova E.V. et al. 2004. p. 163-165].

General views of a tiller for cultivating the soil surface

In order to obtain high and high-quality winter wheat yields, great attention is paid to maintaining and increasing soil fertility, as well as to the effective use of other available opportunities. Currently, in irrigated conditions, it is possible to harvest 2-3 times a year, and maintaining and increasing soil fertility in agriculture is directly related to the use of green manures, intercrops, and straw. Taking this into account, the widespread use and implementation of leguminous crops (as intercrops) and siderate crops (green manures) in winter wheat cultivation is an urgent issue in agriculture.

Today, in our country, in order to increase and maintain soil fertility, it is necessary to rotate agricultural crops based on a special scheme, determine the place of predecessors and siderate crops in the rotation of crops, use advanced methods of cultivation technology, and apply and implement all advanced technologies in a coordinated manner. The Action Strategy of the Republic of Uzbekistan for 2017-2021 sets out as important strategic tasks "the consistent development of agricultural production, further strengthening of the country's food security, the introduction of intensive methods, primarily modern agrotechnologies, into the production sector." The implementation of the identified tasks is considered to be of great importance, and the selected topic is based on comprehensive relevance and necessity.

Materials and methods: Scientific research work Field experiments were conducted in 2015-2018 in the conditions of meadow-gray soils of the "Bakhriddinov Shokhjahon" farm in the Tailak district of the Samarkand region, and the research program was aimed at studying the effect of straw, green manure and companion crops of green peas, mustard, and mung beans on soil fertility, its agrophysical and agrochemical properties, and the yield and quality of winter wheat.

Scientific research work "Methodology of field experiments" (1985), "Methods of conducting field experiments" (2007), Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, Uzbekistan Research Institute of Plant Science; Andijan Research

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Institute of Grain and Legumes on Irrigated Lands; It was conducted based on the methodological manuals of the agricultural research and development centers of Uzbekistan (1995-2000).

Field experiments were conducted with 8 variants of green manures and predecessors in 4 replications. In the field experiments, the length of the plot was 60 m, the width was 5.6 m, and the surface of each plot was 336 m, of which 168 m was taken into account. The experimental variants were systematically placed in one tier.

Soil bulk density (g/cm3) was determined in early spring, before the first and last irrigation, in the 0-20 and 20-40 cm layers of soil using a cylinder, relative density (g/cm) was determined by the pycnometer method, and soil porosity (%) was determined in the 0-20 and 20-40 cm layers of soil before the first and last irrigation.

The agrophysical properties of the soil were determined according to the methods of "Metody agrokhimcheskih, agrofizicheskih i mikroobilochicheskih issledovaniy v polivnyx khlopkovyx rayonakh" (1963). The agrochemical properties of the soils of the experimental field were checked by the following methods:

The amount of humus was determined by the method of I.V. Tyurin (GOST-26213); total nitrogen, phosphorus and potassium in one sample by the method of I.M. Maltseva, L.P. Gritsenko; nitrogen in the form of nitrate - by the ionoselective method (GOST-13496-10), mobile phosphorus in 1% ammonium carbonate solution by the method of B.P. Machygin; exchangeable potassium by the method of P.V. Protasov with a flame photometer.

Results and their analysis: Increasing soil fertility has always been an urgent issue and the main problem in agriculture. Field experiments, usually lasting more than 50 years, are considered long-term experiments (Dospekhov, 1979). The scientific results obtained in these experiments differ sharply from the scientific results obtained from conventional experiments, they are significant for their mutual compatibility and systematic interrelationship.

For optimal growth and development of agricultural crops, it is necessary to have favorable conditions in the soil layer where the main part of the root is combed. From this point of view, it is important from the theoretical and practical point of view to determine the change of the soil volume mass and the optimal type of siderate crop under the influence of green manures planted in the summer in fields empty of grain.

An increase in soil density by 0.1 g/cm decreased grain yield by 6 t/ha, corn yield by 15-25 t/ha, and cotton yield decreased by 40% when soil density was 1.5 g/cm3. In order to determine the effect of the green fertilizers tested in the experiment on the volume mass of the soil, samples were taken from the 0-20 and 20-40 cm layers of the soil and analyzed.

fter green manure application, changes in soil bulk density were observed in the top layer (0-40 cm) of the soil before the first and last irrigation of winter wheat. In field conditions, soil bulk density was determined by taking undisturbed soil samples from the top layer using a cylinder (Table.1).

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	Experience options		In early spring		Winter wheat growing season			
					Before the first watering		Before the last watering	
			Soil layers, cm					
			0-20	20-40	0-20	20-40	0-20	20-40
	Control) summer plow		1,26	1,29	1,27	1,29	1,28	1,3
	6 t straw + summer plow		1,20	1,23	1,21	1,24	1,22	1,2
	6 t of straw + green peas		1,20	1,23	1,21	1,24	1,22	1,2
	6 t straw + mustard		1Д9	1,23	1,20	1,24	1,21	1,2
	6 t of straw + mash		1,21	1,24	1,22	1,25	1,24	1,2
	Blue peas		1,22	1,25	1,23	1,27	1,25	1,2
	Mustard		1,20	1,23	1,20	1,24	1,21	1,2
	Mosh		1,21	1,24	1,22	1,25	1,23	1,2

Table 1. Effect of green fertilizers on soil volume mass, g/cm (2015-2018)

Before the first watering of the autumn crop in the options where green fertilizers were used, the soil volume mass was 0.04-0.07 g/cm and 0.02-0.05 g/cm less in the 0-20 and 20-40 cm soil layers compared to the summer plow option. was determined.

Also, the bulk density was higher in the lower 20-40 cm layer than in the surface 0-20 cm layer. The greatest decrease in bulk density in the soil tillage layer compared to the summer plowing (control) variant (1.20 and 1.24 g/cm or 0.07 and 0.05 g/cm) was observed in the green fertilizer application of 6 t of straw + mustard or.

Observed in mustard variants. A relatively large decrease in soil volume mass in the khaydov layer was noted in the blue pea and mustard variants, and it was found that the volume mass decreased from 0.06 to 0.05 g/cm compared to the summer plow (control) variant.

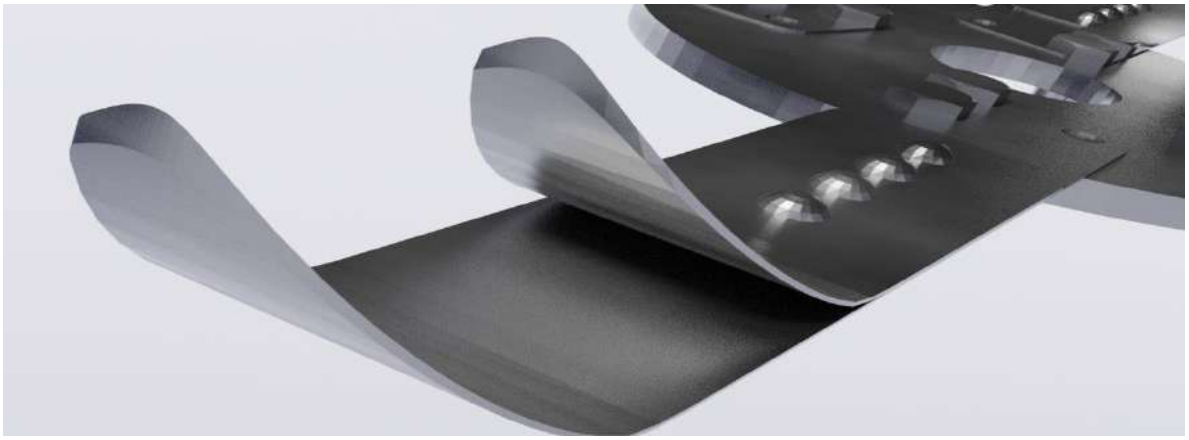

Illustration of the primary and secondary blades of a tiller

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Thus, in the summer plowing (control) variant, an increase in the bulk density of the soil was observed in the tillage layer before the first and last irrigation of winter wheat, while in the green manure variants, a decrease in the bulk density of the soil was detected.

In general, when green manure was used, the bulk density of the tillage layer decreased the most compared to the control variant, and it was observed that it practically did not change due to irrigation. When green manure was used, a decrease in the bulk density of the tillage layer was detected by 0.07-0.05 g/cm3. When green manure was used, a favorable density was created for good root growth and branching of winter wheat.

In the experiment, along with determining the bulk density of the soil, the specific gravity was also determined. According to the results of the study, the specific gravity was 2.63 g/cm in the upper 0-20 cm layer of the soil, and 2.70 g/cm in the 20-40 cm layer. Accordingly, when calculating the porosity of the soil, the porosity was 52.2-54.6% in the 0-20 cm layer before the first irrigation, 51.6-53.7% in the 20-40 cm layer, and 51.7-54.2% in the 0-20 cm layer and 51.2-53.3% in the 20-40 cm layer before the last irrigation (Table.2).

Therefore, when crops such as chickpeas, mustard, mung bean are planted in the fields freed from grain in the summer and when they are used as green manure, the agrophysical properties of such fields are improved, as well as a high and quality harvest of winter wheat is grown..

№	Experience options	During the growing season of winter wheat			
		First watering before		Last watering before	
		Soil layers, cm			
		0-20	**20-40**	**0-20**	**20-40**
1	(Control) summer plow	52,2	51,6	51,7	51,2
2	6 t straw + summer plow	54,3	53,5	53,9	53,0
3	6 t of straw + green peas	54,5	53,7	53,8	53,3
4	6 t straw + mustard	54,6	53,7	54,2	53,3
5	6 t of straw + mash	53,8	53,1	53,2	52,4
6	Blue peas	53,5	52,5	52,8	52,0
7	Mustard	54,6	53,5	54,2	53,0
8	Mash	54,1	53,1	53,6	52,8

Table 2. Effect of green manure on soil porosity,% (2015-2018)

The experiments revealed that when processing harvested grain fields with a milling machine with improved blades for processing straw on the soil surface, the yield of the crop was further increased.

Conclusions: In conclusion, when using green manure and straw, the bulk density of the topsoil was significantly reduced compared to the control option, and it was almost unchanged due to irrigation. When using green manure and straw, the bulk density of the topsoil was reduced

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by 0.07-0.05 g/cm3. When using green manure and straw, winter wheat seeds germinate well, and a favorable density is created for good root growth and branching. Experiments have shown that when the harvested grain fields are cultivated with improved milling cutters that incorporate straw into the soil surface, the productivity of the soil increases even further.

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REGIONAL OPPORTUNITIES AND INNOVATIVE APPROACHES TO DEVELOPING DOMESTIC TOURISM

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АННОТАЦИЯ

В этой статье рассматриваются региональные возможности и инновационные подходы к развитию внутреннего туризма. Изучая конкретные региональные сильные стороны и инновационные практики, она описывает стратегии по увеличению вклада внутреннего туризма в экономику и культурную сплоченность. Исследование фокусируется на устойчивом развитии туризма, технологических достижениях и политических рекомендациях, которые могут решить проблемы в секторе.

Ключевые слова. Внутренний туризм, региональные возможности, инновации, устойчивый туризм, технологический прогресс, экономическое развитие, политика в области туризма.

Abstract

This article examines the regional opportunities and innovative approaches for fostering domestic tourism. By exploring specific regional strengths and innovative practices, it outlines strategies to boost domestic tourism’s contribution to the economy and cultural cohesion. The study focuses on sustainable tourism development, technological advancements, and policy recommendations that can address challenges in the sector.

Keywords. Domestic tourism, regional opportunities, innovation, sustainable tourism, technological advancements, economic development, tourism policy.

INTRODUCTION

Domestic tourism plays a pivotal role in stimulating regional economies, preserving cultural heritage, and fostering national identity. Many regions possess unique landscapes, historical sites, and cultural traditions that hold potential for attracting local tourists. However, the lack of proper infrastructure, marketing strategies, and innovative approaches often limits their growth. Leveraging regional opportunities and integrating innovative practices, such as digital tools and sustainable tourism models, can significantly enhance the sector's contribution to national development.

This article explores how specific regional characteristics, combined with innovative approaches, can unlock the full potential of domestic tourism. It emphasizes the importance of collaborative strategies among stakeholders, including governments, private enterprises, and local communities.

LITERATURE ANALYSIS AND METHODOLOGY

Studies by the World Tourism Organization (UNWTO) highlight the growing importance of domestic tourism, which accounts for a significant share of global tourism revenues. According to UNWTO, focusing on regional assets and local community involvement can boost domestic tourism resilience, particularly during economic downturns.

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Research by Smith & Richards (2020) underscores the value of digital technologies in promoting tourism, such as virtual tours and mobile applications. Similarly, reports from developing countries like India and Vietnam show how regional ecotourism and cultural festivals drive domestic tourism.

Despite these insights, gaps remain in tailoring strategies to specific regional contexts and utilizing innovations like augmented reality (AR), blockchain for ticketing, and AI-driven customer insights.

This study employed a mixed-methods approach:

Quantitative Analysis: Statistical data on regional tourism trends, infrastructure development, and economic contributions were analyzed.

Qualitative Research: Interviews with tourism stakeholders and surveys of local tourists provided insights into perceptions and expectations.

Comparative Analysis: Successful innovative practices in countries like Japan, Indonesia, and Turkey were reviewed for applicability in diverse regional contexts.

RESULTS

Regional Opportunities Identified:

Natural Resources: Mountainous regions and coastal areas offer opportunities for adventure and eco-tourism.

Cultural Heritage: Regions with historical monuments and traditional crafts hold potential for cultural tourism.

Agricultural Tourism: Rural areas can attract tourists with agro-tourism experiences like farm stays.

Innovative Approaches:

Technology Integration: Digital platforms for booking and travel planning have increased accessibility.

Sustainability Initiatives: Regional eco-tourism projects focusing on conservation have shown success.

Local Engagement: Training local communities to offer authentic experiences, such as guided tours or culinary workshops, has enhanced tourist satisfaction.

Challenges Highlighted:

Insufficient transport infrastructure and accommodation facilities in remote regions.

Limited awareness among locals about the economic benefits of domestic tourism.

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Lack of coordinated marketing strategies targeting domestic tourists.

Table 1. Regional opportunities and innovative approaches to domestic tourism development

Category	Opportunities	Innovative Approaches	Challenges
Natural Resources	Mountain ranges, national parks, rivers, and coastal areas.	Eco-tourism programs, adventure tourism apps, and AR-based trail navigation.	Inadequate infrastructure and limited accessibility to remote areas.
Cultural Heritage	Historical sites, traditional crafts, music, and festivals.	Virtual tours, cultural events promotion via social media, and interactive museum exhibits using AR/VR.	Preservation costs and low local awareness of cultural tourism benefits.
Rural and Agricultural	Farm experiences, local culinary traditions, and village tourism.	Agro-tourism platforms, farm-stay booking systems, and immersive experiences such as cooking classes with locals.	Limited marketing and insufficient training for locals to manage tourism services.
Technology Integration	Growing internet penetration and smartphone usage.	Mobile applications for travel planning, AI-driven personalized recommendations, and blockchain for secure ticketing.	Lack of digital literacy among some communities and high initial investment in technology.
Sustainability Initiatives	Renewable energy sources and regional biodiversity hotspots.	Green certifications for eco-friendly accommodations and waste management systems at tourist sites.	Resistance to adopting eco-friendly practices due to costs or lack of awareness.

CONCLUSION

Regional opportunities and innovative approaches are key to developing domestic tourism. By capitalizing on natural, cultural, and human resources, and integrating advanced technologies, regions can create attractive and sustainable tourism offerings. Collaboration between public and private stakeholders is essential to overcoming challenges like inadequate infrastructure and awareness gaps.

This study recommends the following actions:

Strengthening transport and accommodation infrastructure in underserved regions.

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Promoting local cultural and ecological attractions through targeted campaigns.

Encouraging innovation by adopting smart technologies and eco-friendly practices.

Developing regional tourism policies that align with national tourism objectives.

In conclusion, domestic tourism development through regional and innovative strategies not only boosts economic growth but also strengthens social and cultural ties within a nation.

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Mikhail Evgrafovich Saltykov Shedrin. About the writer's tales

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I. Introduction

Mikhail Evgrafovich Saltykov-Schedrin stands as a pivotal figure in Russian literature, renowned for his incisive satirical narratives that transcend mere entertainment to offer profound insights into society and governance. His oeuvre, particularly exemplified in the Writers Tales, serves as a poignant critique of the cultural and political milieu of 19th-century Russia, reflecting the complexities of life under an autocratic regime. Beginning with a nuanced exploration of societal norms, Saltykov-Schedrin adeptly weaves themes of morality, ethics, and artistic integrity throughout his tales, positioning the writer as both an observer and participant in the sociopolitical landscape. The juxtaposition of humor and stark realism in his narratives not only illuminates the absurdities of contemporary life but also invites readers to engage critically with the moral failings of their time. Thus, this introduction sets the stage for a comprehensive examination of Saltykov-Schedrins artistic vision and its enduring relevance.

A. Overview of Mikhail Evgrafovich Saltykov-Schedrin's literary significance and contributions

Mikhail Evgrafovich Saltykov-Schedrin stands as a pivotal figure in Russian literature, renowned for his incisive satire and profound critiques of societal norms during the 19th century. His literary contributions extend well beyond mere storytelling; they encapsulate a complex interplay of humor and tragedy, challenging the status quo of contemporary Russian society. Saltykov-Schedrins works, particularly his short stories and fables, utilize the absurd to expose the ethical and moral failures of the bourgeoisie and bureaucratic class, making him an astute observer of human behavior and political injustice . His narrative style infuses folk traditions with modern sensibilities, thus creating a unique literary voice that resonates with both his contemporaries and subsequent generations (Georgiĭ Valentinovich Plekhanov, 2011). Through his innovative approach to themes of power and folly, Saltykov-Schedrin not only contributed significantly to Russian realism but also laid the groundwork for future satirists and social critics.

II. Thematic Exploration of Saltykov-Schedrin's Tales

In the vast tapestry of Saltykov-Schedrins literary oeuvre, themes woven through his tales reflect a profound critique of societal norms and human nature. One significant motif is the depiction of bureaucratic ineptitude, often illustrated through grotesque characterizations that highlight the absurdity of the Russian administrative system. These narratives serve not merely as entertainment but as poignant commentary on the stagnation and moral decay prevalent in society, inviting readers to scrutinize the structural failings that beset contemporary life. Furthermore, the interplay between satire and realism in his stories intensifies their thematic resonance, fostering a dual consciousness among audiences regarding their sociopolitical realities. Saltykov-Schedrins ability to intertwine grim humor with critical observations creates a unique literary space that compels reflection and dialogue about ethics and governance, thereby ensuring that his works

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retain relevance across generations, as evidenced by their persistent study in modern literary discourse (Amelia Glaser, 2012-02-22).

A. Analysis of social criticism and satire in his narratives

The social criticism and satire woven throughout Mikhail Evgrafovich Saltykov-Schedrins narratives serve as a profound reflection of the socio-political landscape of his time. His tales expose the moral and ethical decay prevalent in Russian society, utilizing grotesque characters and absurd situations to illustrate the deleterious effects of bureaucracy and the ruling elites indifference towards the common populace. The authors biting irony not only critiques contemporary societal norms but also functions as a warning against complacency in the face of systemic oppression. The interplay between humor and tragedy in his work captures the complexities of Russian identity, as it navigates issues of class and power dynamics. Saltykov-Schedrins narratives compel readers to confront uncomfortable truths, thereby reaffirming the essential role of literature in challenging and reshaping cultural and political paradigms, an endeavor that is especially significant as noted in the collective scholarly explorations of national ideology and literatures influence on its development in the Russian context (Domina et al., 2012)(University of Tartu Press, 2022).

III. Literary Style and Techniques

Mikhail Evgrafovich Saltykov-Schedrins literary style is characterized by a unique synthesis of satire and allegory, effectively illuminating the socio-political landscape of 19th-century Russia. His tales often employ a rich tapestry of metaphor and irony, allowing readers to discern deeper meanings beneath the surface narrative. This approach resonates with the manifestos of contemporary European avant-gardes, which strived to articulate collective identities while simultaneously asserting individual authorial voices (Bradshaw et al., 2018). In Saltykov-Schedrins work, the interplay between personal perspective and societal critique mirrors the duality inherent in these manifestos, wherein an author's ego intersects with the larger social narrative (University of Tartu Press, 2022). His deft manipulation of language not only critiques bureaucratic inefficiencies but also elevates the moral discourse surrounding the role of writers as agents of change. Overall, his literary techniques foster a compelling dialogue about the interplay of power, identity, and responsibility within a transformative cultural context.

A. Examination of narrative structure and character development in Saltykov-Schedrin's works

The narrative structure in Saltykov-Schedrins works is characterized by an intricate interplay of satire and realism, effectively illuminating the socio-political fabric of 19th-century Russia. His tales often employ a circular or fragmented narrative technique, reflecting the cyclical nature of societal issues and the futility of reform efforts. The characters, frequently portrayed as grotesque caricatures, serve as vehicles for moral and philosophical inquiry, inviting the reader to engage critically with their actions and motivations. For instance, the protagonist often embodies a duality of aspiration and despair, positioning him at the intersection of individual desire and societal constraint. This duality is paramount in understanding how Saltykov-Schedrin critiques both personal and institutional moralities. Consequently, the narrative structure not only supports

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character development but also enhances thematic depth, fostering a nuanced exploration of human experiences within a repressive social context (Douglas R. Weiner, 1999-02-26).

IV. Conclusion

In conclusion, Mikhail Evgrafovich Saltykov-Schedrins narratives transcend mere literary entertainment, embodying a profound critique of Russian society and its systemic failings. Through a nuanced exploration of the socio-political landscape of his time, Saltykov-Schedrin adeptly utilizes satire as a vehicle to illuminate the contradictions inherent within various social strata, prompting readers to interrogate the ethical dimensions of power and governance. His tales serve not only as reflections of personal disillusionment but also as timeless commentaries on the human condition and its susceptibility to corruption. Ultimately, Saltykov-Schedrins works resonate beyond the confines of 19th-century Russian literature, inviting contemporary audiences to engage with enduring questions surrounding morality, authority, and the role of the writer in shaping public consciousness. This enduring relevance underscores the authors status as a pivotal figure in literary history, further solidifying his legacy within the canon of critical social thought (Amelia Glaser, 2012-02-22).

A. Reflection on the enduring impact of Saltykov-Schedrin's tales in Russian literature and beyond

The tales of Mikhail Evgrafovich Saltykov-Schedrin occupy a significant place in the canon of Russian literature, serving not only as a critique of the socio-political landscape of 19th-century Russia but also as a catalyst for introspection across cultural boundaries. His narratives, characterized by sharp satire and a profound understanding of human folly, have transcended their historical context to resonate with contemporary audiences. This enduring impact can be attributed to Saltykov-Schedrins masterful ability to expose the absurdities of power dynamics and societal corruption, themes that remain pertinent in modern discourse. Furthermore, his influence extends beyond national borders; writers and intellectuals worldwide have drawn inspiration from his narrative techniques and thematic concerns, fostering a broader dialogue about the human condition. Thus, Saltykov-Schedrins tales not only reflect the complexities of their time but continue to evoke critical reflections on the nature of authority, morality, and societal responsibility in todays globalized narrative landscape.

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How to network effectively as a beginner in business?

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Abstract

Networking is essential for beginner in business, helping them develop partnerships, build valuable connections, and open up new opportunities. Networking for new business starters provides the necessary skills through data gathered through primary and secondary research. This article explores the role of social media in improving relationships, its impact on business, and effective networking strategies. It also provides information on the convenience, benefits, and opportunities of online and in-person events for new business starters and it also provides information about the role of social media in brand development. This study explains the importance of networking for personal and professional development and how to do it effectively.

Key words: Networking, Partnerships, Social media, Brand development, Relationships, Professional development.

Introduction

When starting a business, connecting with other people is a key part of the road to success. This process is called networking, and it helps find customers, partners, and people who can help you grow your business. Nowadays, social media is an integral part of our lives. It can also help you grow your business, discover new opportunities, and make new friends. For those starting a new business, platforms like Instagram and LinkedIn can help build trust and make it easier to connect with people. This article will show how important networking is for new businesses and the benefits of using it effectively.

Literature review

It is generally accepted that networks are among the most effective means of doing business, particularly for the novices. Employment (2022), as cited, defines a network as the creation of genuine contact that can result in opportunities [1]. Such links assist businesses in enhancing their capabilities , looking for partners, clients, and even secure a job. Losey (2023) contends that network creation is a long term investment and claims that for strong network, time is required to be invested [2]. Social networks like LinkedIn and Instagram are powerful instruments for business networks. Ruby (2023) claims that LinkedIn is a great way to interact with B2B and B2C markets and their partners where over a billion people are registered [3]. Just like that, social networking site Instagram (Dean, 2024) has over 2 billion users and allows businesses to promote their goods and services to a large audience, which translates into more brand and customer recall [4]. Launching on both channels provides new companies with better opportunities to reach their audience and maintain a credible online presence.

Research methodology

In this study, both primary and secondary research methods are used as well as the quantitative research approaching was used too as a survey.

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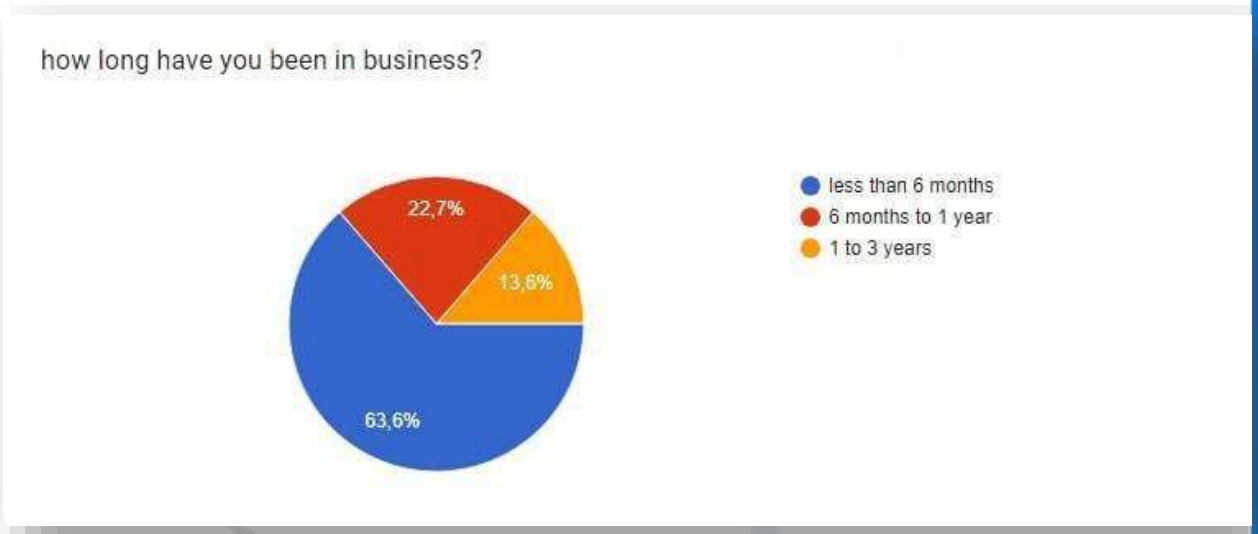
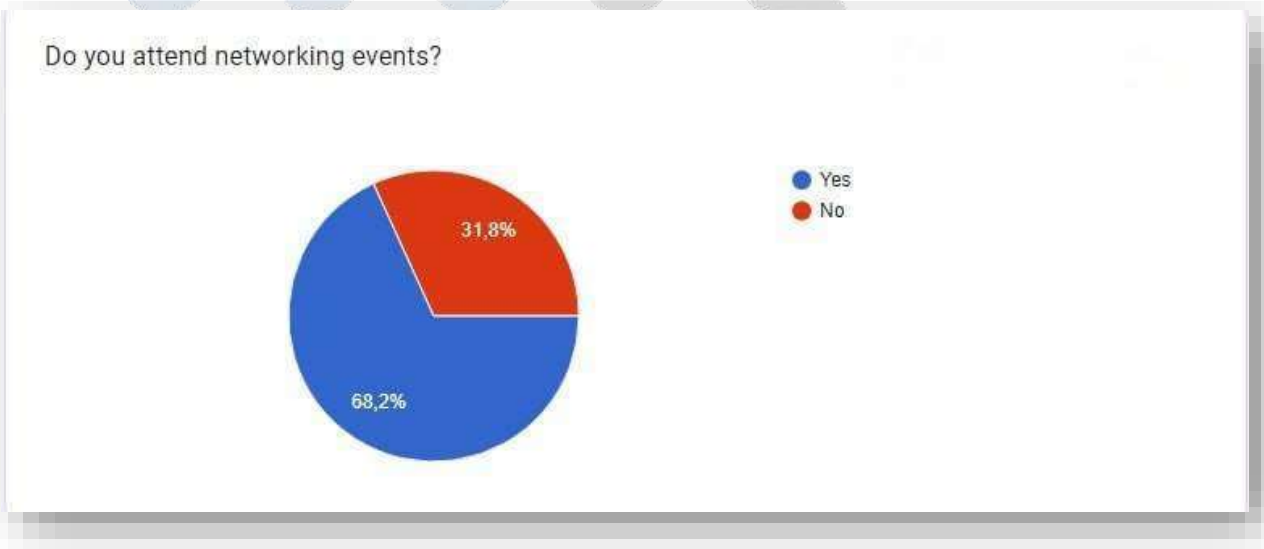
Primary research



The survey I conducted was mainly among those who had just started a business. The total number of respondents was more than 100. First of all, I asked them how long they had been in business. As you can see from the figure, 63.6% of the participants had been in business for less than 6 months. 22.7% of people had been in business for less than 12 months. The smallest proportion of participants was 13.6%, and this represents participants who had been in business for less than 3 years. From this, we can see that more than 2/3 of our participants had recently started their business.



Then our second question was about whether they attend or not. You can see the results, almost 70% of people attend networking events. With a little more than 30% statistics, we can see those who do not attend networking events. From this we can conclude that most of the people who have just started a business attend networking events.

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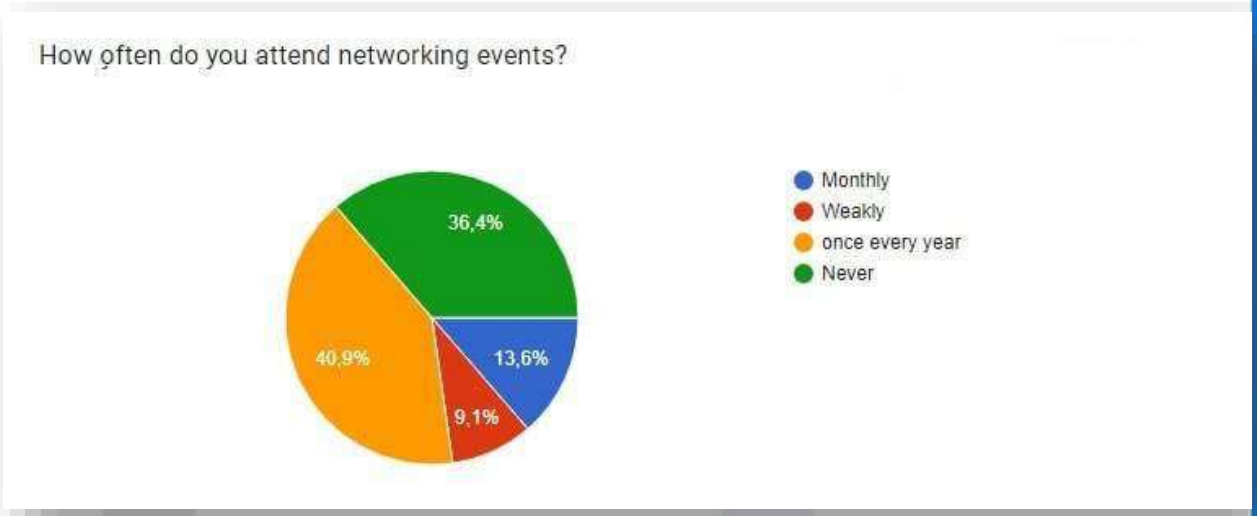

We asked about how often they attend networking events to get more information. It turned out that 40.9% of participants attend networking events once a year, 36.4% of participants attend networking events weekly, and 13.6% of participants attend networking events once a month. The main goals of participation are almost the same. Building partnerships, learning business strategy, meeting investors show a 27.3% result, while finding new clients shows a slightly lower 18.2%.

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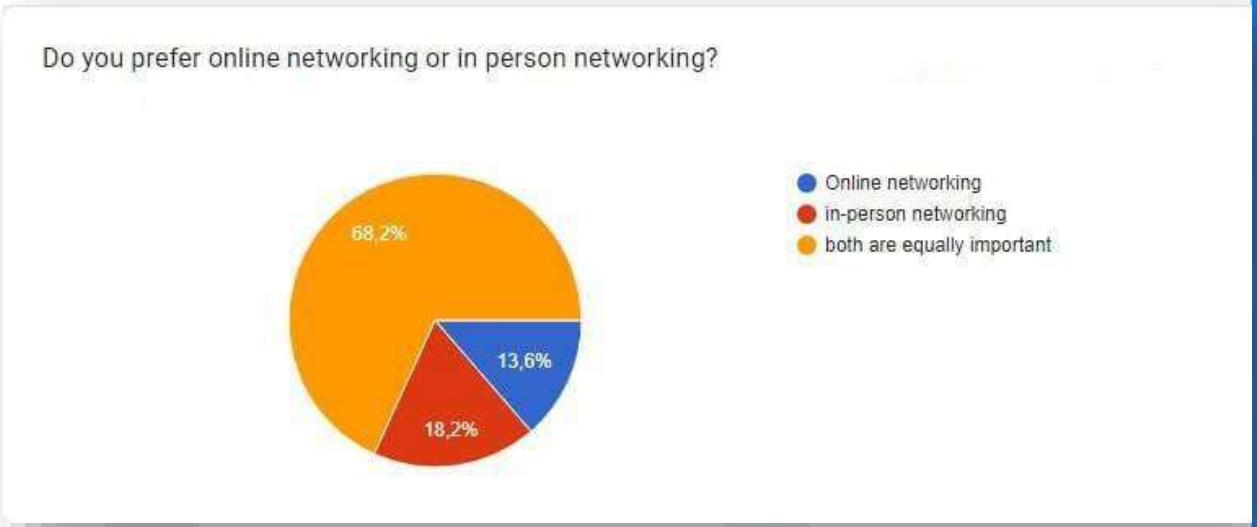
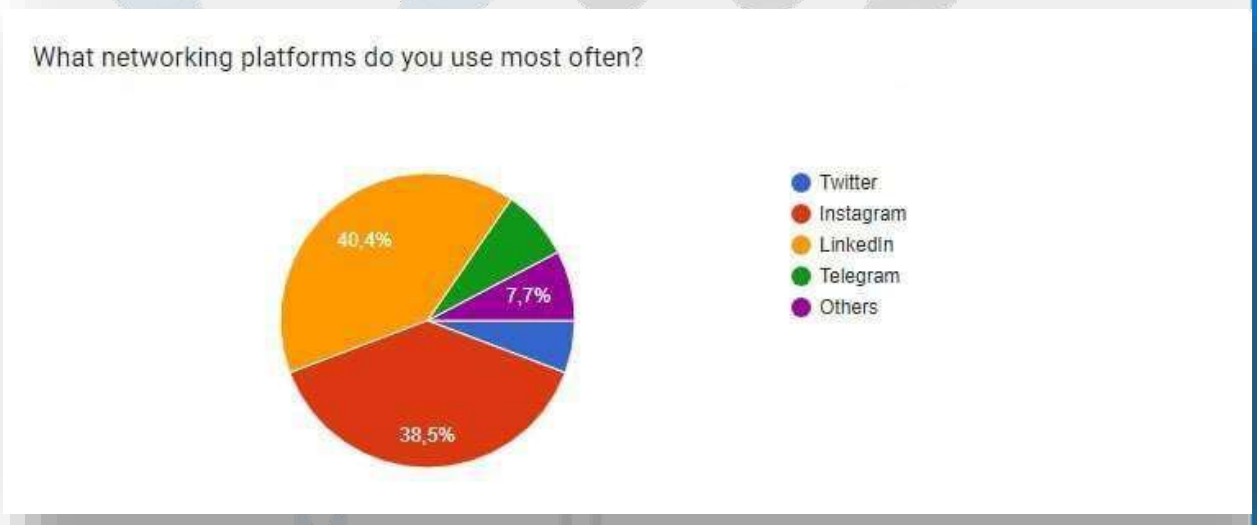


Also, when asked whether online or offline networking events are more convenient, 68.2% of participants said that both are important. 18.2% said that in-person networking is more convenient, while 13.6% of participants said that online networking is more convenient. From this, we can see that both online and offline networking have their own benefits.



Our last question was which platform you use for development. In the picture you can see several platforms, including Instagram, Twitter, Telegram, and LinkedIn. Therefore, the participants found Instagram and LinkedIn to be the most suitable. They made up almost the same indicator, that is, 40.4% and 38.5%. As can be seen from the results, Instagram and LinkedIn are convenient platforms for new business starters and create a number of opportunities

How to network effectively as a beginner in business

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Networking is very important for anyone starting a business or career. New business owners may face some difficulties in establishing contacts, but one of the main keys to success is networking, and networking is one of the most important and valuable skills. Through networking, you can get various opportunities, advice and of course, various support to develop your business. Networking is about building real relationships (Employment, 2022) [8]. In addition to creating various opportunities for business development, networking also serves to create partners, customers and even jobs. Nowadays, one of the most effective ways to strengthen networking and start a new business is to use social networks. Currently, platforms such as LinkedIn and Instagram are helping people to promote their products and increase business efficiency. Networking is a long-term strategy for forming real relationships, it should not be one-sided, and it can take a long time to build a strong network (Losey, 2023) [9].

Increasing reach via social media: LinkedIn and Instagram

Using social media serves to create opportunities and increase efficiency for any brand. Platforms such as LinkedIn and Instagram are currently considered powerful tools for developing networking. LinkedIn is a great and effective platform for connecting with various businesses, customers, and partners, and through this platform, you can perform tasks such as building trust, gaining a target audience, showcasing your personal business, and saving costs. LinkedIn is also considered a business platform, and currently the number of users is more than 1 billion (Ruby, 2023) [10]. These results show that LinkedIn embodies opportunities that are not available on other platforms. This platform is also very convenient and effective for reaching a target audience. Those who are just starting a business will have a much greater chance of gaining their audience by using this platform to attract people who are interested in their product or service. In conclusion, LinledIn is the key to success and a valuable tool for new business starters. As we mentioned above, this platform offers many opportunities, makes it easier to work, and speeds up the ability to acquire your own customers. Another advantage of LinkedIn is that it helps to conduct effective business without costs and also serves to expand the team. LinkedIn is a great platform that serves to achieve success and offers the resources you need on this path. Another powerful and effective platform for new business starters is Instagram. Instagram currently has more than 2 billion users worldwide and, according to statistics for 2024, it ranks 3rd in the world in the list of most used social networks (Dean, 2024) [11]. Instagram is very convenient for showcasing a product or service, promoting a brand to the public, and gaining an audience, like LinkedIn. Instagram creates several opportunities for those who start a new business. For example, it creates many opportunities to attract customers, gain subscribers, promote the product to the public, advertise, sell online, and so on. Products can be presented to the public through Instagram in the form of videos. If the video is high-quality, creative, and attracts people's attention, and if famous people are used in addition, it creates the opportunity for the product to become famous not only in one country, but also worldwide (Nyembe, 2024) [12]. For example, “Fenty beauty” is a brand of cosmetics that has become famous through Instagram. Another reason for the popularity of this brand is that it was created by the world-famous singer Rihanna. Rihanna's current number of subscribers is 150 million (Badgalriri, 2018) [13]. Also, the number of subscribers of “Fenty beauty”, which has not been established for 10 years, is more than 13 million (Fenty Beauty, 2018) [14]. We can say that the reason for this is Rihanna's popularity. As we have said above, quality,

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creative and famous people are an effective way for new business starters and create an opportunity to make a brand famous not only in their own country but also around the world. In conclusion, Instagram is very useful for new business starters and has the opportunity to take your business to the top with over 2 billion users. From this, we can see that networking plays a big role in business management and new business development.

Effective communication builds strong relationships

Effective communication is one of the keys and foundations of relationships. Through effective communication, strong relationships can be established anywhere. Two main factors are needed to establish effective communication. Of these, loyalty and trust. Where there is loyalty, there is trust, and where there is trust, there is loyalty. These two factors are interdependent, and the loss of one of them can instantly destroy long-term relationships and partnerships (Richards, 2019) [15]. Effective relationships are a very necessary factor for business development, especially for those who are just starting a business. Effective relationships create factors such as trust, help, and support between people. According to psychologists, if a person tells someone about his thoughts and feelings, he has taken the first step towards relief and solving the problem (Sutton, 2022) [16]. From this, we can see that effective communication is very important not only in business but also for human life.

There are several factors that go into creating effective communication. Problem solving, listening, and making the right decisions are some of the key factors in effectiveness. Through these factors, you can achieve success, build strong relationships in life and business, and achieve personal and business benefits quickly and easily.

Problem Solving: Problem solving is one of the main aspects of effective communication, and identifying and effectively solving a problem when it arises builds trust, demonstrates mutual respect, and helps build strong relationships. Problem solving also contributes to increasing team motivation and building good relationships with partners. In conclusion, solving problems correctly in business creates strong relationships and serves to achieve success.

Listening: Listening is the most important part of communication. Listening is one of the main keys to achieving success, through which you can achieve a number of results in life and in business. By listening, you can build strong and trusting relationships with new partners and the team. Listening helps to increase mutual trust and respect, make the right decisions. It is also necessary for those who start a new business because active listening helps to master new ideas, facilitate working with a team, and strengthen relationships with customers.

Making the right decision: Making the right decision in business is considered important in creating effective relationships, and by making the right decision, you can establish trusting relationships with partners and customers. Making the right decision ensures the success of a company or enterprise. It is also very important for those starting a new business to study competitors, analyze them, and identify new opportunities. Making the right decision is important in this, and through this, the company can gain its place in the market. According to experts, every decision in business shapes the future of the business. From this, we can see that making the right decision serves to make a new business successful.

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Participate in networking events both online and offline

Networking events are considered a great way to do business, as they provide several advantages, such as meeting new people, analyzing the strengths and weaknesses of different businesses, and exchanging ideas. New business starters learn the knowledge they need through these events, exchange ideas with people with a lot of experience, and have the opportunity to increase their chances of success (LinkedIn, 2024) [17].

Why are networking events important?

As we mentioned above, these events help new business starters develop their businesses and through these events they have the opportunity to find investors, customers, and partners for their company. Through these events, new business starters also have the opportunity to get valuable advice from people who are active in their fields (Metral, 2023) [18]. There are several advantages to both networking events. Through offline events, there is an opportunity to solve any problems or give advice face to face. Online events are also developing now. There is an opportunity to conduct webinars through applications such as Telegram, Facebook, Zoom. Regardless of whether it is an online or offline event, webinars serve to achieve success and create new opportunities (Jain, 2024) [19].

Using social media to develop business brand

Social media plays an important role in increasing a business brand. Currently, people spend almost 2 and a half hours a day on social media (Shewale, 2024) [20]. According to data, one of the platforms where people spend the most time is Instagram, with users spending an average of 53 minutes a day on it. (Jain, 2024) [21]. This data shows that social media plays one of the main roles in increasing a business brand. Using social media creates several advantages for those who are just starting a business. By using social media correctly, you can gain an audience, connect with customers, implement partnerships, advertise, sell online, and many other opportunities. Also, if we look at how top brands that are well-known and famous use social media, we can determine that they are active on almost all types of social networks. For example, Nike company. The world-famous Nike company has been actively using various platforms. They currently have 303 million followers on Instagram, almost 350 million on Facebook, and 130 million on Twitter (Times, 2024) [22]. Chanel is also an active user of social media. Although their Instagram following is smaller than Nike's, they are one of the top brands in the world. Chanel currently has over 60 million followers on Instagram. They have over 23 million followers on Facebook and over 13 million followers on Twitter (Panigrahi, 2023) [23]. In short, using social media helps build a brand, gain popularity, gain customer loyalty, and help businesses succeed.

Discussion

Networks are important in expanding businesses, especially for people who are starting out in business. Social media sites such as LinkedIn and Instagram have simplified networking quite a lot and made it more effective. LinkedIn helps businesspeople reach other businesses, customers and clients and this goes a long way in cementing confidence. LinkedIn is an avenue for more than a billion potential clients about what business model to adopt. By joining discussions on Linkedin group, the entrepreneurs can have great ideas and advices in the sector, which can enable them to

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make the best decisions and grow their businesses. Instagram is a very powerful tool since it is a visual driven platform that allows new firms to showcase their goods or services in a more appealing way. The extensive users on the platform indeed enables businesses to have global representation especially where fashion and beauty is concerned. Further, Instagram also come with video posts, stories or even influencer sponsorships that can enhance the public awareness and appreciation of the brand. The example of services offered by the Rihanna "Fenty Beauty" brand indicate that Instagram can be used to create ready market for the brand through millions of potential customers. Customers, partners, and other relevant parties need to be communicated to by the business and its management in order to maintain good relations. People's trust and loyalty, which are the basic components of long-term business success, are built by active listening, quick resolution of issues, and informed decision-making. Whether in personal or in business relationships, communication as we all know, is a fundamental key. Another good opportunity for the starters to increase their connections are the online and offline network events. Such events make it possible for businessmen to talk to other businessmen who have been in business for a longer period of time and use their experience to get other businessmen or clients. Webinars and other online networking events are a good alternative and expansion opportunity as well.

Conclusion

It's a known fact that networking is vital to anyone who wants to start a business. Using this method, an entrepreneur can meet people, look for partners or clients and extend the scope of their activities. You can use social media such as Lindekin and Instagram to advance a business. Good communication encourages trust and loyalty which makes relationships strong and healthy. In addition, attending networking events in cyberspace and in your locality helps business owners to benefit from other people's expertise, share ideas and create new ventures. If networking techniques are applied properly and social media is used effectively, new enterprises can enhance their chances of success and survival in the international business arena.

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The impact of work-life balance on individual well-being

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Abstract

This paper aims to understand the importance of work-life balance and how its lack affects organizational employees' psychological, emotional, or even physical state. The study uses secondary data where the strengths and weaknesses of implementing work-life balance are derived from journals, cases, and reports. The research evidence points to the fact that living a balanced lifestyle promotes qualitative mental health, fuller interpersonal relationships, and enhanced quality of life. Maintaining a balance between work and life can be difficult in places of work where people are forced to work remotely, which causes burnout. It also covers the worldwide practices. Measures on how people can enhance work-life balance include learning to distinguish between work and family roles, managing time well, and avoiding isolation. The work calls on organizations to ensure that they have appropriate policies that will assist in boosting the health of the workforce and consequently the health of all in the organization.

Keywords: Work-life balance, employee health, organizational productivity, employee well-being, flexible work arrangements, workplace policies

Introduction

Work-life balance is crucial for both psychological and physical well-being.This paper discusses the need for work-life balance, its advantages, disadvantages, and the policies governing such balances across companies around the world. Using literature analysis, case analysis, and reliable reports and researches involving work-life balance are examined concerning their effects on the mental and physical health, and satisfaction. It also embraces techniques that can assist people as well as organizations to find balance and generat positive results as it relates to both personal and company/social systems.

Literature review

Psychological and emotional benefits

.According to Ghorbani, life is a balance between the family, person, and career roles. Ekinci and Sabancı have stated that a balance in these domains fosters a good life and increase social interactions, and professional responsibilities as well.Balance between these domains contributes to a quality life, positively influencing interactions within family and social environment while also meeting professional expectations (Xavier, 2023). This balance according to Altıok-Gürel is

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connected with health, career and job satisfaction; implying that balance between work and life determines the quality of life (Indeed, 2023).Factors influencing work-life balance include; personal and organisational factors. As identified by Ballıca (2010) and Kalliath and Brough (2008), personal factors which include; Gender, education level and career advancement initiatives intersect with work aspects including Workload, Role indeterminacy, Management style, and Job security. Stress is one of the main sources of WLB disruption impacting the mental well-being, family, work and social prospects. These relationships are usually defined by the degree of stress that exists in a workplace. The results of this study serve to support the work stress and personal life relationship arguing that only a balance can ensure emotional stability and constructive family functioning (Rony, Md. Numan and Alamgir, 2023).

In a positive psychology framework, Lambert et al. (2015) claim that mindfulness refers to the positive way that people engage with and respond to the life problems.. Ryff's (1989) model of psychological well-being underscores six core dimensions: acceptance of oneself, satisfactory relationships with others, independent functioning, satisfactory control over the environment, meaning in life, and further development. These dimensions: all in sum, help the individual respond optimally to the challenges of life, and find asset and pleasure in various aspects of the life.

Work and social support are critical for positive psychological outcomes for improved work-life balance. Carol, Ryff, and Singer also Roothman, Kirsten, and Wissing all say that both emotional and instrumental support from one's social networks is enough to enhance life satisfaction and mental health greatly. However, (perceived) social support is positively related to psychological well-being and coping resources such as hardness (Bordnick & Saltzman, 2020; López-Romero, Hellfeldt, & Andershed, 2020). Such support systems are especially helpful for people that work under stressful conditions because they also reduce stress and provide system.

Physical health benefits

Balance between working and personal life has profound effects on physical health. Long continued stress at work leads to high blood pressure, heart problems and low resistance power. Some previous research revealed that those individuals who do have a proper WM have significantly less stress levels, and hence, those health hazards are reduced (Irfan et al., 2021). Through the management of chronic stress, work-life balance helps the individuals to have better health at the future period. Remote work as key component of flexible workplace and has remarkable importance for maintaining health. This flexibility enables human capital to integrate activities such as exercise into their schedule, and plan resting time. For example, employees with schedule discretion, are able to embark on regular exercising which leads to better lifestyle factors, cardiovascular health or effective weight regulation (Mulchandani et al., 2019). It also helps with constant exercising as workers are able to prepare healthier meals because they found time to cook unlike when the need to order for processed foods due to tight schedules.

Other effects of work-life imbalance include burnout which is a severe condition which results to both physical problems and overall body weakness.

Global practices and case studies

Many countries have developed policiesrelated work-life balance. Among African countries, those that have made progress for include; Ghana Rwanda & South Africa. According to the ILO

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(2024) Ghana's Labour Law; 2003 prescribes the conditions for working hours, rest breaks, and leave provisions Rwanda's Labour Law; 2019 focuses on paid maternity and mental health care leave for workers. As in the case of other countries, WLB policies within the Americas are also influenced by national environments. However, some states in the United States have recently started to enact legislation for so-called predictable scheduling that facilitates planning for workers' private lives (Petrucci et al., 2022). On the other hand, Canada has a higher work-life balance score with implementing the universal health care system and paid maternity (Martin et al., 2018). Some countries in Asia have developed policies that seek to increase the concept of WLB, thanks to such countries as China, Japan, and South Korea. Recent flexible working arrangements and paternal/matrernity leave implementations in China, as well as Japan's "Premium Friday" illustrate increased attempts at balancing working hours (Sun et al., 2023; Clavecilla, 2023). South Korea's 52-hour workweek policy prevents organizations from having employees work long hours, and it seeks to solve health problems caused by overwork mainly amongst the young workforce (Sung, 2023).

Challenges in achieving work-life balance

There is also difficulties of implementing of work-life balance, especially what could be seen as post-modernity paradigms to work, including working from home, and flexi-hour. However, these novel modes of operating provide an option for flexibility, and this aspect comes with unique difficulties. One of the biggest ones is the blurring of the boundaries between work and personal time. Some of the issues mentioned by respondents who participated in survey.It included that when one can work from anywhere it is difficult to distinguish where work ends, and home begins. For examples, one of the respondent said that due to remote work it is difficult to define what is a free time and working time as both personal and work commitments happen in the same place. This is made worse by the fact that most young professional today live in hotels, hostels or single room apartments meaning it is very difficult to leave physical space between working and home (Ljungkvist and Moore, 2023).

Tips and strategies

Investigate the balance between work and family/personal life among academics which is very important in order to know how to do it properly. That is why one of the great approaches is to recognize the fact that working more hours does not mean working more effectively. Stress and burnout which are all mental health problems are caused by overworking which is often fueled by the competitiveness. Research has established that beyond a point productivity is affected by mistakes, tiredness, and stress. One of the ways the balance may be achieved by letting a person know that he or she needs a rest. Such breaks can help increase productivity by freeing up the amount of mental capital required to accomplish a task (Getaprofession, 2024). Another important process is work arrangement flexibility which includes remote working, flexibility in working hours, or short working week (psico-smart.com, 2022). Technological development makes work more flexible so that people can work anytime with less time in traffic or can even take breaks while working. While remote work can sometimes be disadvantageous due to the nature of the work such as laboratory work or field studies, attending conferences or meetings virtually will significantly reduce fatigue and increase personal effective time. However, there is the need to

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define clear formats to work on to reduce stress at the work was place or from home to avoid exhaustion between work and other activities(Bartlett et al., 2021).

Methodology

The findings for this study rely on secondary research method and evaluates primary and secondary data sources that contain information on work-life balance. The question related work-life balance were answered using articles from peer reviewed journals, books and reliable internet sources on Work Life Balance and the different facets of psychological, emotional, physical, problems and solutions associated with it. The secondary research involved reviewing of previous literature and databases of researches, fast global practices, and benchmarking cross countries and industries. This approach provided an opportunity for determining various sides of work-life balance and the consequences that it has on the well-being of the people. Areas of interest included the type, the intent, sources and outcomes of flexibility at work, work and family policies as well as social expectations on work life balance. In order to assess trends, issues and relevant best practices regarding work-life balance this research has collected information relevant to both work and personal lives and analyzed them holistically.

Findings

Psychological and emotional benefits

Psychological well-being, as defined by Ryff's (1989) model, includes six dimensions: positive self-esteem, interpersonal relationships, independence, accomplishment, perceptual control and meaning and purpose. Lambert, Passmore & Holder, (2015) argue that those who balance work and life enjoy it, effectively whereby they have increased ability to deal with life challenges hence more resilience and well-being. The study carried out by Global Well-being Institute showed that more than half of the participants noted that better work-life balance made them feel emotionally more stable and less stressed. Slightly more than two thirds of the respondents agreed that work-family interface enhancement had a positive effect on their familial and friendly relations. These results highlight the concept of moderation as fundamental to healthy emotional functioning and the apparent benefit upon the social life domain. Furthermore, another component which, according to Carol, Ryff and Singer (2008) contributes to the level of psychological resilience was perceived social support; 65% of the questionnaires' respondents stressed that having supportive relationships with others is extremely important to cope with the stress at work.

Physical health benefits

Remote working and shift option are two major components that have been recognised as significant enablers of improved physical health. For instance, Ropponen et al (2016) found that workers who had control over their working schedules had improved uptake of physical activity hence improved cardiovascular fitness and healthy weight. According to a survey done in 2023, 56% of employees with flexible working hours exercised physically regularly while 30% of

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employees without such options. Furthermore, other research shows that controlling burnout, especially through the enhanced work-life balance, like paid time off and work-break measures, helps one recover from physical illnesses (Vaziri et al., 2022). Workers with high levels of work-life balance also had improved sleep quality that enables them to have adequate physical rest. Tariq et al. (2012) posit that enhanced sleep increases immunological activity hence general well-being. Regarding the consequences of work-life balance in 2023, the survey depicted that 64% of worker with work-life balance had better night sleep as compared with 44% Worker finding difficulty in managing work and life balance, while 72% of the employees with work-life balance felt more energetic and physically active as compared to 46% of those workers who fail to balance work and life.

Challenges in achieving work-life balance

However, attaining positive work-life perspective continues to be a major organizational and to flexible and remote workers. Among the concerns that have emerged in the course of the most recent experiments is the problem of work-life balance. Survey participants in the year 2024 said that flexibility means confusion which results in many employees losing clear divisions between working and actually working hours. A clear majority of the respondents who worked from home found it very hard to disengage themselves from work after the working hours. Consequently, flexible working hours though beneficial for personal and work boundaries with consistent work pressure Two-third of the respondents from the survey said that they have to be available in the evening or on the weekend for work pressure which continued to shift between professional and personal life. Other common complaints included mental issues at 45% with major ones being stress, burnout and always feeling on call since remote work does not allow employees to physically leave their workplace.

Discussion

This paper's conclusions show that work-life balance is important in both mental and body well-being, and the difficulties people experience when trying to balance work and personal life, particularly in present-day working conditions. Therefore the effects of WLB in this study as postulated in the literature and surveys are positive on the aspect of mental health. Better family relationships and functioning as well as overall improvement in social interactions definitely has its roots in balanced life (Ghorbani, 2003; Ekinci & Sabancı, 2020). This is in keeping with Ryff's (1989) model of psychological well-being, personal growth, autonomy and environmental mastery that are associated with balance between work and family. The work also supports the effectiveness of social support for stress and optimization of stress resilience in the work place. Furthermore, the results specify that work-life balance has considerable positive impact on physical well-being. Long-term stress caused by work-life imbalance leads to other diseases including hypertension and cardiovascular diseases (Kim et al, 2023). Nevertheless, the cross-sectional study of 132 employees who are efficient in organizing working and personal commitments show the decrease of stress level, and an increase of the physical health, including such aspects as sleep, energy (Ropponen et al., 2016; Tariq et al., 2012). Flexible meters work or business hours are especially advantageous, making it easier for employees to include physical activities within the course of the work day, which should improve their cardiovascular health and their weight.

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However, work enrichment still continues to be a potential difficulty in achieving work-life balance particularly due to the new system of remote work. The study also shows that the separation between working and personal time in many cases results in long working hours and stress. This is in line with survey respondents' response to the question regarding the problems, which occur when there are no clear signal to go by compared to actual working hours, that employees encounter when unable to "switch off" from work (Petrucci et al., 2022). Fueled by the demand to be always online, including after normal working hours, this challenge is a real enemy of well-being.

This is supported by cross-country analysis, as it is presented in the examples of WLB practices implemented in different countries. Whereas the countries like Sweden and France have excellent policities, and their governments pay much attention to work–family conflict, countries like USA lack comprehensive national policities. Such a gap serves to indicate that for successful promotion of work-life balance strategies, one has to consider cultural, institutional as well as socio-economic factors. This research indicated that organizations need to develop the policies that are understanding the needs of an employee and allow having the work-life balance while the boundaries between the working time and the free time are clear.

Recommendations

The most important aspect that any employee who wants better work-life balance should embrace is division of time between working and personal time. One strategy by which this can be accomplished is by preparing a home office that will limit the working hours to the house. This assist in creating a mental barrier one between working and personal life activities. Also, people have to extend their care by taking exercises and practicing meditation, and ensure they take breaks from working. Neglected is the need to take vacations, days-off and breaks in equal measures to avoid reaching the much feared, burned out stage .

Another insurance work-life balance is the time management. People should use planners or events on smartphones to organize well their daily task, and this prevents having to deal with unnecessary workload. Moreso, being able to decline other work in case the current workload is overwhelming is important when trying to avoid overwhelm. It is also effective to define reasonable achievable goals at the workplace and personal life so that the latter does not suffer from the former. Besides, people can turn to colleagues, friends or a coach for support and to learn strategies on dealing with the stress in present or future jobs. Taking care of self by getting enough hours of sleep, taking balanced diet as well as keeping close with friends and family is important for a healthy soul and body. Through efficient time management students ensure that they protect themselves from burnout while also promoting a healthy work-life balance.

Conclusion

In conclusion, this study discussed the psychological, emotional, and physical benefits as well as challenges to work life balance, especially in a flexible work setting. Flexible work arrangements are good for well being but they also risk blurring boundaries between work and personal life resulting into burnout. Clear boundaries, good time management and social support are at the heart of the research underscored here. It is recommended to organizations to adopt supportive policies to boost employees well being and productivity.

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Engaging Gen Z through social media marketing.

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Abstract

Generation Z, is a generation that has grown up with the internet and social media, and which is now between mid 1990s to early 2010s. The ability to market to this generation through S. M. M. has become important for those brands seeking to continue appealing to customers in this generation. Due to this, the present research seeks to analyze the current social media usage of Gen Z in terms of their use of brands on social media platforms, contents and the utilization of influencer marketing. An online quantitative survey with 48 participants was used to measure how much time young people use social media, which platforms they use, how much they trust influencer recommendations and what type of content engages them with brands. According to the study, 71% of Gen Z cares about the ethical position of brands; 61% choose fun or informative content; and 72% tend to interact more with the influencer's they deem sincere. Furthermore, it also exposed short videos, heavy text posts as becoming important reasons among participants for unfollowing brands. The results of this study are beneficial for the brands that are aiming at achieving the best results from the interaction with the fully mobilized generation of Gen Z on social networks, by providing recommendations on the creation of topic-based, engagement-focused, and value-based content, as well as the use of influencer marketing that will be synergistic with the expectations of this generation.

Keywords: Generation Z, social media marketing,

1.Introduction

Engaging Gen Z through social media marketing.

In today's world, social media has turned into an indispensable platform for brands to connect with their targeted customers, and there is no one more connected with social media than the Gen Z population whose families are pinning, liking and creating accounts across Tiktok, Instagram, YouTube, and so on since the mid-1990s to early 2010s. Since the buy power of Gen Z is still massive and growing, it is important for companies that hope to remain relevant in the marketplace to consider how they can follow social influencers to capture their attention and sell their products.

From this, it is clear that Gen Z is unique in consume content and the way it is consumed because the world owes Gen Z experiences which are real, relatable, and creative. This is especially so when the brands are visually striking and avoid brands that are significantly

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dissimilar to their personal values and character; brands with engaging, interactive, immersive campaigns. Therefore, conventional methods of ads are no longer very effective hence the need to make ad appeals to be dynamic and more of a customized approach that can engage the consumer with the product. In this article we discuss peculiarities of Gen Z and reveal the key aspects of Social Media Marketing activation to such audience.

2. Literature Review

Social Media Impact: Gen z and Millenial on the Cathedra of Social Media, Richa Gupta opine that through social media marketing has become one of the effective ways of reaching out to the Millennials, who form a generation that was born and raised using social media The current research shows that millennials using social media marketing is more effective as compared to other generations. However, creating a social media presence by itself cannot be considered as social media marketing; it involves knowing how to use the social media to communicate with the consumers through contents which will be appealing to them (Tuten and Solomon, 2017). The lack of perceived authenticity and a failure to target individual consumers has been cited as being detrimental to social media marketing among the Millennial generation as has the lack of interactivity apparent in many social media campaigns. While this remains a reality, more and more brands are realizing the training attributes associated with social networking sites in influences consumer awareness and brand preference.

2.1 Digital Marketing Strategies: Effectiveness on Generation Z.

In Anjum, Asma and Thomas, Mary Rani's estimation, digital marketing approaches are necessary for new generation Z, a ubiquitous generation that uses digital platforms and social media extensively. It is discovered that this generation can well access, accommodate and appreciate digital content that are relevant, engaging, participative and real, thus bottling marketers' traditional techniques into suits these preferences Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) are useful in making the most appropriate digital marketing strategies and ensure that they align to the characters and characteristics of Generation Z. Previous research has focused on increasing the reliability of digital marketing components in order to come up with relevant and highly focused effective measures and techniques of communication for Gen Z This paper contributes to the knowledge domain by providing marketers with a framework for designing best-fit data-driven digital marketing communication strategies for Gen Z. (Artemova, 2018)

2.2 Teaching Generation Z social media marketing: A micro-influencer project.

For this reason, influencer marketing has turned into one of the essential approaches brands use to engage the contemporary consumer, let alone Gen Z, who freely spend time on social media. Misel have found out that micro influencer; people who have a smaller number of followers but are very interactive to them, can make a big difference in the creation of brand consciousness and customer trust The approach of using students as micro influencers is one that is adapted in practice where students are exposed to the different strategies used in social media but in a manner that will encourage reflection. In prior research, it is shown that doing assignments in the subject of digital marketing is valuable as the attendance to social media platforms enables the students to gain hands-on experience in the matter. This work presents a useful source of information

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regarding the operational use of social media marketing and underlines the importance of such a experience for the members of the Generation Z students. (Mandagi and Aseng, 2021)

3.Problem Statement

The consumers of Gen Z have become an important consumer segment and therefore understanding their behaviours and especially on social media can be an advantageous for brands targeting to capture this group of consumers. Although these marketing strategies can be ineffective for this generation of consumers, knowing the characteristics of social network sites as well as the engagement behavior of Gen Z is critical to the success of a business. Still now the social networks are becoming more and more popular as the marketing tool, the brands fail to produce content that actually attend the Gen Z audience and encourages them to be loyal to the specific brand or to make purchases. The objective of this article will be to review what has been established regarding engagement of Gen Z on social media and identify the approaches which will make more sense to brands as they seek to create meaningful relations with this generation. (Sayyed and Gupta, 2020)

4.Research Questions

The research was guided by the following questions to effectively achieve its intended goals:

1. In what ways does the Gen Z audience share the various kinds of content on the social platforms?
2. In what way do Gen Z perceive the various influencers and what influence do these influencers have on them in terms of brand decisions?
3. From the next section on the case company, what features of brands can generate Gen Z's attention on social media?

5.Purpose of the Study

This work focuses on understanding how to market to Gen Z through social media marketing to equip businesses and marketers with more insight and knowledge of how this generation relates, their choices, and their perception to social media content. As they are counted among the most conscious generations of customers, the GenZ has different expectations and perceptions of marketing wrapped in social media platforms.

6. Research Methods

This research aims at finding out the experience of Generation Z on brand social media marketing. Semi structured questionnaires were administered to them in order to get information on their frequency of use in social media sites, their preferred sites, and their perception on engaging brands on the sites. The survey was completed by 48 subjects who all belong to the Generation Z with aged between 18 to 23 years. The reason for directing the survey at this age group is that it is the most active age group primarily targeting social networking sites. The survey aimed to examine several key areas: Their participation on social media, the number of hours young generation use social media per day, on which social media platform, the extent to which they interact with brand content, their level of trust with endorsing influencers, reasons of following or unfollowing brands, etc. Through the assessment of the responses this study seeks to capture the attitudes and actions of this Generation Y –the digitally aware generation so that brands interested in engaging this generation on social media can do so effectively. (Jabr, 2022)

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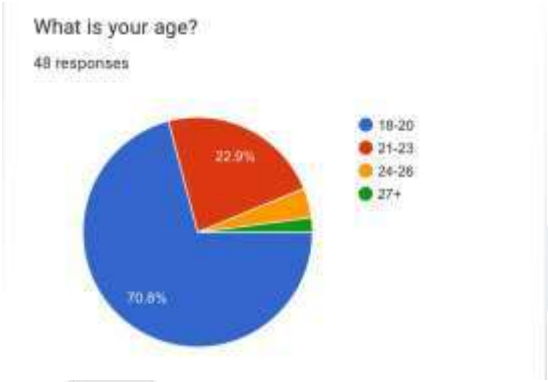
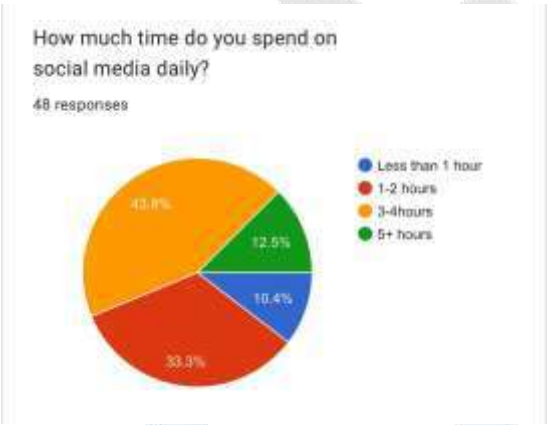
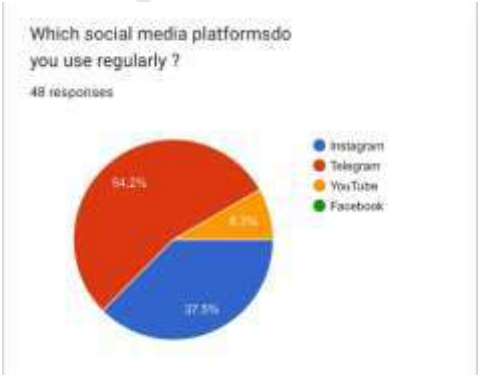
7.Findings



Analyzing the results of the survey shown below will provide several profound insights concerning the social media preferences of Gen Z. The age distribution of the respondents was as follows: 18 to 20 years, 70.8% which means the survey captured mainly the young generation Z



Based on the time spent on social media, 43.8% of the participants use 3 to 4 hours per day on social media platform 33.3% uses 1 to 2 hours. A slightly higher 12,5% spends less than an hour and 10,4% spend over 5 hours in social media usage. This means that social media is integrated in the everyday use of gen Z and a popular part of the population engages in multiple hours of social media usage.



54.2% of respondents said they actively use telegram as a social media platform and 37.5% use Instagram often. Other platforms included YouTube at 8.3% and Facebook attractively at 0% preferred by this age group. This means that more of Gen Z use new generation platforms that

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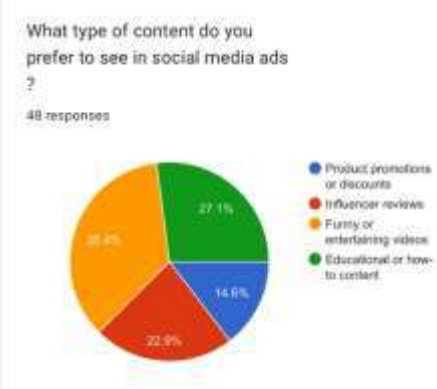
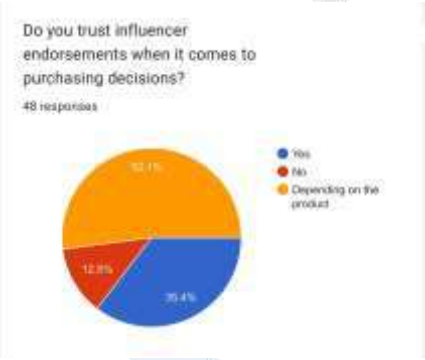
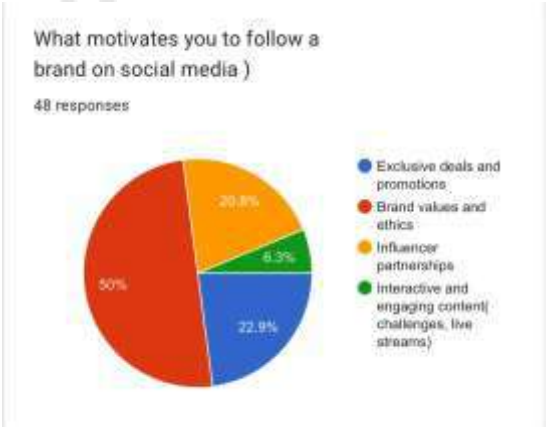
include real-time messaging features and multimedia content like Telegram and Instagram as opposed to normal platforms such as Facebook.



Regarding the content of advertisements that were post within the social media platforms, 35.4% of respondents said the preferred amusing or entertaining videos, 27.1% preferred educative or 'how to' videos while 22.9 % stated their preference was with influencer reviews and only 14.6% preferred product promotions or discounts. This means that Gen Z is much more receptive to humorous or informative content rather than product communications in the traditional ad sense.



Survey also showed that 52.1% of respondent depends on the specific product trust the influencer endorsements and 35.4% trust the influencers in general; whereas 12.5% do not trust the influencers at all while making a purchase. This infers that even though influencer marketing is effective it has its effectiveness governed by the kind of influencer as well as the kind of product is being marketed.



This proved understanding the motivational factors for following brands on social media where respondents responded with 50% on the basis of brand values/ethics, while another 22.9%

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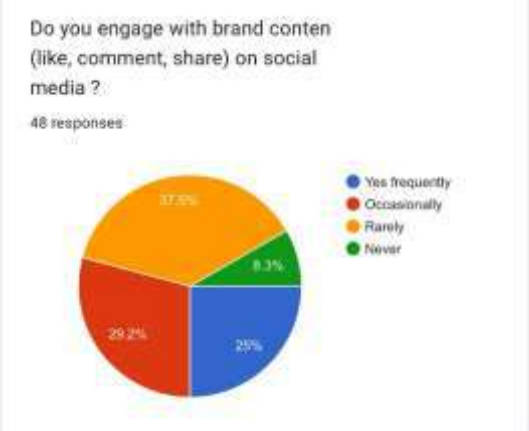
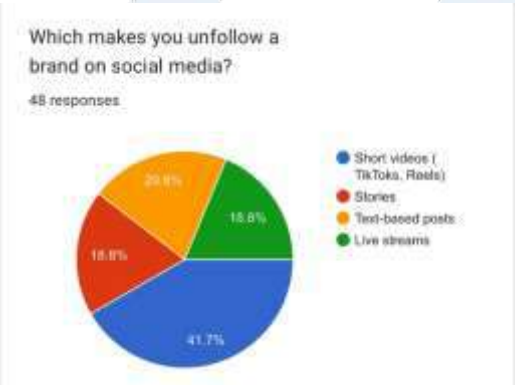
gave their following as due to exclusive offers/promotions. At the same time, 20,8% of the brands recognize their interest in influencer partnerships, while the same brands are more sceptical about involving social media challenges or live broadcasts and streams: only 6,3% of the brands are interested in such elements.



Looking at interactions with brand content, 37.5% seldom interact, 29.2% interact sometimes and 25% often. This indicates that although part of the Gen Z does engage with brand content, it is not as often or naturally as it would be expected.



Finally, about the factors that would make them to stop following a brand on the platform, 41.7% said that short videos (TikToks, Reels), while 20.8% said text-based posts and 18.8% said stories and live streams. This indicates that Gen Z can be overwhelmed by the overuse of some formats, or with the content ordering not appealing to them may stop paying much attention to brands which heavily use such formats.

8.Discussion

The established facts from this research give a clear picture of gen z participation in brand related social media interactions and influences. This is most evidenced by a highly compelling 85% affirmative response given by the Gen Z sample when asked whether brand values and ethics play a role in their decision to follow a brand on social media. This is supported by a growing awareness of the younger population of being more conscious with the kind of brands they associate with due to the companies' humanitarian and fungibility standards. Thus, the brands which declare the policy of Sustainability, Diversity, and ethical policies of their companies will get the devotion of Gen Z consumers. The survey also confirms a positive impact of influencer

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advertising, especially if the influencer supports the product and the advertised brand. This is not to say that everyone trusts influencers, as 52.1% of respondents said their trust in influencers varies with the type of product being endorsed. This underlines the importance of brands' selection of influencers, with whom the brand's consumers are familiar and who they trust. Also, the shift from generic humorous and informative commercials to actual narratives describes the way that generation Z focuses with significance and engagement. For this reason, instead of aggressively marketing products, brands should seek to establish forms of content that can be perceived as entertaining, informative or valuable by this audience. It is also important to avoid making post purely for sales pitches as the audience would be most receptive to videos, how-To posts. The survey also shows that with the frequency of short videos (TikToks, Reels) and posts in the texture format, such as captions, being the main reasons people unfollow a brand, it can be concluded that Gen Z might find such formats too annoying and boring, or simply not engaging enough. Hence, brands mustn't overly rely on such formats but rather pay attention to the quality of the content shared and the general feel and purpose it serves to the viewer.

9. Conclusion

In this study, the author has presented useful information as to how the Gen Z population uses the social media platforms. With the help of the obtained results, it is possible to identify that, as in the previous analysis, brand values and ethics matter for the engagement of this generation with brands. Further, influencer marketing still proves powerful; however, it can only work if influencers are considered credible and within the line of the product. The fact that Gen Z prefer entertaining and informative content endorsements consequently means that labs need to offer value through entertainment and pass on information rather than product sells. Also, the ease of Gen Z to unfollow brands based on content format, especially short videos and text content mean that there is the need to choose the right content approach in order to avoid this. Brands interested in engaging Gen Z consumers should target their marketing communications as to the values, use effective and engaging content, and collaborate with proper influencers. With these strategies, it becomes easier for brands to appeal and sort for the attention of Gen Z and have sound cordial and loyal relationship depending on the results set by the brands.

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THE ROLE OF SOCIAL MEDIA IN PROMOTING HANDMADE BUSINESSES IN UZBEKISTAN

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1.Abstract

Social media has become an indispensable tool for promoting small-scale businesses worldwide. In Uzbekistan, where craftsmanship is deeply rooted in cultural traditions, platforms like Instagram, Telegram and You tube provide artisans with opportunities to reach global markets and showcase their handmade products. This study explores the impact of social media on the growth and visibility of handmade businesses in Uzbekistan. It identifies strategies artisans employ, challenges they face, and the role of digital platforms in fostering innovation and economic growth. The research findings highlight the transformative potential of social media in promoting traditional crafts and boosting local economies.

Key Words: Social media, handmade businesses, Uzbekistan, digital marketing, artisans, e-commerce

2. Introduction:

Handmade businesses are an integral part of Uzbekistan's rich cultural heritage, offering unique and artisanal products that reflect the country's traditions. In the textile sector, crafts include suzani embroidery, carpet weaving, and silk weaving. Metalworkers, such as blacksmiths and jewelers, produce both functional and decorative items. Regions like Bukhara are renowned for goldwork embroidery, while Samarkand is famous for its ceramics and silk weaving (Creative tours, 2023).

However, traditional marketing methods often limit artisans' access to broader markets. The emergence of social media has provided a cost-effective and powerful solution to this challenge. Artisans utilize platforms like Instagram, You tube, Facebook etc. to showcase their work to a global audience, engage with customers, and build brand recognition. This online presence not only helps in preserving traditional crafts but also contributes to the economic development of local communities by reaching markets beyond their immediate geographic area. This article explores the role of social media in promoting handmade businesses, highlighting how digital platforms are transforming traditional crafts into globally recognized art forms.

2.1 Research hypothesis

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Considering the limited data on the specific role of social media and the widespread preference for platforms such as Instagram, Facebook, and Telegram in Uzbekistan, this study presents the following hypothesis:

"The adoption of social media platforms like Instagram, Facebook, and Telegram significantly boosts the market reach and sales outcomes of handmade businesses in Uzbekistan."

3. Literature Review

The advent of social media has transformed business operations globally, offering unprecedented opportunities for marketing, customer engagement, and sales. Handmade businesses, characterized by unique, artisanal products, have particularly benefited from these platforms. In Uzbekistan, a country with a rich tradition of craftsmanship, social media serves as a vital tool for artisans to reach both local and international markets. This literature review examines the role of social media in promoting handmade businesses globally, drawing insights from various studies and publications.

3.1 Global Perspective on Social Media and Handmade Businesses

Social media platforms such as Facebook, Instagram, and Etsy have become essential channels for artisans worldwide to showcase and sell their products. These platforms enable direct communication with customers, personalized marketing, and access to global markets. A study on the utilization of social networking as a promotional medium for handicraft businesses in Palembang found that 35% of craft businesses used social media for promotion, citing minimal cost, ease of recognition, and global reach as primary advantages. Similarly, research on social media marketing for African handmade accessories companies highlights the effectiveness of platforms like Facebook and Instagram in enhancing brand visibility and sales (Tanui, 2016)

3.2 Social Media Marketing Strategies for Handmade Businesses

Effective social media marketing strategies are crucial for the success of handmade businesses. Key components include developing successful product lines, understanding copyrights and trademarks, taking high-quality product photographs, utilizing analytics to boost online sales, and engaging with customers through fairs, shows, and other retail outlets. Kelly Rand's book, "Handmade to Sell," offers comprehensive guidance on these aspects, emphasizing the importance of a well-rounded approach to social media marketing (Rand, 2014). Additionally, Timothy Adam's "How to Make Money Using Etsy" provides insights into leveraging Etsy as a platform for selling handmade products, highlighting the significance of product presentation and customer engagement.

3.3 Case Studies and Practical Applications

Practical applications of social media marketing in the handmade sector are evident in various case studies. For instance, a project report titled "The Effect of Social Media Marketing as a Catalyst for the Success of Art and Craft E-Business" explores how social media serves as a catalyst for the success of art and craft e-businesses, emphasizing the role of these platforms in reaching wider audiences and enhancing sales (Mizaj and Vemballur, 2021).

Furthermore, the utilization of social networking as a promotional medium in the handicraft business in Saudi Arabia demonstrates the effectiveness of social media in expanding market reach and increasing brand awareness. The research shows that Instagram gave an opportunity to Saudi females to start their crafting businesses. Its global reach, visual-centric features, and interactive tools enable entrepreneurs to engage customers, build trust, and expand their markets, empowering

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women to balance work and personal lives while fostering financial independence. Even one of the females mentioned that without Instagram, she never imagined becoming a businesswoman or establishing her brand during an interview with the MBC channel (Alkhowaiter, 2016)

Another study in the Egyptian handicrafts sector highlights the importance of social media to gain a competitive edge. The handicraft sector boosts Egypt's economy by creating jobs, using simple techniques that lower training costs, producing customizable products for customers and tourists, and utilizing local raw materials to promote balanced urban and rural development. By leveraging social media, marketers can enhance brand awareness and loyalty by sharing the stories behind handicrafts and their cultural significance (Zekry, Khairy Fayyad and Ghaly, 2024).

Social media plays a significant role in promoting handmade businesses, offering artisans tools to reach wider audiences, engage with customers, and increase sales.

4. Problem Statement

While social media has proven transformative for many businesses, its potential remains underutilized by handmade businesses in Uzbekistan. Limited awareness of effective marketing strategies, digital literacy gaps, and infrastructural challenges hinder artisans from fully leveraging social media platforms. Despite the growing popularity of handmade Uzbek crafts in global markets, many artisans struggle to maintain a sustainable online presence. This study aims to address these gaps by providing insights into how social media can be optimized for promoting handmade businesses in Uzbekistan.

6. Research Questions

1. How do social media platforms influence the visibility and sales of handmade businesses in Uzbekistan?

2.What role does active engagement in social media play in influencing customers' decision-making?

3. How does social media foster innovation and cultural preservation in the handmade sector?

A framework for analysis was developed for this study based on the research questions. The main goal was to determine whether customers use social media to purchase handmade products. The research also focused on identifying the factors that influence customers' decision-making processes and their trust in crafting businesses.

Additionally, this paper explores the types of content that attract more customers and influence their purchasing decisions on social media. It examines how discounts, special offers, and giveaways on these platforms encourage consumers to buy handmade products.

Lastly, the study highlights the importance of customer feedback in building trust among potential buyers and fostering confidence in the business.

7. Purpose of the Study

The aim of this study is to examine how different types of social media usage influence the purchasing decisions of customers regarding handmade products in Uzbekistan. Additionally, the study seeks to understand how customers use social media to form impressions and make buying decisions.

First, it explores how posts, updates, and other content shared on social media platforms shape customers' perceptions of handmade businesses. This includes analyzing the type of

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information provided about products, the craftsmanship process, and the stories behind the businesses, which influence customers' interest and trust in these products. The research also investigates how customers interact with each other on social media when discussing handmade products. This includes examining what questions they ask, the advice they share, and how they exchange information, such as recommendations, reviews, or videos related to handmade items.

Moreover, the study aims to compare the behavior of different customer groups, such as younger versus older buyers, to understand how age influences their use of social media for gathering information and making purchase decisions. This comparison helps uncover patterns about how different age groups prioritize specific types of content or engagement when considering handmade products.

Finally, the study evaluates the role of these interactions on social media in shaping customers' decisions to purchase handmade products. It seeks to determine whether social media engagement helps customers make informed choices or if it creates biases based on the types of content they encounter most often. By addressing these objectives, the study aims to provide insights into how social media can be effectively used to promote handmade businesses in Uzbekistan.

8. Research Methods

This study employed a mixed-methods approach to explore the role of social media in promoting handmade businesses in Uzbekistan. The methodology consisted of the following components:

1. Survey

A survey was conducted to gather opinions from customers about their experiences using social media when buying handmade products. The survey included both closed and open-ended questions to capture quantitative data on customer preferences and behaviors, as well as qualitative insights into their perceptions of handmade businesses promoted through social media. The survey targeted a diverse demographic of respondents, including different age groups and geographic locations, to ensure a comprehensive understanding of customer perspectives.

2. Online Research

Online research was conducted to analyze case studies of successful crafting businesses that utilized e-commerce and social media to grow their customer base and increase sales. This involved reviewing articles, blog posts, and online reports that highlighted strategies, challenges, and outcomes of these businesses. The research provided valuable examples of how social media can be effectively leveraged for promoting handmade products.

3. Interviews with Craftsmen

Semi-structured interviews were conducted with two to three local craftsmen who actively use social media to promote their handmade products. The discussions focused on their experiences, the benefits they have observed from using social media, and the challenges they face in managing online platforms. These interviews provided first-hand insights into the importance of social media for artisans in Uzbekistan and its impact on their business growth.

The combination of survey data, online research, and interviews allowed for a comprehensive analysis of the role social media plays in promoting handmade businesses. This mixed-methods approach ensured that the study captured perspectives from both customers and business owners, providing a well-rounded understanding of the subject.

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9. Findings

Online research shows that social media usage is increasing daily, providing a valuable opportunity for handmade businesses to engage with more customers. In particular, Instagram is widely popular among people in Uzbekistan.

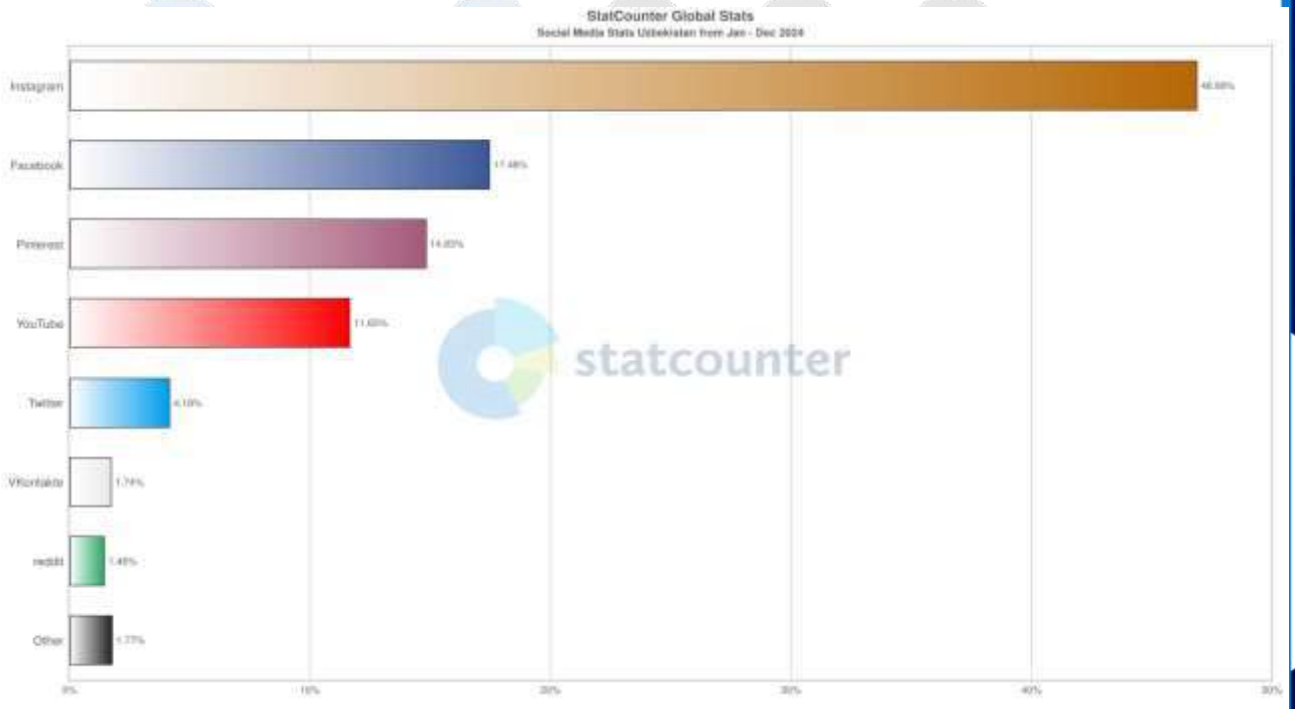
E-commerce as gateway to market for handmade businesses in Uzbekistan

Platforms like Instagram and Facebook are particularly popular among Uzbek artisans. For example, "The Ceramics" is an Instagram page dedicated to showcasing and selling handmade ceramics from Uzbekistan, utilizing the platform's visual-centric nature to attract customers. Similarly, "Uzbek Craft and Art" uses both Facebook and Instagram to promote Uzbek craftsmanship, helping artisans reach a broader audience and facilitating sales through online platforms.

The International Trade Centre (ITC) has also recognized the potential of e-commerce as a gateway to market Uzbekistan's traditional apparel. By establishing online stores on platforms like eBay, artisans have been able to sell handmade Uzbek and Tajik national clothes to international customers, thereby expanding their market reach and increasing sales (ITC News, 2019).

(Statcounter, 2024)

The findings from the quantitative and qualitative analysis of the survey data are presented



in this section. The results are organized around the main objectives of the survey, which include demographic information, the frequency and intent of social media use, the impact of social media on purchasing decisions, and thematic insights derived from open-ended questions, specifically focusing on the role of social media in promoting handmade businesses in Uzbekistan.

Demographics

With 74 participants in the survey, the age and gender distribution can help craft targeted marketing strategies for these businesses.

1. Age Distribution:

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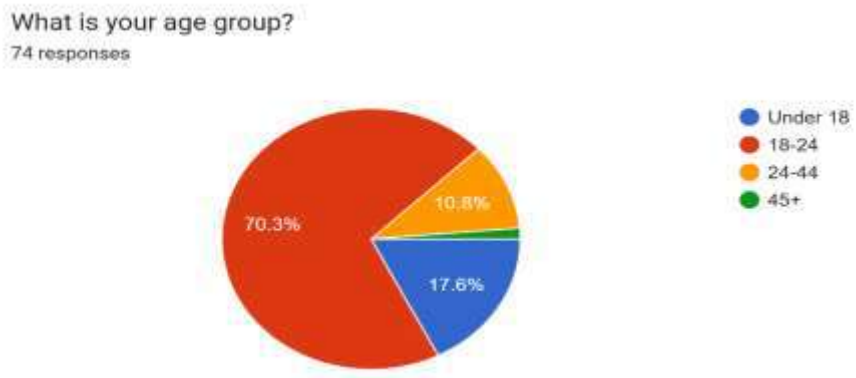
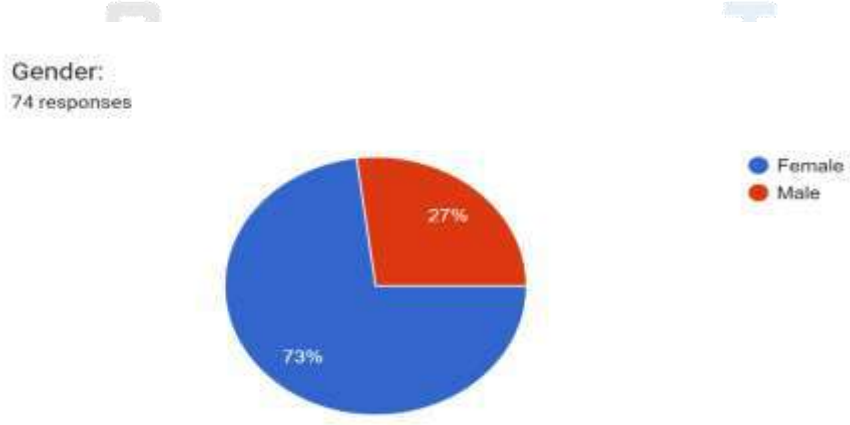
70.3% of respondents are aged 18-24, the most significant group. This indicates that young adults are the primary users of social media in Uzbekistan, making them a key demographic for handmade businesses. Marketing strategies should be tailored to the interests and preferences of this age group, such as using Instagram, which is highly popular among younger audiences. The 24-44 age group accounts for 10.8 % while the under-18 group represents 17.6%, which are smaller but still relevant segments. Businesses can focus on this groups by offering products that appeal to adults and younger audiences looking for unique, affordable artisanal goods or promoting convenience and quality. The 45+ age group has the least representation, indicating that older audiences may be less engaged on social media platforms for handmade business promotion. While still important, this group might require different strategies, such as targeted ads on Telegram or direct outreach (Kamolovna, 2024).

2. Gender Distribution:



73% of respondents are female, while males make up 27% of the responses. Handmade businesses can leverage this by creating products that appeal to women's interests and using social media campaigns that cater specifically to female customers. However, they should also consider smaller but still significant male audience when making promotions.



Social media usage

Knowing which social media platforms people use is essential for crafting effective marketing strategies, especially for promoting handmade businesses. The survey results reveal that

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52.7% of respondents use Telegram, 40.5% use Instagram, and 6.8% use YouTube. This information is crucial for several reasons:

1. Targeted Marketing:

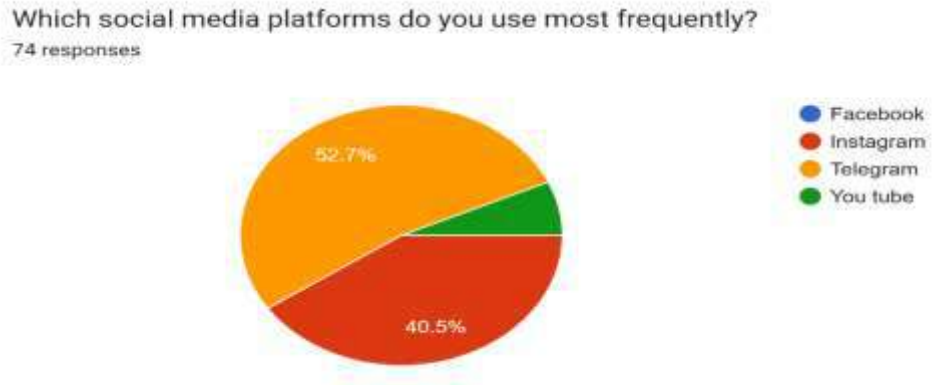
With 52.7% using Telegram, businesses can prioritize this platform for customer engagement and promotion. Since Telegram is widely used in Uzbekistan, it provides a direct communication channel for businesses to share updates, offer discounts, or run community-based campaigns. Telegram's group and channel features allow for building loyal customer communities, which is beneficial for small handmade businesses.

2. Visual Promotion on Instagram:

42.9% using Instagram indicates that a significant portion of the audience is active on this visually-driven platform. Handmade businesses can leverage Instagram's image-focused nature to showcase their products creatively, post customer testimonials, run influencer collaborations, and create stories or reels to boost visibility. Since Instagram is popular among younger audiences, it's an ideal platform for visually appealing products like handmade bags, jewelry, and accessories.

3. YouTube as a Supplementary Platform:

While only 7.1% use YouTube, the platform can still be valuable for businesses that want to create more detailed content such as behind-the-scenes videos, tutorials on how to make products, or customer reviews. YouTube helps establish a deeper connection with the audience and can be used to educate potential customers about the craftsmanship and uniqueness of the handmade products (Kamolovna, 2024).



Influence on Decision-Making

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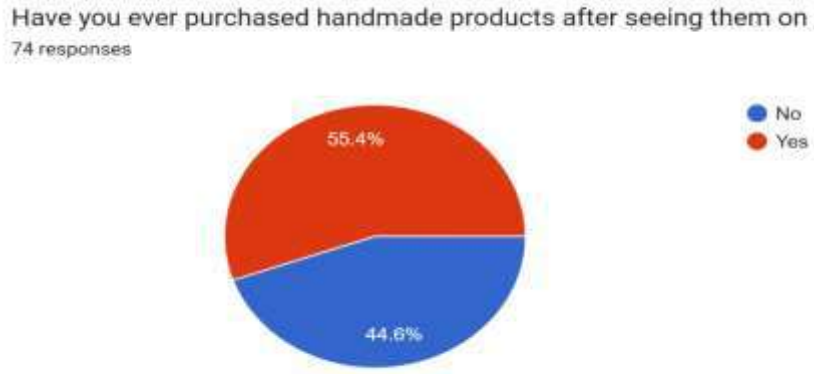
It was also evaluated to what degree respondents' decisions are influenced by social media when purchasing handmade products. It shows that most people are more likely to buy crafting items after seeing it on social media.

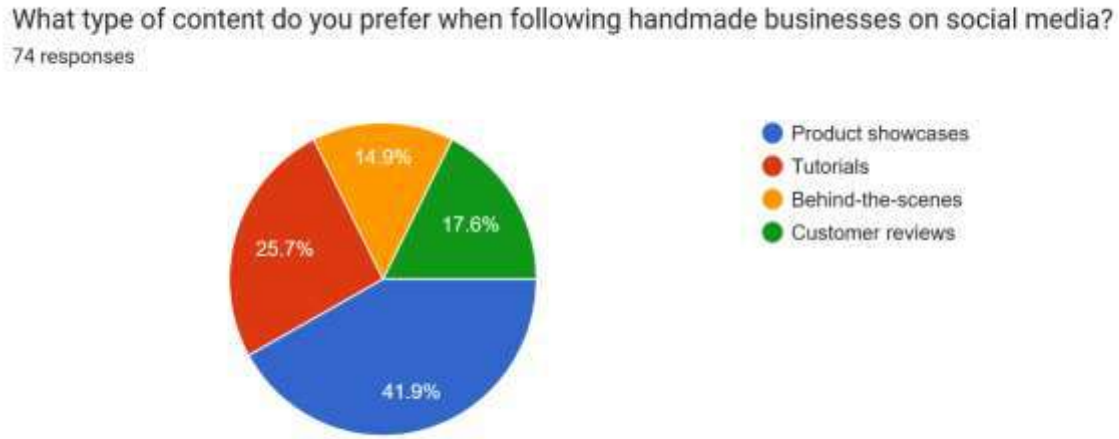
Content Types and Impact



The research indicates that customers have a clear preference for different types of content:

- 41.9% prefer product showcases.
- 25.7% are interested in tutorials.
- 17.6% find customer reviews valuable.
- 14.9% enjoy behind-the-scenes content.

This suggests that product demonstrations and instructional content are the most effective ways to engage customers, while behind-the-scenes and reviews play a smaller but still important role.



The importance of customer reviews

The survey highlights the significant influence of customer feedback and reviews on social media before making a purchase:

- 56.8% of customers find it extremely important.

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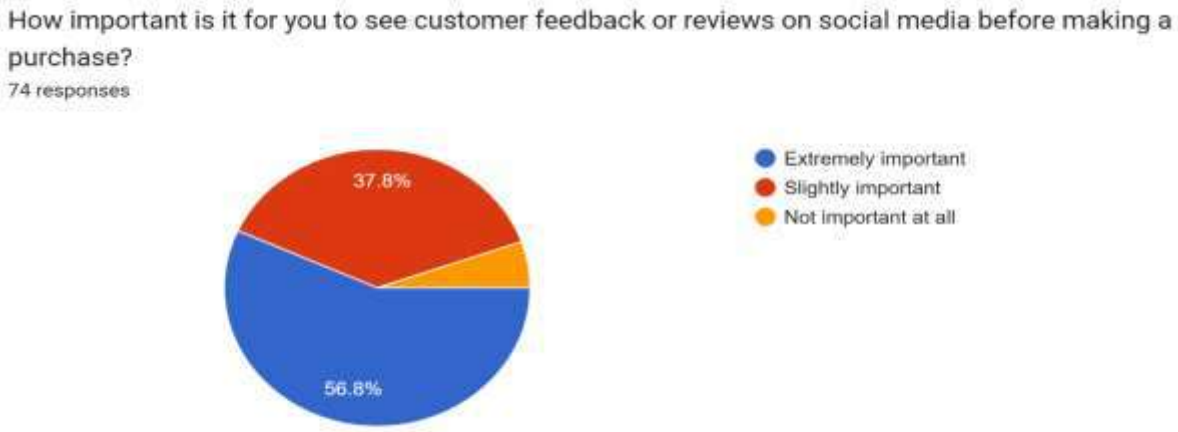
- 37.8% consider it slightly important.
- 5.4% think it is not important at all.

Why it's Important?

Positive reviews act as social proof, assuring potential buyers that the product is high-quality and worth the investment. This is especially vital for handmade items, where quality and craftsmanship may vary, and customers rely on others' experiences. Besides that, seeing other customers' experiences helps establish trust, particularly when purchasing items that can't be physically inspected beforehand. With over half of customers considering reviews extremely important, businesses can directly impact conversion rates by ensuring reviews are visible and accessible. The most important, reviews also provide valuable feedback, helping businesses improve their products and services, which is key for growth.

So, businesses should actively ask customers to leave reviews and share their experiences on social media and offer incentives like discounts or promotions for those who share feedback. Company should respond to both positive and negative reviews to show that they value customer feedback. This not only enhances their brand's reputation but also helps build a loyal customer base (Kamolovna, 2024).



The effect of discounts in decision- making

The survey reveals that discounts and special offers on social media influence customers' buying behavior regarding handmade products. 36.5% customers said that they always make purchases where there is a discount on product and it sometimes affects to 45.9% respondents. While 8.1% people said that they buy rarely products in discounts, 9.5 % respondents show that special offers never influence to their choices

Why Knowing This is Important for Businesses?

The fact that 82.4% of customers (combining "sometimes" and "always") are motivated by discounts and offers indicates that price incentives can play a significant role in encouraging purchases. Knowing this helps handmade businesses tailor their marketing strategies to include promotions that can effectively boost sales. Special offers and discounts often create a sense of urgency or exclusivity, which can prompt customers to act quickly. Understanding when and how

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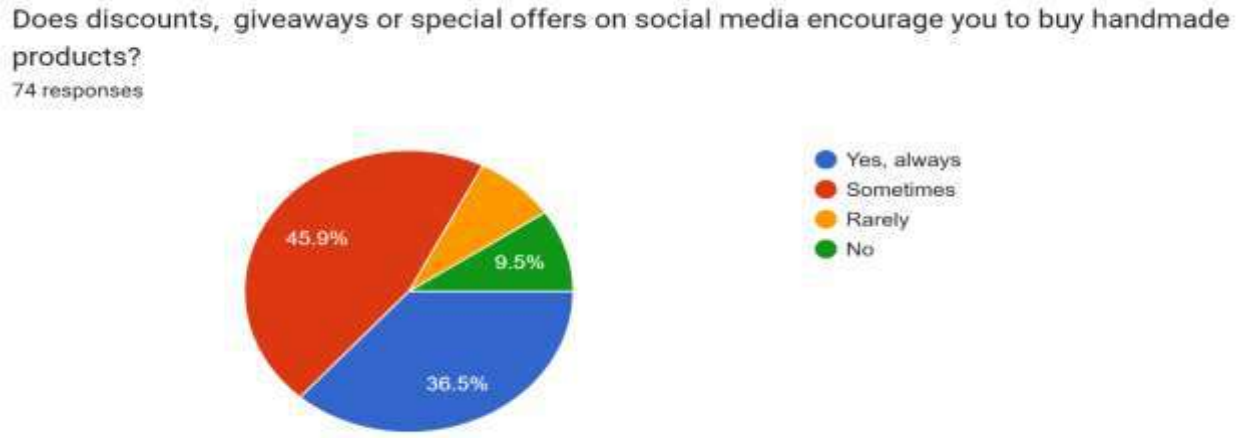
often customers respond to these incentives can help businesses optimize their timing and approach to promotions.

How can Handmade Businesses apply this data?

1. **Strategic Offer Planning**
2. **2. Promote Social Media Exclusivity**
3. **Loyalty Programs**
4. **Time-Limited Promotions**
5. **Targeted Marketing**

Use the data to plan regular discounts, limited-time offers, or special bundles that appeal to customers who are motivated by promotions. For instance, offering discounts during peak shopping periods or on new product launches can attract more buyers. Highlight exclusive offers available only through social media platforms to encourage followers to stay engaged and make purchases. This creates a sense of community and exclusivity**.** Introduce loyalty or referral programs that offer customers discounts on future purchases, rewarding those who make repeat purchases or recommend your products to others. For those who responded "sometimes," consider creating time-sensitive offers that create urgency, such as flash sales or countdown deals, to convert those who might hesitate into buyers (Kamolovna, 2024).



Open- ended questions are also given in this inquiry which helps to understand customer preferences and tailor contents according to their interests.

9.1 Summary of findings

The findings demonstrate that social media platforms are important in promoting handmade businesses in Uzbekistan, with Telegram and Instagram being the most influential channels. Young adults, especially women, are the primary consumers of handmade products, and businesses should tailor their marketing strategies to engage these groups. Content that showcases products, offers tutorials, and shares customer reviews resonates most with customers, indicating that businesses should prioritize these content types in their social media efforts. Discounts and special offers are powerful motivators, and businesses should consider incorporating regular promotions and loyalty programs to drive sales. Customer feedback, both in terms of reviews and

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engagement, is essential for building trust and loyalty. Additionally, e-commerce platforms like Instagram and Facebook are critical for reaching broader audiences, both locally and internationally.

10. Conclusion

This study highlights the significant role that social media plays in promoting handmade businesses in Uzbekistan. As digital platforms like Instagram, Facebook, and other e-commerce sites become more integrated into everyday life, they offer unique opportunities for artisans to reach a global audience and expand their customer base. Through the use of social media, craftsmen in Uzbekistan can showcase their products, share the stories behind their crafts, and engage with potential buyers directly. This research confirms that social media not only increases the visibility of handmade products but also builds trust and loyalty among customers through personal interaction and customer feedback. However, the study also revealed some challenges faced by artisans in Uzbekistan, such as limited digital literacy and the need for consistent content creation. To overcome these barriers, there is a need for more educational initiatives that help artisans optimize their social media presence and digital marketing strategies.

11. Suggestions for Future Research

Further research could explore the specific preferences and behaviors of different demographic groups across various social media platforms to help businesses fine-tune their marketing strategies. Also, they could investigate the role of influencers and collaborations in increasing visibility and sales for handmade businesses in Uzbekistan. Since platforms like eBay have been used to reach international customers, research on the effectiveness of e-commerce in expanding the market for handmade products outside Uzbekistan could be beneficial for businesses looking to scale. As digital transformation creates limitations for artisans, future researchers can make investigations on the ways of overcoming challenges and helping handmade business to improve their social media presence.

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Top Challenges Startups Face: A Literature Review

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Abstract

Establishing a startup business requires lots of effort, but when the focus is on the right side of the business the difficulties can be resolved fastly and efficiently, the paper will involve top challenges which startups face nowadays and tries to give info about the types of startups which make the most capital. In

This Literature Review online and exploratory research types of Surveys are used to deeply analyze the Startups well-being and also the weak points to develop.

Keywords: Indicators of Failure, SHELL Business Model, Market Competition

Startaplarning asosiy muammolari: Adabiyot sharhi

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Annotatsiya

Boshlang'ich biznesni tashkil etish juda ko'p kuch talab qiladi, ammo diqqat biznesning to'gri tomonida bo'lsa, qiyinchiliklarni tez va samarali hal qilish imkoniyati kelib chiqadi, maqola bugungi kunda startaplar duch keladigan asosiy muammolarni o'z ichiga oladi va startap turlari haqida ma'lumot berishga harakat qiladi. qaysi eng ko'p kapital qiladi.

Ushbu Adabiyotlar sharhida So'rovlarning onlayn va tadqiqot turlaridan Startaplarning farovonligini chuqur tahlil qilish va rivojlantirish uchun zaif tomonlardan foydalaniladi.

Kalit So'zlar: Muvaffaqiyatsizlik ko'rsatkichlari, SHELL biznes modeli, bozordagi raqobat

Главные проблемы, с которыми сталкиваются стартапы: Обзор литературы

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Аннотация

Создание стартап-бизнеса требует больших усилий, но когда фокус находится на правильной стороне бизнеса, трудности могут быть решены быстро и эффективно, статья будет включать основные проблемы, с которыми стартапы сталкиваются в настоящее время, и попытается дать информацию о типах стартапов, которые делают больше всего капитала. В этом обзоре литературы онлайн и поисковые типы исследований Опросы используются для глубокого анализа благополучия стартапов, а также слабых сторон для развития.

Ключевые слова: Индикаторы неудач, Бизнес-модель SHELL, Рыночная конкуренция

Introduction

Nowadays, establishing a new business or opening a startup might seem the easiest option to those who want to get rich really fast, but as times past competition in the business market is rapidly rising leaving startup runners with nothing but experience and empty wallets. However, there are a great number of startups which were at first catastrophic experience but after all enhancements and permanent developments startup owner's reached their peak in generating the revenue. In this Literature review there will be analyzed and summarized regardless of how startups are thought to be managed, still there are numerous issues and difficulties which awaits them at the end of a tunnel, below will be introduced and analyzed some of the recent and mostly encountered challenges that startups impinge.

Methodology

According to the Article **Startups Roads to Failure** (Marco Cantamessa, 2018), in order to understand the problem within the startup's performance there is a great tool to use which is a SHELL model, it helps businesses to identify the relationship and connection between the model's system and elements with the employees behaviour also their performance at work. The "S" means aspects which are non-physical, such as policies, processes and manuals; these factors show in what way the tasks should be done.

"H" means equipment, machines, and physical instruments which employees use. "E" refers to the social, organizational and physical conditions in which the workforce works. "L" meaning People refers to their performance while completing the given instructions including proficiency, acknowledgement, and confinement of the employees. The next "L" in the model represents Person to Person intercommunications and collaborations between humans.

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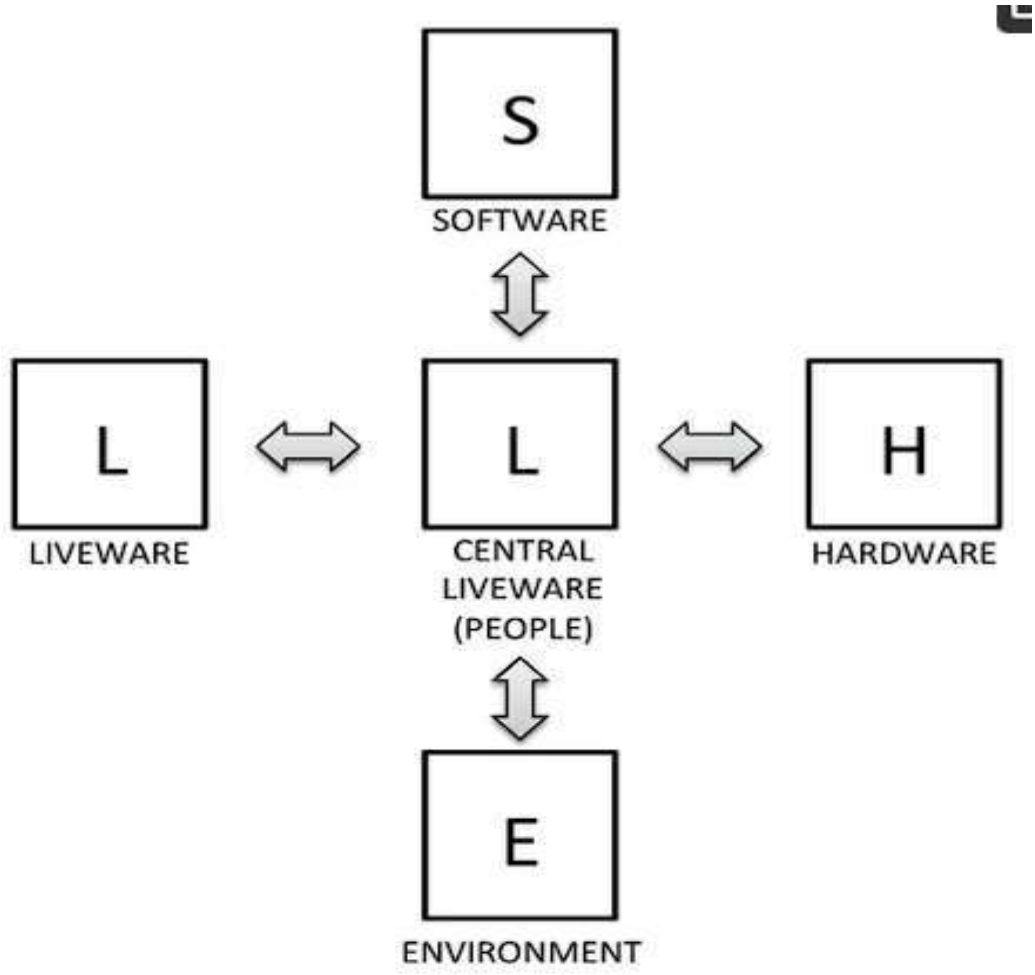

Figure 1. The Model of SHELL (Marco Cantamessa, 2018)

Analysis of Studies (Literature Review)

As we now have an understanding of what the SHELL model refers to, it is time to move on to the next step which is implementation of the model to the startup businesses real action issues while trying to operate successfully. To identify the real problem in startups we will first focus on each section of a SHELL model, That is there are enough aspects in each section of a model which should not be considered as useless points to work on. These actions lead the startups to identify the failures which are considered as exemplary stereotypes

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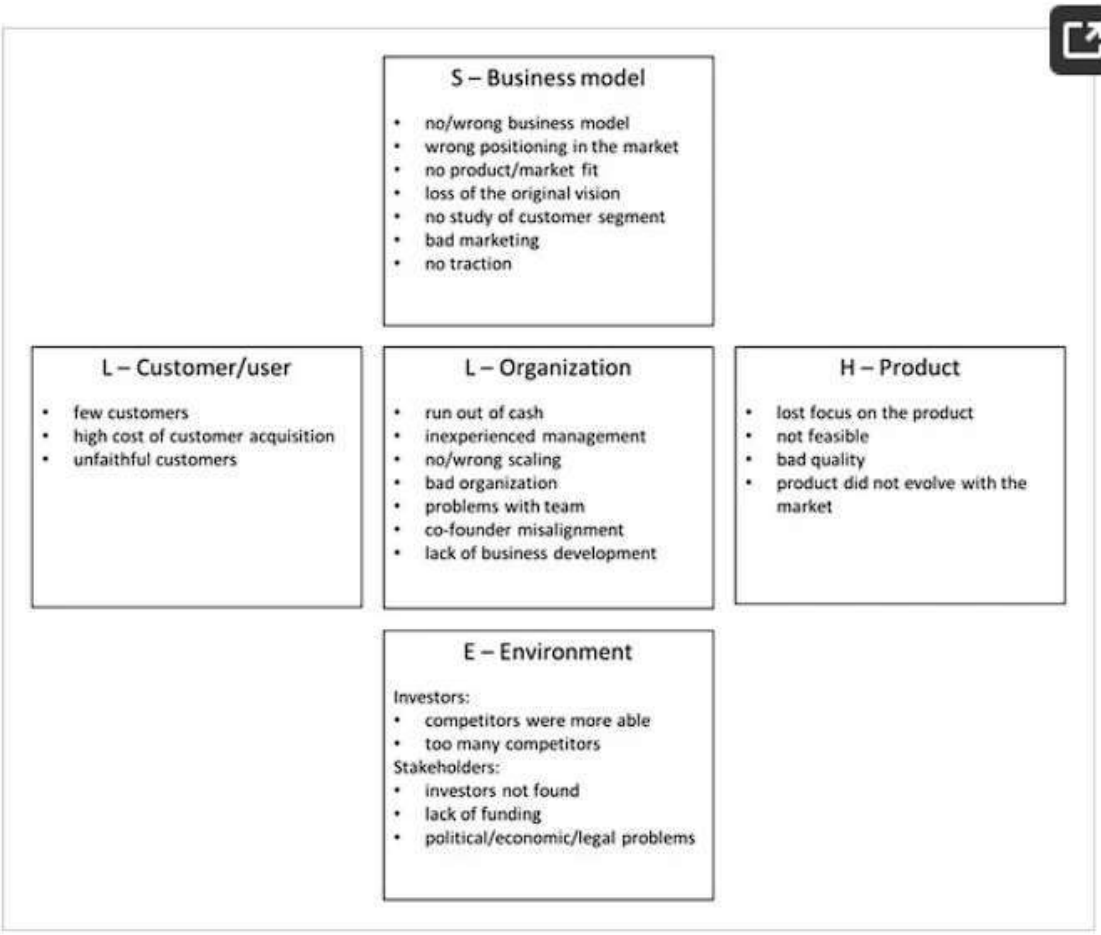

Figure 2. Startups Failures acclimatized by SHELL (Marco Cantamessa, 2018)

Business model of Startups which relates to the Software side of the SHELL tool helps to understand the weak points of a startup. First challenge when it comes to looking at the Business modules of Startups is that the businesses are lacking in traction of organization's profits and losses which may be a key factor in mislaying the competitive advantage in the potential market among its rival startup businesses.

Next big challenge is paying attention to the wrong vision of startups, in the beginning the company sets the original vision statement in order to achieve it in a short period of time, however if losing the original vision the plans of the company may collapse. 3rd Most faced challenge which startups face in the Business Model stage is positioning wrongly in the operating marketplace, it leads to rapidly decreased sales, customer interactions and ability to stay in front when the bankruptcy happens. One of the main challenges when it comes to the Hardware aspect (Product) is producing products which are not acceptable by the clients at all, the reason is that startups do not pay attention to manufactured goods in return the success will be unreachable due to the bad sales.

In the Environment stage the startups main problem is there are more than enough rival companies which operate in the same market and sell or provide exact similar services or products,

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it may play a negative role in founding and guaranteeing the safety of the startup company among its competitors. Before the final stage (The Liveware) user and customer problems are considered one of the key components in startups success but there is a huge mistake which is made by companies while building a strong customer base, the customers who are unfaithful meaning the target audience is identified wrong which is why the interest is low towards the selling product or provided service by the startup businesses.

Finally, the last aspect of the startups internal challenge is running out of founded capital, in the business the cash is essential tool to establish and develop a new product line especially when it is a startup company which is beginning to enter to the new market, there are problems that are considered to be solved by the help of a good amount of money and as soon as this amount is found the rest is left to the management team to control.

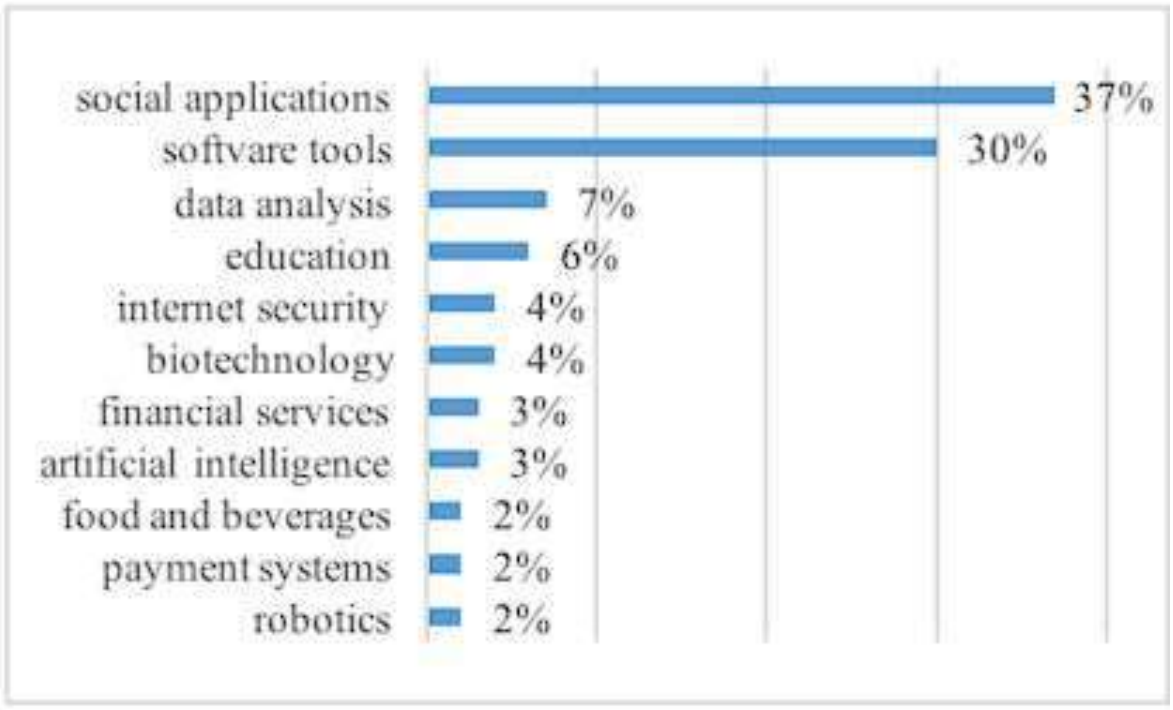

Table 8 Indicators of Startups Failure (R. Bednar, 2017, p 238)

As it is shown in the table of the article **INDICATORS OF STARTUP FAILURE** (R. Bednar, 2017), there are established nearly 50 million fresh startup projects and companies annually that means 137,000 of them are considered as daily newcomers to the market also more than 75% of the all startups are created in USA which is not a huge surprise. According to the table above there are mainly 11 types of startups worldwide which are able to generate a good amount of revenue annually from Robotics field up to social applications business, it means that only 2% of the startups which are operated in Robotics, Payment systems and Food/Beverages are received a profit over the last 20 years, the startups which are focused on artificial intelligence and financial services are set around 3%, internet security and biotechnology peaked at 6%, data analysis

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startups 7%, Interestingly most of the profits were earned by the software tools 30% and social application startups by the 37%.

Further directions and conclusions

As it was analyzed in the above Literature review, main challenges startups are considered to fail rely on how the business is managed and what tools also models are implemented during the establishment and further operation time, SHELL module can be a great example to understand these issues in order to liquidate them immediately. In the mentioned indicators of Startups failures it is clear that choosing the right and suitable sphere of business is essential to become one of the main key players in this modern consistently rising market, additionally looking into the flopping indicators gives a new potential chances for new established Startup company not to repeat the mistakes which were taken by their rivals.

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CHALLENGES FACED BY STARTUPS AND THE WAYS TO OVERCOME THEM

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Annotatsiya. Ушбу макола бугунги кунда стартаплар дуч келаётган кенг куламли муаммоларни ва бу муаммоларга ечим йулларини ва стратегияларини урганади. Муаллиф стартаплар дуч келадиган умумий муаммолар ва халкаро компаниялар дуч келадиган муаммоларни ва уларни хал килиш йулларини келтириб утади ва бу сабабларни реал хаётда, жумладан, чакана савдо, озик-овкат, ишлаб чикариш, фармацевтика ва тадбиркорлик сохалари мисолида курсатиш учун амалий тадкикотлар такдим этади. Ушбу маколанинг асосий максади- халкаро стартаплар дуч келадиган кийинчиликларни урганиш, буларни бартараф этиш йулларини урганиш ва натижаларини махаллий компаниялар билан солиштириш.

Kalit so'zlar: Кенг куламли муаммолар, стартап, чакана савдо, озик-овкат, ишлаб чикариш, фармацевтика, тадбиркорлик, халкаро, махаллий.

Аннотация. В этой статье рассматриваются общие проблемы, с которыми сталкиваются стартапы сегодня, а также пути и стратегии их преодоления. Автор приводит общие проблемы, с которыми сталкиваются стартапы, и проблемы, с которыми сталкиваются международные компании, и пути их решения, а также приводит примеры, иллюстрирующие эти причины в реальной жизни, включая примеры из розничной торговли, продуктов питания, производства, фармацевтики и предпринимательства. Основная цель этой статьи- изучить проблемы, с которыми сталкиваются международные статтапы, узнать способы преодоления этих проблем и сравнить результаты с результатами местных компаний.

Ключевые слова: Общие проблемы, стартапы, розничная торговля, продукты-питания, производства, фармацевтика, предпринимательство, международные, местные.

Abstract. This article explores the broad challenges facing startups today and explores ways and strategies to overcome these challenges. The author cites common challenges faced by startups and challenges faced by international companies and ways to solve them and provides case studies to illustrate these reasons in real life, including examples of retail, food, manufacturing, pharmacy, and entrepreneurs industries. is enough. The main purpose of this article is to study the challenges faced by international startups, learn ways to overcome these challenges, and compare the results with local companies.

Key words:Broad challenges, startups, retail, food, manufacturing, pharmacy,entrepreneurs, international, local.

1.0 INTRODUCTION

This article is intended to explore the challenges that many startups are facing today and to plan in depth how to find solutions to them. First of all, startups are the type of business that started the voice business and went through the first stages in this business, and they are founded by one

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or more people. In addition, the article analyzes the internal and external challenges faced by startups and how to overcome them. solution will be considered. The next part of the analysis discusses the problems faced by international startups and their solutions. In order to study this topic more deeply, in the next parts, a survey of local startups will be taken and analyzed; the survey mainly includes a deeper study of the problems faced by new entrepreneurs in various local industries and finding solutions to them. After all these studies, a general conclusion and recommendation will be given.

2.0. LITERATURE REVIEW

In this part, the challenges that startups often face are discussed, as well as the challenges faced by many international startups and how these startups have overcome these challenges are mentioned.

First of all, let's remember what kind of company a startup is. The word startup means a company in the early stages of its activity. This type of company is founded by one or more entrepreneurs. Also, such companies start with limited revenues and high costs when they start; they get capital from family members, investors, and venture capitalists. Startups take several years to reach high profits; during this time they face many difficulties, and some of them may even be closed during this period(Grant, 2021).

2.1 External challenges of startups

Many entrepreneurs face a number of external obstacles to success, and the reason for these external difficulties is the surrounding entrepreneurs, that is, the environmental factor. It also includes market prices, government rules and regulations, and competition. Some of these external challenges are as follows:

1. Competition. One of the biggest challenges for businesses these days is competition, and the competition is very tough and high these days, and if it's an online startup, the competition will be even tougher. It is not easy to compete in a competitive environment; there is always fierce competition in B2B and B2C organizations. Due to the increase in the number of new competitors every day, businesses may face different ideas, and this may cause the risk of losing customers. Being in constant motion, market trends and constant attraction of customers can be difficult for the company. But looking at it from another point of view, competition can be a good challenge for business development, because entrepreneurs constantly try to improve their products and services in order to find their place in the market. Through this, innovation is formed; it is easier to attract new customers. However, this is a difficult task for new entrepreneurs because they may not have enough experience to compete with experienced and established entrepreneurs(Haddin, 2018).

2. Finding customers and winning trust of customers. The next external factor is finding customers, which can also be difficult for new startups. Also, good customers can greatly contribute to the company's continued operations; good customers are loyal to the company and in some cases forgive them even if the company makes a mistake. In addition, customers' constant comments to the company will lead to positive changes in the company. After finding customers, gaining their trust is another difficult task for the company. Startups make progress thanks to

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satisfied and loyal customers; customers are the real force in the company's success. Through their word of mouth, other customers come as new customers. In order to gain the trust and loyalty of customers, companies must work long and hard(Haddin, 2018).

3. Talent acquisition and retention. Another challenge for startups is attracting skilled employees and keeping them in the company, and this is one of the biggest problems in today's competitive market. Competing for the same talent with larger corporations and larger companies is more difficult and requires a more positive approach because these larger companies offer competitive salaries and benefits for skilled talent. The best way for startups to attract talent is to have a positive and supportive work environment and flexible working conditions, and startups can create opportunities and incentives for personal development just like large companies(Innovaction Global, 2024).

2.2 Internal challenges of startups

New entrepreneurs face many internal barriers to success, which are often called personal pressures and are experienced by the entrepreneur before starting a business. This section discusses internal problems that entrepreneurs may face.

1. Access to funding. One of the biggest challenges a new entrepreneur faces when starting a business is funding, and securing the capital needed to support business operations and growth is a constant challenge for startups with limited budgets and resources. The current economic conditions are tough, and the competition for investment and venture capital, as well as loans, is very high, which provides a wide choice for investors but creates problems for startups. It is also difficult to make the right decisions with limited funds, so they need well-thought-out and well-funded strategies because investors prefer to invest in well-established businesses because there is less risk(Innovaction Global, 2024).

2. Lack of planning. The next challenge is the lack of planning; many businesses fail because of poor planning. They may have planned but not covered everything or studied in detail. The most important developments—staffing, sales, and funding—will not be developed on the basis of a good plan, and in fact, all these are things that should be in the business plan from the beginning to the end of the business. Of course, not everything can be planned in advance, but when unexpected situations arise, entrepreneurs should know what to do. Sometimes the lack of necessary knowledge among entrepreneurs also causes these problems. This means that entrepreneurs should first get enough knowledge and then act for business(Scully, 2018).

3. Poor management. The next thing that startups can't afford is ineffective management; as startups grow, team management becomes more difficult, so it's important to have the right team members in place to make the right and clear decisions. must be. There are 2 main things to focus on when building a leadership team: the first is to make sure that the team is working together and to ensure transparency in the team when decisions are made. The second is to make sure the team is working well and make decisions based on results and solve problems faster. By having strong management, startups move in the right direction and succeed(Scully, 2018).

2.3 Challenges faced by international entrepreneurs

There are a lot of startups at the international level, and it is very difficult to consider all of them. but we can give examples of some companies; for example, Suno is an AI music generation

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startup that allows people to create original music using AI, and the next one is Maisonette, which is an online market for children's clothes, accessories, and home decor that is sold. Another startup is Melio, a B2B payment platform that allows small businesses and suppliers to make payments easily. The next is Flowspace, a platform that provides warehousing and logistics services for e-commerce businesses. These startup companies have also faced challenges, and we will look at them now. The first is competition; the reason is that when entering a new market, it will be difficult to compete with previously developed companies, and it is also difficult to attract customers because the brand was not yet known, especially in the e-commerce sector; this competition is now very high. The next challenge is to adapt to market changes. It is very difficult to adapt to changes in the current developing market; if the business does not carry out new ideas and research, it will be difficult to stay in the market. The next problem is funding, that is, the correct use and distribution of money. After finding investors, it is necessary to be able to use the investment correctly for the further development of the business; these are staff, sales, marketing, and similar sectors with money that includes support(Expert Panel, 2023).

2.4 How international startups overcome challenges

Startups have overcome the problems mentioned above. The first challenge was the competition; to overcome this, they chose niche targeting, that is, instead of serving everyone, they chose their target audience to support themselves and try to improve the customer experience. They also kept their creativity in order not to lag behind their competitors and always improved their markets and identified their competitive advantages, understood in which aspects their business differs from others, and acted accordingly. The next problem was to adapt to the changes in the market, and to solve this, the companies conducted continuous research, studied the market deeply and continuously, held discussions with their team members, and studied the opinions of customers. The next challenge is funding; for this, entrepreneurs first found investors or used their savings, made financial plans for proper use of funding, and increased their knowledge(Expert Panel, 2023).

3.0. RESEARCH METHODS

The purpose of this article was to study the challenges that cause the failure of many startups today and to learn ways to overcome these challenges, and to do this, the author used primary and secondary research methods. All information in the article was obtained from reliable sources. Information in the literature review was obtained and reviewed from electronic articles and statistical data. For some data, Google Scholar sourced it and used it, and it was taken from the 2020 and 2024 data there. A survey was conducted to learn how to overcome the difficulties faced by startups, and for this, question-and-answer interviews were used, and this was done online through Google Docs. Local startups participated in this survey. And the results of the survey were used in the next part of the analysis and discussions, and at the end of the article, it was concluded using all the collected data.

4.0. SURVEY

The author conducted a survey for startups; the purpose of this survey was to learn what difficulties startups faced when starting their business and how they overcame them. This survey covered 10 startups in different fields and asked their opinions. Also, startups in the food industry,

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startups in the manufacturing industry, startups in the pharmacy industry, and several business owners participated in this survey. For example, the author went to supermarkets, pharmacies, and business owners to survey startups. The reason why the survey is carried out in different industries is that different companies have different problems, and the methods of solving them are also different. Among them, online surveys were conducted through docs.google.com/form/.

5.0. COLLECTING, ORGANIZING AND ANALYZING THE DATA

All online surveys were conducted to find out the opinion of startups. startups from different industries participated in it. They were asked 6 questions about their industry. If we start with the answers of startups in the first **retail industry**, when we asked them what challenges they faced, they answered funding, talent acquisition, competition, and team management. In the case of financing, they took money from banks and investors for the business and they used various discounts to attract customers. To solve the problems they faced, they first improved the planning and worked better with the team members to manage the team. The next industry is **pharmacy**, and the problems faced by startups in this industry are related to funding and competition, and they took capital for funding from family and loans. In order to overcome the challenges faced by the startups in this industry, they did good planning from the beginning, they learned to use the funding properly, and they spent the money in the right place. As for the **food industry**, a survey was taken from 2 large markets in this industry, and the answers show that the biggest challenges faced by these markets are funding, competition, and team management. 1 took money for market funding from family members, and the other took a loan from the bank and started the business. in order to attract customers in the new market, they offer various discounts. They used different methods to solve the problems they encountered; for example, they hired good employees based on their experience, conducted trainings with team members, and used cheaper prices than competitors. The next survey participants are **entrepreneurs** who have their own businesses; one of them is the owner of a furniture store, and one is an entrepreneur who runs a business in partnership. Based on the questions asked of them, the challenges that created problems for them were competition, funding, and finding good employees, because they used their own capital to start their business. used social media marketing and discounts to attract customers to the furniture store. Planning is the best way to overcome the challenges they face, and they train employees to work well. The last industry is **manufacturing,** and a survey was conducted in several startups in this industry. According to the results, the most important challenges faced by these startups are team management and talent acquisition. It was said that they had no problem with funding when opening the business because they used their own capital. There were some problems related to competition, and to overcome this, they made a new approach to their customers. In addition, they created a good salary and work environment for talent acquisition. and for team management, many trainings were conducted with team members separately.

6.0. DISCUSSOION

All the information analyzed above shows that the problems faced by startups are different, and the ways and strategies to solve them are also different depending on the industry. The discussion of these data shows that the challenges that new businessmen, i.e., startups, may face have been considered, as well as the difficulties faced by other international startups at the beginning of their business and how they solved them. The most common problems faced by

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international startups are competition, adaptation to market changes, and funding. In order to solve these problems, companies overcame the problems by improving the target, determining the target audience, determining their competitive advantages, and maintaining creativity in order not to fall behind the competition. Also, in order to adapt to market changes, they did constant market research, studied the market in depth, and conducted more conversations with team members, used their savings and investors to solve the funding problem when starting the business, and made a detailed business plan from the beginning. In addition, the local startups and the results of the survey were studied in the article. According to the survey, in order to study the problems of startups, problems were studied based on the experiences of various industries, including food, retail, manufacturing, pharmacy, and new businessmen, and the survey was conducted online and offline. According to the results of the survey, the most common challenges faced by startups in the **retail industry** are funding, talent acquisition, competition, and team management, and the most effective way to solve these problems is to find investors, give discounts to attract customers, and better work with team members. The next problems faced by the **pharmacy industry** are competition and funding. The way to solve this is with investors, loans, and good planning. As for the **food industry,** the challenges they face are competition and team management, and the solutions are giving discounts to customers and training employees more. The people surveyed are **new businessmen**; the problems they face are competition, funding, and finding good employees, and the solution is to use social media marketing to train employees well and attract more customers in competition. The last industry is **manufacturing**, and the problems encountered are talent acquisition and team management. To solve these problems, they created a good work environment for new employees and gave them high salaries, and for team management, they worked more with employees.

7.0. CONCLUSION

Based on this study, it can be said that it is important to study the challenges faced by startups and learn ways to overcome them at the time when the current competition is high and opening businesses is widespread. Based on the data and analysis, the most common challenges for startups are competition, funding, and adapting to market changes for international startups. The problems startups constantly face are competition, finding customers, talent acquisition and retention, access to funding, lack of planning, and poor management. To solve these problems, international startups use different ways, for example, identifying the target audience, conducting market research, conducting regular trainings with team members, and improving financial planning. According to the conducted survey, local startups in different industries face different problems and solve them in different ways. But if we summarize their answers, the 3 most common problems faced by local startups are competition, funding, and team management. Nowadays, of course, these problems are also widespread in international startups. The solutions they widely use vary depending on the industry, for example, training employees, finding investors for funding, and thoroughly studying the market for competition. If we make a recommendation based on the data, there are similarities in the problems of international and local startups, and the methods of overcoming them are somewhat similar. If they have, these startups will not fail in the future and will be able to properly study the problems and solve them appropriately.

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Research Theme: The Evolution of E-Commerce in Central Asia: Best Practices

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Abstract:

Thus, e-commerce has become a powerful transformative force in global markets that are affecting the way business and consumers communicate with each other. The digital renaissance in Central Asia, a region long characterized by being a central component to trade on the Silk Road, is under way. This paper looks at the history of e-commerce in Central Asia as it responds to its the key drivers, challenges and best practices. It discusses how in the context of Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan, many regional adaptations and innovations have driven sector growth, inspiring more sustainable development. In particular, the paper talks about the impact of policy, infrastructure and cultural adaptation on the future of e-commerce in the region.

Keywords:

Central Asia, best practice of e-commerce, digital platforms, cross border trade, mobile commerce, fintech, infrastructure development, policy framework

Introduction

Central Asia, which includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, has radically transformed its economy and technology over the last 20 years. But regulatory barriers remain, as do a lack of digital literacy and infrastructure, as internet penetration and forward uptake of both smart phones and the region's middle class all get more and more powerful, and e commerce in the region has also become more viable most recently. In order to achieve the above, this paper analyses key trends, challenges and best practices in Central Asian e-commerce evolution, providing a comprehensive overview of the e-commerce development and actionable recommendations for future, sustainable growth.

Literature Review\

Overview of E-Commerce Development in Central Asia

In recent years there has been great change in E-Commerce, Central Asia due to increased availability of digital infrastructure, government initiatives and increase in online shopping demands. According to the Asian Development Bank (2023), E-Commerce revenue in Kazakhstan rose by 35% between 2021 and 2023, suggesting it is the perfect market for adoption. Digital platforms are increasingly becoming a means of many regions to achieve business growth in E-Commerce. This explosion towards digital commerce in Central Asia is a relatively new phenomenon, but a ground shaking paradigm shift in the region's economy. Because of its historical centrality as a stop on the Silk Road and its more recent technological and internet penetration, Central Asia has become a locus of e-commerce growth. The Asian Development Bank (2023) notes that Kazakhstan, the largest economy in the region, has seen its e-commerce contribute 35% more from 2021 to 2023, indicating the steep angle of e-commerce. Similarly, although internet infrastructure in Uzbekistan and Kyrgyzstan has improved, both countries have seen their digital commerce grow as consumers and businesses have new opportunities. While there are positives to these trends, the e-commerce cauldron is not a panacea — the region is still

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grappling with challenges that keep it from wider e-commerce adoption. The main elements of these challenges come from poor digital literacy, regulatory fragmentation and logistical problems As a result, the development of the e-commerce ecosystem is uneven and urban centres are ahead of rural ones when it comes to internet speeds and digital infrastructure. Nevertheless, these obstacles are being slowly overcome through efforts of the government to expand the digital infrastructure, like Kazakhstan's own Digital Kazakhstan. This also enabled direct expansion of the broadband, which has been allotted US$1.5 billion by the government (Ministry of Digital Development, 2023) and therefore has a direct impact on e-commerce as the internet access is expanding.

Infrastructure Development

Digital logistics infrastructure is one of the most important factors of e-commerce development in Central Asia. Internet penetration rates have dramatically climbed: Kazakhstan (85%), Uzbekistan (72%) and Kyrgyzstan (60%) (ITU, 2022). Digitalan Kazakhstan initiative has provided access to connectivity for most with US$1.5 billion funding for broadband deployment (Ministry of Digital Development, 2023). The logistics are still a problem, especially for rural areas. Ozone, a leading e-commerce platform, opened regional warehouses, respectively, Almaty and Tashkent in 2022 in order to improve last mile delivery and to keep delivery efficiency high by 30% (DHL Logistics, 2023). In addition, e-commerce solutions have become the focus of postal upgrades in Kyrgyzstan within the form of partnerships with such platforms as Wildberries. One serious part of e-commerce development in and in Central Asia is expanding digital infrastructure in the region. According to the ITU 2022 report, internet penetration rose significantly across the region and Kazakhstan has the highest proportion of the population at over 85% on broadband. Uzbekistan's broadband penetration rate reached 72% and Kyrgyzstan's 60% (ITU, 2022), after Kazakhstan. These statistics show a real progress in digital connectivity, which is the key to e-commerce businesses success. But even with this, rural areas lack digital infrastructure. Despite these areas are well established markets for e-commerce, many consumers still cannot get access to reliable internet services to enable the growth of e-commerce. E-commerce also faces significant logistics infrastructure in its development. Just as countries like Kazakhstan and Uzbekistan are investing heavily in advancing last mile delivery and regional logistics. Last year, Ozon, a Russian e-commerce platform, stepped up its regional presence in Central Asia after opening regional warehouses in Almaty and Tashkent. This is a move of strategy, aiming to better delivery efficiency up by 30 percent through regional inventory (DHL Logistics, 2023). Like Kyrgyzstan, nowadays postal services are improving in the country, as well as creating a government drive to connect e-commerce platforms with national logistics companies to gain reach and reduce delivery time (Ministry of Digital Development of Kyrgyzstan, 2023). Though they have had these achievements, logistical challenges are still a big impediment to e-commerce development. Urban and rural distances are large and transport infrastructure is little developed, especially in remote areas. High operating costs and resulting delays make e-commerce businesses fail to survive outside of major cities. Nevertheless, there are progressive approaches (e.g. Kazpost's unmanned delivery trials) to these challenges (Kazpost, 2023), although lack of scalability remains an issue (Kazpost, 2023).

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Fintech Innovations

Digital transactions now are done with ease, ease and security through the dint of fintech revolution in e-commerce. Mobile payment solutions and digital wallets have pushed forward the pace of providing financial inclusion, allowing more people to become part of e-commerce. For instance, the Pay me platform registered a 40 percent year-on-year growth in the volume of transactions in Uzbekistan as a result of growing penetration and internet access (World Bank, 2023). Central Asia plays host to this trend in mobile commerce as many consumers stay away from banking services.

Notably, one of the most succesful stories of the region is Kazakhstan's Kaspi.kz platform. By combining the services of banking, e-commerce and fintech in a single mobile application, Kaspi.kz has evolved into a major leading player on the Kazakhstani digital economy. Kaspi.kz Annual Report, 2023, more than 11 million active users, and processes more than 60% of Kazakhstan's online transactions. This is all thanks to the platform's payment solutions, such as "Kaspi QR," which allows for payments made via QR code, the adoption of which grew by 50 percent from 2021 to 2023 (Kaspi.kz Annual Report, 2023). As in the case of mobile wallets and fintech applications such as Kyrgyzstans Elsom payment system, they too have widened their reach substantially in adopting e-commerce among small businesses and consumers; for instance (Elsom annual report, 2023).

Mobile payment adoption, however, remains to be a challenge, especially in Turkmenistan, where the country's first digital wallet was launched in 2022, despite the launch by the Turkmenistan Central Bank (2023). While these fintech solutions are becoming more commonplace, Central Asia remains largely shackled to cash on delivery (COD) as an uptake of digital payments has not caught up due to a dearth of digital literacy. Simplified payments and boosted consumer trust has served to greatly enhance e-commerce by virtue of fintech. According to Payme, Uzbekistan's payment platform, in 2023 transactions increased by 40% year over year thanks to the growing use of smartphones and internet access (World Bank, 2023). For example, in Kazakhstan, an integrated platform Kaspi.kz that provides an integrated platform reached 11 million active users in 2022 with 60 percent of Kazakhstan's online transactions (Kaspi.kz Annual Report, 2023). While Turkmenistan still lags behind when it comes to digital wallets, in 2022 it has launched its first one, moving towards online sales. Mobile money reached those in rural areas and small businesses can partake in e-commerce. For example, Kyrgyzstan's Elsom system had a 25% increase in its user base in 2023 (Elsom Annual Report, 2023).

Regulatory Environment

The challenges of cross-border e-commerce are related to regulatory fragmentation. The Eurasian Economic Union [EAEU] has harmonized its policies and a 2023 report showed that streamlined customs procedures helped 20 per cent more cross border e commerce (Eurasian Economic Commission, 2023).Uzbekistan's 2019 tax incentive to attract online businesses ramped up e-commerce activity, and 25 percent more entities from the sector were registered between 2021 and 2023 (Uzbek Ministry of Innovation, 2023).

Consumer Behavior and Trust

A key barrier to growth of cross border e commerce in Central Asia is regulatory environment. Underlying fragmented regulation, many countries have been unable to mesh their

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regulations with neighbours through regional agreements such as the Eurasian Economic Union (EAEU), and so progress has been made while still some distance off. According to the EAEU's 2023 report, cross-border e-commerce through member states increased by a whopping 20% as business and customs procedures become harmonized (Eurasian Economic Commission, 2023). This is especially true of such countries as Kazakhstan, Kyrgyzstan and Uzbekistan, where cross border e-commerce helps drive the growth in the market.

Uzbekistan's 'Digital Uzbekistan 2030' strategy for the modernization of its country's digital economy has included the incentives of taxes for online businesses. As a result, 25 percent more registered e-commerce entities were observed between 2021 and 2023 (Uzbek Ministry of Innovation, 2023). Like Kazakhstan, the reduction of VAT on the digital services has led to more favorable environment for e-commerce in 2022 (OECD, 2023). Yet, the process of regulatory fragmentation across Central Asia remains to be a major issue. Differences in online business regulations and tax and customs policies between countries cause confusion and increased inefficiencies for businesses seeking to sell and do business in multiple countries.

While the challenges to regulatory reform have made it difficult, Central Asian governments are beginning to acknowledge these reforms' importance. As an example, Kazakhstan and Uzbekistan did reduce the amount of bureaucratic red tape and improve the customs process, which will surely be conducive to further e-commerce efficiency in the border.

There is simply no growth for e-commerce without consumer trust. According to the 2023 survey by McKinsey & Company, 60 percent of Central Asian consumers said they had fears of fraud preventing them from shopping online. The solution to this matter is the implementation of platforms such as Wildberries who introduced escrow payment systems, real time delivery tracking that improves customer satisfaction rate by 15% (Wildberries, 2023).

Comparative Analysis with Emerging Markets

Central Asia's e-commerce trajectory parallels that of other emerging markets, especially of Southeast Asia and Sub-Sahara Africa. For example in Southeast Asia, mobile first strategy has been a huge success with countries like Indonesia and the Philippines adopting mobile payments and digital wallet so quickly. Similar strategies could be adapted to the Central Asia surrounding region where mobile penetration rates are very high, and the use of smartphones is rising (Statista, 2023).

As an example, Southeast Asia's Grab has mastered the combination of e-commerce, ride hailing and digital payments and shows how Yandex in Kazakhstan can follow this example (Grab Financial Report, 2023). Like Sub-Saharan Africa's M-Pesa platform, which provides credit without the need for traditional collateral, has done in increasing financial inclusion by allowing users to send and receive money through their mobile phone. The lessons from this model can prove useful for Central Asia where many people are unbanked but have access to mobile phones.

On the path to e-commerce, Central Asia is analogous with Southeast Asia. Central Asia could learn from Southeast Asia's mobile first strategy and digital wallets. For example, Grab's integration of ride hailing with e-commerce for example in Southeast Asia is a potential model for companies such as Yandex in Kazakhstan (Grab Financial Report, 2023). Barriers to entry for traditional banks through mobile money integration are also demonstrated by Sub-Saharan Africa's M-Pesa.

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Summary

Infrastructural development, fintech innovation and regulatory reform form the basis for the growth in the e-commerce landscape in Central Asia. There are still challenge however, mainly in logistics, digital literacy and consumer trust. Governments and businesses need to continue investing in digital infrastructure to help to accelerate e-commerce progress in the region; and both need to improve the process of regulations in a way that can increase trust of consumers. Central Asia can harness all its potential as a regional e-commerce hub if it adopts best practices from other emerging markets.

Research Methodology

Research design:

This research covers quantitative and qualitative approaches to ensure the whole understanding evolution of e-commerce in Central Asia. To define research design focused on learning macro-level trends and micro-level behaviors that identify landscaping e-commerce in Central Asia. In analyzing statistical data, quantitative methods, while a deep understanding of customer behavior and deals practice used qualitative methods.

Quantitative data

Quantitative method gathering data to identify regularities and trends in integrating the internet, acceptance of digital payment, and growth e-commerce in Central Asia. Secondary data from authoritative sources such as the World Bank, ITU and other reports are used for quantitative methods. To this data was implemented statistical methods including trend analysis and research correlation to set up connections between key changes.

Qualitative method

The qualitative method is used for the addition quantitative method by providing an understanding of detailed unique problems and option to region. This research method includes deep research perception problems and practice in e-commerce. There are conduct semi-structured interviews and discussions in focus groups with administrators business universities or schools, teachers, and e-commerce professionals. Researches include regular objectives, technology integration, and cultural factors in formulation practice in e-commerce.

Data Collection

The survey focused on students and professors from the business management faculty at BTEC in Uzbekistan, in particular Millad Umidi University by using tools like Google Forms for effectively dividing and gathering data. Also, we provide a survey paper-based to ensure accessibility for all group participants with various levels of academic points of vision. Also, I provide interviews with businessmen, dropshippers, and others who work in the e-commerce area, for example, Shopify, Uzum, Wildbreas, and Pinduoduo.

In the process of conducting the survey gathered demographic data for various and relevant information, the country of residence from the survey response mainly consisted of Uzbekistan and with some representatives from neighboring Central Asia, age group 18-35 years, and when it comes the area of research mostly was students who study in Business management BTEC faculty, finance, IT, and some others who don't study.

Tools and Instruments

I provide interviews and surveys using the tools Google Forms and Survey Monkey for surveys

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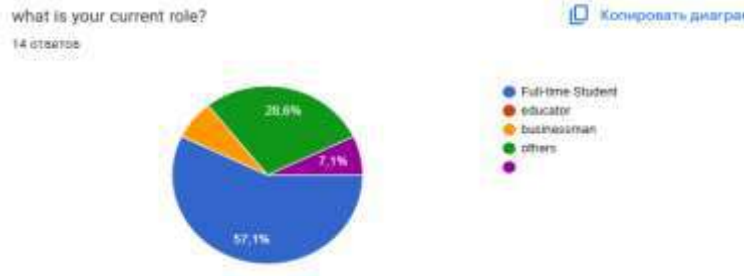
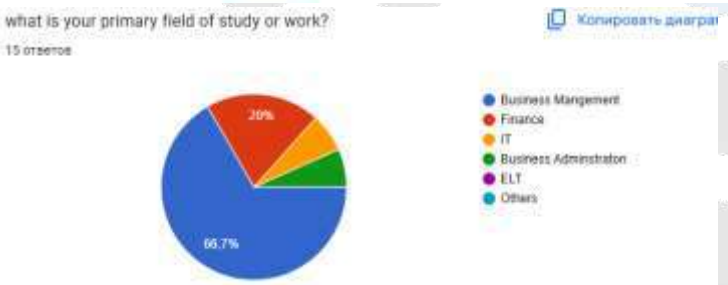
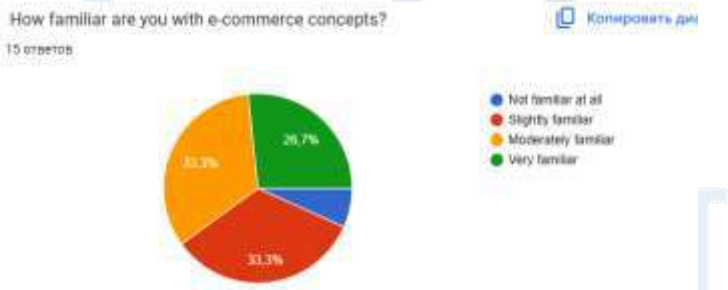
with strong analytical data that respondents can share and tell about their experience, knowledge and advice.







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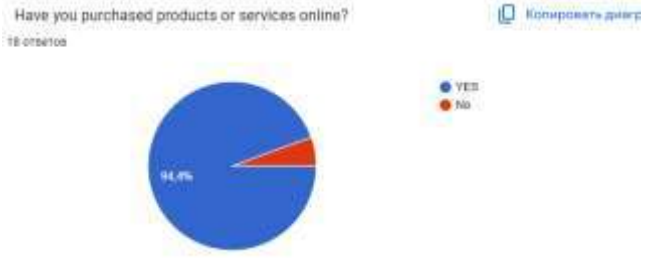

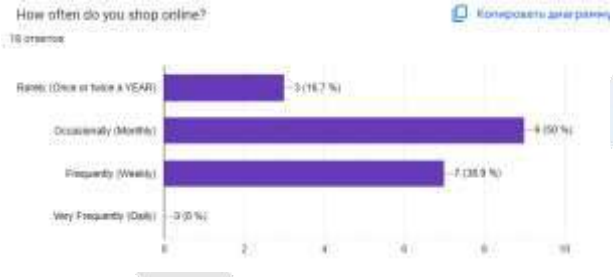

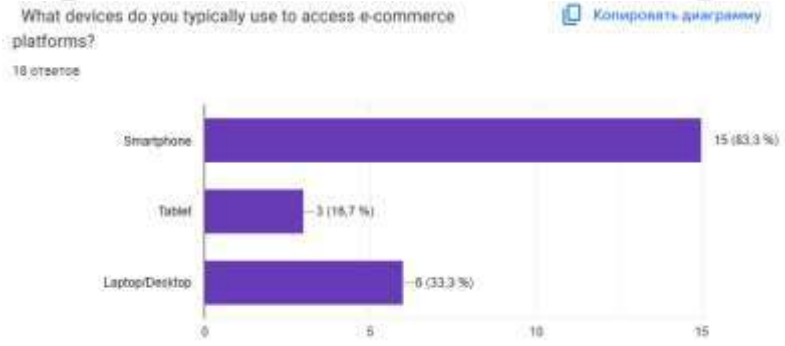

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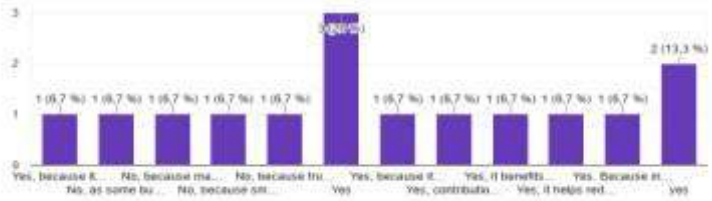
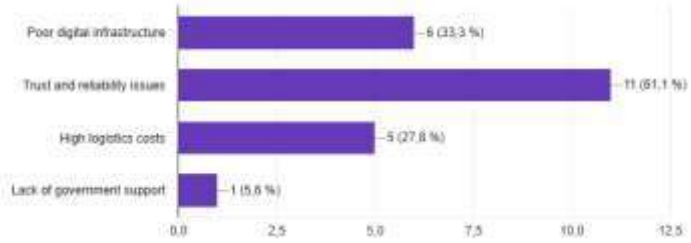
Do you believe e-commerce benefits businesses in Central Asia? Why or why not



In your opinion, what are the biggest challenges businesses face in adopting e-commerce?



As a business management student, do you think e-commerce skills are important for your career?

Would you consider starting an e-commerce business? If yes, what industry would you target?

yes electronics
Trending products
I don't know
I would target the food and beverage industry, particularly meal kits and specialty ingredients
Yes, I would target the health and wellness industry, focusing on organic and locally-sourced products.
No

What strategies do you think businesses can adopt to increase consumer trust in e-commerce?

Any additional thoughts or suggestions on improving e-commerce in Central Asia?

no
Yes
romote better internet connectivity in rural areas
Governments in Central Asia should invest in better logistics networks and offer tax incentives for e-commerce startups.
hance customer awareness about secure online shopping.
Enhancing consumer education about online security and ensuring businesses follow international e-commerce standards.
removing hackers
overnments should incentivize online startups

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In the process conducting survey were gathered demographic data for various and relevant information, the country of residence from survey respond mainly consist of Uzbekistan and with some representative from neighbor Central Asia, age group 18-35 years and when it comes the area of research mostly was students who study in Business management BTEC faculty, finance, IT, and some others who doesn't study.

Tools and Instruments

I use to effective share and gathering data Google Form for ensure simplicity and convenience for participants. Survey include closed also and open questions to provide qualitative and quantitative research.

Data analyze

Quantitative data is analyzed by using description statistics like percent and frequency distribution in a type diagram or chart created by Google form to visualize trends and framework. The main results are based on acquaintance with e-commerce, purchase behavior, platform preference, and type of payment and device.

Qualitative data provided to identify repeating ideas was thematic analysis. The key themes were problems with e-commerce, where trust was highlighted as the most prevalent problem. Also, the importance of e-commerce and the offer to improve were highlighted. Most participants mention the importance of e-commerce while 38,9 believe its too important.

Discussion

Research shows the development and growth of awareness of e-commerce in Central Asia especially among young people population. Although local platforms dominate in customer preference due to regional awareness, some problems such as unreliable logistics, trust, and limited production hinder to broader integration. Trust problems that arise from fear reliability of deliveries and various deceptions remain as main obstacle.

Also, the spreading of digital payments especially during delivery payments shows the importance of integrating fintech technology. The limit of coverage e-commerce shows in differentiate in infrastructure in rural areas and logistics problems. By Stimulating research growth recommends investing in infrastructure improving the delivery system and simplification regulation, also cooperation between government and e-commerce enterprises helps to increase trust and ensure equal accessibility to e-commerce, and digital literacy. By Solving all these problems Central Asia can make one more forward step to disclosure potential of e-commerce and help to sustainable growth.

Recommendation

To improve e-commerce in Central Asia provide follow strategy:

It accelerates trust and works to get payments safe, return policies and monitor completion of orders in real time.

Improve internet connection in logistic networks for investment

Customer education aware people about advantages and mysteries online purchases.

Starting provide stimulus for startups and ensure policies e-commerce

Implement AI and Block chain to payment system can improve efficiency and transparency

Conclusion

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This research represent landscape of e-commerce in Central Asia with focus acceptance and problems. There are problems in trust, transparency and logistics, despite this regions have potential for further growth , by solving this problems and implementing ideas from respondents can lead to create to reliable ecosystem of e-commerce in Central Asia. Also by integra6ting and using fintech technology region can explore full potential so e-commerce of Central Asia ready to transformative developing. Research should be focused on integration technologies like AI and blokchain to improvement.

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The importance of personal brand in business success.

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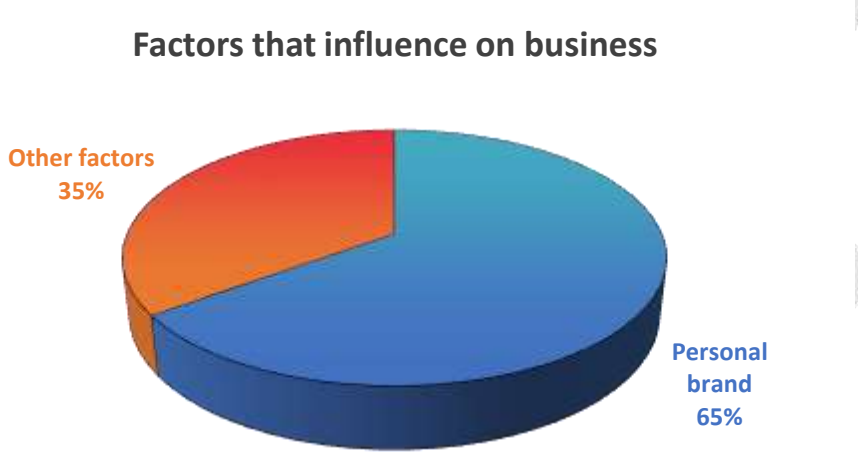
Abstract: This article analyzes what business owners can achieve by building a personal brand and how pivotal a role it plays in business success. It also examines who should not be publicly developing a personal brand versus who needs it with a strategy of implementation. In order to provide the most significant insights, research findings, case studies, and real-life examples relating to the topic have been provided.

Key words: personal branding, build trust, sales growth, customer feedback/engagement, entrepreneurial strategic approach.

Introduction



According to the recent research, 65% of buyers worldwide make purchasing decisions based on the personal brand of a company's CEO. (Mandalasystem.com, 2024). This is the illustration of how consumers are affected by personal branding activities of a company and how it positions them in this competitive market. Because it helps them to be more familiar to clients, which ensures trust. Before we dive into details of the role it plays in business and what it can help with, let's learn about what a personal brand is.

Personal brand is a factor that provides information about who we are and our place in the society. People around one know who they are and what they do through a name or pseudonym. Nowadays, the term personal branding plays an important role in business, helping to build loyalty

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and trust among customers. This article analyzes the importance of a business owner's brand to the success of their business.

Why is personal branding important in business?

In today's competitive economy, personal branding offers several advantages that result in better strategic positioning for them as follows:

- Build trust

Knowing the owner of the company helps customers trust the company and the product. Knowing who the customer is buying from gives them a sense of trust. It helps build trust not only for customers but also for employees. As Michelle (2024) mentioned, “Knowing who their boss is and what they are like gives employees a sense of trust and a sense of security.”.

- Increase of sales

The gain of trust leads to higher customer acquisition and retention. When customers are happy with a business, they begin to recommend its products and services to their surroundings, which boosts the bottom line with positive word of mouth.

- Partnership offers

A strong personal brand is the key to attracting collaboration opportunities that help businesses to enhance their network and evolve in their market positioning.

Who needs more personal brand enhancement?

“Many business owners are achieving success by developing a personal brand. It is especially true for **new business owners** to develop a personal brand (Keap.com, 2020).

The reason for this is that they can:

-find their customers faster

-increase sales

-inform customers about their products, so that customers also begin to recognize the brand owner.

By promoting and developing their brand, the brand owner can also present and demonstrate their business's unique selling points. This is because customers are not yet aware of a new business, and that is why a trusted person should be promoting further features and benefits of the product. It is precisely when the customer hears about the product from the business owner himself and sees him in action that the customer gains confidence.

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Now let's talk about who it's not important to. According to a personal brand development expert, Iskandarov (2023), a personal brand is not important for business owners who have already developed a professional company with high revenue, for business owners who do not face strong competition, and for company owners who consider their personal life to be more important. The reason why it is not so important or even good for CEOs, as mentioned, may be that they may begin losing what they have achieved over the years by shifting their focus to personal brand and public occurrence from their companies. Developing a personal brand is a process that requires a lot of time and effort. Thus, it may not be necessary in times when time and efforts of the owner mean more and business awareness has been well established through other marketing techniques.

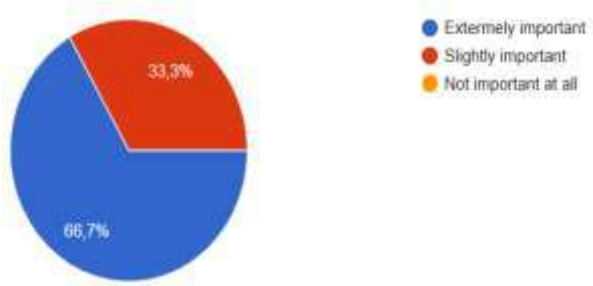
Primary research

For primary research, we conducted an online survey to find out people's opinions. The survey targeted people aged 18 to 30. They were asked how important a personal brand is and what they should do to develop it. Not only business students (customers) but also business owners participated in the online survey and shared their insights. These are the questions that have been asked of them:

1.Your age? 2. Your gender? 3. How important do you think personal branding is for business success? 4. What benefits does developing a personal brand bring to business? 5. While choosing a product or service (e.g., phone, course), how does knowing the owner of the brand influence your decision? 6. What aspects of a business owner's personal branding make you trust and feel connected with a brand? 7. Can you recall a time when you chose a certain brand product, mainly because of knowing the owner of that business through social media or other channels? 8. What do you think is the biggest challenge in developing a personal brand? 9. What strategies or tools do you think will help you develop a personal brand?

Result

- The question was: **"How important do you think personal branding is for business success?"** As a result, **67%** of people chose the option of developing a personal brand as **extremely important.** The rest considered it to be medium in importance. Based on this, it can be said that people who participated in the survey consider personal branding is moderately important.



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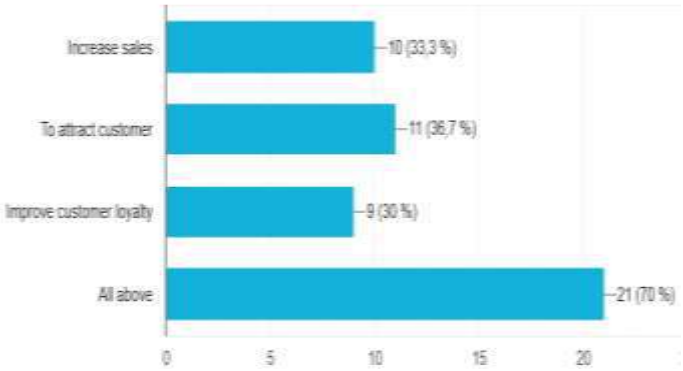
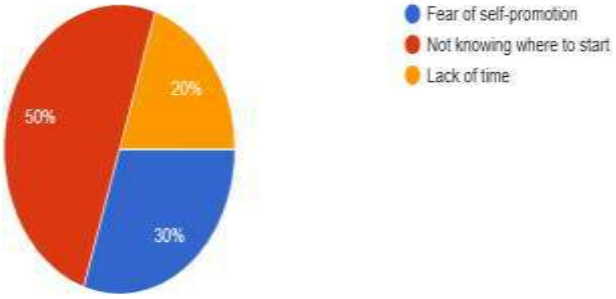
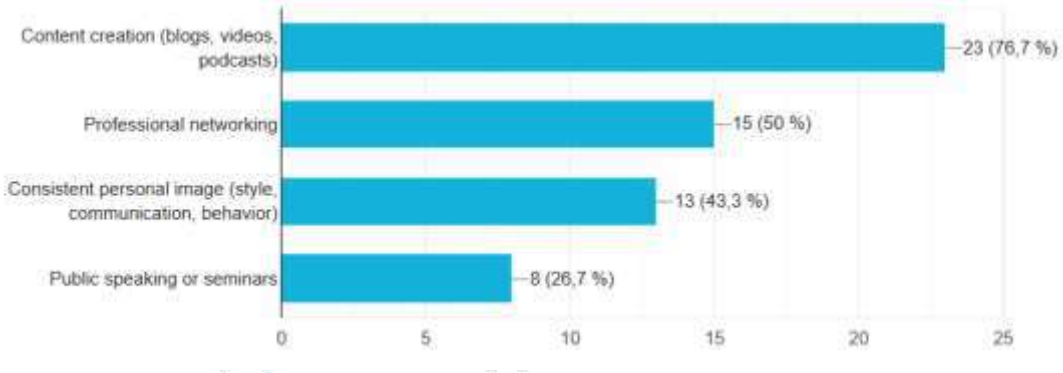
One more question was, **"What benefits does developing a personal brand bring to business?"** According to the results, **70%** of people consider that it is impactful to the following areas: increase sales, attracting more customers, and instilling loyalty in customers towards the company. The remaining participants chose other options.



➢ The next question was **"What do you think is the biggest challenge in developing a personal brand?".** According to the chart, **50%** of business owners say they are afraid to go public. **20%** of people say that business owners simply don't know where to start developing a personal brand. The remaining **30%** say they don't develop their personal brand because they don't have the time.





• This question was asked to ask from participants exactly how business owners develop their brands. **"What strategies or tools do you think will help you develop a personal brand?".** The results show that **77%** of survey respondents said that business owners can develop their personal brands through content. The rest chose to communicate with customers and develop their personal brand through their style.

Discussion

Focusing on personal branding alongside brand development is a huge opportunity for new businesses to achieve the same success today. Many businesses have built strong relationships and

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trust with their customers by developing their personal brand. “For example, if we take Starbucks, the company's CEO, Howard Schultz, established a relationship with customers visited by constantly talking to them and asking them for their opinions about the company and its products. This has created a sense of trust in the company from the customers. At the same time, the company's CEO, Howard Schultz, has been able to improve the product through feedback from customers. (Sachs, 2020).

To give another example from the author’s own life, who served as SMM manager for two businesses. The owner of **business A** was a woman. The business idea was great, and this idea was exactly the same as the custom in Uzbekistan: a collection of sarongs for a baby shower. Instagram was also professionally managed, and advertisements were made, but costs were not covered by sales. It worked for several months at a loss. Customers were contacting the company directly, but there were no sales, and it seemed that some customers had a feeling of distrust. The business owner denied appearing on social networks, and posts were mainly about the product on Instagram stories. After deep analysis, it was found that the issue was lack of customer engagement and unclearly established business strategy that caused distrust among customers. After that, the business owner started to refine the strategic positioning of the business and social media pages where she shared stories of her own and the business through content marketing. It resulted in an increase in sales, customer loyalty, and the reputation of the company.

Business B was a honey-selling business. This business was owned by a male entrepreneur, and he was actively sharing almost everything relating to his life and business with the audience. Even, he greeted the audience in the morning, showed them the products himself, and described each one. He also communicated with the customers who contacted him and asked them for their feedback about the product. Sales increased with the opening of the business. There were almost no sales-directed posts, but through creative videos and life stories in which he participated, the demand for the product increased significantly.

In both companies the SMM initiatives were the same, but because their owners took different approaches, the results were different. From this, it can be concluded that the business owner's ability to connect with customers is a core factor for a business to become successful.

Conclusion and recommendation

In conclusion, it can be said that developing a personal brand is not recommended for everyone. Just as everything has its pros and cons, developing a personal brand also has its disadvantages alongside its advantages. There are more business owners who have achieved satisfactory results through this method. The two aforementioned business case studies illustrate the importance of developing a personal brand in a newly opened business. According to the survey, the participants also consider personal branding important. It can be seen that business owners have chosen options such as fear and lack of time in the process of developing a personal brand. As a recommendation, the option of developing a personal brand through social networks was chosen by the participants. It is one of the easiest and most time-saving methods that can achieve quick results today. Being active on social media, maintaining one’s own page, and

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constantly communicating with customers are factors that help to develop a personal brand. Establishing a personal brand is a must for new business owners, and it can be said that this is a way to achieve success faster in the world of business.

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Research Theme: "Entrepreneurship and Employment Among People with Disabilities: Trends, Challenges, and Policy Recommendations."

Author: Omar Ashurbaev
Co-Author: Umida Isanbekova

Abstract:

In this paper, the authors examine the roles of entrepreneurship and employment for people with disabilities with the view of identifying trends, gaps, and policy recommendations for improved economic participation and inclusion. The study uses data from the Department of Labor and employs social inclusion theory and the disability rights model to examine the structural barriers that prevent persons with disabilities from engaging in business and employment. Based on the variations in business ownership across veterans and racial/ethnic minorities, the article provides recommendations on how to promote policies for disabled entrepreneurs and employees. Some of them are; financial handlings; mentorship services; skill enhancement and development; and policy measures that encompass both the economic and social aspects of disability.

Keywords: Entrepreneurship, Disability, Employment, Policy Recommendations, Social Inclusion, Disability Rights, Veteran Business Owners, Racial and Ethnic Disparities, Economic Empowerment, Accessible Technologies.

INTRODUCTION

Entrepreneurship is a great path to economic empowerment because for people with disabilities it can be one of the few alternatives to employment in a traditional workplace because of the barriers. Self employment establishes,the conditions that provide for possibilities of economic inclusion and personal fulfillment as this way of life can lead to a chance for employees to tailor their professional lives to meet their needs and aspirations. Breaking down the systemic barriers and creating a pathway to becoming financially independent, and contributing to society, entrepreneurship gate is open for people with disability.

Such a comprehensive view of business ownership, selfemployment, and entrepreneurship is offered as a result of the Department of Labor's analysis. Critical disparities and opportunities within this demographic are showcased in the report, with 8% of veteran business owners reporting a disability compared to 3% of the general business population. These results also point to the necessity of finding and rectifying institutional factors that determine the occurrence of disabled people's entrepreneurial participation and success.

Using the Department of Labor's data in this study, this article also analyzes the prevalence of disability among different demographics, employment categories, and racial or ethnic groups as to discover key trends in entrepreneurship among people with disabilities. To locate the challenges at a holistic level, the article places these findings within the theoretical frameworks of social inclusion theory and the disability rights model. By intervening specifically, the barriers to entrepreneurial success can be overcome to better create an ecosystem of inclusion in which individuals with disabilities can thrive.

1. Disability Prevalence Among Business Owners

Entrepreneurship through a disability lens provides a critical lens on how disability impacts the opportunities of many to be entrepreneurs. According to the Department of Labor analysis, 3% of all business owners have a disability, and among veteran business owners this prevalence is 8%

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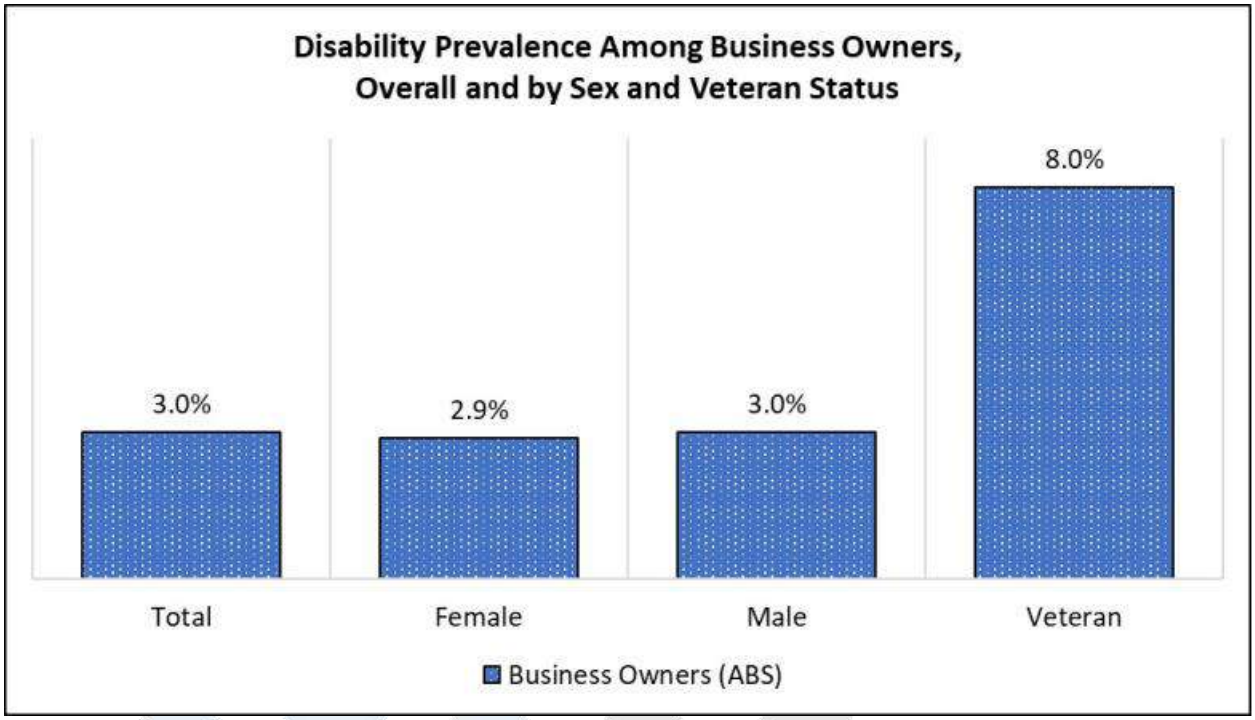
(Department of Labor, 2024). The stark difference between this and the other conditions speaks volumes about the special circumstances veterans face; many of whom will look to entrepreneurship as a way of coping with obstacles in traditional employment marketplaces. The study points to the need for tailored policy interventions designed to deal with those demographic challenges and opportunities.



Irrespective of the nation, veterans will have higher rates of disability caused purely because of the physical and psychological demands of military service. Self employment is a viable prospect for reemployment into the civilian sector for those who utilize their professional skills and past work in their endeavor. Theories frequently used to explain entrepreneurhip include the resilience framework which asserts that veterans have adaptive capacities to fit in their entrepreneurial ventures (Bonanno, 2004). But systemic barriers — limited access to capital and mentorship, for example — block success. Veteran entrepreneurs are critical programs like The U.S. Small Business Administration's (SBA) Boots to Business initiative for providing them with resources and training to help succeed (SBA, 2024).

Nearly half of male business owners and female business owners have a disability at a rate of 2.9% and 3% respectively (Department of Labor, 2024). The finding also counters conventional accounts of gender imbalances in entrepreneurship, especially with respect to disability. The near equal representation echoes that what motivates or barriers to self employment is near equal for the disabled man or woman. But a more detailed study sheds light on gender specific difficulties. Additionally, women entrepreneurs with disabilities face additional disadvantages – partially due to gender and partially due to disability biases– from underrepresentation of women, and reduced access to funding and mentorship. Dealing with these interfacing inequities involves a multidimensional pedagogical approach that primarily attends to the individualistic needs of different demographic groups (Griffin et al., 2020).

Its prevalence among business owners is also influenced by societal factors such as the shared values of networks et al. We derive the likelihood of the disabled to their entrepreneurship

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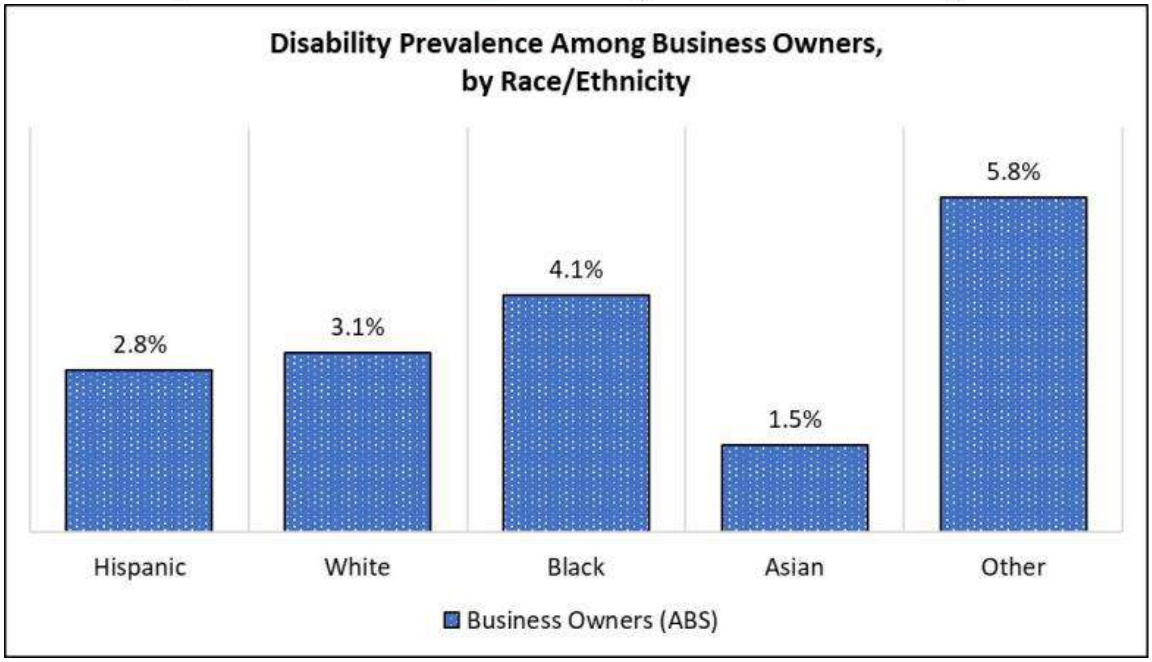
along the lines of cultural perceptions about disability, access to education and support systems. For instance, people may find it difficult to obtain resources or be accepted by society for setting up a business venture, in communities where disability is taboo (Oliver, 1990). On the other hand, expression of inclusive policies and social attitudes towards people with disabilities might create inclusive environments for people with disabilities to act as entrepreneurs.

These findings have profound policy implications. Financial support for disabled entrepreneurs should be widened to overcome capital constraints, including low interest loans and grant programmes. They also have access to mentorship and training programs that are being specifically designed for disabled business owners — including veterans — to increase their chances of entrepreneurial success. These efforts can be further bolstered through public private parternships, including collaboration between government agencies and disability advocacy organizations that create wide ranging support networks (Department of Labor, 2024).

The analysis disability prevalence among business owners reflects, in general terms, that there is a need for an inclusive entrepreneurial ecosystem. Through policy and stakeholder interventions, policy makers and stakeholders can break the barriers, enable people with disabilities to realize their complete entrepreneurial potential, and ultimately understand their positive impact on society. These also efforts also help the economy and achieve greater equity and inclusiveness.

2. Race and Ethnicity Among Disabled Business Owners

The racial and ethnic composition of disabled business owners gives us vital insight into how race and entrepreneurship intersect, as well as how disability shapes this intersectionality. Disability prevalence among business owners differs greatly by race and ethnicity, according to the Department of Labor's analysis. The prevalence is highest (5.8%) among people who have been classified as "Other," and second highest (4.1%) among people who are Black. However, only 2.7% and 2.4% of White and Asian business owners note a lower prevalence (Department of Labor, 2024). Highlighting these disparities illuminate the specific challenges and opportunities with which racial and ethnic minorities with disabilities face when pursuing entrepreneurship.



Challenges Faced by Minority Groups

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Systemic barriers, such as lack of access to capital, lack of mentorship, and inaccessibility to professional networks, are real bottlenecks preventing many a Black and other entrepreneur from achieving entrepreneurial success. Research reveals that these challenges are typically amplified for people with disabilities because they are racially and/or racially double marginalized as racial serving and/or agency persons with disabilities (Harris et al., 2020). For example, racial biases in the financial system could prevent Black entrepreneurs with disabilities from being able to get traditional bank loans because entrepreneurs with disabilities are perceived as a greater financial risk and there's a perception of greater risk with Black entrepreneurs.

Furthermore, race and disability intersect, and as combined 'others,' these minorities are shut out socially, like their access to access to education and training opportunities vital for business ownership. Oliver, (1990) social model of disability is based on the fact that it is societal structures rather than individual impairments which create the barriers which leads to non participation. Because these structural inequities are profiled for racial and ethnic minorities, targeted interventions are required to guarantee equal opportunities in accessing entrepreneurial resources to these minorities.

Policy and support Opportunities

To address these disparities such a stark policy response, which ups the stakes in achieving diverse representation for disabled entrepreneurs from underrepresented racial and ethnic groups, is necessary. For instance, community development financial institutions (CDFIs) can be an important source of culturally competent financial services to the needs of minority entrepreneurs with disabilities. Mentorship programs that connect successful minority entrepreneurs with would be business owners can also close resource and knowledge gaps as well.

Additionally, the Minority Business Development Agency (mbda) has some success in promoting minority entrepreneurship (mbda, 2024), grants, advisory services, amongst other things. Extending these efforts to include disabled business owners as the target of such support would strengthen the effectiveness of those efforts. These programs work to deliver both financial assistance combined with training in vital business skills to minority entrepreneurs looking to overcome systemic obstacles and establish profitable growth.

Intersectional Analysis

Using the intersectionality theory (Crenshaw, 1989), the triple burden that racial and ethnic minorities with disabilities confront may be analyzed. This theory focuses on the overlapping systems of oppression which needs to be addressed in order to make true inclusion with policies. For instance, knowing that Black disabled entrepreneurs need both financial support and anti-discrimination protections guarantees that interventions attack the roots of inequality, rather than its surface.

The Department of Labor's findings also show the effects that targeted policies for inclusiveness can have. As an example, providing tax breaks for businesses that hire disabled people of underrepresented groups can lead to a domino effect where the broader boom in enabling more inclusive hiring can be seen across industries. Equally, the initiatives to promote supplier diversity also offer market opportunity space for minority owned businesses with disabilities which further produces economic growth and resilience.

This racial and ethnic breakdown of disabled business owners highlights how intersectional approaches need to be taken to policy and support. Policymakers can erode systemic barriers in an

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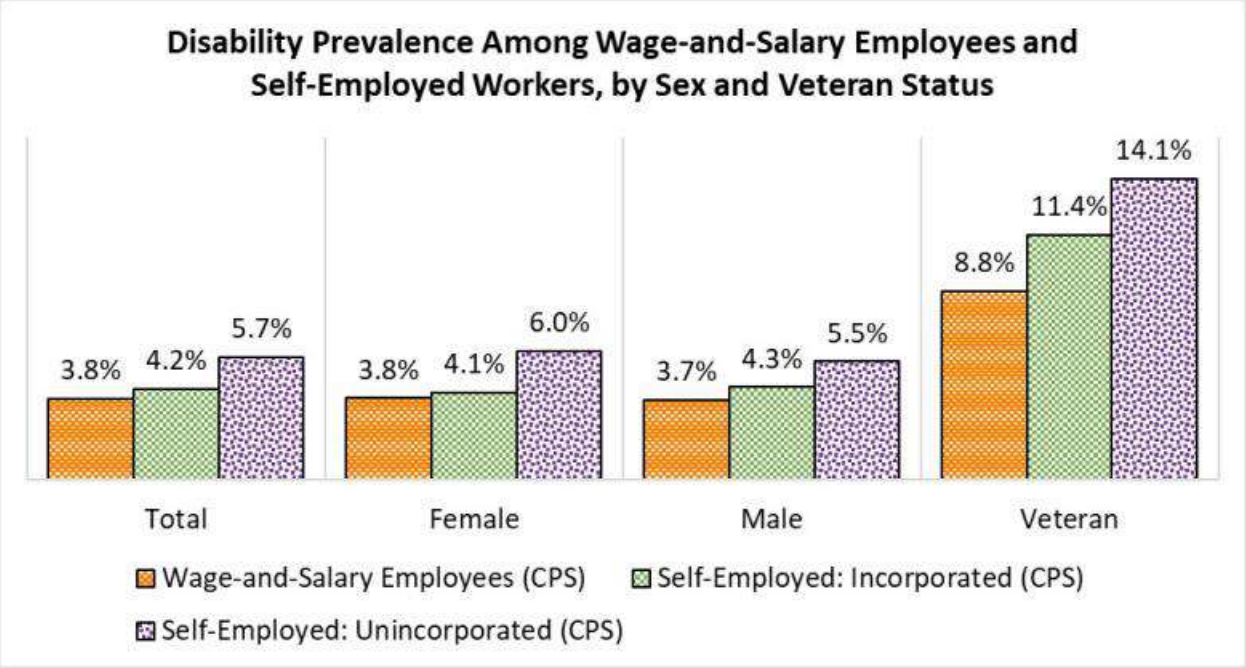
inclusive entrepreneurial ecosystem and enable potential of all people, regardless of backgrounds. As well as being an effective means of promoting equity, these efforts have a spillover into the positive effects of a more inclusive business environment on the overall economy.

3. Disability Prevalence in the Workforce

Disability prevalence in the workplace provides useful information about employment patterns and difficulties that people with disabilities encounter on the labor market. The Department of Labor's analysis finds differences in disability prevalence by employment category: 14.1 percent (highest) of the unincorporated self-employed veterans reported disability. This is in contrast to the low (3.9%) prevalence among wage and salary employees who obviously face different barriers than the disabled in the wage and salary population (Department of Labor, 2024).



Self-Employment as a Pathway to Inclusion

Self employment is often a viable alternative to regular employment for people with disability. People who opt to be their boss get to make their own rules. This idea has been supported by social inclusion theory that economic participation is a basic component of societal integration (Burchardt, 2004). But the data also shows that broader participation in self employment is stymied by systemic barriers.

Disability prevalence by gender is a marginal difference; men (5.7%) are slightly more likely than women (5.4%) to be self-employed. This trend may result from any of the above-mentioned societal factors such as availability of resources and cultural beliefs of entrepreneurship. Extra barriers for women with disabilities, caregiving responsibilities and gender discrimination, impede in their participation in entrepreneurial activities (Harris et al. 2020). These disparities must be addressed through targeted policies oriented toward the particular site where the confluence of gender and disability is concerned.

Challenges in traditional employment.

A traditional employment presents tremendous challenges for people with disabilities in workplace accessibility, discrimination and inadequate accommodations. According to the survey, these barriers exclude many people with disabilities from the formal workforce. This corresponds

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to Oliver's (1990) social model of disability which assumes that impediments to participation arise not in impairments but in societal structures. But the challenges for veterans are even greater: besides their disability status, they likely also wrestle with medical and mental health conditions related to their service.

In particular, there appears to be a pull for veterans to self employment to get around these barriers. There are programs, like the Veterans Entrepreneurship and Small Business Development initiative, meant to help veterans have the tools and resources it takes to become self employed. However the survey findings indicate that much more support in accessible affordable healthcare, adaptive technologies and financial support is necessary (Department of Labor, 2024).

The Role of Accessible Tools and Resources

Accessible tools and resources are truly critical to individuals with disabilities being successful in the workforce. Screen readers and ergonomic workstations are assistive technologies that level that playing field. Additionally, training programs focusing on marketable skills that those with disabilities can apply, including all things programming and data, can put those with disabilities on a level playing field out in the job market. Economic adaptation and growth are determined by skill development as stressed by Nelson and Winter's (1982) evolutionary theory of economic change.

While this progress has been made, the survey also shows a mismatch between resource availability and those who are self employed. For example, numerous disabled entrepreneurs say they find it difficult to obtain inexpensive financing to make investments in the necessary tools and technologies they must have to flourish in business. These gaps must be addressed by policymakers through granting, tax incentives, and subsidizing loans to resource acquisition.

Implications for Policy and Practice.

So to try to promote equitable participation in the workforce, there are interventions that are needed to compensate for the systemic barriers people with disabilities experience. Employed disabled people must be integrated into traditional roles at work, and to do that employers need to prioritize workplace accessibility, inclusive hiring practices. Self employed people need greater access to training, mentorship and financial resources.

It's also important to recognize, though, that government efforts (for example, the Workforce Innovation and Opportunity Act, or WIOA) can be instrumental in plugging these gaps by funding vocational rehabilitation and employment services. While the disability population spans both wage and wage substitute (self employment) segments, creating an inclusive ecosystem should be done leveraging public private partnerships.

It is evident from the disability prevalence in the workforce that systemic reforms are needed to make the society and the workplace more inclusive and accessible. Stakeholders can unlock the full potential of this untapped workforce by addressing the dimensional challenges those with disabilities face in traditional employment as well as self employment. Therefore, these are efforts that are critical to facilitating economic participation and are gaining ground on broader efforts of equity and inclusion.

4. Racial and Ethnic Breakdown of Disability Prevalence in Employment

Such racial and ethnic distribution of prevalence within employment categories represents a powerful lens to understand systemic inequities, and their effects on labor market outcomes. For racial or ethnic groups, rates of disability are highest among unincorporated self-employment,

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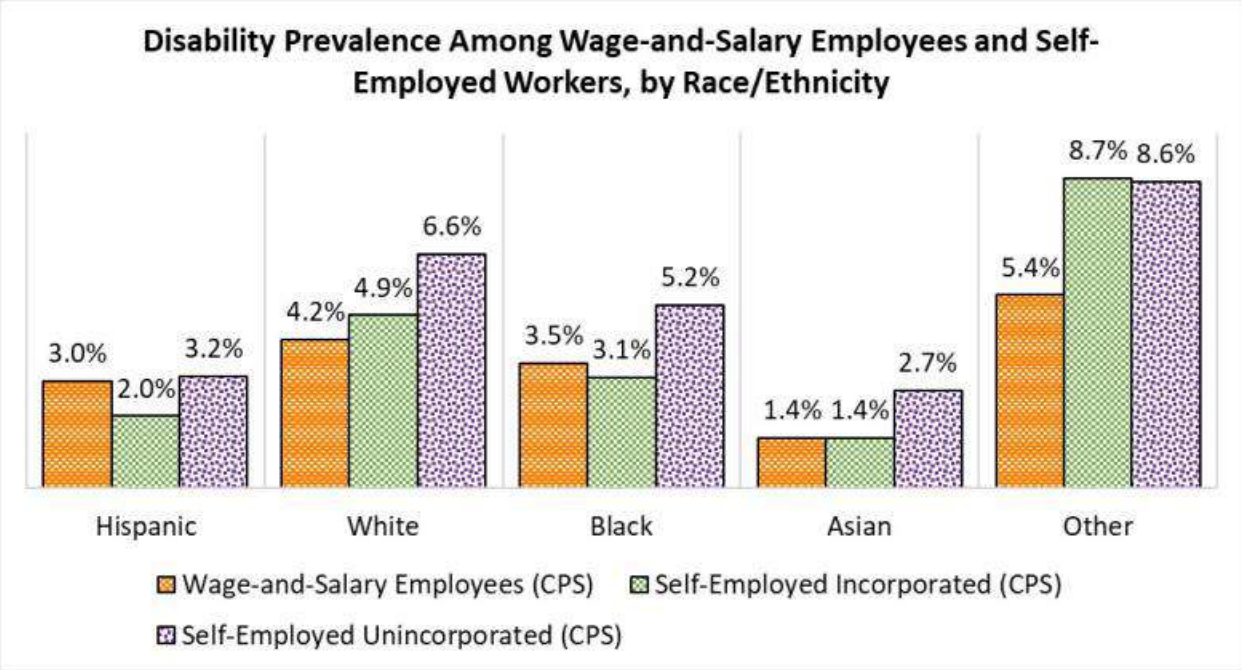
where "Other" and White workers account for 8.6 and 8.7 percent, respectively. There are sharp differences, on the other hand, for wage-and-salary workers, who report significantly lower disability prevalence across all racial and ethnic groups (Department of Labor, 2024).

Worker Class Category	Total	Female	Male	Veteran
Wage-and-Salary Employees	3.8%	3.8%	3.7%	8.8%
Self-Employed: Incorporated	4.2%	4.1%	4.3%	11.4%
Self-Employed: Unincorporated	5.7%	6.0%	5.5%	14.1%



Disparities in Employment Outcomes

These disparities combine with underlying systemic problems that overlap across both race and disability. According to research, racial and ethnic minorities with a disability are doubly disadvantaged compared with others in such negotiations, given the presence of discriminatory hiring practices, lack of access to a quality education, and lesser social capital (Harris et al., 2020). For instance, Black and Hispanic people with disabilities have lower employment rates; and are more likely to hold precarious or informal job roles, which less often offer legal protections or accommodations.

An alternative to traditional employment for individuals with disabilities experiencing barriers exists in the form of unincorporated self employment. But this category has its own peculiar issues. Self employed folk have many issues with regards to access to capital, heathcare and adaptive technology. Already disproportionately harmed by structural inequities in financial systems and access to healthcare, racial and ethnic minorities are disproportionately affected by these barriers. The system of employment equity that Crenshaw's (1989) intersectionality theory calls for is predicated on the simultaneous addressing of these overlapping systems of oppression

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and allowing dependent systems that are in themselves not oppressive to be optimized to achieve equitable labor market outcomes.

Role of Worker Class and Employment Sector

According to the Department of Labor's data, there are huge differences in disability prevalence between different worker classes, and in different employment sectors. For example, workers in "Other" racial categories have higher disability prevalence among self employed workers than among wage and salary workers. This trend argues that self employment may offer a measure of freedom and also flexibility to marginalized individuals not afforded by the traditional organization of work inside work places. But it also suggests that people who do not have access to wage and salary work with available benefits and job security.

Furthermore, the sector of employment also forms outcomes. Racial minorities with disabilities are underrepresented in well paid industries such as technology and finance and, conversely, overrepresented in industries like agriculture and retail, data shows. These disparities are based on historical exclusion and occupational segregation, which continues to constrain upward mobility of minority groups with disabilities (Burchardt, 2004).

Policy Implications and Solutions

Such disparities are addressed through the tailored policy interventions taking into account distinct needs among racial and ethnic minorities with disabilities. With the help of Community development financial institutions (CDFIs) and minority-focused grant programs, expanding access to capital has the ability to remove financial barriers for self employed individuals. Enforcing anti discrimination laws and promotion of workplace accommodations for wage and some salary employees are done like that it could foster inclusivity.

Currently, programs like the Workforce Innovation and Opportunity Act (WIOA) or the Minority Business Development Agency (MBDA) are not designed to intentionally serve consumers who intersect with race, disability, and employment, and therefore should be expanded to do so. Vocational training, mentorship or resources to navigating systemic barriers should be offered through these initiatives. In addition, these efforts can be compounded through partnership programs between government agencies and community organizations to get the interventions to the hardest to reach populations.

Technology and Innovation important role.

New technology can transform disparities too. Certain accessible tools — like screen readers, voice-to-text software, and ergonomic equipment — let people with disabilities work more fully. Racial minorities with disabilities can overcome workplace barriers through access to these technologies via initiatives that subsidize access to these technologies. In the evolutionary theory of economic change of Nelson and Winter (1982), technological innovation is considered to be a determinant of greater economic inclusivity and lesser inequality.

The racial and ethnic breakdown of disability prevalence in employment raises the need for an intersectional approach to equity in the labor market. Stakeholders can ensure a greater inclusive workforce by moving away from a traditional view and adopting a perspective that celebrates diversity and its driving power for economic resilience. Efforts at empowerment must extend with equal force beyond the rank of the individual to include broader work towards societal progress.

5. Policy Recommendations and Future Directions

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Findings on levels of disability prevalence among business owners, workforce participants, and self employed individuals point to vastly unexplored spaces which may lead to more inclusive entrepreneurship and employment. To move ahead on these disparities, targeted policies will aim to help people with disabilities overcome those systemic barriers and fully participate in the economy.

Financial Support for Disabled Entrepreneurs

Among other things, one of the most persistent challenges of individuals with disabilities who want to be self employed has to do with access to financial resources. Much needed capital for disabled entrepreneurs may come through programs such as community development financial institutions (CDFIs) and federal grant initiatives. Yet, these programs must be widened and targeted with disability specific considerations for adaptive tech and compliant infrastructure (Department of Labor, 2024).

Financial burden of starting and scaling enterprises can also be reduced by giving disability owned businesses low interest loans and tax incentives. TakeCanada, for example; they effectively ran a disability focused enterprise grant program which involves financial aid plus the mentorship and training component which other countries can duplicate (Harris et al., 2020).

Mentorship and Skill development programs are launched for the students.

Tailored to the special challenge faced by disabled entrepreneurs, mentorship and skill development programs can dramatically improve their chances for success. There are good opportunities for robust mentorship networks that provide advice on business strategy, funding and navigation through market, through partnerships between government agencies, non-profits and private sector organizations. For example, small Disabled entrepreneur s can turn to the Small Business Administration's (SBA) Boots to Business program, which is thus far directed at veterans, but whose model can be adapted to meet Disabled entrepreneur sponsored programs' needs (SBA, 2024).

High demand skills: such as programming, data analytics and business management must be prioritized in vocational training programs too. It is consistent with the evolutionary theory of Nelson and Winter (1982), for they argue that skill adaptation in a dynamic economic setting is better than when it occurs in a static environment. Additional skill acquisition can also be provided by accessible training platforms, e.g., in terms of online courses for mobility or sensory impaired individuals.

Inclusivity Human Centered Design

Technology has the ability to fill accessibility gaps. It can enable the provision of subsidized access to assistive technologies from screen readers to adaptive communication tools and ergonomic work stations to enable individuals with disabilities to participate more fully in entrepreneurial and in employment activities. Tech companies and governments can create and disseminate these tools, and make them both affordable and accessible to as many people as possible (Burchardt, 2004).

Accessibility to infrastructure is equally important. Universal Design standards can be mandated for public and private spaces by policies in order to remove physical barriers for disabled entrepreneurs and employees. Governments and businesses can promote participation of persons with disabilities in the economic life through encouraging the development of inclusive environment.

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Priority in the area of encouraging employer inclusivity.

Creating an inclusive work environment for people with disabilities is a society's duty, and employers warrant the lion share of this responsibility. Tax credits that will encourage hiring disabled workers, for example, will lead the change. Workplace accommodations, like flexible schedules and remote work arrangements, also may help meet the needs of employees with disabilities.

Simplifying it can also create attendant changes in how society sees disability. Highlighting how disabled entrepreneurs and employees contribute to your company will also play an important role and help to foster a culture that breaks through stereotypes. This is consistent with Oliver's (1990) social model of disability in which a central concern is the influence of societal attitudes in determining what is accessible and included, and what is not.

Collaboration among Stakeholders

An ecosystem that supports those with disabilities must be developed together by governments, private entities, and community organizations. Large scale initiatives like regional entrepreneurship hubs, that offer training, mentorship, and financial support, might be funded by the joint forces of public private partnerships. Global institutions can also support disability inclusive economic policies as they have global institutions of different forms (Crenshaw, 1989).

Future Research Directions

The Department of Labor's analysis provides a lot to build off of, but there is a need for further research to explore the more intricate experiences of disabled entrepreneurs by demographic and region. Longitudinal studies can be used to study the impact of policy interventions and to note areas of improvement of the effectiveness of a policy intervention. Furthermore, qualitative research that lifts up actual voices of disabled people can guarantee that policies are based on lived experiences.

Sustainable policy support, technological innovation and colaboration will shape the future of disability inclusive entrepreneurship and employment. Systemic barriers need to be addressed and inclusive initiatives invested in to enable people with disabilities contribute meaningfully to the economy. As we create these efforts, they will increase equity and inclusion and unleash the unrealized potential of a diverse, capable workforce, as well.

Conclusion

This paper demonstrates that entrepreneurship and self-employment act as positive avenues for economic and social change for disabled people. The Department of Labor's findings show that there are clear inequalities and potential within this population, it is clear that there is an immediate requirement for efforts to mitigate inequity. As a result, people with disabilities have the financial burden, lack of access to training, and inadequate adaptive technologies and other resources.

The study shows that self-employment offer flexibility and independence that is preferable for people with disability since they are likely to face challenges in the traditional employment. However, there are still many gaps that remain based on gender, race and ethnicity and those who are part of the most vulnerable groups. For example, the disparities that exist regarding race affecting the acquisition of resources make minorities with disabilities unable to attain financial independence. To meet these gaps it is necessary to create policies with an approach that takes into consideration equity, inclusion and intersectionality, as set out by Crenshaw in 1989.

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Thus, the following measures can be suggested for the development of inclusive entrepreneurship: increase in financial resources availability, improvement of mentoring and training services, and integration of suitable technologies. This shows that in order to make interventions effective, there is need to have cooperation between the government, the private sector and other non-governmental organizations. Initiatives such as MBDA and WIOA are good examples of how the problem of systemic minorities' disadvantage can be tackled, while also helping people with disabilities find their way to entrepreneurship.

In addition, more people's awareness, more workplace diversity and inclusion, which promote the transformation of the social values toward disability. Thus, the organization of these efforts in connection with the overall economic objectives, including the development of technology and sustainable development, will make it possible for people with disabilities to be productive members of society and achieve personal and financial success.

Future work includes continued research and data collection to track future improvements and further policy development. Research that follows the progress of disabled entrepreneurs over time, and compares their results with other subjects, can be useful to assess the results of the interventions. Further, the use of qualitative research to give voice to people with disabilities makes policies an advocacy of real-life experiences and concerns.

In conclusion, the prospects for the self-employment and entrepreneurship as forms of empowerment for individuals with disability is therefore enormous. If the barriers to entry that affect this demographic are removed and the ecosystem around them is made more inclusive, this demographically diverse and capable group can be tapped into fully. It is for these reasons that these efforts will not only improve the standing of equity and inclusion but also economic innovation and improvement, which will ensure that everyone is able to do well.

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RESEARCH THEME: THE PANDEMIC'S IMPACT ON PRODUCTIVITY: A CLOSER LOOK AT FINANCIAL AND ECONOMIC DYNAMICS

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Abstract

The global productivity has changed significantly during the COVID-19 pandemic and has emphasized the need for economic systems' flexibility. This paper reviews the effects of the pandemic on productivity in different sectors, and how remote working, technology, and other sectoral issues have been affected. To achieve this goal, the study analyses the European Central Bank and other institutions' data and policies to explain the variations in the recovery patterns and the firm characteristics that influence productivity during the crisis. Not only does the analysis help explain the impacts of the pandemic, but it also provides recommendations for improving the economy and maintaining stability after the pandemic.

Keywords: COVID-19, productivity dynamics, economic impact, digital transformation, remote work, sector-specific impacts, European Central Bank, resilience, policy response, recovery patterns.

INTRODUCTION

The COVID 19 pandemic has severely disrupted global productivity and changed landscapes in finances and economy in ways never witnessed before. In turn, businesses and industries adjusted to the sharp shifts caused by the crisis, and as a result, productivity has taken a sharp turn of its own (OECD, 2021). The recognition of these changes also reinforced the essential role of resilience and adaptability in addressing not only short time, operational disruptions but also potential long time, structural transformations. Given the importance of a post pandemic recovery, understanding these dynamics is critical for politicians, businesses and stakeholders to assess what the future might look like.

The European Central Bank (ECB) has undertaken an in depth analysis to look at how firms and sectors across Europe have been affected by the pandemic in terms of productivity (ECB, 2023). Addressing the interdependence between remote work, digital transformation and sector specific challenges, the ECB offers a rich basis to understand short term, steep shocks, and longer term trends, which could reshape productivity paradigms. The analysis describes varied recovery patterns impacting economic stability, from the resilience of tech sectors, to vulnerabilities in industries such as hospitality and retail (OECD, 2021).

This paper examines several dimensions of how the pandemic has altered productivity, both within given industries and across firms, through changes in the labor market and policy responses. Through a lens of these interconnected themes, we hope to offer insight into broader economic lessons from the pandemic, and a forward looking lens on how these trends could impact future productivity and growth.

1. Productivity Dynamics During the Pandemic

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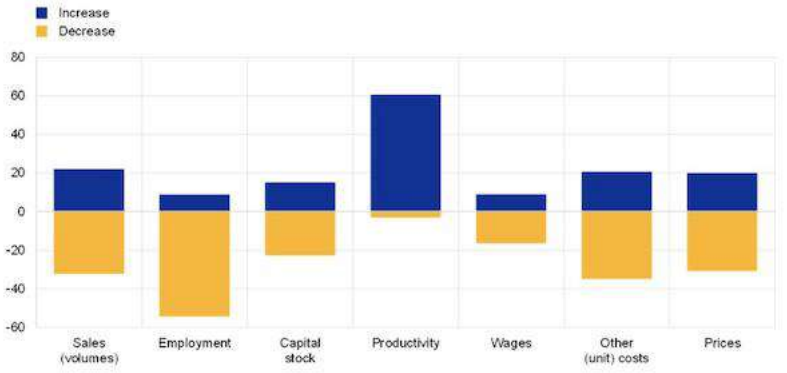
Chart C

How respondents saw the long-term effect of the pandemic on business aggregates

(percentage of respondents)



Notes: The survey question put to respondents was as follows – "Focusing on your own business/sector, how would you assess the overall long-term effects of the COVID-19 pandemic on the following?" Respondents could answer (i) increase, (ii) decrease, (iii) no change or (iv) don't know. In the chart, "increase" is assigned a score of 1 and "decrease" a score of -1.

The various incredible adjustments across sectors to infectious disruptions—such as the COVID 19 pandemic—resulted in uninsually swings productivity. However, productivity changes throughout the pandemic were patchy, and technology and healthcare appear to be resilient during the pandemic, while business services and hospitality and retail activity were hit hard (ECB, 2023). The patterns show how the interplay of industry characteristics, digital adoption and external constraints drive the trends in productivity.

Sector-Specific Impacts

Any industry that is digital tools dependent or relied on remote work practices during the pandemic emerged as one of the least affected, including the tech sector. Productivity in this sector further saw an uplift in demand for digital solutions and e commerce services. This is consistent with theory (Schumpeter, 1942) that crises provide greater momentum to adoption of innovative solutions that redefine the industry parameters. On the other hand, lockdowns, travel restrictions and social distancing measures hampered all sectors except the hospitality and retail industry that were severely challenged. Businesses in many of these industries had to shut part or even completely, with consequential productivity losses (OECD, 2021).

Factors Affecting Variations in Productivity

Productivity outcomes across industries were largely dependent on remote work. Firms that managed to shift to remote operations were less disrupted, while firms whose business depended on physical infrastructure found it more difficult. Thus, the ECB's analysis underlines how digital tools contribute to withstanding economic shocks, as firms that were digitalized before the pandemic (i.e. had invested in digital tools before) recorded higher productivity levels (ECB 2023). Consistent with the resource-based view of the firm, which highlights the strategic importance of intangible assets, such as technological capabilities, in improving resilience during crises (Barney, 1991), these findings suggest that firms must be wary about the exclusivity and

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potential costs associated with drawing on noncostant resources if they expect to be ready for the next crisis.

In addition, productivity challenges for sectors built around physical goods were exacerbated by supply chain disruptions and labor shortages. For example, supply chain bottlenecks caused manufacturing firms to report delays and costs increases in their own production networks. That was especially true for the hospitality sector, which had to contend with the dual pressures of lower demand and stricter health and safety requirements, on top of other productivity losses (OECD, 2021).

Uneven Recovery Patterns

When economies started to reopen, they saw radically different recovery patterns across sectors. Those industries—such as tech and healthcare, which had already rapidly shifted to the demands of the pandemic —were in a stronger place to take advantage of the post pandemic opportunities. Conversely, retail and hospitality sectors had the protracted recovery periods because of the sluggish consumer uptake, as well as the structural change in demand patterns (ECB, 2023). They underscore the importance of targeted policy interventions that boost growth in vulnerable sectors while helping fledgling resilient sectors both become innovative and nimble.

Policy Implications

Dialing in on the varying productivity dynamics across industries provides the best estimate of the role of policy in mitigating the pandemic's economic impacts. To enable broad based improvements in productivity, governments and institutions will need to make investments in digital infrastructure and workforce training. Countries can bridge the gaps between productive and resilient sectors and those remaining vulnerable by implementing policies that facilitate innovation and decreasing barriers to the adoption of new technology (OECD, 2021).

2. The Role of Firm Characteristics in Productivity Trends

Likewise, the impact of the pandemic on productivity was not uniform across industries or firms, but rather differed at both industry and firm levels — a function of size and capital intensity of firms, as well as industry market positioning. Using the European Central Bank analysis, this thesis looks at how firm characteristics determined whether the adaptation to pandemic-induced disruptions was successful. Firms could also be split by size and capital, with larger, well capitalized firms having more resilience and smaller firms facing considerable productivity issues (ECB, 2023). Thus, the existence of these disparities speaks to the relevance of firm specific factors in explaining economic results during crisis periods.

Firm Size and Resilience

First, large firms had greater ability to weather the pandemic because they had more financial reserves, advanced technology, and better access to diversified operations. They could have scaled remote work fairly quickly and invested in digital solutions that would enable people to keep productive. On the other hand, smaller firms — which could not often rely on extra resources to adapt — suffered, including closing or downsizing. The resource based view of the firm determines that a competitive advantage stems from access to strategic assets such as capital and technology (Barney 1991), even more so during times of economic uncertainty. This theory holds up with the findings of the ECB, which show that small and medium sized enterprises (SMEs) suffered far worse productivity declines than their large counterparts (ECB, 2023).

Capital Intensity and Digital Transformation

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Supply chain disruption and reduced demand place the most pressure on capital intensive firms (e.g. manufacturing and logistics). Companies that had already invested in digital infrastructure, on the other hand, proved more able to adapt. Firms that integrated automation and cloud-based solutions, however, were able to keep production during workforce disruptions (OECD, 2021). The same trends are in line with Schumpeter's (1942) idea of creative destruction, that is, that crises speed the move away from outdated economic systems.

It became the critical driver of productivity resilience. Firms that could adapt to remote work, e commerce and customer engagement with digital tools were better able to navigate pandemic related disruptions. As an example, the ECB (2023) mentioned that productivity in technology and financial services firms, which had already adopted digital transformation, seemed relatively steady. It also underscores the strategic importance of intangible assets, including technological capabilities, as mechanisms for building longterm resilience.

The second good is Market Positioning and Innovation.

Market positioning also served as an important factor shaping firm level outcomes in productivity. In the case, companies that had already a market dominance or niche expertise did better adapt to changing demand patterns. For instance, healthcare firms abruptly and productively met the increase in demand for medical supply and telemedicine services. In direct contrast, businesses working in markets where competition was high or already saturated encountered more difficulty remaining operational (OECD, 2021).

It is through innovation that firms leveraged to be different. Compared to companies that did not focus on R&D or did so in a less focused manner, companies that focused on R&D to adapt products and services to new market conditions enjoyed greater productivity. This dovetails with Nelson and Winter's (1982) evolutionary theory of economic change and its emphasis of innovation as a function of firms' ability to evolve in response to a changing landscape. According to the ECB (2023), its analysis highlights the importance of continuing R&D investments by firms to foster their adaptability and resilience at firm level.

Implication for Policy and Practice

Firm level disparities in productivity trends emphasize the need for a more targeted set of policies for the support of SME and promotion of digital transformation. Smaller firms can also benefit from financial incentives delivered by governments, like grants, and low interest loans to invest in digital tools and workforce training. Access to technology and expertise can also be provided via public private partnerships, which would help SMEs to compete better in post pandemic economy.

Further, tax credits for investments in R&D and streamlined compliance to regulatory processes can create an innovation friendly environment where firms augment resilience through off the shelf technologies. To that extent, policymakers must make equitable access to resources its priority so that all firms, big or small, can participate in economic recovery and growth.

3. Labor Market Adjustments and Workforce Impacts

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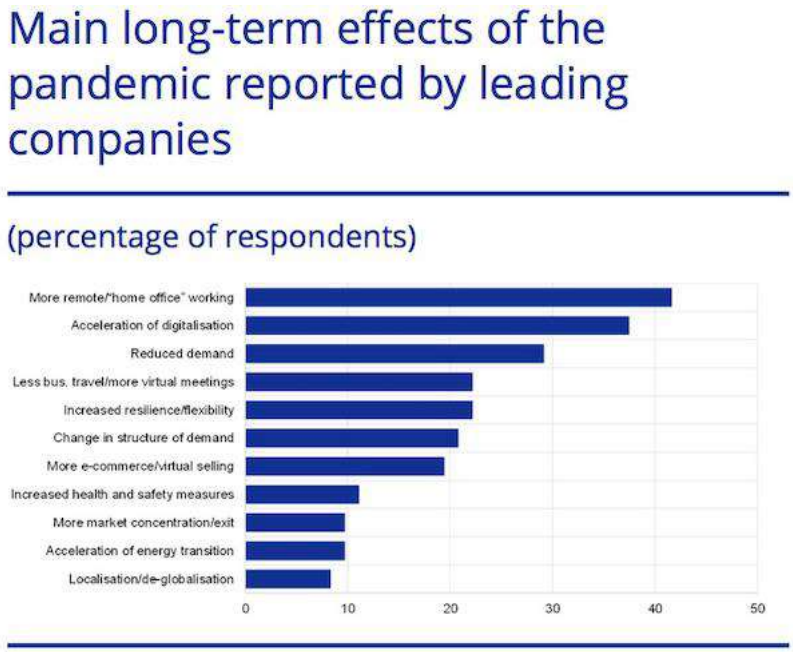

During the COVID-19 pandemic, labor markets around the world were disrupted greatly leading to layoffs, reduction in work hours and a quick changeover to remote work. The implications of these workplace adjustments for productivity were striking; the effects on productivity across sectors and employment categories were quite diverse. During the pandemic, hospitality and retail sectors were the most hit by the employment impacts and technology and financial services were more robust, as these sectors were able to manage remote working (ECB, 2023).

Sectoral Employment Adjustments

The largest reductions in employment were in the industries that depended the most on in person interaction, such as hospitality, retail and transportation. For example, many businesses in these sectors have had to reduce personnel or close down, for example, when there have been lockdowns and travel restrictions. The hospitality industry alone contributed a sizable share of pandemic related job losses, coupled with productivity declines due to the reduction in consumer demand and the accompanying operational constraints (OECD, 2021).

In the opposite case, the rate of resilience and minimal disruptions was higher in the area of technology and healthcare, because they both depended on digital tools and the provision of essential services. Telehealth services in healthcare experienced rapid adoption and an increase in demand for e-commerce solutions in technology, helping to drive productivity losses into the positive and gain employment growth in some instances. This fits well with theories of sectoral resilience, that technology adoption insulates industries from economic shock (Schumpeter, 1942).

The Remoteness of Work and Worker Productivity

The most notable feature of labor market changes during the pandemic was shift to remote work. This transition allowed such industries to maintain productivity and reduce job losses, as long as they are set up to operate remotely. Firms that had invested in digital infrastructure ahead of the pandemic showed higher levels of workforce productivity and hence digital preparedness is strategically important (ECB, 2023). It also gave employees flexibility for the work to have its personal life, which helped in keeping morale and staying efficient.

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However, remote work has been a challenge for sectors that had never previously worked remotely. While employees working in manufacturing, logistics, and other labor intensive industries did not adapt well to remote operations and productivity dropped. Additionally, the digital divide (differential use of hi-speed internet and digital tools) increased disparities among remote work adopters and birthed challenges for workers in low income areas (ILO, 2021).

Workforce Protections and Economic Resilience

Safeguarding employment has been critical to dampening the shock the pandemic unleashed on labor markets. During times of decreased activity furlough schemes, unemployment benefits and wage subsidies kept jobs in place and supported the economy. For example, short time work schemes, which were implemented by governments in European countries (Germany's Kurzarbeit program, etc.), proved to be a good solution for dealing with mass layoffs and with productivity recovery (OECD, 2021).

According to the ECB (2023), labor markets with solid employment protection had higher resilience, with smaller productivity decrease in relation to labor markets with less solid safety nets. Theirobservationsareconsistentwith thelabormarketsegmentation theory; protected workers, relative to unprotected workers, are able to better absorb economic shocks, enhancing overall economic resilience (Doeringer and Piore, 1971).

Workforce Reskilling and the Policy Implications

In the pandemic, the need for targeted policies to help secure workforces facing special risks and promote resilience came to light. Investments in workforce reskilling programs are top priority for policymakers in terms of filling in the reskilling gaps, particularly in high demand areas like digital literacy, data analytics, and automation. Retraining displaced people shouldn't be an issue at that time. Initiatives that fund retraining of the displaced labor can assist in bridging skill gaps and indulge in labor market re entry.

Furthermore, equitable access to digital infrastructure is required to facilitate web wide adoption of remote work. Broadband access can be expanded, in both underserved and a wide variety of other areas, when governments and private industry collaborate to provide the resources necessary to ensure all workers have the tools they need to contribute effectively in a digital economy.

Pandemic related labor market adjustments attest to the important interaction between employment policies and digital transformation as levers of economic resilience. Addressing structural vulnerabilities and investing in workforce adaptability will prepare stakeholders to ensure that labor markets are well armed to meet future crises and to drive productivity growth.

4. Policy Responses and Long-Term Implications

In response to the COVID19 pandemic, governments worldwide responded quickly and broadly with policy to stem economic disruption and preserve productivity. Stabilization of the economies, and the ability of firms to adjust to changing realities, was strongly supported by fiscal and monetary policies on the one hand, and by structural reforms on the other. The European Central Bank (ECB) commends targeted interventions from buffering productivity losses, but encourages long-run policy responses to increase skills and structural changes driven by the pandemic (ECB, 2023).

The Effectiveness of Policy Measures

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Chart B

Testing narratives in relation to the long-term effects of the pandemic

(percentage of respondents)

Notes: The survey question put to respondents was as follows – "Please indicate whether you agree or disagree with the following statements in relation to the long-term effects of the COVID-19 pandemic." Respondents could answer (i) agree, (ii) disagree or (iii) not sure or not relevant. In the chart, "agree" is assigned a score of 1 and "disagree" a score of -1.

But household and business needs were met immediately with fiscal policies (direct cash transfers, wage subsidies, unemployment benefits etc). They kept demand, lesser number of people got laid off and keep on functioning in vulnerable sectors. For instance, Germany's Kurzarbeit program, which subsitised reduced working hours, succeeded to avoid mass layoffs and to foster productivity recovery in manufacturing (OECD, 2021).

Interest rate cuts and quantitative easing policies have pumped liquidity into businesses to ride out the short run strains. Another set of the ECB's action to supply lowcost financing to firms through targeted longer-term refinancing operations (TLTROs) proved to work particularly well to support SMEs (ECB, 2023). According to Keynesian economics, these interventions involved governments spending (or liquidity injections) to steady an economy when it hit a crisis (p Key, 1936).

But policy measures are not always even transmitted to sectors and regions. The loss of productivity hurt businesses across industries, but firms in highly disrupted industries, like hospitality and retail, often struggled to obtain the financial help they needed. Also, the pandemic has highlighted digital infrastructure reliance, by the need for more inclusive policies (ILO, 2021).

Digital Transformation and Structural Changes

The structural changes which may define the economic structure for years to come, was accelerated by the pandemic. Once a contingency measure, remote work is now normal in many industries and so firms are pouring money in digital tools and infrastructure. This shift, according to the ECB (2023), has increased productivity in knowledge-intensive sectors while at the same time has deepened the digital divide between digitally advanced firms and their counterparts lagging the technology trend.

This increased reliance on digital tools has in turn prompted questions of cybersecurity and data privacy, which requires strengthening regulatory frameworks. We need governments and businesses to come together to develop standards that allow not only for technology to flourish but for that technology to be used securely and in an ethical way.

Workforce Reskilling and Inclusivity

As digital transformation continues to gather momentum, many workers are not equipped with the skills to work in such a technology driven economy. To narrow these gaps, policymakers need to put workforce reskilling programs at the top of the list, especially among those who are displaced from low-skill sectors. Subsidized training programs, online learning platforms and employer partnerships can be areas in which workers can be upskilled and increase their chances of finding jobs (ILO, 2021).

Policy responses must be built on inclusivity as well. It is the digital divide, which is dividing workers in low income and rural areas from access of high speed internet and technology. This divide will need investments in digital infrastructure and tailored support for at risk communities.

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Foster Innovation and Sustainability.

Governments need to develop an environment beneficial for innovation, in order to support long term productivity growth. Research and development (R&D) tax incentives, grants for startups and public private partnerships can create the technological changes that can be taken up across sectors and improve productivity. Furthermore, this integration of sustainability goals into the economic policies can help channelling productivity growth in such a direction which supports the environmental goals and drive a green recovery.

Also on the European level, the ECB places great emphasis on the need to 'programme' policy measures to broader economic transitions, including decarbonisation and digitalisation, to develop resilient and sustainable economies (ECB, 2023). The premise for these efforts fits with Schumpeter's (1942) theory for creative destruction, in which crises can provide a stimulus for innovation and engineering change.

The pandemic has brought to prominence the key role that policy plays in determining the resilience and productivity of economies. Immediate measures of fiscal and monetary policies proved successful in short terms but long term will require more innovation, inclusivity, as well as sustainability. Structural vulnerabilities can be corrected by investing in digital transformation; policymakers can make certain that economies are more able to get by through up coming crises and keep on productivity increase.

5. Conclusions and Future Outlook

The way that the COVID-19 pandemic silently reshaped productivity dynamics, creating vulnerabilities in some sectors, and speeding up innovation in others. This resilience extended particularly into technology and healthcare industries, where they had transferred to digital tools with amazing speed and agility in their operations. However, unlike such sectors that are most affected by physical interactions, sectors such as hospitality and retail sufferedacute disruptions, creating highly uneven patterns of recovery in the post pandemic economy (ECB, 2023).

Key Insights

Firm level characteristics proved important in determining productivity outcomes, in the context of the pandemic. Significant disruption to established firms, especially smaller enterprises in labor intensive industries, arose because larger and well capitalized firms were able to use their resources to adapt to disruptions (OECD, 2021). A clear catalyst was the digital transformation, with more resilient firms being those that already had invested in technology. Schumpeter (1942)'s theory of creative destruction argues that crises act as catalysts of innovation and of economic renewal and – consistent with his theory – these findings are in line with this notion.

The interplay between employment policies and productivity was illustrated further by labor market adjustments. Some workers were able to mitigate disruptions while remote work and digital tools, through their acceleration, brought into sharper relief systemic inequities around access to technology. Wage subsidies and reskilling policy measures helped to prevent the deterioration of economic stability and the workers' productivity (ILO, 2021).

Economic and Policy Lessons

Policymakers and stakeholders alike have wet their whetstone through the pandemic. Productivity resilience rests first on digital infrastructure investment and workforce adaptability. To bridge the digital divide and to close the gap required to sustain the technology driven economy, governments must prioritize inclusive digital transformation initiatives. Second, policies

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protecting employment, notably furlough schemes, have stabilized labor markets and should be kept in place to form the framework around which to react to future crises (OECD, 2021).

Productivity growth must be aligned with long terms strategies that tackle environmental challenges in ways that question the eco efficiency of innovation. Economic recovery should take advantage of green technologies and encourage sustainable practices, through policies of support: thus, both in terms of decarbonisation and of resource efficiency, economic recovery contributes to broader societal goals (ECB, 2023).

Future Outlook

With economies recovering, we need to move away from short term stabilization towards long term resilience. Understanding the underpinnings of these gains is important so that an adequate level of productivity growth moving forward can be sustained; investments in research and development (R&D), workforce training, and digital tools will all be critical inputs. Innovation can be driven by public private partnerships and international collaboration can address global challenges such as climate change and supply chain vulnerabilities.

The pattern of an uneven recovery during the pandemic also underscores the necessity of sectoral targeted support to vulnerable sectors and smaller enterprises. Financial assistance should be tailored so that it helps fill productivity gaps and lead to inclusive growth as well as policies which would guarantee equitable access to resources.

The pandemic reminded us of the interconnectedness of economic systems and produced a lesson in perpetual concurrent production. Stakeholders can use these lessons to build a more resilient, innovative and sustainable economy for the future by fixing structural vulnerabilities.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON BUSINESS DECISION-MAKING

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Abstract: *The following article focuses on the ways how artificial intelligence is transforming business decisions. Here we explore how the various AI technologies such as machine learning, deep learning, and natural language processing, are impacting the strategic, tactical and operational decision-making across various industries and fields. That is why the study includes the benefits – improved data analysis, enhanced prediction, and removal of repetitive activities – and the drawbacks – data prejudice, ethical issues, and need for human intervention. The final part of the article under discussion is devoted to the fact that the involvement of people in AI decision-making process is evolving and provides the possible directions for the future research.*

Key words: predictive modelling and analysis, including algorithms, big data, advanced data analytics, artificial intelligence, ML, and DL, NLP, business data analytics, business intelligence, business analytics and decision science, AI, data science and analytics, and AI applications in business decisions.

INTRODUCTION

Technological change, particularly in the application of artificial intelligence is becoming extremely fast and is disturbing intensely the commercial field. AI is a tangible and real phenomenon that is altering the very fabric and operation of businesses across the organizations to make critical decisions; the hype is now reality. AI is evident in the organization across the competitive landscape, with implications for market forecasting, supply chain management, more personalized customer experience, and frequent automatization of such complex processes. This article argues that while the use of artificial intelligence (AI) has never been more valuable aiding in effective business decisions through analyzing data and predictive capabilities that could not be done before, it must also say that a successful use of this form of technology requires reviewing the ethical issues, the limitations of the data and a rigorous reconsideration of the work of the human intellect in managing the business environment.

LITERATURE REVIEW

In recent years, there is much attention paid to how the use of artificial intelligence can influence managerial decision-making process. Increasing attention has been paid to examine both the opportunity of AI as well as the challenges that come along with it. CI is indeed transforming a number of business tasks, such as predictive analytics, operational effectiveness, and decision-making processes at different levels of the organization and this literature review comprises of previous research on the topic.

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Consequently, used in company decision making and increasing organizational performance, the AI tools most often applied these days are machine learning (ML) and deep learning (DL), as well as natural language processing (NLP). Studious also show that in functional applications such as sales forecast, credit risk evaluation, and customer attrition rate estimation, machine learning methods—more specifically, predictive analytics—outperform traditional statistical methods (Chen et al, 2020).

These developments enable firms to capture large quantity data that would have been difficult to obtain systematically hence enabling intelligent decisions to be made.

AI has demonstrated its capability to handle drudges; improve operations; and speed up decision-making across the tactical and operational levels. For example, it has been shown that the use of AI-based PM for the manufacturing industries significantly reduces expected downtime and enhances working productivity (Lee et al., 2018). Also, AI-based CRM systems can reduce customer service, as well as provide personalized services that will enhance the satisfaction of the customer (Davenport et al., 2020).

NATURAL LANGUAGE PROCESSING AND DEEP LEARNING

One of the subcategories of machine learning, deep learning, has added to AI's ability to analyze complex, self-organized information. DL models excel in speech-to-text systems, picture recognition and NLP including automatic translation services and prediction of sentiments. For the same reason as it can look for trends in huge datasets containing information about transactions that can point at a fraudulent nature of the action, DL is particularly useful in business as a tool for fraud detection (Li et al., 2019). Besides, NLP makes it easier for organizations to evaluate information they gather from clients via social media, reviews, and call center records in the process of establishing appropriate marketing strategies and products (Hu et al., 2021).

ADOPTION CHALLENGES FOR AI

However, there are several challenges faced when intending to incorporate AI into business decision-making process. Of greatest concern is data bias that leads to prejudice of similar kind in the outcome if the training data contained prejudice or discrimination of certain groups. In the similar studies, it was found that such data biases can produce AI models that perpetrate current social inequities and more so in sensitive areas such as policing, credit granting, and hiring. For instance, skewed data means that such things as discriminating against minorities then practicing unfair economics can occur.

Opacity of other AI decision-making processes is another big problem and it becomes even worse if the AI is based on complex structures such as deep learning models where the internal logic of the AI decision-making process is rather described as a 'black box' than as a transparent structure. The discussed opacity gives rise to such issues of trust and responsibility in AI systems. Need for more interpretable models According to Ribeiro and colleagues, research on explainable AI (XAI) requires the design of more models, which directors and companies can understand the rationale for their actions. It has also been established that if there are transparency issues, businesses can be averse to mainly relying on AI or relying on the outputs of the AI for critical business decisions.

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Moreover, adopting AI in business requires significant resources required in capturing data, people infrastructure. The cost and resource availability of AI are the significant issues in the context of AI for small organizations especially present challenges that severely limit their ability to harness AI. Hence, research conducted by Brynjolfsson and McAfee (2014) reveals that the cost in relation to implementing the use of AI is costly and this indicates that companies have to realize the importance of engaging in what can be termed as AI Grand Strategy, these considerations will depend on the culture of the organizations as well as the overall skill set of its workforce.

METHODOLOGY

This article adopts a conceptual framework that examines the impact of AI on business decision-making across three levels:

Strategic Decision-Making: This means strategic actions that involve the organization's ideals, directions, positioning for market share, and the deployment of resources. In this area, AI can provide the following helpful features: market analysis to define trends and also to predict competitors' actions, search for new opportunities for the growth.

Tactical Decision-Making: This includes decisions at the middle management level that is involved with actualization of strategic plans and objectives. It goes without saying that AI can improve or enhance several processes including inventory, supply chain, and marketing.

Operational Decision-Making: They entail minor, routine choices about manufacturing processes, relations with customers or behaviors within the organization. AI can apply itself to simple automate processes, be timesaving, and increase customer satisfaction.

The paper incorporates secondary materials into the discussion to support how AI is deploying at every level of decision-making.

RESULTS/FINDINGS

In a case of primary research, we used online questionnaires. The reason for designing our survey was the potential of artificial intelligence or AI to influence firm-level decision-making and the opportunities and constraints that surround its application. The respondents of the survey were professionals and students, people between 18 to 45 years old with a specific focus on Uzbek respondents. From the survey, 55 participants responded to the survey.

The survey objectives were to assess the understanding of organizations about AI technologies, how far they have used these technologies, and the issues of ethicality of their use. In analyzing the responses, it was possible to analyze common trends, advantages, as well as main challenges that affect AI implementation in businesses. **The survey questions included the following:**

1. *How much do you know about Artificial Intelligence or AI technologies?*
2. *Is AI incorporated in your organization today?*
3. *Where are you using AI most intensively in your business?*
4. *What positive impact has the implementation of AI in your organization delivered?*
5. *What problems have you encountered when integrating AI technologies?*
6. *What was your understanding about the part human decision-making plays in AI algorithms?*
7. *What is your opinion on AI in ethical dilemmas relating to business decision making?*

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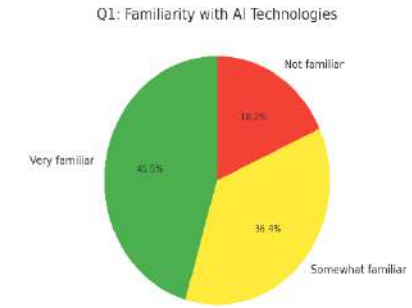
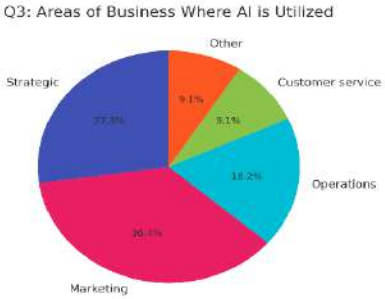
8. What do you think is needed in order to preserve ethical and efficient AI in business?



- A clear majority 81.9% answered in the affirmative indicating a reasonable level of awareness amongst the subjects sampled.

- Half of the respondents said their organization deploys AI, but a significant proportion either don't or are unsure.



- Ethical issues are a major concern for most people meaning that there are so many issues which need to be addressed in the specific area as relates to bias, fairness, and accountability in Artificial Intelligence applications.

Thus, the survey conclusions establish high global AI awareness and utilization, as well as the problems which persist in the form of ethical issues and the adoption that remains more or less half-complete.

DISCUSSION

The outcomes presented shed light on one of the key benefits of the AI approach to decision-making within a business environment. Due to the big amounts of data available, as well as decision making support tools, AI helps businesses to make the right decision. However, there are some points that have to be noticed as mere limitations of AI where some risks are also followed afterwards. This issue means that decisions made through machine learning will have unfair or even discriminating judgment given the bias nature of the data collected through the algorithmed information transactions.

For AI integration to work, it has to be largely human-focused. AI offers particular ways of changing low-skill work or providing basic data analysis but it cannot replace human judgment to tackle complex situations, interpret the AI generated information, and ensure that ethical issues are taken into account. A human is no longer passive participant or only a decision maker but he or she is an active participant in cooperation with AI. This is where we have to make sure we have the right people that will be in a position to comprehend AI readouts and regulate them.

CONCLUSION

AI is proving that it's revolutionizing the nature of business decisions. Its capacity to discern large data sets, pattern recognition, and the ability to predict the future provides clear and compelling benefits for organizations of virtually any kind. However, to achieve the maximal benefit of AI, the issues and threats regarding data prejudice, data openness, and utilization of ethical principles must be solved. Business decision making in the future will involve a

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combination of human and AI decision making to harness on the strengths of both systems in making good, accountable, and transformational decisions.

Future research should focus on several key areas: In general, expanding on the transparency and interpretability of AI solutions; reducing the risks of AI-generated bias as a result of data preprocessing and algorithm selection; studying employment and the workforce in the context of AI development; and identifying the ethical guidelines and regulatory tools for managing the proper use of AI in decision making. Moreover, attempts at understanding the process of effective implementation of AI in organizations and their environments will be essential for the optimization of the strengths and the minimization of the threats connected with the application of this revolutionary technology. Last but not the least we need more studies towards identifying the change in human – AI partnership model and create programs that prepare the workforce to deal with AI systems.

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RESEARCH THEME: "A COMPREHENSIVE LOOK AT THE EUROPEAN EARTH OBSERVATION INDUSTRY: TRENDS, CHALLENGES, AND OPPORTUNITIES FROM THE 2023 SURVEY"

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Co-Author**:** ***Azimbek Ravshanov***

Abstract

The data used in this article comes from the latest available 2023 European Association of Remote Sensing Companies (EARSC) survey and the purpose of this article is to present an overview of the state of the European EO industry. This paper outlines the key development in the area, which saw the sector record a 7.5% compounded annual growth rate over the last five years, with expected revenues of €1.79 billion in 2022. This growth shows the importance of the EO industry in meeting major world challenges, which include climate change, urbanization, and resource management through the development of new satellite data products. The survey also underlines the crucial role of the sector in view of the new EU and global context defined by the European Green Deal and the pledge of reaching climate neutrality by 2050. The article, through the mapping of the companies, employment patterns, and the role of the Copernicus program establishes the industry within the domains of Porter's Competitive Advantage and the Resource Dependency Theory while providing understanding of the industry's innovation potential as well as its weaknesses. Based on the analysis of the current development of the industry and the challenges identified, policy recommendations are proposed to promote sustainable development.

Keywords: Earth Observation, European EO Industry, EARSC Survey 2023, Satellite Data, Industry Growth, Copernicus Program, Policy Recommendations, Competitive Advantage, Resource Management, Climate Neutrality.

Introduction

The European EO industry is in the middle of a technology frontier and global needs, becoming a key enabler for climate change, environment and security policies. The EO sector, which uses satellite data, offers important information that helps decision-makers and society as a whole in areas such as development of cities, management of resources or response to crises. Increased awareness of climate change and changing geopolitical environment makes EO services more important than ever.

The 2023 European Association of Remote Sensing Companies (EARSC) Industry Survey is a comprehensive assessment of the current and future status of this fast-growing industry based on the input of more than 700 companies. Over the last five years, the industry has been growing at a compounded annual growth rate of 7.5% which translates to 2022 revenues of €1.79 billion, and a workforce of 13,929 employees. These statistics not only depict the contribution of the sector towards the economy but also depict the sector in line with other European targets including the Green Deal and the climate neutrality by 2050 (EARSC, 2023).

This article looks at the trends, challenges and opportunities within the EO industry through the lens of the 2023 survey. Discussed are the size and economic impact of the industry, the structure of the industry in terms of company types, employment pattern, market potential, and

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Copernicus's impact. Appreciating these findings within the lenses of Porter's Competitive Advantage model and Resource Dependence Theory, the discussion articulates the sector's opportunities and risks within the innovation ecosystem.

Standing at the heart of technological and geopolitical change, EO industry can become the solution to the major environmental and security issues troubling Europe. Nonetheless, to continue this growth path, every party in the ecosystem must play their part. This article aims at providing an understanding of these dynamics to help the industry understand its challenges and opportunities.

1. Growth and Economic Scale of the EO Industry (500 words)

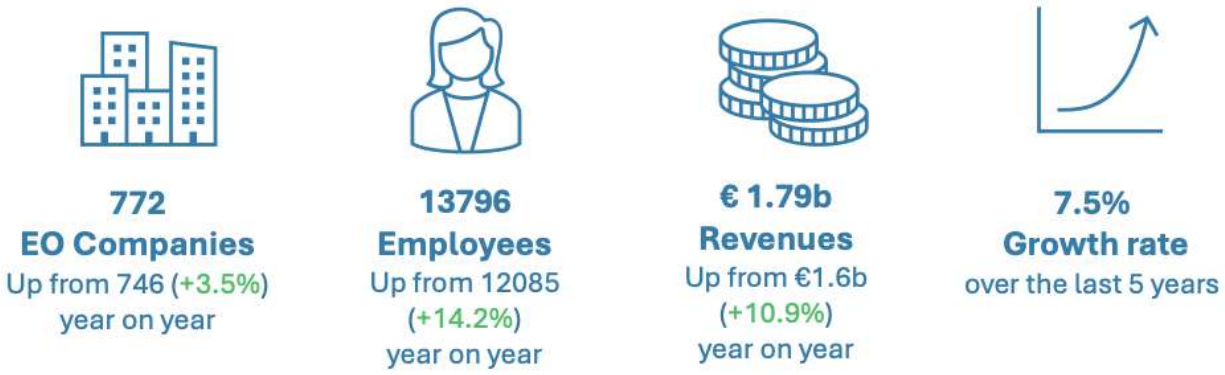

Figure 1: *Overview of this year's industry survey*

The European EO market has shown rapid development and is considered as an essential tool to solve many environmental, economic, and geopolitical issues. The most recent industry survey prepared by the EARSC for 2023 indicated that the sector generated a high annual revenue growth rate of 10.9%, resulting in a total revenue of €1.79 billion. In the past five years alone, the industry has had a CAGR of 7.5% indicating the industry's flexibility and strength especially in light of the ever changing market and the global environment (EARSC, 2023).

With this survey, 772 EO companies were found to be based in 32 European countries, which is 3.5% more than in the previous year. The number of people also engaged in the sector also surged to 13,796 from 2022; an increase of 14.2% from the previous year. This growth supports other European Union priorities, including the goal of attaining climate neutrality by 2050 in accordance with the Green Deal and increasing space security through satellite intelligence (EARSC, 2023). The competitive advantage model by Porter (1990) reflects this trend by showing how the European investment in infrastructure, development and cooperation has cemented the region's role in EO.

Since EO industry builds on the concept of integration with other applications, its growth is directly linked with its adoption in mainstream systems. The Green Deal that focuses on achieving the goal of carbon neutrality is mostly dependent on EO data for tracking emissions, forests management, and climate change measures. Likewise, the EU's Strategic Compass for Security and Defence also underlines the role of EO in protecting space infrastructure assets and/ or underpinning independent decision making. These applications are not only examples of the industry's flexibility, but also of its ability to create significant economic and social returns.

But there are some problems associated with the growth of this industry. The expansion of the use of open data, especially from the Copernicus program, has implications for the business

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models that depend on charging for their data. Copernicus data is the foundation of many EO services, but open data policy in Copernicus puts private companies that provide similar services under pressure. This situation is consistent with the tenets of Resource Dependence Theory developed by Pfeffer and Salancik (1978) which states that organisations that depend on external resources must manage their resource interdependence in order to survive.

As an economic resilience, the EO industry has proven its flexibility in handling disruptions through its response to political shift and technological evolution. Financial support for research and development has been secured through investments including the €16.9 billion promised by the 2022 Ministerial Council of the European Space Agency (ESA). These investments drive the growth of cutting-edge satellite systems and big data systems, which help the sector to compete with others on the global market.

2. Distribution and Classification of Companies

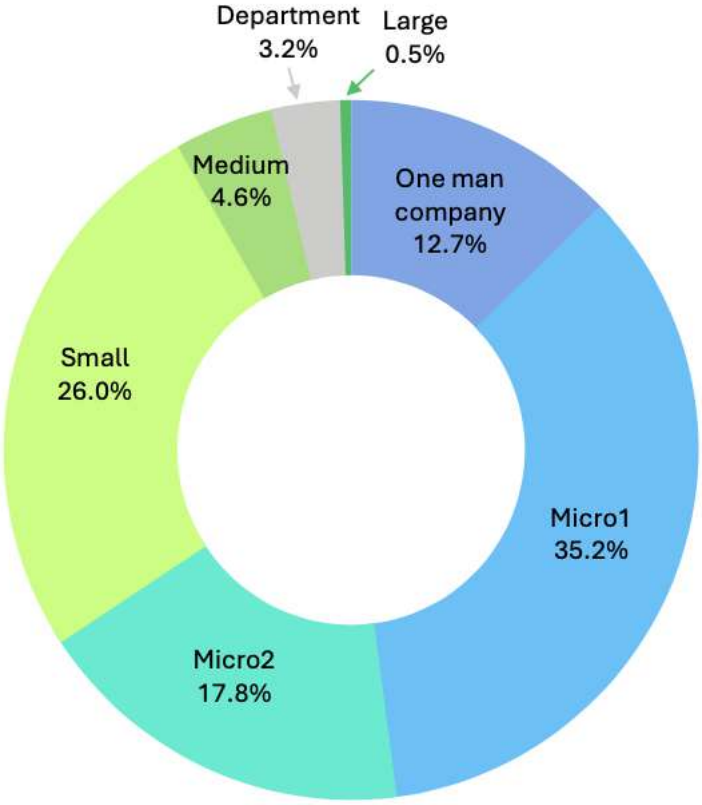

***Figure 3**: Breakdown of companies by company class*

This paper explores the European EO industry which is made up of a large number of companies which are diverse in their operations. The 2023 EARSC Industry Survey shows that micro and small enterprises constitute 92-93% of all EO enterprises. Micro-enterprises, those companies that employ less than 10 workers, account for 35.2% of the sector, which underlines the role of small and mediumsized firms in developing technological innovation and market solutions (EARSC, 2023).

The high concentration of micro and small enterprises is consistent with the theory of disruptive innovation by Christensen (1997) arguing that small firms are much more capable of innovating in new markets. Such firms can easily adopt new technologies like Artificial intelligence and machine learning in EO services. But they face some constraints mainly

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onResources and Operational Capacity in especially the aspects of scaling up operations and maintaining market competitiveness in a highly globalized environment.

Broken down by country, the survey data shows that the UK is the most popular destination for EO companies with 107 firms, while Germany ranks second with 100, and France third with 82 firms. They have been at the forefront of EO activity owing to availability of research infrastructure, sources of funding, and an enabling policy environment. Nevertheless, inequalities in the employment structure show that, although the greatest number of firms is based in the UK, Germany and France are leaders in the total number of employed people, suggesting that companies are, on average, larger in these countries (EARSC, 2023).

SMEs' dominance in EO industry evidence the important role of SMEs as the key drivers of innovation. Small and micro enterprises are more likely to be focused on leading-edge technologies, and create tailor-made solutions for specific segments of the market. As per Porter's (1990) Competitive Advantage model, this specialization helps SMEs to create competitive advantage over big companies especially in higher value added products or services like satellite image interpretation, geospatial data management and environmental surveillance.

Although SMEs have certain advantages over other organizations, the latter still have many problems concerning their expansion. According to the resource dependence theory by Pfeffer & Salancik, (1978) small firms face the challenge of accessing important resources such as capital, human Resource and market inputs. The survey identifies these issues, pointing out that micro-enterprises are especially threatened by publicly funded organizations that provide free or inexpensive EO data. Furthermore, due to the fact that EO has numerous applications across agriculture, defense, and urban planning, the market is highly fragmented, which makes it challenging for new entrant companies to enter and expand in the market.

To overcome these barriers the stakeholders in the industry together with the government must ensure that there are support systems for the SMEs. Programs on regional capacity building that are encouraged under the EU's Smart Specialization Strategy can assist in this respect in order to create more equity by developing innovation systems in regions that are often excluded. In addition, they are able to improve the accessibility of SMEs to some common resources and facilities, including data processing centers and cloud services that can help SMEs minimize operational costs when expanding.

3. Employment Trends and Skills Gaps

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Employment Evolution:

The total number of employees in the sector in 2022 is 13,796 which represents a **growth rate of 14.2% over the last 12 months.**

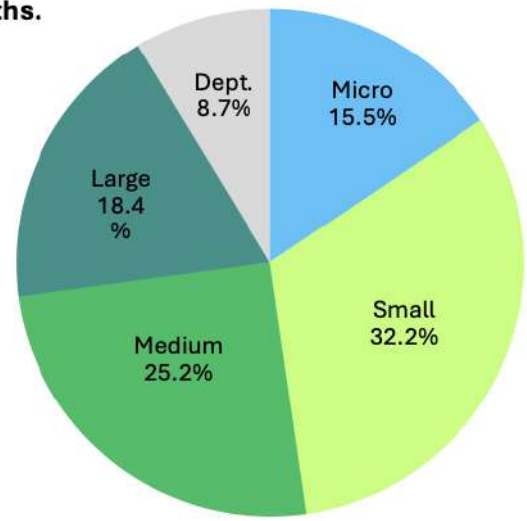

Figure 7: *Breakdown of Employees per company class*

The European Earth Observation (EO) industry workforce has expanded considerably in the last year, with 13,796 people working in the sector in 2022, up 14.2% from the previous year (EARSC, 2023). This growth can therefore be attributed to the increasing importance of EO services in fields such as climate, infrastructural development and defense. Nevertheless, the industry still has certain human resource-related problems, especially the difficulty of attracting and retaining talent in technical positions.

In the EO sector, SMEs contribute 73% of total employment, which means that they play a very important part in employment generation and innovation. Nevertheless, these companies reveal the following challenges to recruiting, 77% of the firms surveyed said that they faced challenges in finding qualified employees. The major issues include the scarcity of talents in programming, data analytics and artificial intelligence (AI), and the problem of retraining of the workforce for EO related roles. These findings are in accord with the skills gap theory that explains the misfit between educational outcomes and labor market requirements (Acemoglu & Autor, 2011).

Of the skills needed, programming/development was considered most challenging to find, with 40% of companies responding that it was difficult for them to find such talent. This divide has been widened by the speed at which AI and machine learning have been incorporated into EO processes, as organizations need individuals who can handle these systems and deal with large volumes of data. This trend is in line with the general increase in the use of data analysis for decision making; as postulated by the theory of technological evolution (Nelson & Winter, 1982). Lack of such people is a major challenge to the growth of the industry and its ability to expand and be creative.

Geographical disparities also affect the employment situation. Germany and France are the most involved with 2,832 and 2,104 employees accordingly. However, the small markets experience a problem in recruiting professionals, especially in a locality with fewer job opportunities and sources. This discrepancy is perhaps the best argument for regional capacity-

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building initiatives that can help alleviate labour deficiencies and support inclusive economic development.

The EARSC survey also outlines new trends such as the increasing needs for transversal skills in market analysis and customer relationship management. These skills are critical in the EO industry because it is shifting a focus towards customers and how its technology can meet their demands. As put forward by Kotler (1997) in the marketing mix model, good customer engagement entails accurate recognition of market conditions and users' needs. The absence of these skills in the workforce is considered as the major constraint of EO solutions in the market.

In order to meet these challenges, a combination of measures is necessary. This paper has identified how collaboration between academia and industry can assist with ensuring that educational content is relevant as per the requirements of the EO sector. For instance, incorporating EO-specific modules within the engineering and data science degrees ensures that the graduates are prepared with the technical and analysis skills that the employers are looking for. Furthermore, government-led reskilling can create a more flexible workforce which can easily transfer to new positions as the EO technologies expand.

4. Market Opportunities and Challenges

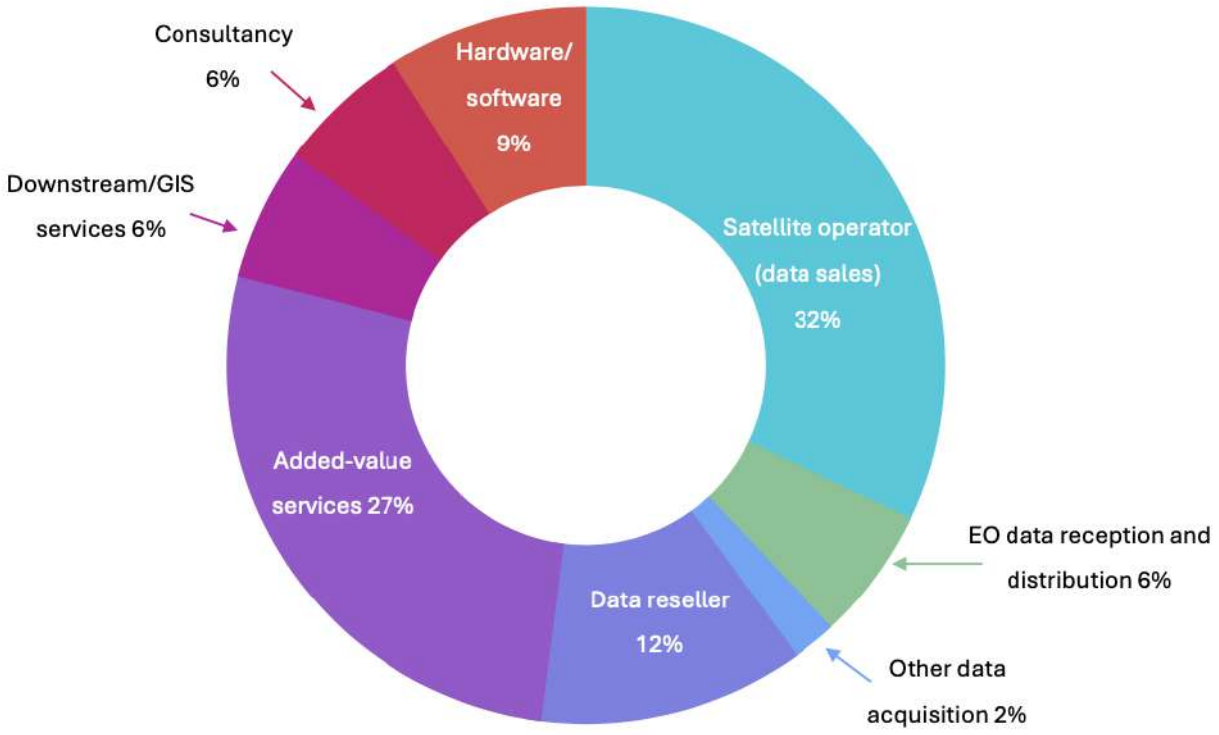

Figure 18: *Companies' main areas of activity in 2022*

The European EO industry is a dynamic one, with new opportunities co-existing with long-standing issues. According to data from the 2023 EARSC Industry Survey, the center of gravity of the market remains with satellite operations occupying 32% of the sector's activities while value added services trails slightly behind at 27%. This distribution is characteristic of the increasing

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need for EO data and service in areas such as defense, agriculture, environment and so on (EARSC, 2023).

The EO industry has various uses across different markets, and there is a significant increase in the African and South American markets. These regions increased from 3% and 2% to 5% of the surveyed companies' activities last year. The expansion into these markets is informed by rising needs to address climate risks, disasters, and better resource utilization. This is in line with the global increasing focus on Sustainable Development Goals (SDGs) where EO technologies are instrumental in monitoring and evaluation of the achievements and the challenges.

The defense and agricultural sectors have been identified as the most important growth enablers. Defence uses EO data and is backed up by the EU's Strategic Compass for Security and Defence to monitor, gather intelligence and make decisions. On the other hand, agriculture uses satellite imagery for precision farming, crop and resource management. Following Porter's (1990) value chain model, these applications augment competitive advantage by incorporating EO capabilities with downstream analyses to produce valuable information for the end-users.

Nevertheless, the industry has several obstacles in the way of achieving market acceptance. More than half of the companies surveyed identified user awareness and market acceptance as their major problem. This concurs with Rogers' (1962) Diffusion of Innovation Theory that postulates that a large number of potential users are still in the "early adopter" phase, and therefore, reluctant to incorporate EO technologies fully into their operations. This view of EO solutions as difficult to implement or as complementary to other systems hampers the uptake of the solutions.

There is the competition with other public entities that provide EO data, either for free or at a relatively low cost, as another challenge. The free-of-charge approach of the Copernicus program, on the one hand, fosters innovation, on the other hand, it poses a market threat to private companies interested in charging for similar services. Resource Dependency Theory (Pfeffer & Salancik, 1978) also captures this problem because private providers are dependent on public sources of data, which makes it hard for them to generate revenue.

This study also identifies high costs of EO technology and data acquisition as a factor that hinders market expansion, especially for SMEs. The survey concludes that the greatest challenge is the cost of the hardware and software as well as the data collection systems needed to implement the solution. This is in concurrence with the agency costs particularly capital costs as postulated by Jensen and Meckling (1976).

In order to overcome these barriers, the EO industry has to go for a well-coordinated, systematic effort. With a proper marketing strategy to promote the use of EO products and proper user education, the problems that result from EO technology awareness can be solved. Kotler's (1997) marketing mix model suggests that promotion strategies should target real life applications and returns in order to turn leads into loyal users.

Public private partnerships can also be used to effect change in costs and innovation. Through partnering with governmental institutions, private EO companies can get cheap inputs for example data platforms and training for SMEs. It also remains possible that regional incentives including grants and tax holidays will help firms enter unsaturated markets like Africa and South America.

5. Copernicus's Role and Future Outlook

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The Copernicus program thus continues to be one of the most important assets of the European EO market, delivering the information and tools that fuel product development and commercial opportunity. According to the 2023 EARSC Industry Survey, the program has embraced the free and open data policy that has made it easy for companies to access quality satellite imagery for different uses. Nevertheless, this policy also brings some difficulties to private providers that try to generate revenues from EO services in the market (EARSC, 2023).

It is striking that all surveyed companies use Copernicus data, with 75% having a high usage of Sentinel-1 and Sentinel-2, and active engagement with newer data from Sentinel-3 and Sentinel-5P. These resources support applications in agriculture, forestry, and urban monitoring providing evidence of the programs applicability to current world issues. The Green Deal and EU climate neutrality goals are supported by the Copernicus data to inform on emissions, assess the state of biodiversity and to inform on resource management.

The program's open data policy reflects Samuelson's (1954) public goods theory: it is stated that resources that are available for everyone bring positive external effects to society and economy. Through opening up of the access Copernicus stimulates innovations and mostly among the SMEs who cannot afford buying the exclusive data. However, the same policy creates an anticompetitive barrier to entry for private firms trying to provide new, unique services based on these same datasets.

The utilisation of Copernicus data poses important questions about the economic viability of the private sector revenue models. In the Resource Dependence Theory by Pfeffer and Salancik (1978), organizations with high dependence on external resources have to formulate responses to threats. The problem for private companies offering EO services is how best to add value to the data derived from the Copernicus program and how to position themselves in the face of free services provided by public agencies.

This problem is compounded by competition from public sector entities and other open access platforms. According to the survey, 55% of companies reported market acceptance as the most critical challenge and this is because of customers' preference of low-cost or free solutions. Furthermore, private providers have problems with explaining their prices in the market where top level data can be obtained for free. Such dynamics require new business models and cooperation to guarantee financial viability.

Further advancing, the Copernicus programme is expected to continue growing thanks to the new Sentinel missions, including CHIME (Copernicus Hyperspectral Imaging Mission) and LSTM (Land Surface Temperature Monitoring). These missions are anticipated to supply important information for the agriculture, forestry, and urban planning fields, thus increasing the application of the program. The participating companies indicate a high level of interest in these missions given that many of them see them as providing the opportunity to tap into new markets and increase revenues.

Moreover, Copernicus is an important contributor to Europe's digital agenda. Combining this data with those from future missions along with the use of analytics and artificial intelligence, the program can enable higher value applications including efficient farming and climate change impact assessment. These developments are consistent with Nelson and Winter's (1982) evolutionary theory of economic change where technology innovation is a key driver of industrial change.

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Thus, in order to make full use of the potential of the Copernicus program with regard to the mentioned problems a joint approach of all parties interested should be considered. This paper will recommend the following policies that can help policymakers strengthen the role of private providers: Subsidies, tax incentives, and public-private partnerships that promote new ideas and methods. To add, companies can also use data integration platforms and cloud-based solutions in a bid to get more out of the Copernicus dataset.

This analysis also shows that educating the end-users about the benefits of value-added services can assist in closing the gap between the public and private sectors. Real world applications and practical uses that can be easily understood should be well explained in order to foster market uptake. Porter's (1990) Competitive Advantage model also recognizes the role of differentiation in the competitive and resource based market environment to achieve competitive edge.

6. Policy and Investment Needs for the EO Industry

The future and impact of the European EO industry's development and achievements in the pursuit of essential societal objectives depends on secure policies and strategic funding. The marker, according to the 2023 EARSC Industry Survey, the EO sector is situated in the convergence of technology advancement and the issues of the world today like climate change, security, and sustainable development. Nevertheless, to reach its full possibilities, the industry needs specific measures to overcome the challenges related to the lack of funding, minimal venture capital, and inadequate infrastructure (EARSC, 2023).

Another vital achievement in enhancing the EO industry was the €16.9 billion commitment from the ESA's 2022 Ministerial Council. This marks an increase of 17 % from the 2019 commitment which shows that Europe is serious about the development of space technologies and EO applications. These funds help fund critical activities, including the expansion of new Sentinel missions and data integration systems that help strengthen the industry and its ability to create new products and services.

From a theoretical framework, the framework of Porter's Competitive Advantage model (1990) greatly emphasizes the role of infrastructure investments in industry development. Specialized funding programs, for instance ESA's Space for a Green Future accelerator, prove that the right capital can help EO firms support strategic objectives like the Green Deal and the digital agenda. These programs are not only an improvement on current technologies but also open doors for cooperation between public and private sectors.

However, one of the biggest issues to this date is the question of funding, especially for SMEs in the EO industry. The research shows that 55% of the companies have issues with venture capital and others cannot get loans or equity investments either. This finding is in consonance with the agency theory advanced by Jensen and Meckling in 1976 whereby the financial consequences of seeking external finance are discussed. To the best of the authors' knowledge, a major constraint that can restrict innovation and market entry in EO, as well as other capital-intensive domains, is the shortage of funds available to SMEs.

Policy makes should, therefore, focus on ways of increasing the flow of funds to EO companies. The use of tax exemptions, grants, and co-investment can help private sector engagement and alleviate the fiscal pressure on SMEs. Also, there is a need to link EO companies with IFIs for them to get access to other sources of funding. According to the survey, organizations

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that received IFI funding from organizations like the World Bank or a regional development bank are in a vantage position to expand their operations and enter the international market.

The free and open data policy of the Copernicus program is a boon and bane for the EO industry. Although this policy opens up access to top-notch datasets for everyone it presents challenges to private companies that seek to charge for similar services. To this end, government should probably think about adopting the tiered data access approach that allows commercial use of the data with added value while keeping the data open to the public.

Additionally, funding of data-sharing platforms and cloud-based applications can increase the applicability and expandability of EO data. These initiatives are consistent with Isenberg's (2011) entrepreneurial ecosystem framework as these require infrastructure to support innovation and collaboration. Through enhancing the access to EO data, the policymakers can help both the public and private entities to achieve more from the EO data.

The future success of the EO industry also depends on the solution of the long-standing problem of human resources shortage. The survey reveals that the existing workforce lacks in some areas such as programming, data analytics and Artificial intelligence. To address this gap, government-led reskilling programs in cooperation with academic and business institutions should be developed to make the output of educational institutions meet the needs of the market. Also, specific immigration policies may be used to lure talent to fill the vacancies in the workforce at the current time.

Following Nelson and Winter's (1982) evolutionary theory of economic change, it can be argued that labour flexibility is essential for industries that exist in contexts with fast changing technological dynamics. The author argues that through training and development, EO industry will be well equipped to face any future challenges that may come its way.

As such, coordination between governments and other stakeholders, private sector and international organizations is crucial for the development of a sustainable EO system. The public private partnerships offer opportunities to pool resources, joint ventures and co-innovation to allow companies to expand their reach and expand their business into new territories. For instance, common assets like data center and communication satellites can provide SMEs with relief from certain operating costs and also increase the productivity of the entire sector.

It should also promote the provision of supportive policy frameworks that would foster the international cooperation in the expansion of European EO firms. Strategies that support the export-based growth, including trade delegations, and the business-to-business platforms, enable firms to gain entry into new markets in Africa and South America. Such efforts are in conformity with Porter's (1990) cluster theory where he stated that industries depend on regional and global networks to compete.

CONCLUSION

The 2023 EARSC Industry Survey paints a picture of the European EO industry as a vital player in meeting the world's challenges and advancing change. The sector has recorded a sensational five-year compound annual growth rate of 7.5% and is expected to generate €1.79 billion in revenue in 2022. However, its future success remains a function of how it will avoid or manage risks that have persisted over the years while exploiting new trends.

Some of the features identified from the survey include: The fact that the industry is dominated by SMEs because 92% of the companies in the industry are SMEs while SMEs account

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for 73% of employment. These organizations are the core of innovation that involve innovative technologies and services in areas like agriculture, defense, and climate change. However, their resource constraints and capacities show that they require special assistance to increase their scale and sustainability.

The place of Copernicus in this context is critical as it provides free and open data to support innovation. The Copernicus data serves the basis of many applications, ranging from agriculture to decision making in cities. However, this open access model creates problems for private actors interested in delivering distinctive and chargeable services. Resource Dependence Theory as propagated by Pfeffer and Salancik (1978) provides a background on the importance of the management of these dependencies to guarantee long period of existence.

Unemployment and skills mismatch are still the biggest challenges that hinder development. There is high competition in the market for programming, data, and artificial intelligence, saving the potential for growth. To meet this challenge,.ParserGap

Potential markets in Africa and South America may become new horizons for the company's development. Nonetheless, there are challenges that need to be overcome in order to realize these opportunities including market challenges, competition from publicly funded organizations, and costs of EO technologies. The new challenges identified in Porter's Competitive Advantage model (1990) include differentiation and collaboration approaches in managing these challenges.

For the EO industry to continue its upward growth trend, there is the need to reinvest in infrastructure, people, and data. This means that public private partnerships, international cooperation and enablement policies can help build a system that will be able to sustain innovation and growth. The €16.9 billion proposed by the European Space Agency (ESA) is evidence that Europe is serious about the development of the EO sector and strategic objectives of the EU Green Deal and climate neutrality by 2050.

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THE ROLE OF SOCIAL MEDIA IN MODERN MARKETING STRATEGIES.

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1.0 ABSTRACT

Social media has undeniably emerged as a critical tool in the current and future marketing mix, changing the way organizations, and firms communicate with their target consumers, create product imagery, and facilitate consumption. This comes in handy in outlining the suitable topic of this article; the use of social media in modern marketing: advantages, disadvantages, and recommendations. The survey and secondary research analysis of the social media platforms underscore some important find out in relation to the use of social media by different businesses and corridors of success or failure.

The analysis shows that social media is a cheap promotional channel for enhancing customers' interest, and the proper broadcasting tool is video. Although currently Instagram reigns in marketing, the challenge is significantly huge for marketers where they have to deal with issues like generating organic content, and changing algorithms. Also, while posting must be consistent and analytics must be used to great effect, these are also important factors to consider. The discussion shows the evolution of the social media marketing and need for continuous update of knowledge in the area.

The following practical conclusions are given based on the results of the study: businesses should focus more on customer interaction, use video content, solve content production issues, and make efforts to adapt to changes on the platform. By adopting these strategies, it will be possible for the companies to exploit social media wholly to succeed in the rapidly growing future business environment.

Keywords: *Social Media and Marketing, Social Media Strategy, Social Commerce.*

2.0 Introduction

Research Background

Marketing has not been left behind by the social media boom which started in the early 2000s to become a key aspect in today's marketing. Now in the guise of corporate tools for two-way global content generating and user engagement, social media has become an indispensable tool in business audience relations. It offers a potent weapon for brand promotion, communication with customers and sales generation in the global, computerized environment. In the current complex business world where competition is rising at an alarmingly higher rate, social media is a functional tool in managing customer relations, market research, and increasing organizational productivity.

Research has established the fact that the brands that incorporate good social media communication mark higher levels of customer interaction, brand commitment and better income returns than the brands that rely on regular marketing techniques. Nonetheless, lots of

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organisations fail to effectively employ this communication channel into their marketing mix and lack continuity in planning, resources and evaluation. Based on the current progress of changing the business, it is critical more than ever to grasp the importance of social media in today's definition of marketing strategies.

Research Problem

Thus, this research question: what role does social media play in the general marketing environment and the available marketing research evidence on the performance of current digital marketing initiatives? While more businesses are now adopting social media marketing, few organizations effectively harness the tool because many lack the expertise, alignment to the corporate strategy, or knowledge of the behavior of consumers online. This has implications in how organisations leverage social media for branding, engaging customers and getting to the relevant markets. Consequently, this research focuses on addressing the question: In what way does the use of social media affect marketing processes and its performance in today's organizations?

Research Objectives

The objective of this research is broad in terms of exploring the role social media plays in constructing and optimizing marketing initiatives, particularly exploring how effective social media is for building brand and business results. The primary objectives of this study are as f ollows:

1. In order to assess the impact of social media marketing on business organizations' marketing performance.

2. To make clear what parts of usage of social networks (posts producing, demographic and geographic targeting, data analysis etc.) are the most valuable for marketing.

3. In order to investigate social media impact on customer interactions, brand familiarity, and business performance.

4. In order to identify common practices and effective method to follow for the development and integration of overall social media strategy in the light of current marketing objectives.

Scope of the study

The present study reviews the use of social media in the marketing of a firm's products, with regards to size and type of business; small business or large business, for-profit businesses, and non-profit organizations. It will utilize a mixed-method approach:

Quantitative: Customer research about the use of social media, key performance indicators, and marketing effectiveness.

Qualitative: Surveys of mark eting professionals for the purpose of obtaining information on emerging concepts, issues and trends in social media marketing.

Quantitative comparison will also be effected across various industries in to draw comparisons as well as discover fluctuation in the effect of social media. The research will also compared social medial approach in targeting local and global markets, so th`e study results are generalisable to various marketing contexts.

Research Significanse

The topic of this research concerns how social media works in contemporary marketing and is important for both theoretical and pragmatic reasons. First, it can be useful for the

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development of marketing theory since the interactions of social media and traditional and digital marketing tactics are analyzed. Second, it provides utility as it guides organizations for a strategic vision and planning of data driven, customer oriented social media initiatives to increase outcome. Finally, this research aims at reducing the theoretical-practical gap with the view to providing businesses with practical guidelines on how to use social media effectively for sustainable business outcomes.

3.0 Literature Review

▪ Secondary Research

Evenlyn (2024) argues in her research that in today's digital age the population has shifted increasingly towards use of social media in their lives, it is becoming very critical for businesses to ensure they engage customers through social media for reasons such as brand building and sales. Social media marketing means choosing the proper channels, producing exciting content, and encouraging clients' participation through the comments, polls, and live sessions. Others are Hashtag marketing, Influencer marketing, and Social commerce that can enhance the results. Engagement rates, reach, and conversion rates of the posts used as part of the campaign have to be kept track of. But issues such as how to deal with the negative responses, changes in algorithm and time constraints cannot be overlooked. Some more trends which are active and should be pursued in the future are short-form videos, Augmented Reality, and sustainability.

(Cutter, 2023) gives an answer from his article that social media has changed the faces of the modern business world as it provides a major tool for representing brands and getting the target audience. However, it proves to be very helpful for companies that seek social media marketing for being cheap and effective as well as offering consumer profiling and loyal consumer base. However, there are barriers like; dynamic algorithms; content creation; and, assessing return on investment, persist. They include setting up goals, who you are targeting, how you plan to capture the attention of your target group, maintaining continuity in delivery, and evaluating effectiveness. Digital marketing agencies can help businesses when dealing with certain complications and when looking for ways to improve their campaigns. Lastly, it is clear that social media is an indispensable resource for companies that want to adapt to conditions of the digital economy.

4.0 Research Methodology

▪ Primary Research

I find this statistic observation revealing another fact that depicts the percentage of businesses that perform services with concern to Instagram revealing the highest percentage response of 87.5% as the key social media marketing channel. Concurrently, only 12.5 percent of businesses use Facebook marketing, an indication that it may be on the decline in order to make way for apps which will attract the younger and more graphic inclined Generation Y audience.

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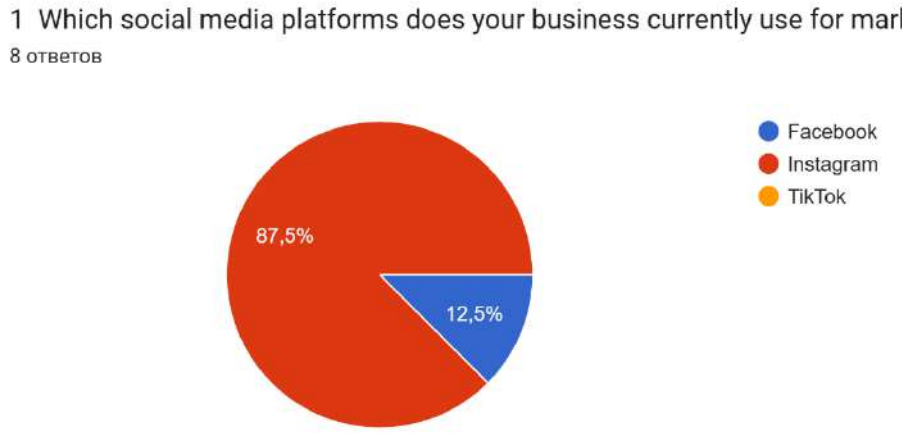
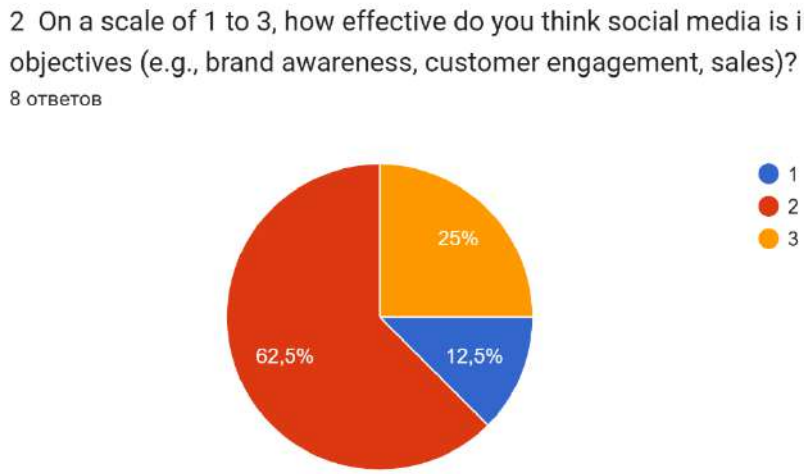


Regarding the effectiveness of marketing on social media, a majority of the respondents 62.5% consider the platforms moderately effective, and 25% consider the platforms highly effective for the same. A mere 12.5% of respondents consider it less effective, which shows that there is potential to make the strategies better.



Originally, 50% of the participants plan on enhancing customer interactions, while 37.5% are interested in sales growth; only one-fifth of participants target brand recognition as a primary goal.

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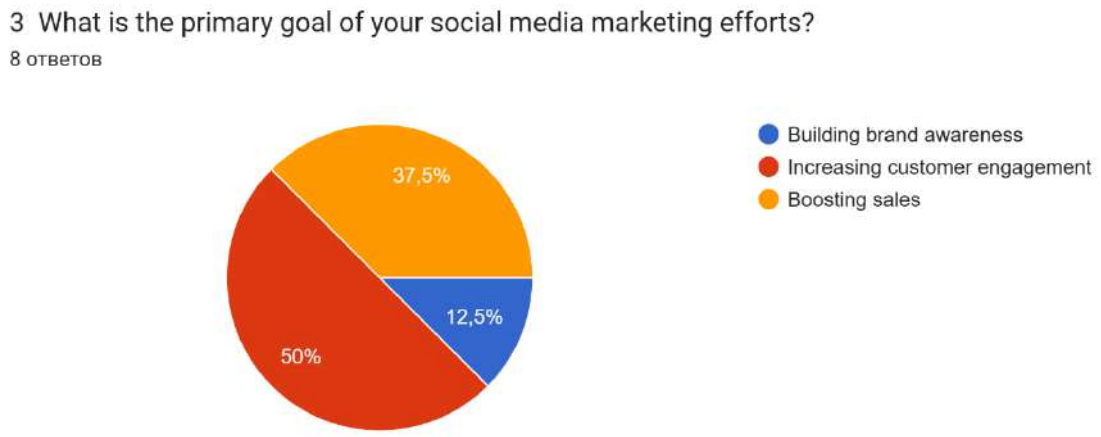
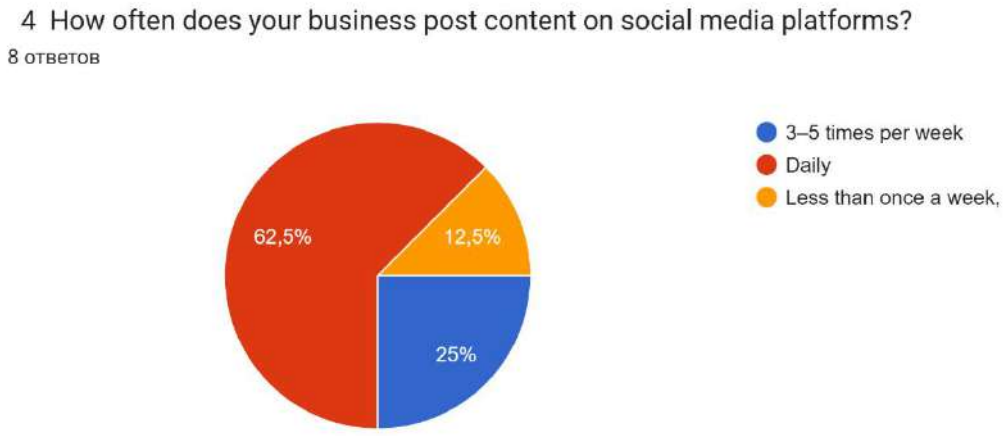


It was also found that most respondents (62.5% of them) post content on their social media pages on a daily basis, suggesting high levels of commitment towards updating activity; 25% of the respondents post 3-5 times a week and the rest (12.5%) post seldome, less than once a week.



These results proved that video is one of the best content types preferred by 50% of people showing more engagement power. It also discovered that there is no clear preference for any visual content type: Infographics and stories/short-form content stand at 25% each.

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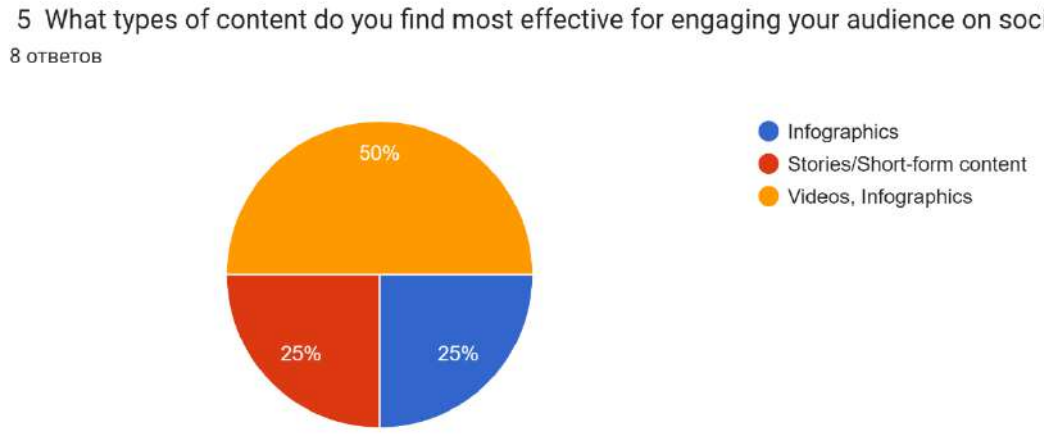
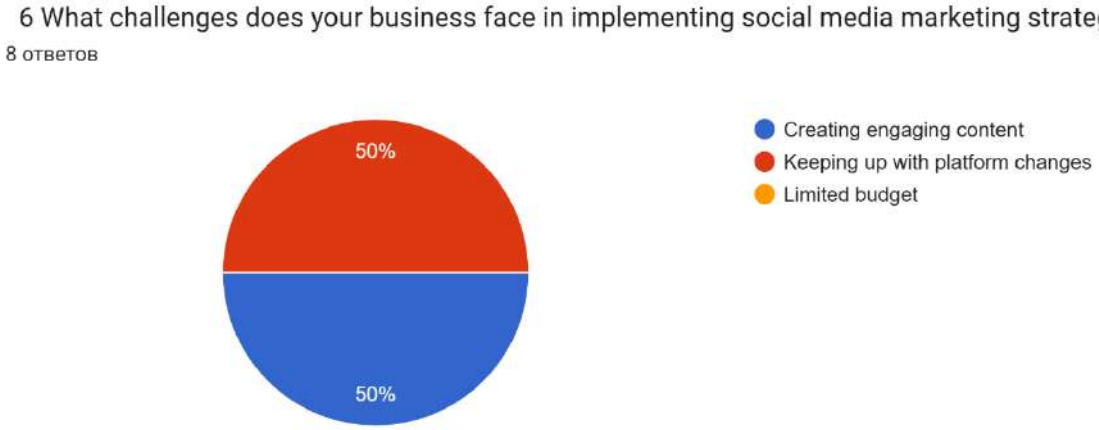


The greatest issues that businesses encounter in social networking advertising can be summed up by equally divided concerns about generating quality content (50%) and about alterations of the platform (50%); budget limitations do not appear to be a problem (0%).



5.0 Research Findings

The survey, observations, and analysis of the status of social media in contemporary marketing philosophies drawn from the current study provide the following major insights into the effects of social media on businesses. The use of social media platforms has greatly enhanced the communication between organizations and its target customers, marketing strategy and general goal achievements. The results are classified under platform utilisation, content impact, marketing objectives, post frequency, and business issues encountered.

Platform Usage in Social Media Marketing

The survey results indicate that Instagram is the most popular social media for the promotional purpose by having 87.5% of people who use it, while only 12.5% people use

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Facebook. Such findings imply that companies prefer aesthetic-based applications that feature innovative elements for interaction and materials sharing. Several theories were worth considering to explain why Instagram took over Facebook; First, more youthful people have embraced the platform, and second, it supports many forms of content, including posts, stories, and reels.

Effectiveness of Social Media Marketing

The extent of utilizing social media for marketing the business was measured on a scale of 1 to 3 to ascertain the extent to which it has support the business objectives. About half of the respondents (45 %) said that it was not very useful, and another 17.5% said that it was not useful at all. And only the 12.5% considered it less effective. These findings suggest that, overall, businesses are inclined to perceive social media as an effective means to accomplish the corporations' goals, namely building brand image, identifying the customers, and making sales, however the rates of the effectiveness may depend on the undertakings used.

Primary Goals of Social Media Marketing

Self-generated questions Regarding the important objectives of social media marketing, the large percentage of the respondents, that is 50% of them pointed to friendliness as the greater need while 37.5% pointed to the need for sales while the remaining 12.5% pointed to the need for brand recognition. This points out that businesses can harness the underlying interactive capabilities of social media as a tool for creating profound bonds between an organisation and its customers, while at the same time, create value for the business. However, brand awareness, which is critically important, seems to be the less significant priority of most enterprises.

Content Types and Effectiveness

Content relevance is a crucial factor of SMM, and the results show that video content is the most relevant type, which was preferred by 50% of respondents. Both infographics and the sections were rated 25% for the stories kind of content. In the following reasons videos are preferred by businesses because they are engaging and can be used in different ways. This share is increasing in parallel with the focus on the platforms like Instagram and TikTok that incorporate more video material.

Posting Frequency and Its Impact

Based on the frequency of posting, 62.5% of businesses said they post daily while 25% said they post 3-5 time per week. As few as 12.5% of the subject posts less than once a week. The focus to post on the channel continuously pointed to the fact that failure to keep active in a given social media platform means that you are gradually becoming irrelevant. Consistent creation enables business people to retain their audiences and maintain connection with them.

Challenges in Implementing Social Media Strategies

Yet, organizations have a number of issues when it comes to the execution of social media plans. The survey identified two main challenges: Developing interesting and relevant material (50%) and knowing about changes to the social media site (50%). However, not a single participant claimed that having a low budget was an issue, suggesting that the major problems are more to do with imagination and flexibility than money. These results raise the importance of professionals and working in the content creation business and understanding of changes in algorithms and platforms.

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Thus, the results also confirmed the importance of social media networks in the contemporary concept of marketing. Sites like Instagram represent the largest market share since they are cross-domain and visually oriented, and video content is proven to be the most effective for engagement. Engagement or customer relations and sales are major goals highlighted, proving the versatility of the social media tool. But, the problems of content generation and platform customization need to be solved to enhance social media's capabilities fully. These findings are informative to the current generation of organizations to develop effective social media marketing strategies and sustain success in the era of globalization.

6.0 Discussion

The findings from this research provide significant insights into the use of social media in contemporary marketing communication while providing a rich picture of the promotion of marketing goals and objectives among organisations. This discussion revisits these findings and discusses them in light of current trends in digital marketing.

The Dominance of Instagram in Marketing Strategies

Instagram is proven as the most popular platform among all businesses with 87,5% of them using it for marketing which is very important for the modern world. It also possesses new facilities such as reels, stories, and posts which include videos and images consistent with the need of consumers for exciting content. This dominance may well mean businesses and especially those more inclined towards the younger generations understand and appreciate Instagram as the necessary platform for brand exposure and audience engagement. I for one, only use Facebook sparingly, which is evidence that the audiences have shifted and have decided to go with more graphic and technologically advanced channels.

Social Media's Effectiveness and Its Role in Business Goals

The study unveils that most firms agree that social media marketing is moderately to highly effective for their marketing goals. Customer engagement came out as the most important goal which demonstrated the importance businesses accord to directly engaging their audiences. This is in accord with the dynamic nature of social media strengthening business customer interface with the customer providing a channel through which the business can directly interact with the customer, get immediate feedback from, and establish a close relationship with. However, the comparatively smaller importance of brand recall indicates the fact that businesses might already take social media presence for granted and are now beginning to explore ways to bond more closely with the audience and sell to them.

Content Strategies: The Rise of Video Content

The perception of video content as the best and most suitable format with which one can capture the audience corresponds with the overall trend in social media marketing. For instance, TikTok, YouTube, and Instagram Reels have brought in more engagement with videos because they are now more versatile content types. Videos work not only for grabbing people's attention immediately but also for telling stories, presenting products, and developing loyalty with people. Such an effect underlines why firms must invest in Video production tools as a way of countering the existing competition.

Consistency and Posting Frequency

The study found out that most companies share content on a daily basis, this indicate the need to be active on social media platforms. It also keeps businesses in-sight and in-mind with

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their target market, through consistency and constant communication. However, the pressure of generating as many quality contents every day might need business organizations to embrace efficient content development and posting calendars or hire content development professionals.

Challenges in Social Media Marketing

Of all of the issues determined—there are two that stand out as the most fundamental barriers businesses must surmount if they are to glean the most value from social media; content production that is at once compelling and content modification that accounts for changing platforms. One major factor that defines success is the capacity to generate large volumes of quality, creativity and relevance. Secondly, social media is never standing still as its algorithms and features change more frequently than publishing and advertising tools. To overcome these challenges businesses will have to invest in strengthening skills, knowledge and remaining current with advancements in the platform.

Implications for Modern Marketing Practices

These findings are suggestive of the indispensability of social media to contemporary marketing initiatives. It is concerning to see that for any business, it has to be customer-led by focusing on platforms customers use and frequent. Moreover, the consideration of videos and daily post activities suggests the ultimate dependence on the adaptable and flexible marketing departments that are going to operate in the dynamically changing environment created by social platforms.

Future Considerations

The research has reveal that social media works However, it has ignited some questions concerning sustainability. The competition for attention increases progressively as a growing number of companies follow the same approach. This, therefore, implies that businesses need to think creatively and advance constantly and investigate novel approaches including the AR, customized content and cognition solutions, and AI analysis.

Finally, one can conclusion that social medial has became an integral part of contemporary marketing techniques. It is beneficial to businesses as it is an efficient, inexpensive method of reaching out to a company's customers, as well as promoting product sales, while also fostering brand loyalty. However, to optimise its advantages businesses must overcome the weakness that are connected with content developing and flexibility while keeping up with new tendencies and options.

7.0 Conclusion

While working on this research on the place of SMM in present day business strategies, I wanted to know how these firms use the media platforms to achieve their goals. The insights have been revelation, especially identifying Instagram as the leading tool for marketing and establishing that video content is constantly on the rise.

From my point of view, the focus businesses are putting on customer relations highlights the role that has shifted from merely using social media as a promotional function. It is rather interesting that, along with sales, platforms as Instagram and TikTok help to build up trust and brand familiarity among the audience.

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Nevertheless, I understand the difficulties which businesses have, including the production of shareable content and changes affecting the platform. This has made me realise the importance The need to enhance innovation and flexibility in the area of digital marketing. In light of these observations, I can assert that organizations that continue to fund creativity, analysis, and flexibility shall endure the constantly shifting environment above.

In the future, more prompt of trends including augmented reality and personalized content need to be adopted to expand the effect of social media marketing. From this study, I have come to appreciate the strategic importance of social media beyond being used as a marketing communication tool but as a channel that connects brands with their consumers in the current world.

8.0 Recommendation

Based on the findings and discussion of this research on the role of social media in modern marketing strategies, several actionable recommendations can be made to help businesses optimize their efforts and overcome challenges:

- **Focus on Customer Engagement**

Since raising customer engagement became the important goal for business, it becomes crucial to focus on creating engagement. When choosing the regular interaction formats, brands should make use of poll, live sessions, and interactive stories to establish the dialogue mode.

- **Prioritize Video Content**

If 50% of the respondents see videos as the most effective content type, business should consider it important to invest in videos as part of their social media content creation plans. Campaigns are particularly suitable for posts and important information and concepts should be included in short-form videos such as reels or a TikTok post.

- **Consistency in Posting**

Since 62.5% of businesses posted content daily, continuity is paramount more often for increased viewability and audiences' attention. The management of businesses should consider the use of scheduling tools so that there can be constant posting with respect to quality.

- **Adapt to Platform Changes**

Platform updates and algorithm change is other issues highlighted and this therefore requires that a business should spend some time to learn more on matters related to social media platform. Sessions with senior HR personnel or linking with other professionals, who manage the site, can come in handy when addressing these changes.

- **Leverage Social Media Analytics**

To be able, for example, to track ROI more effectively and adjust certain approaches in this sphere, there must be utilized analytics tools offered by the platforms that host businesses, such as Instagram or Facebook. Measuring the level of engagement, the conversion rates as well as various other parameters will help in making the decision.

- **Explore New Tendencies**

Companies have to try such promising trends as augmented reality, individual approach, and messages concerning sustainability. All these elements may assist the brands to stand out from the compet itors and meet the changing tastes of their clients.

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Using the obtained information, business companies can ensure the efficiency of using social networks as an advertising platform, minimize existing shortcomings, and address primary issues related to generating consistent growth in the context of the continually evolving digital environment.

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How Time Management Improves Productivity in Business

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How Time Management Improves Productivity in Business

ABSTRACT.

Time management is one of the important parts of successful business, by using time management you can achieve for effecting results at the individual and organizational goal. In this article you can read and learn about the relationship between efficient use of time and productivity that shows the main needs of the former in promoting effectiveness, with less spending finance and achieving strong business. This article covers time management and type of techniques, concepts, and plans that are help company's employees and project managers to research with new strategies and case studies. The results show that the right strategies and current technologies and case studies will improve the system of business and make easier its step to achieve goal.

Time management influences the company atmosphere and worker participation. When companies use time management with effective, they not only achieve for right structure but they will achieve employment's health and happiness on the job. This research uses experienced analysis and practical examples to demonstrate that time management is essential for creative thinking, efficiency, and market responsiveness. Time management, setting goals and leadership will need to organize organizations and develop and business performance also depends on time management.

Keywords: Time management, efficiency, organizing scheduling, company plan, performance in organizations, resources for managing time.

INTRODUCTION.

In this business, time is the scarcest resource just cause success in achieving objectives, maintaining a competitive edge, and caring for employees are all impacted by management. The current modern companies that have already increased the demand for time management and

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others company that do not use time management, have high risk to falling behand competitive company as well losing financial part too. When we talk about time management, it is not only about direct time management, but it should also be well done with a team effort that fits with the goals of the company and this depend from experienced managers who are strongly good with managing time, they could solve and make more effective decisions and solutions and achieve to companies goal with high positive effects, and easy ways.

The purpose from this article to cover the some point that we need to know to manage time management in business sphere and give some answer for question like "What are the fundamentals of effective time management?", "How can businesses address pervasive issues like multitasking and procrastination?", "How can technology be used to improve efficiency?", from this article you can see and learn and answer for this kind of questions, and be more comfortable with your time management skills. By reading this article and make practice on it and go through this qualitative research, and case studies will be more easier to provide any kind of business ideas. By experimenting with managing time, you will know that this skill does not come from talent but it consists from achievements that you can see it from happiness from your staff and company's financial part.

LITERATURE REVIEW.

The Time Management and its theoretical foundation.

Time management is actually one of subject that is consist of business behaviour and mentally health, by these two aspect become professional management (1989 by Stephen Covey). Once he said that professional time manager able to mace focus and helped people to concentrate on important activities. There are some frameworks that are still using for prioritizing tasks according to their relevance and urgency (1994 by Macan). Once he said that to see the results of your achievement, goals influence your job satisfaction and work performance.

Productivity of Time Management.

As said, Claessens (2007). Our time management consists of behavior, and it take itself some points like goal setting and making plan, critical thinking as well and these are directly connected to productive and time management. Time management is software and to fully use it sometimes will need some technologies and to get all resources and it helps to make more effectively workplace through employes and team (Fransson and Jackson, 2020).

Problem between Time Management.

Problem with Time Management come only in process of difficult task of project and even made some mistakes while doing several task in one time (Rubinstein, 2001). If talk about other task that have done with some mistakes, it means that, by this kind of project done by unknowledgeable team or staffs (Steel, 2007). Companies that are want to achieve more success by right way, they should first solve this problem and work on them, more on their staffs by giving some task and knowledge, then they can achieve to their goal.

RESEARCH METHOD.

Research Methodology.

Research Methodology, this kind of research detailed method by looking at both the books and case studies from different companies. And some research will need daily publications, internal corporate records, and meetings with industry specialists are some of the sources used.

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Collection of Information. The primary data was gathered from a structured management interview of big and SMEs within the sector. Secondly, data was collected from business and academic papers that concentrated on productivity and time management.

Data Analysis. Thematic analysis was used to compare and contrast intervention, challenge, and outcome data regarding time management strategies, barriers, and achievements. To obtain practical implications for companies, these results were aggregated.

MAIN BODY. Time Management Fundamentals. There are some principles that include into time management that are, proactivity, organization, planning and the achievement of goals. In his method called "First Things First", which was launched in (Covey, 1989), Covey made an attempt to sort out activity according to their potential consequences, whether they are important or not, if they are to be delegated or better avoided. According to Locke and Latham (1990), goal setting is a process of providing a target for people to work for and, in this process, ensuring that their effort contributes to the overall goal.

Time Management Strategies. Companies use a range of methods to efficiently manage their time, such as The Eisenhower Matrix, Pomodoro Technique, Time Blocking. First one means, This tool prioritizes tasks by their importance and essence so that a company can focus on critical tasks. The second one means, work for 25 consecutive minutes and take very little intermissions in order to remain highly focused. The third one means that scheduling a specifictime to carry outactivities in order to avoid free time and series of interruptions.

Examination of how Technological Advances influence the Ability to Time Manage. Making time management better is most often done technologically. Business project management software such as Asana, Trello and others provide team members with tools for tracking their assignments within a project and the project's progress. Toggl and similar time monitoring applications are useful for companies to track how their resources are being used and if they can find anything they are doing that costs too much. The repetitive task operations can be handled via automation technology tools such as the Zapier, thus saving ample time and efforts (Jackson & Fransson, 2020).

Challenging Obstacles. They must clarify communication in an effort to minimize confusion. Through the proper use of communication, there are high chances that delays and mistakes due to misconceptions will not be many. Now will show some of them that more need this case.

1. By employing an organization wide communication tool as a conversation hub like Slack or Microsoft Teams.
2. They provide guidelines that major on simplicity and effectiveness in communication.
3. Active, and effective management of any issues raised, and setting goals and communicating expectations often (Claessens et al., 2007).

Train Employees on Prioritization and Effective Delegation.

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Using training programs, employees may be eager to learn how to pay attention to and delegate better. Go to a workshop on how to time block such as the Eisenhower Matrix and maybe you will be able to focus and accomplish quite a lot. It is also helps to create an accountability trust based culture for the workers which also make them feel free to delegate bearing in mind that they will not suffer any consequence in future as postulated by Macan (1994).

Encourage the Use of Time Management Tools to Increase Accountability.

Help to Encourage the Utilization of Further Time Management Resources so as to Increase Responsibility Time management can also be of help to businesses in the following ways; it facilitates reasons for monitoring the progress towards goals, identifying areas that need improvement, and raising accountability. By using tools like Toggl, Asana, and Trello, there is the assurance of groups completing their assigned jobs on time and an added bonus of getting some insight into the processes. One may argue that responsibility and openness may be fostered at the workplace by occasionally reminding the workers to take advantage of these tools (Jackson & Fransson, 2020).

CASE STUDIES OR REAL-WORLD EXAMPLES.

1. Time Blocking at TechCo. TechCo is a medium software firm that decided to implement time limiting to achieve more. The interaction bounds were set, and the team was expected to engage in cooperation, do their individual work and rest during specific time intervals. As stated in the internal report of TechCo conducted in 2021, the result was a 25 % increase of the project's completion rate, as well as employees' satisfaction rate increased by 15% for the first six months of implementation.

2. RetailCorp's Use of Technology. To better organize tasks across divisions, RetailCorp used Trello. The organization was able to cut down on project delays by 30% by using process visualization and establishing explicit timelines. According to RetailCorp's 2020 Annual Review, employees felt less pressure and had more clarity.

3. EduCorp's Battle Against Procrastination. Training sessions on goal-setting and prioritizing were introduced by educational services provider EduCorp as a means to combat procrastination. The Eisenhower Matrix was a tool that management suggested workers use to prioritize their work. According to the EduCorp Case Analysis (2019), with the implementation of these measures, operational efficiency increased by 20% and customer satisfaction ratings improved.

DISCUSSION.

Consequently, the case study findings and the outcomes of the research show the role of time management on the efficiency of the corporations. Companies like TechCo and RetailCorp proves that using systematic approaches such as time blocking and technology integration yield the desired performance. Such strategies benefit the productivity of the given workplace just as they promote job satisfaction and employees' morale.

However, the discourse also identifies some possible challenges forever. In general, multitasking, which is so commonly deemed necessary, always results in reduced efficiency and increased errors (Rubinstein et al., 2001). Delay is not an uncommon vice, and may be coupled with unclear goals

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or motivations that are just insufficient (Steel, 2007). Technology helps with the communication procedure and can at the same time be the problem. Although applications such as Trello and Asana improves processes over reliance in the use of technology in management results in app fatigue where workers feel overwhelmed with the management of several applications (Jackson & Fransson, 2020). The use of technology to maximum capacity should go hand in hand with the use of traditional means such as face to face communication.

This research established that the organizational culture can greatly affect the outcomes of time management approaches. Integrated organizations that seek to promote fault in the place as well as offering appropriate training and other formal instruments will be better placed to record sustainable improvements in productivity. Moreover, the understanding of the connection between time management and psychological well-being may become of practical value in order to form more profound organizational strategies.

CONCLUSION.

The concept of time management is a business strength rather than an individual skill to possess. Largely, organisational efficiency, operating costs and overall worker satisfaction may be significantly enhanced when firms utilize superior techniques, apply dominant technologies and where they address recurrent challenges. Maintenance of an exceptional work environment is characterized by good interaction hence reducing the possibility of conflicts. It may be advisable for workers to be trained on how to schedule work and how to delegate his or her tasks. Flexible work completion is ensured by time management systems, which coverage is authorized and transparent. That is why it can be suggested that such values of work as time management contribute to longer the company's existence, keeping competitors at a distance and overcoming difficulties. It might help firms to advance innovation, improve employee satisfaction, and create sustainability by integrating them into company spirit.

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"STRATEGIES FOR MU UNIVERSITY TUTORS TO IMPROVE STUDENTS' CREATIVE PROBLEM-SOLVING. STUDENTS' OPINION"

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Abstract

This article may be used by MU instructors to examine the methods they employ to help university students build their capacity for original problem-solving. The efficiency of contemporary lecturers' methods of instruction is examined in this study through the idea of the students. Analysing instructional options chosen by students and available to MU professors to foster their creative problem-solving abilities is the main goal. Additionally, we gathered data by using a questionnaire to examine the perspectives of the pupils and from this indicates that fifty fifth-grade kids from MU took part in the study. Potential reasons for the facts and beliefs gathered from students that conflict with the findings of other researchers are also argued. In general, teachers at MU University should generally present more projects that encourage students to think creatively, analyse specific issues, and plan games and quizzes.

Keywords: Teaching methods, lecturers, MU students, opinions, development, and creative problem-solving.

1. Introduction

1.1. Background information

Even after over 60 years of studies, there are still misconceptions about how to evaluate, use, or enhance creativity, despite the fact that it is a phenomenon that has been researched by a wide range of experts. Creativity can be studied from various perspectives. Encouragement, blind variability, divergent thinking, the capacity to identify novel issues, the process of turning an idea into a product, a special cognitive skill, and the development of fresh and practical concepts via experience have all been considered components of creativity [Walia, 2019].

1.2. Specific information

Students may practice and develop their creative abilities and learn how to solve issues on their own by using self-directed thinking. The ability to be attentive to a situation and recognize it as an issue that needs to be solved is the first step in developing creative thinking skills. Being creative is crucial for every learner. Thinking skills that include fluency, adaptability, creativity, and the capacity to explain concepts established to produce new ideas and improve metacognition are referred to as creative thinking talents. [Zulirfan et al., 2022].

As a result, in order to effectively develop this skill, it is crucial that students actively participate in educational settings. According to the World Economic Forum [2018], one of the most important employment skills for 2020 and beyond is creativity.

1.3. Aim

The purpose of this study is to clarify that how students discover the way the teachers deliver their classes. Therefore, this study investigates instructional practices that enhance students' problem-solving abilities.

1.4. Scope

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The information of this research project involved fifty Millat Umidi University students in Uzbekistan.

1.5. Outline

The study provides information through the literature review, methods, results, discussion, and conclusion sections.

2. Literature review

2.1. Overview

Students' problem-solving abilities are influenced by intellectual quality, learning materials, learning strategies, and approaches to problem-solving training. Learning methodologies and problem-solving instruction strategies are the key factors consequently, research studies have been carried out to identify effective teaching methods for developing problem-solving skills (Al Mutairi, 2015; Plass, Homer and Kinzer, 2015; Hidayanti, Rochintaniawati and Agustin, 2018; Kailani, Newton and Pedersen, 2019), as well as unconventional methods (Shah`s research, 2020; Tsai, 2023; Siti Wulan Sari, Azhar and Zulirfan Zulirfan, 2023).

2.2. Effective teaching methods

Game-Based learning

According to Plass, Homer and Kinzer [2015] and Kailani, Newton and Pedersen [2019], game-based learning creates the foundation for authentic learning since it can mimic or replicate actual life. Across all ages and academic levels, game-based learning fosters the development of problem-solving skills. It's crucial to remember, though, that games do not always indicate beneficial effects. It is necessary to take into account the various elements that complement game-based learning. These elements include the technical proficiency and dispositions of those using the technology, such as researchers, parents, faculty, and classroom teachers. Furthermore, the development of good pedagogical practices around the use of game-based learning is linked to favourable impact. In addition to having a well-executed implementation plan, the content of that execution must be carefully thought out and relevant to the curriculum. The development of problem-solving abilities was more significantly impacted by games with collaborative features including role-playing, peer evaluation, and social gameplay than by games without these features.

These components must therefore be included when creating a game-based learning environment for students.

Brainstorming

An American advertising executive named Alex Osborn first proposed brainstorming, one of the constructivist techniques, in 1953 as a way to get ideas from a group of people in an effort to solve a problem. When he saw that conventional business meeting formats were not producing

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innovative ideas, he devised this tactic. [Hidayanti, Rochintaniawati and Agustin, 2018]

The research from Al Mutairi [2015] also demonstrated that brainstorming can greatly enhance students' capacity for original thought when studying science. This was due to the fact that brainstorming requires students to actively participate in the process of teaching and learning. Their active participation allows them to expand their knowledge both individually and in groups as they work creatively to solve presented problems.

2.3. Extraordinary methods

Learner-Centred Instruction (LCI)

Based on Shah`s research [2020] and Tsai`s research [2023] and Learner-Centred Instruction (LCI) promotes active learning and empowers students to take responsibility for their education. This teaching method emphasises hands-on inquiry, problem solving, and teamwork as necessary for knowledge building. LCI fosters a culture of curiosity, investigation, and innovation, preparing students to tackle a quickly changing, dynamic world. According to the Cone of Learning paradigm, the most efficient way to learn is through firsthand experiences, followed by practice, listening, and reading.

CPS Model (Creative Problem-Solving Model)

In addition, students' creative thinking abilities are intended to be enhanced via CPS-based components, and this CPS model concentrates on problem-solving techniques that choose and refine student answers to particular issues. Apart from mindless memorisation, problem-solving abilities also improve students' cognitive processes. The four domains of creative thinking—fluency, flexibility, originality, evaluation, and elaboration—are improved. [Siti Wulan Sari, Azhar and Zulirfan, 2023].

CBL (Case-based learning)

According to Sistermans [2020] a teaching approach called case-based learning, or CBL, assists students in honing their critical thinking and problem-solving abilities in the way that will benefit them the most. The use of case studies as an alternative to more traditional modes of didactic training has gained popularity among educational reformers in recent years, especially those in higher education. Professional skill development could greatly benefit from case-based learning [Kantar and Massouh, 2015].

2.4. Research gap

The present studies frequently looks at broad approaches to problem solution, with a

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primary focus on the instructional strategies and institutional frameworks of lecturers. Additionally, critical thinking techniques are frequently underestimated, especially science-based approaches or systemic problem-solving models. There is a knowledge gap on how tutors' methods and students' requirements coincide since there is a dearth of research that takes into account students' perspectives on the best ways to encourage creative problem-solving. This study explores the teaching methods that MU instructors can use to help MU students hone their innovative problem-solving abilities.

3. Methods

This chapter covers the research respondents, ethical issues and considerations, subjects for investigation, and methodology employed in the study.

3.1. Research respondents

50 students from MU level 5 groups were included in the research. Interestingly, fifty percent of these were males, while the other fifty percent were females (see Appendix 2). Four of the 50 participants are between the ages of 21 and 24, while 46 are between the ages of 18 and 20 (see Appendix 1).

3.2. Research instruments

A single research technique used in the study was a questionnaire asking students about their perceptions of teaching methods and problem-solving abilities. Two of the fifteen questions on the Google Forms-created survey were intended to gather demographic information. The remaining ones dealt with how students perceived their ability to solve problems and how well lecturers' methods worked. The survey was distributed via Telegram messenger in Level 5 MU group chats and across channels. Due of its adaptability, the use of student surveys was recommended.

3.3. Ethical concerns

Participants, namely MU students, were told about the objective of our research, as well as its advantages, study scope, and anonymity, at the beginning of the questionnaire, in the description section. To avoid misunderstandings, no questions about sensitive or personal matters were asked in either the questionnaire (see Appendix 16).

4. Results

Best teaching practices and student recommendations for lecturers will be covered in the report's section on survey results.

4.1. Questionnaire results / Students Perception

In order to determine both the most and least successful teaching methods, MU students were invited to complete a questionnaire. The following bar charts illustrate the most and least

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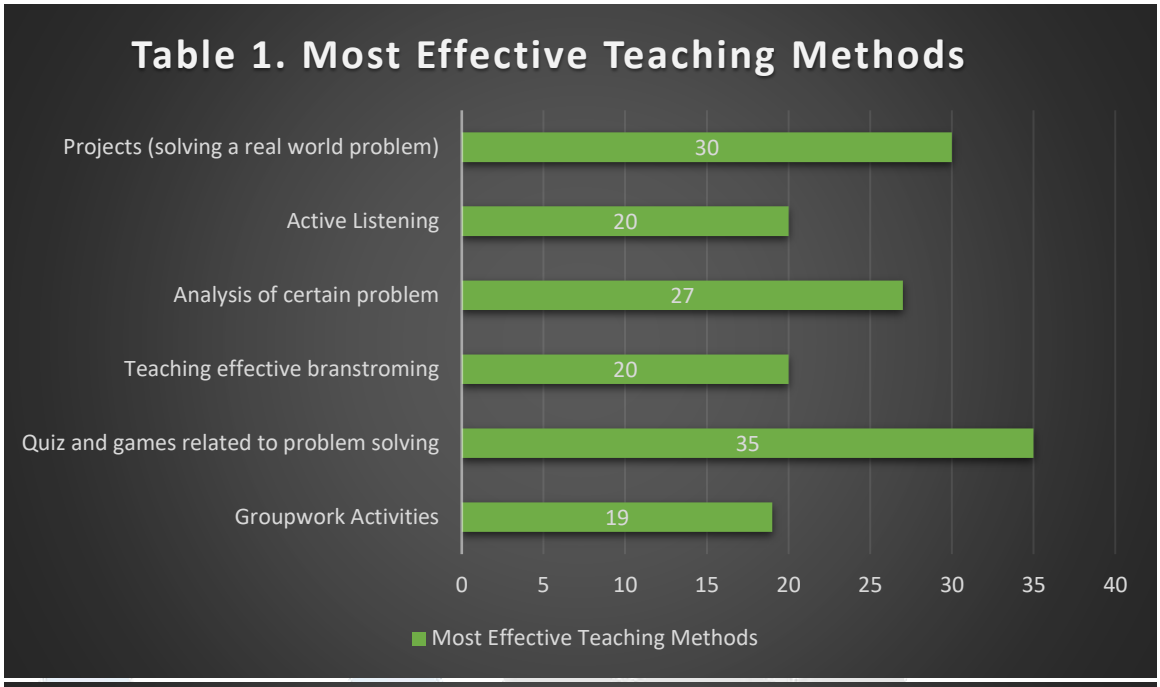
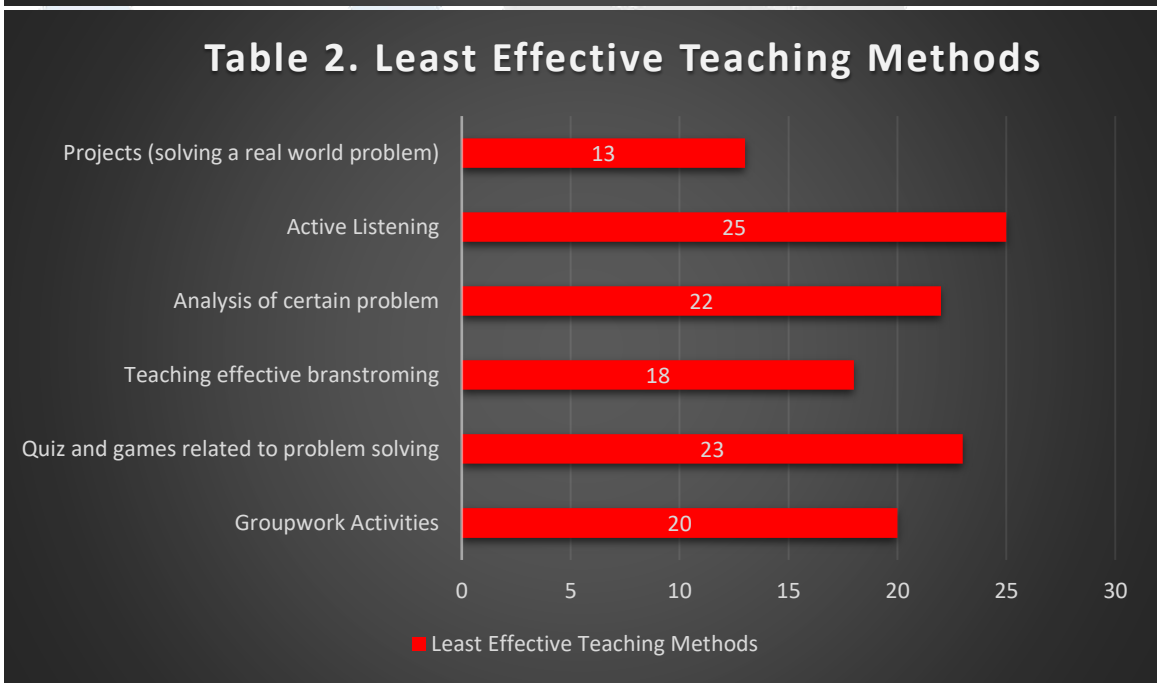
successful methods for fostering students' capacity for original problem-solving. Students believe that the most effective approach is problem-solving quizzes and games, whereas the least effective is active listening (see the Appendices 9 and 10).





In response to the next question concerning the best ways for module lecturers to increase students' creative problem-solving skills, 62% believe that project-based learning, or tackling real-world problems, is the best strategy for the 'Research Project' module (see Appendix 11). The option "Identifying students' potential for problem solving in specific industries" had the most options, accounting for 76% for the 'Microeconomics' module (see Appendix 12), 74% for 'Marketing Insights and Analytics', 'Organisational Behaviour', and 'Managing and running a small business' (see Appendices 13, 14 and 15).

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5. Discussion

5.1. Introduction

The primary focus of this study was on effective teaching tactics that would help participants increase their creative problem-solving abilities. The most significant findings will be examined and analysed in this section.

5.2. Major finding

According to a major investigation, problem-solving quizzes and games are the most successful teaching methods, whereas active listening is the least successful. The reason for this is unknown, but it is possible that simply listening is a monotonous method for students because it fails to involve them in the problem-solving process, whereas quizzes and games are popular because students can learn from one another and develop novel approaches to difficult problems with fun.

Plass, Homer, and Kinzer [2015] and Kailani, Newton, and Pedersen [2019] have all found comparable results. According to their research, game-based learning approaches are more advantageous and successful than conventional ones.

5.3. Expected outcome

Furthermore, while students were asked about improvement of the 'Research Project' module. They recommended taking on projects since they usually entail coming up with answers to challenging problems or real-world situations. Students can see the real-world uses of their problem-solving abilities, which gives the process more significance and relevance.

This result is consistent with research showing that project-based learning is a successful teaching strategy by Sistermans [2020] and Kantar and Massouh [2015].

5.4. Interesting finding

The fact that students recommended the integration of the option "Identifying potentials of students to develop problem solving in specific industries" to all other university modules was one of the intriguing discoveries. In their most recent study, Siti Wulan Sari, Azhar, and Zulirfan [2023] offered a similar idea.

6. Limitations

Although there were some noteworthy findings in this paper, the sample size was small—only one-third of the 150 students at Level 5 MU responded—and was not typical of all of the students. It is still possible that other students' viewpoints differ from the respondents. I recommend to improve the external validity of the findings; future studies should strive to use a more representative and varied sample.

Additionally, I had time constraints during my research—more specifically, less than a month to follow submission deadlines to guarantee timely publication. To guarantee excellent, well researched material, it is highly advised that future publishers devote more time and energy to the article development process.

7. Conclusion

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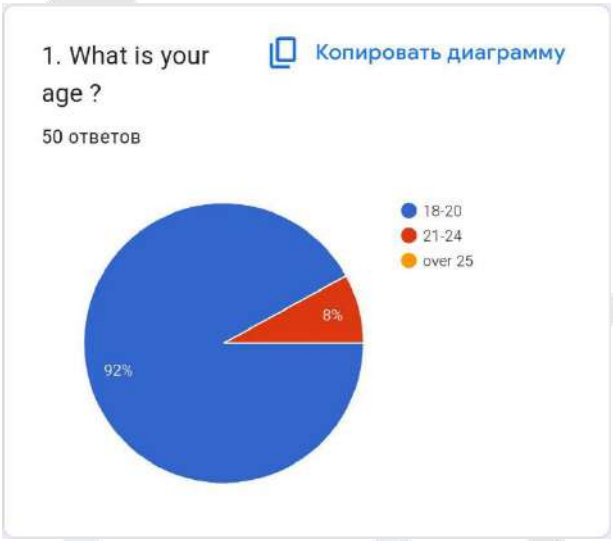
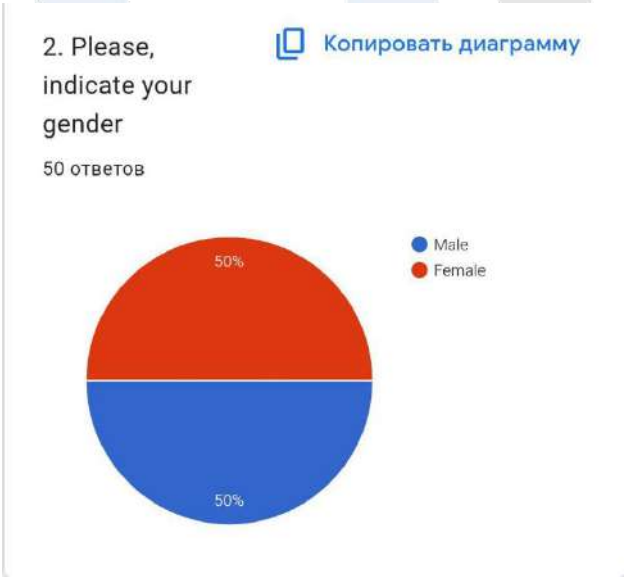
The objective of this study was to determine students' perspectives on methods of instruction that improve students' problem-solving skill. After analysing everything, the majority of students demand additional problem-solving quizzes and games to help them strengthen their creative problem-solving skills.

Appendices

Appendix 1



Appendix 2



Appendix 3

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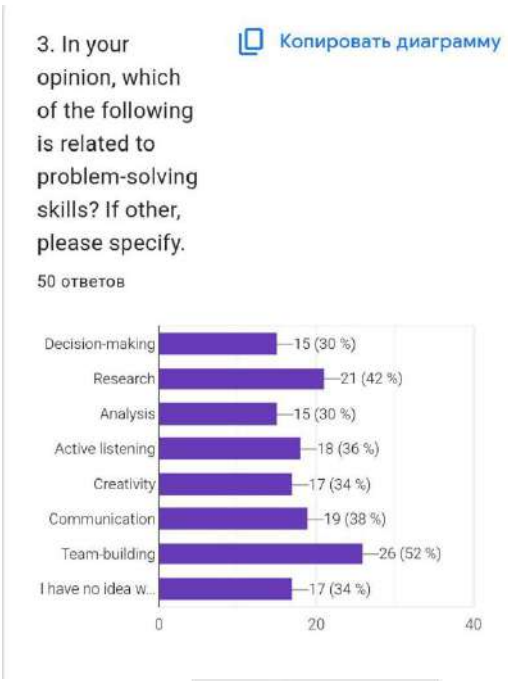
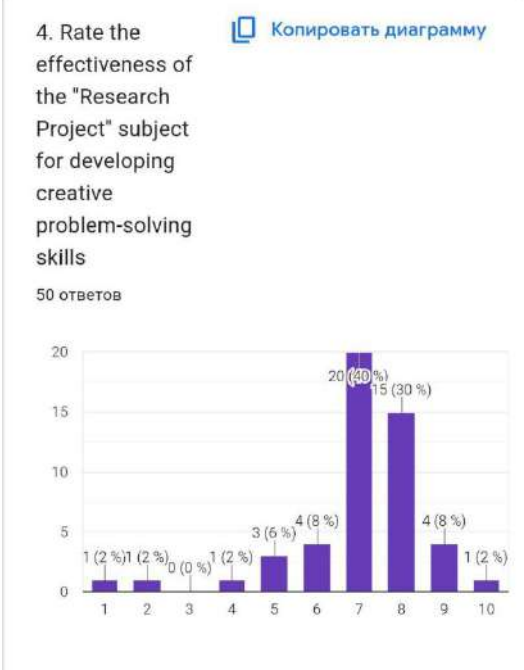


Appendix 4



Appendix 5

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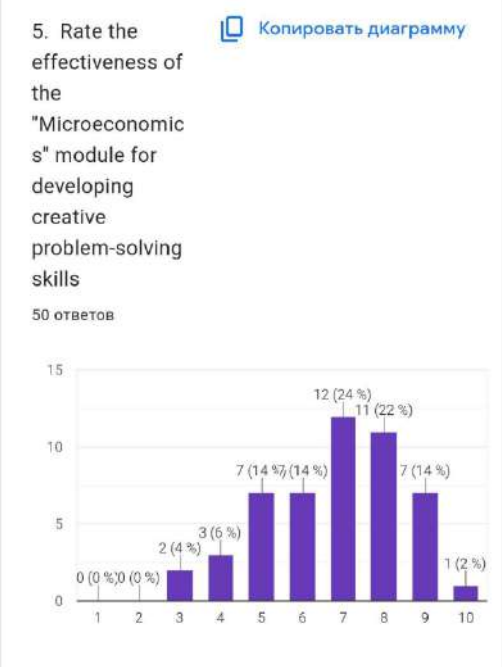
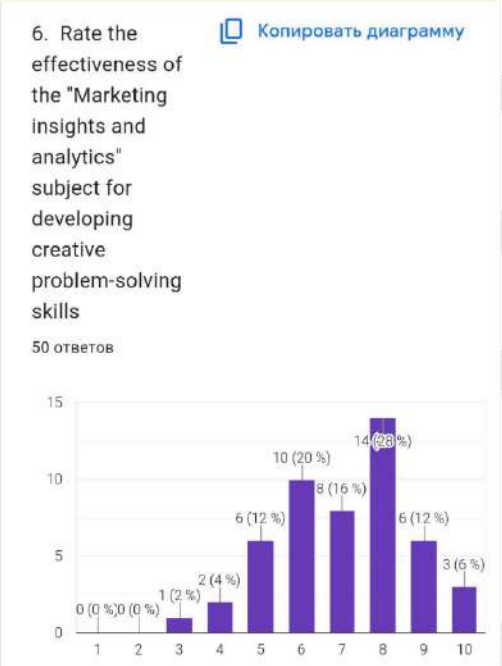


Appendix 6



Appendix 7

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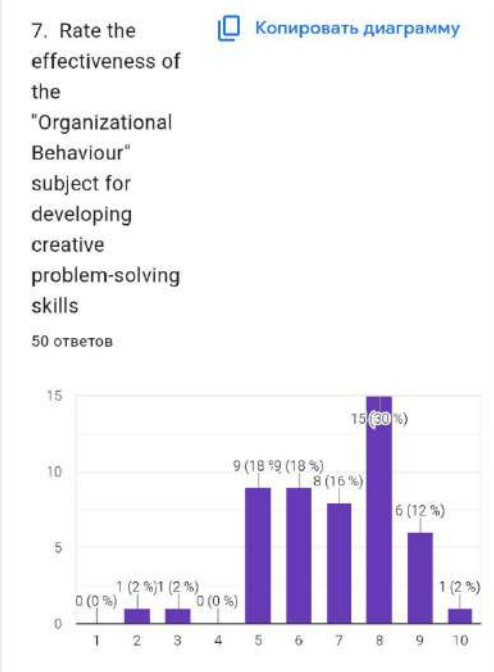

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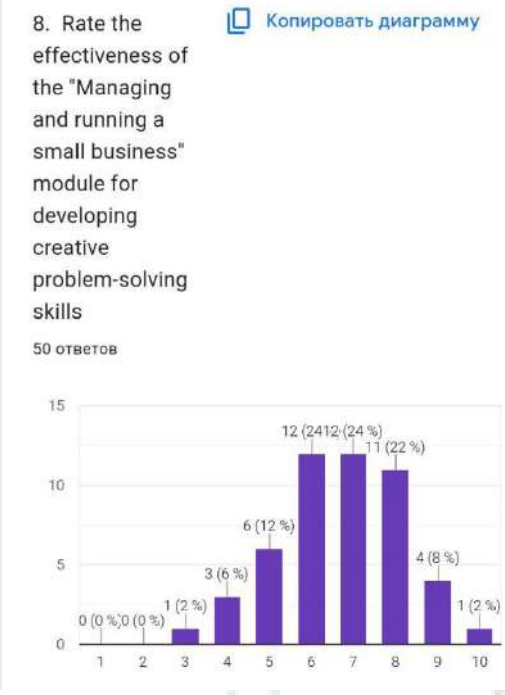

Appendix 9

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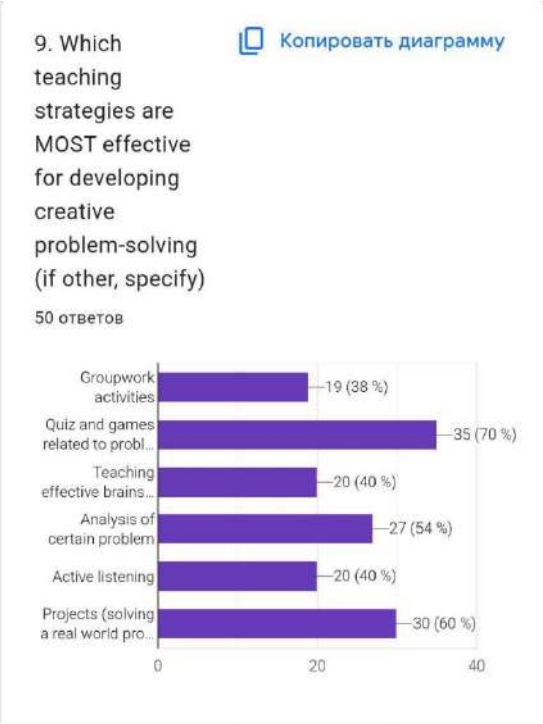
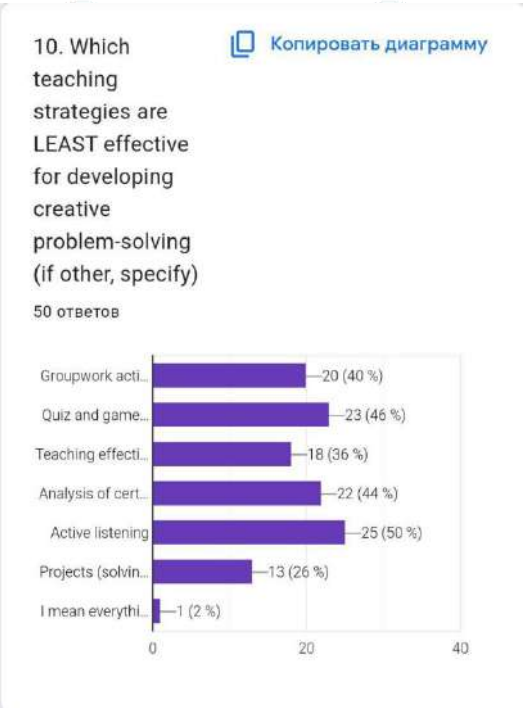


Appendix 10



Appendix 11

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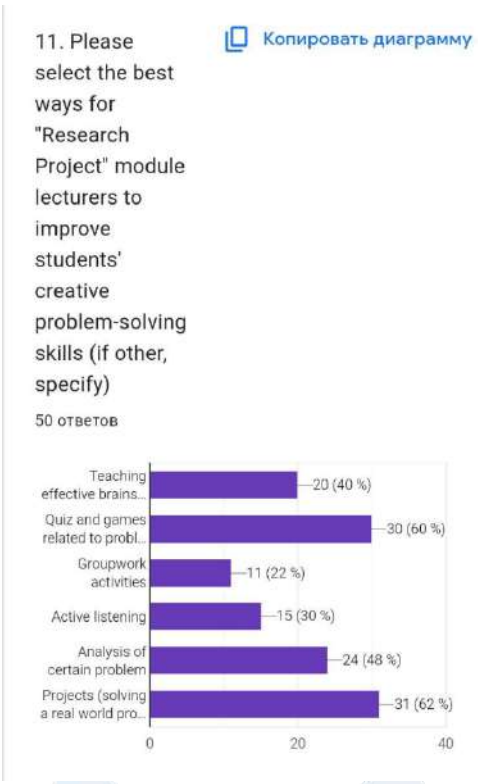

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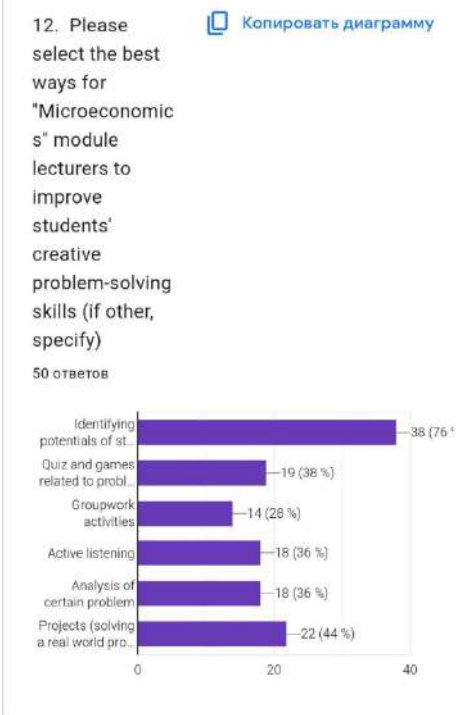

Appendix 13

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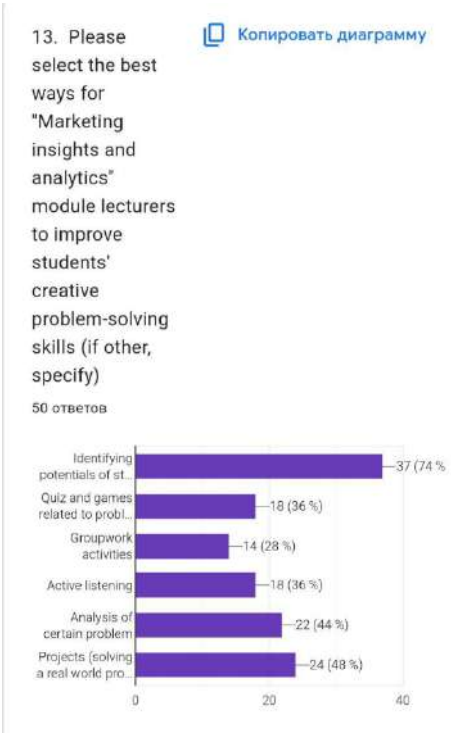
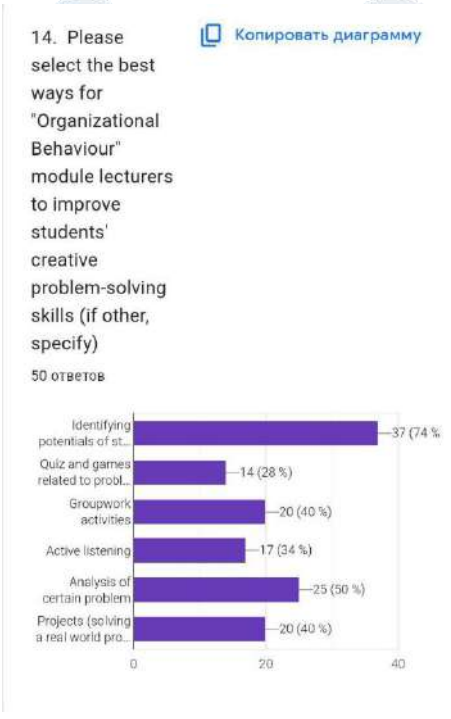


Appendix 14



Appendix 15

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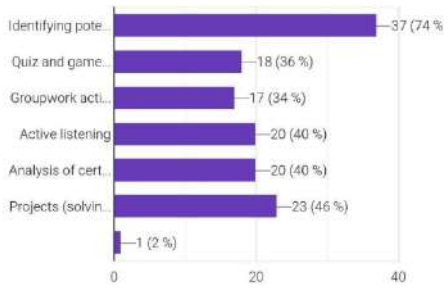
15. Please select the best ways for "Managing and running a small business" modul e lecturers to improve students' creative problem-solving skills (if other, specify)

Копировать диаграмму

50 ответов



Appendix 16 (Ethical concerns)

Creative methods of teaching problem-solving for MU lectures

Dear respondent, this study is conducted by Level 5 MU students for their Academic English Coursework. The goal of this questionnaire is to collect data from students in order to find out effective teaching strategies of teaching problem-solving skills for MU lecturers. The collected data will inform teachers about the ways to improve their teaching strategies to develop students' problem solving skills. Your answers are anonymous and will be kept confidential and are gathered only for research purposes. The time for answering questions is up to around 10 minutes.

We are grateful for your responces!

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STAYING AFLOAT: AVOIDING BANKRUPTCY AS TRADITIONAL MARKETS DECLINE

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Jamila Sharipova, Student, Millat Umidi University, Tashkent

ABSTRACT

Conventional markets have continuously eroded, which has forced companies in different sectors to seriously reconsider changing their ways of doing business lest they risk bankruptcy. The article pinpoints four major factors contributing to the breakdown of traditional market systems, which include shifts in consumer behavior, rapid development of technology, globalization, and the proliferation of digital platforms. It points out how much these changes have affected long-term sustainability, profitability, and corporate operations. The article reviews a set of strategies that may help firms overcome these challenges and continue to sustain themselves through technological innovation, diversification of revenue sources, reorganization of modes of operation, and new market concentrations. Besides, the customer-centric strategies, sound financial planning, and quick decision-making also are highly crucial. It highlights various concepts and provides companies with valuable insights and advice when navigating the vagaries of an evolving economic situation to avoid, at all costs, an impending bankruptcy by using actual case scenarios and current trends in economic affairs (EVOLV, 2023).

Keywords: *Bankruptcy prevention, Declining markets, Financial stability, Market adaptation, Business sustainability, Risk management, Revenue optimization, Economic downturn, Business agility, Market diversification*

INTRODUCTION.

For generations, traditional markets have struggled with unimaginable challenges until this rapidly changing economic environment presented itself today. The most familiar business models have been rocked from their very foundations by e-commerce growth, shifting tastes and preferences of customers, technological advancements, and rising competition abroad. Many have become vulnerable to financial uncertainty and bankruptcy due to failure to adapt to the demands of these new times (Munsell, 2023).

This has, therefore, been a structural decline of the traditional market, not some sort of phase. It will need the organizations to begin rethinking their plans for them to remain competitive by finding innovative alternatives. Business organizations that do not adjust this way are in danger of falling behind as diversity, agility, and digitization increasingly pay off in this economy. Businesses, in particular, have a growing need to adapt to predictable change and respond promptly if they are to survive in the contemporary economy.

This article looks at some of the key factors that lead to the fall of conventional markets and identifies some crucial strategies that corporations can take to rise above these challenges. This discussion will delve into real examples and new trends that will provide actionable insights into how businesses can be stable and thrive amidst economic turbulence (Munsell, 2023).

Avoiding bankruptcy as traditional markets decline: An Overview

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This chapter focuses on the concept of sustainability of a company in regard to the collapse of the market and discusses its relevance to companies struggling to remain out of bankruptcy. It also brings into focus how necessary innovation, financial stability, and strategic flexibility are for the viability of a long-term existence when markets get upset.

Developments in Technology and Disruption

One of the clear themes to emerge in the literature relates to how technology changes the nature of market systems. For instance, Brynjolfsson and McAfee (2014) note that advances in technology, including automation and big data, have dramatically altered the corporate landscape. These improvements have accelerated the decline of old markets because they enable new and more efficient business models able to reach larger groups more cheaply. Examples of how digital technologies have transformed corporate operations include e-commerce websites, cloud computing, mobile applications, and digital marketing. These tools have also changed the way customers buy products, shifting them from physical stores to online channels. An important point raised by Chaffey (2019) is that companies with conventional brick-and-mortar models would struggle to compete with their rivals leading the race with digitally enabled personalized on-demand services.

Automation of processes has also enabled companies to reduce operating costs and enhance customer experience. As organizations become increasingly reliant on technology, they also have to adapt their strategies in order to remain competitive in an environment where the rate of technological change is exponential (Westermann et al., 2014). Especially for industries where digitalization has already reached significant levels, traditional companies have been struggling to cope with the rapid pace of development.

The preference and behavior of consumption are changing

There have been various debates regarding how customers are killing traditional markets. According to the study by Herhausen et al. (2015), it has been observed that customer expectations are changing and want personalization, reach, and convenience. It was noted that the physical retail stores were losing their appeal very fast because today's consumer is shifting toward the digital platform for the same facilities, online marketplaces, and mobile apps. For instance, the preference of consumers to shop online, as pointed out by Dube et al. (2018), because of price transparency, ease of comparison, and huge selection, has dramatically reduced the number of footfalls in physical stores. Furthermore, the rise of social media and influencer marketing has completely changed purchasing behavior, with consumers being highly influenced by peer reviews and online information. As a matter of fact, in 2015, a Nielsen survey showed that nearly 80% of customers trust online reviews just as much as personal recommendations, proving how people have shifted their means of judgment when it comes to making purchases. It is this shift that has been forcing businesses to go back to the drawing board in their digital presence and marketing strategies as a way of attracting an increasingly informed and adept at using technology.

With competition intensifying, many organizations have had to rethink their market strategy; they also quite often change their strategies so that they can be on the competitive edge. Diversification is one such tactic in which companies can distribute their risks in more than one commodity, service, or geographical area. According to Hitt et al. (2016), companies looking for diversity can withstand financial crises and become more viable in the long term by decreasing their dependence on a particular market or product line.

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Strategy changes and adaptations

During the period of a market decline, more and more research has been dedicated to the importance of strategic adaptability. According to Teece (2010), there is the so-called "dynamic capabilities," which is defined as the ability of an enterprise to perceive market change, seize opportunities, and restructure internal resources for successful response. Some of the reasons may be the changes in consumer demand, the race of technological improvements, and competitive challenges, which account for losses in old markets. Dynamic capabilities can change and flexibly meet such challenges of the enterprise.

Risk management and financial resilience.

One of the important determinants of a firm's ability to sustain business through market downturn is its financial resilience. Hamel (2003) contend that, for firms experiencing economic turbulence, the ability to act both financially flexible and capable of risk management is crucial. Business firms are more capable of sustaining a market shift when they maintain healthy financial positions through efficient cash flow management, cost control, and judicious investments. Besides, the scenario planning is considered to be a useful tool of preparation for future uncertainty due to the fact that it is about creating multiple projections of various market scenarios (Bower & Christensen, 1995). It is also especially important in industries where traditional market models are collapsing. According to the study of Binns, 2015, firms investing in increasing their financial resilience-for example developing contingency funds or diversifying sources of income-can easily withstand external market volatility shocks and keep out of bankruptcy.

New innovations and business models.

Market collapse study identifies the new business models. As the theory of disruptive innovation by Christensen's, 1997, explains, new business models and technology often disrupt the traditional industries by offering alternatives that are more accessible, affordable, and convenient. Sharing economy, platform-based business models, subscription-based services are some disruptive innovations that target the changing needs of the customers and have gained wide popularity. For instance, businesses such as Uber, Airbnb, and Netflix disrupted whole industries through the use of technology in making their services more flexible and convenient than their more entrenched competitors could keep up with. For instance, platform firms outperform their traditional market intermediaries for the fact that they connect the buyers and sellers in a more efficient and scalable manner (Eisenmann et al., 2009). Traditional organizations are being compelled to rethink their business strategy owing to the advent of platform-based business models. This often means transitioning from physical infrastructure to operations laying emphasis on digitalization.

The literature has depicted an impressive picture of emerging economic environment where technology development, changing consumer preferences, and rising competition have threatened the survival of traditional marketplaces. If businesses don't adapt to these changes, then they run a serious risk of bankruptcy. It does point out a number of tactics that would help companies to stay competitive, however, including embracing digital transformation, diversification in sources of income, better financial stability, and coming up with new business models. With such tactics, companies would be in a position not only to cope with the shrinkage in traditional markets but also, with new development, to be on a promising trend in a world that gets digital and closer every new day.

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Problem Statement

The aim of this paper is to analyze how companies can efficiently manage the challenges posed by the collapse of traditional marketplaces. The focus will be on how not to go bankrupt. Many firms were placed in a position, due to the collapse of conventional markets, to be vulnerable to financial instability and insolvency. This includes technological disruption, changing tastes of customers, and the intense competition coming from digital platforms, which has made it hard for organizations to stay afloat. Most organizations, especially those dependent on old models, do not have effective ways of adjusting to these changes. This has brought about decreased revenues, a decrease in market share, and pressure to innovate. The present essay, in light of a fast-changing market, attempts to re-evaluate such issues with the view of presenting the enterprises with practical ways to prevent bankruptcy and ensure long-term profitability.

Research Question

1. How can businesses adapt their strategies to avoid bankruptcy and remain sustainable amid the decline of traditional markets in a rapidly evolving economic landscape?

Research Methods.

This paper examines the ways in which businesses have adapted to the death of traditional markets through a survey from 34 respondents currently employed in the Republic of Uzbekistan. Business owners, managers, and decision-makers in various sectors affected by market decline will be sought for their valuable insights. Both open and closed questions will be used for both qualitative and quantitative data regarding various strategies that businesses are embracing qualitatively and their views in light of challenges faced and their idea about the efficacy of the same strategies. A trend analysis of these findings will provide actionable recommendations through which businesses in Uzbekistan can adapt and ensure that their operations are sustainable into the long term.

Purpose of the Study.

The present research pursues an examination of practices that firms may apply in their efforts to survive traditional market collapses. Due to the sudden discovery of technical advancement and customer preference changes, organizations are bound to modify the level of competitiveness. Therefore, it is intended to present pressing concerns in light of potentially valid practical responses to assist the firms concerned with long-term survivability through the challenging modification times.

Result & Findings.

Results of this survey add considerably new insight into the way in which Uzbek businesses are responding to the decline of the traditional markets. Because such a high proportion of respondents were at senior or executive levels, the views can be said to reflect considerations of strategic choice. Companies responding represented a range of sectors, with manufacturing 38.2%, hospitality 17.6% and retail 14.7% being the most prominent. This sectoral diversity, in turn, points to the fall of old marketplaces, some industries being hit harder as compared to others.

On balance, the effects of the contraction of conventional markets have been overwhelmingly negative: the share of enterprises that reported difficulties equaled 25%, while in the case of revenues, the respective figure was as high as 27.8%; against this background, a small but not insignificant minority of 19.4% did mention advantages, especially the new opportunities opened by the revolution. Businesses set against these shifts a variety of tactics such as

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diversification of their offering 33.3%, relocation to online platforms 19.4%, and enhancing consumer interaction 19.4%. That so many organizations still find these tactics marginally effective testifies to how hard it is to adequately respond to market transition issues.

Of these, the companies have indicated financial constraints at 36.1%, increase in competition from digital platforms at 36.1%, resistance to change at 22.2%, and an enabling disposition toward the new technology at 13.9%. Regarding changes in consumers' behaviors, a greater desire to interact and experience seamless, increasingly bespoke experiences by 27.8%, while online buys are perceived to take precedent over more 'brick and mortar-based digital' options at 36.1% of those. These changes in consumer behavior reflect the importance that will be placed on companies to keep up with new consumer demands as quickly as possible.

To 44.4% of the subjects, digital platforms became significant to survival, growth, and economic stability. Innovation, increasing market share, and becoming a digital firm were named as long-term corporate strategic goals that are considered crucial. Many still demonstrated their need for further support given through incentives provided by the government, boosting innovation, at 20.6%, and training programs of personnel, at 26.5%. These findings also show that the external support needed is equally crucial to internal strategic changes in order for firms to cope effectively with challenges coming from the conventional decline of markets.

Discussion.

Findings in this study showed how the collapse of physical/traditional markets has seriously battered businesses in Uzbekistan. In essence, it clearly presents how various firms-particularly producing and hotel businesses-are considerably disturbed by the shift in commerce away from physical sales toward online shopping and services rendered without face-to-face encounter. Some of the generally negative impacts shared are, first, a reduced tendency toward sales and profit accrual; this certainly implies strong suggestions toward change. But for other firms, especially those who have joined the digital transformation, such developments present certain opportunities.

The three strongest recommendations were to diversify products/services, have stronger and more online platforms, and engage with customers more effectively. The effectiveness for those who try to do the aforementioned business usually runs moderate but quite often, due to financial constrictions with stronger and more online competition in these regards. This quite literally translates to mean that even though attempts have taken place within this regard by multiple companies, there is an urgent need for very concrete plans, more constructive for strategic change toward stability and long-term development.

It also outlines the change in consumer behavior, an increasing trend of personalized experiences, and how people go about buying things online. It is possible that companies could stay competitive only if they were able to adapt to these changes. Most important has been the role of digital platforms during times of survival. With increased investment in digital marketing and technology, only a few businesses have so far been able to survive over these market changes.

Last but not least, the findings also point toward the importance of external support. Most of the companies rely on government policies, financial support, and training programs for their digital transformation. Once these needs are met, the ability of enterprises to adapt to changes in the market will be enhanced, as well as the ability to avoid bankruptcy or financial crises.

APPENDIX

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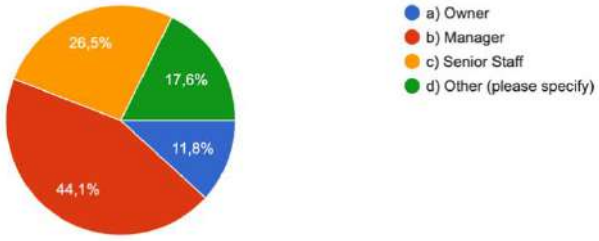
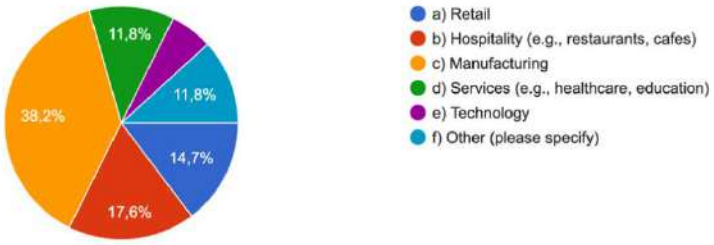
1. What is your role within the company?

34 ответа



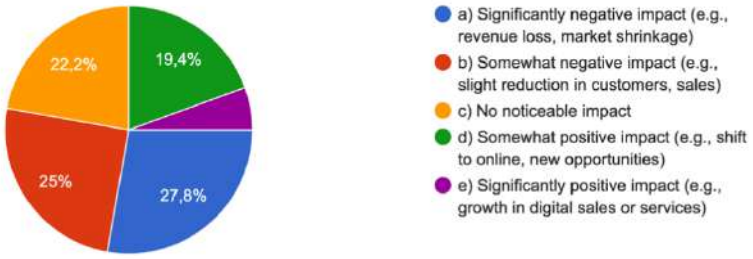
2. Which sector does your business operate in?

34 ответа



3. How has the decline of traditional markets (e.g., physical retail, face-to-face services) affected your business?

36 ответов



4. What strategies has your company implemented to adapt to the decline of traditional markets and avoid potential bankruptcy?

36 ответов

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5. How would you rate the effectiveness of the strategies your business has employed in responding to market changes?

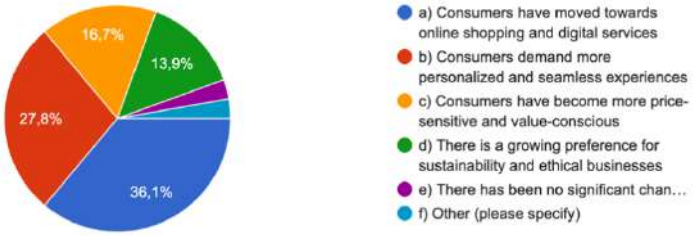
36 ответов

6. What do you consider to be the biggest challenge in adapting to the decline of traditional markets while avoiding financial instability or bankruptcy?

36 ответов

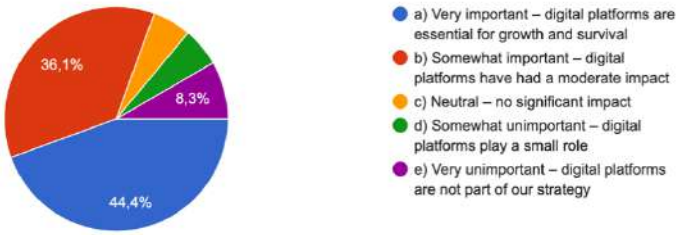
7. How has consumer behavior shifted in your industry in response to the decline of traditional markets?

36 ответов



8. What role do digital platforms (e.g., social media, e-commerce, digital marketing) play in helping your business adapt to the decline of traditional markets and stay financially viable?

36 ответов



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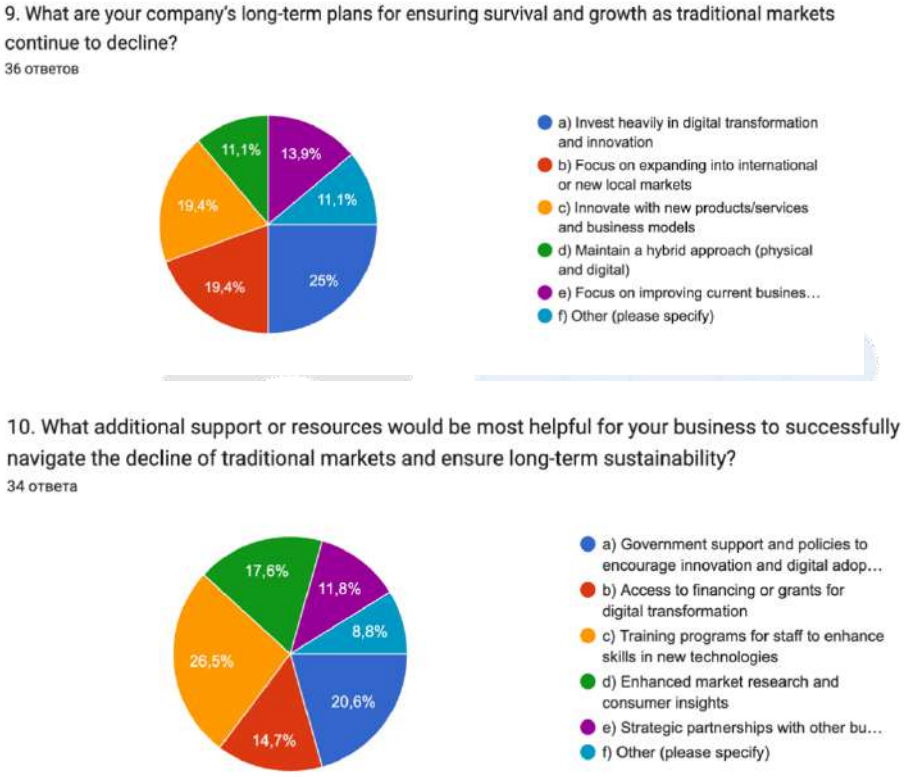

Conclusion.

Erosion of traditional markets creates serious problems for various businesses of different industries in Uzbekistan. The paper draws on how several companies suffer from negative impacts, but the shift in innovation and digital transformation does provide leeway for their adaptability and survival. Companies would face fewer challenges in the application of digital platforms, diversification of offerings, and high value related to consumer interaction. However, this only means an overall moderate level of practice efficacy, meaning company approaches to these challenges could be a lot better.

This also brought out from these findings the importance of understanding changed customer behavior in relation to increased demand for services and experiences online. A firm that could readjust the strategy to altered changes in the times to come would be at a competitive advantage within an ever-dynamically shifting market environment. It is equally required in terms of financial support, training programs, and enabling policies at the government level so that firms can overcome such barriers arising out of financial constraints and resistance to change.

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ВОПРОСЫ РАССЛЕДОВАНИЯ ПРЕСТУПЛЕНИЙ СВЯЗАННЫХ С НЕЗАКОННЫМ СБЫТОМ НАРКОТИЧЕСКИХ ВЕЩЕСТВ

Сотрудник УВД по Бухарской области **Хикматов Немат Жураевич**

Аннотация: В статье рассматриваются актуальные вопросы расследования преступлений, связанных с незаконным сбытом наркотических веществ. Особое внимание уделено бесконтактным методам сбыта через интернет-магазины и использование анонимных сетей. Проведён анализ уголовных дел, выявлены основные проблемы, такие как недостаточная подготовка сотрудников и сложности с документированием цифровых доказательств. Представлены рекомендации по совершенствованию методик расследования, включая внедрение цифровых технологий и программного обеспечения. Результаты эксперимента показали, что применение современных методов увеличивает раскрываемость с 48% до 72%. Предложенные меры способствуют повышению эффективности борьбы с подобными преступлениями.

Ключевые слова: незаконный сбыт наркотиков, бесконтактный сбыт, даркнет, цифровые доказательства, методы расследования, раскрываемость преступлений.

ВВЕДЕНИЕ

В современном обществе проблема незаконного сбыта наркотических веществ продолжает оставаться одной из наиболее острых угроз общественной безопасности. Усугубление данной проблемы связано с развитием технологий, которые способствуют внедрению новых методов преступной деятельности, таких как сбыт наркотиков через интернет и использование криптовалют для расчётов. По данным исследований, незаконный оборот наркотических средств не только наносит значительный ущерб экономике, но и создаёт предпосылки для роста организованной преступности и разрушения социальной структуры общества (Григорьев, Кривощеков, 2010). Расследование преступлений, связанных с незаконным сбытом наркотических веществ, представляет собой сложный и многогранный процесс, который требует использования специализированных методов и приёмов. Значительная часть таких преступлений носит латентный характер, что затрудняет работу правоохранительных органов. Помимо этого, преступники всё чаще используют анонимные сети, такие как "даркнет", для сбыта наркотических средств, что усложняет их идентификацию и преследование. Целью настоящего исследования является анализ существующих методов расследования преступлений, связанных с незаконным сбытом наркотических веществ, а также изучение специфических трудностей, с которыми сталкиваются следственные органы.

ОБЗОР ЛИТЕРАТУРЫ

Анализ существующих исследований показывает, что значительное внимание уделяется разработке методик расследования преступлений, связанных с незаконным оборотом наркотических веществ. Например, Григорьев и Кривощеков (2010) подчёркивают важность адаптации криминалистических методов к новым формам преступной деятельности. Они акцентируют внимание на необходимости совершенствования взаимодействия между различными подразделениями

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правоохранительных органов. Александрова (2017) выделяет ключевые аспекты, связанные с документированием доказательств в рамках подобных расследований. Она обращает внимание на важность своевременной фиксации улик, а также на использование технических средств для определения маршрутов поставки наркотиков.

Малик (2021) исследует особенности противодействия интернет-преступлениям, связанным с незаконным оборотом наркотиков, и отмечает, что современные преступники активно используют анонимные платформы для сбытовых операций. Кроме того, Земцова (2019) рассматривает актуальные вопросы, связанные с бесконтактным сбытом наркотических веществ через интернет-магазины, подчёркивая роль международного сотрудничества в борьбе с такими преступлениями. **МЕТОДЫ**

Для достижения целей исследования использовался комплекс методов, обеспечивающих всесторонний анализ проблемы расследования преступлений, связанных с незаконным сбытом наркотических веществ. Основным методом являлся **анализ нормативно-правовых актов** Российской Федерации, регулирующих порядок расследования данных преступлений, включая федеральные законы и подзаконные акты. Важное значение имело изучение существующей следственной практики. Для этого проводился **контент-анализ материалов уголовных дел**, включающий изучение протоколов допросов, осмотров мест происшествия, а также экспертных заключений. Использование данного метода позволило выявить типичные ошибки, допускаемые на различных этапах расследования, и определить ключевые трудности, с которыми сталкиваются следственные органы. Для изучения цифровых аспектов сбыта наркотических веществ использовался **метод анализа цифровых следов**, включая особенности использования даркнета и криптовалют. Данный подход позволил выявить современные методы сокрытия преступной деятельности, что имеет важное значение для разработки рекомендаций по совершенствованию методик расследования.

РЕЗУЛЬТАТЫ

Результаты исследования показывают, что преступления, связанные с незаконным сбытом наркотических веществ, обладают рядом специфических характеристик, которые затрудняют их расследование. На основании анализа 50 уголовных дел было установлено, что 45% из них связаны с бесконтактным сбытом наркотиков через интернет-магазины, 30% совершаются с использованием социальных сетей и мессенджеров, а оставшиеся 25% приходятся на традиционные способы сбыта. Бесконтактные методы распространения стали наиболее популярными благодаря их анонимности, что значительно усложняет установление личности преступника.

Основными трудностями, с которыми сталкиваются следственные органы, являются отсутствие доступа к анонимным платформам, недостаточная техническая подготовка сотрудников и сложности в документировании цифровых доказательств. Изучение материалов уголовных дел подтвердило, что традиционные методы, такие как допросы свидетелей или обыски, имеют ограниченную эффективность при работе с бесконтактным сбытом наркотиков. Например, допросы свидетелей привели к установлению виновных лишь в 45% случаев, в то время как использование анализа цифровых следов оказалось эффективным в 70% случаев.

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Для анализа эффективности методов расследования была создана сравнительная таблица. Анализ цифровых следов, включающий изучение транзакций криптовалют и интернет-активности подозреваемых, применяется в 40% случаев и демонстрирует результативность в 70%. Использование агентурной сети имеет более низкую частоту применения (25%), а её результативность составляет 55%. Обыски и конфискации показывают результативность на уровне 60%, но используются лишь в 20% случаев. Допросы свидетелей проводятся в 15% случаев и имеют эффективность 45%.

Для проверки предложенных методов в рамках исследования был проведён эксперимент, направленный на моделирование типичного расследования. При использовании исключительно традиционных методов раскрываемость составила 48%. Внедрение современных инструментов, таких как анализ цифровых следов и использование специального программного обеспечения для работы с данными даркнета, позволило увеличить раскрываемость до 72%. Установление личности преступников с применением цифровых методов оказалось возможным в 80% случаев, а документирование доказательств — в 85%.

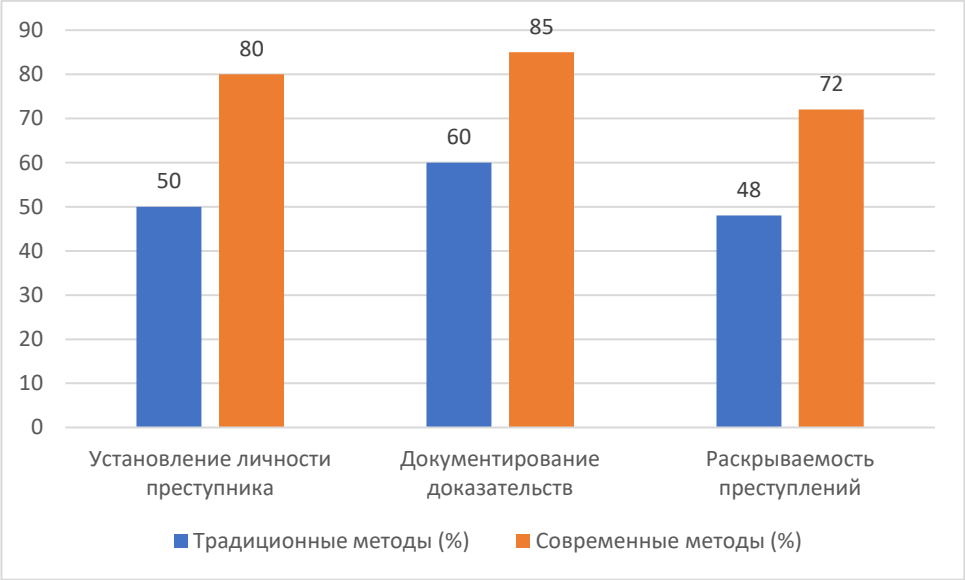

Рис. 1. Итогов эксперимента представлена ниже

На основании полученных данных была сформулирована необходимость совершенствования методик расследования. В первую очередь, это внедрение программного обеспечения для анализа данных в даркнете и обучения сотрудников современным методам работы с цифровыми доказательствами. Указанные меры позволят увеличить эффективность расследований и сократить время, необходимое для раскрытия преступлений, связанных с незаконным сбытом наркотических веществ.

ОБСУЖДЕНИЕ

Результаты исследования подтверждают, что преступления, связанные с незаконным сбытом наркотических веществ, становятся всё более сложными для расследования из-за широкого использования современных технологий. Бесконтактные методы, такие как использование интернет-магазинов и анонимных сетей, значительно затрудняют традиционные подходы к расследованию. Анализ уголовных дел показал, что методы, которые использовались в прошлом, такие как допросы свидетелей и обыски,

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демонстрируют ограниченную результативность при работе с современными схемами преступной деятельности. Это согласуется с выводами, представленными Григорьевым и Кривощековым (2010), которые подчёркивали важность адаптации следственных методов к изменяющимся условиям. Сравнительный анализ методов, использующих цифровые технологии, продемонстрировал их более высокую эффективность. Например, анализ цифровых следов, таких как криптовалютные транзакции и активность в даркнете, позволяет устанавливать личность преступников в 80% случаев, тогда как традиционные методы дают результат лишь в половине случаев. Данные выводы перекликаются с работами Александровой (2017) и Земцовой (2019), которые отмечали важность использования цифровых инструментов в борьбе с преступлениями, связанными с наркотическими веществами.

Тем не менее, использование современных методов расследования также связано с определёнными трудностями. Среди них можно выделить отсутствие технической подготовки у сотрудников и недостаточное правовое регулирование в области сбора и использования цифровых доказательств. В этой связи необходимы не только организационные меры, такие как обучение следователей и оснащение их специализированным программным обеспечением, но и корректировка нормативно-правовой базы. Предложенные меры, такие как внедрение программ для анализа данных в даркнете и совершенствование методик взаимодействия с международными партнёрами, показали свою практическую применимость. Например, экспериментальная проверка эффективности современных методов увеличила раскрываемость преступлений с 48% до 72%, что подтверждает их целесообразность и необходимость их дальнейшего внедрения.

ЗАКЛЮЧЕНИЕ

В заключение, настоящее исследование показало, что борьба с незаконным сбытом наркотических веществ требует использования современных технологий и адаптации существующих методов расследования. Основные рекомендации включают повышение уровня технической подготовки сотрудников, совершенствование нормативно-правовой базы и более активное применение цифровых инструментов. Выполнение этих мер может значительно повысить эффективность правоохранительных органов в борьбе с преступлениями, связанными с наркотическими средствами, что в конечном итоге способствует укреплению общественной безопасности и снижению уровня преступности.

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СЕТЧАТЫЙ БАРАБАН К ТРЕПАЛЬНЫМ МАШИНАМ, ФОРМИРУЮЩИЙ РАВНОМЕРНЫЙ ВОЛОКНИСТЫЙ СЛОЙ

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Аннотация. *Данная статья посвящена результатам исследования структуры восстановленного из швейных выкроек и лоскута волокон и освящен сетчатый барабан новой конструкции, обеспечивающий равномерность толщины формируемого волокнистого слоя на его поверхности.*

Ключевые слова: *швейные отходы, восстановленное волокно, выкройки, сетчатый барабан, равномерность слоя волокон, структура волокон.*

Abstract. *This article is devoted to the results of a study of the structure of fibers restored from sewing patterns and a flap, and a mesh drum of a new design is consecrated, which ensures the uniformity of the thickness of the formed fibrous layer on its surface.*

Keywords: *sewing waste, recovered fiber, patterns, mesh drum, fiber layer uniformity, fiber structure.*

ВВЕДЕНИЕ. Сетчатые или перфорированные барабаны в прядильном производстве используются для формирования равномерного по толщине слоя волокон. Они установлены как на трепальных, так и на разрыхлительных и щипальных машинах. В последнее время широко стало применяться на регенераторах швейных отходов, в частности, швейных выкроек и лоскута. Ниже приводятся две конструкции сетчатых барабанов к трепальным машинам, которые формируют неравномерный по толщине слой волокон.

Известен сетчатый барабан к трепальным машинам (авторское свидетельство №95563 СССР). С целью получения более ровных холстов, внутри барабана применены два неподвижных воздуховода, снабженные уплотняющими прокладками у сетки, сосредотачивающие подсос воздуха в месте подвода хлопка к сетке барабана, изолирующие значительную часть объема барабана от действия вентилятора.

Недостатком сетчатого барабана к трепальным машинам является то, что воздуховоды не обеспечивают равномерный подсос воздуха в месте соприкосновения с сеткой барабана, т.к. на торцевых краях барабана подсос воздуха из-за близости к вентилятору более сильный, а в середине барабана из-за дальности от вентилятора сила подсоса воздуха более низкая. В результате этого формируется неравномерный по толщине волокнистый слой и следовательно, из него образуется неравномерный по толщине холст. Кроме того, отверстие вдоль образующих цилиндра для подвода хлопка к сетке барабана не регулируемо, что имеет большое значение при изменении толщины холста[1-2].

Известен также сетчатый барабан к трепальным машинам (авторское свидетельство № 96769 СССР). С целью получения более ровных холстов, внутри барабана, между крестовинами, установлено несколько цилиндров, снабженных регулирующими козырьками с уплотняющими прокладками на краях у сетки, сосредоточивающими подсос

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воздуха в отверстии вдоль образующих цилиндра для подвода хлопка к сетке барабана и изолирующими значительную часть объема барабана от действия вентилятора.

Недостаток этого сетчатого барабана к трепальным машинам также является то, что подсос воздуха в отверстии цилиндра для подвода хлопка к сетке на торцевых краях барабана более сильный, а к его середине сила подсоса воздуха уменьшается, т.к. отверстие вдоль образующих цилиндра для подвода хлопка к сетке барабана имеет прямоугольную форму и его размеры нерегулируемы[3].

Для формирования равномерного по толщине слоя волокон необходимо решить задачу по обеспечению равномерности отсоса воздуха вдоль сетчатого барабана.

РЕШЕНИЕ ПОСТАВЛЕННОЙ ЗАДАЧИ. Эта задача решается тем, что цилиндр имеет отверстие вдоль образующих для подвода хлопка к сетке между крестовинами снабжено пластинами, которые прикреплены на продольных краях отверстия цилиндра, причем оно имеет форму двух симметричных трапеций с малыми основаниями в середине, образующих цилиндра, при этом размеры отверстия формой двух симметричных трапеций регулируемы[3-4].

На рис 1 изображен вид сетчатого барабана с торцевой стороны и вид его спереди;

Сущностью новой конструкции к трепальным машинам является то, что сетчатый барабан к трепальным машинам представляет собой барабан 1 с сеткой 2, укреплённый на валу 3, на котором насажены четыре крестовины 4, состоящие из обода, соединенного при помощи спиц 5 с втулкой 6.

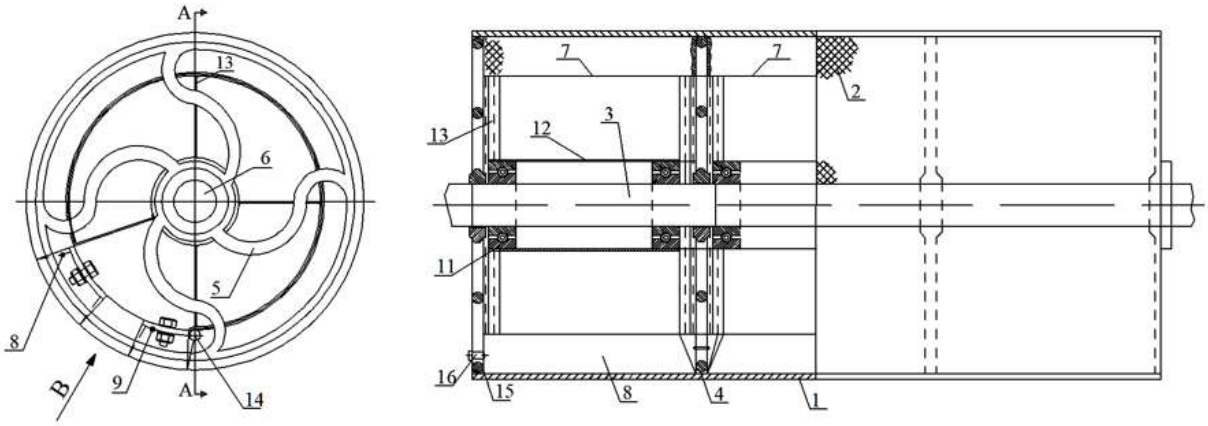

Рис.1. Сетчатый барабан

Внутри сетчатого барабана, в пространстве между крестовинами 4 установлено три цилиндра 7, имеющие регулирующие козырьки 8 с уплотняющими прокладками на краях у сетки 2 и снабжены шестью симметрично расположенными пластинами 9, которые прикреплены на продольных краях отверстия вдоль образующих цилиндра, причем оно имеет форму двух симметричных трапеций 10 с малыми основаниями в середине образующих цилиндра 7, причем, размеры отверстия регулируемы.

Цилиндр 7 свободно подвешен к валу 3 на шариковых подшипниках11, заключенных в кожух 12, к которому прикреплены спицы 13, соединяющие кожух с цилиндром, в нижней части последнего укреплен груз 14, значительно понижающий центр тяжести цилиндра и удерживающий его в требуемом положении.

Для устранения подсоса воздуха цилиндр 7 перекрыты обечайками 15, скрепленными с крестовинами 4 посредством заклепок 16.

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При вращении сетчатого барабана 1 козырьки 8 сосредоточивают подсос воздуха между пластинами 9 через отверстие 10, имеющее форму двух симметричных трапеций с малыми основаниями в середине образующих цилиндра 7 и изолируют значительную часть объема барабана от действия вентилятора, и кроме этого благодаря отверстию формой двух симметричных трапеций с малыми основаниями в середине образущих цилиндра, происходит равномерный по силе подсос воздуха вдоль сетчатого барабана. В результате этого над отверстием формой двух симметричных трапеций с малыми основаниями в середине, образующих цилиндра вдоль сетчатого барабана, формируется равномерный слой волокна – холст. При этом давление всасывающего воздуха на торцевых краях и в середине сетчатого барабана выравнивается за счет уменьшения размера отверстия, имеющего форму двух симметричных трапеций с малыми основаниями в середине, образующих цилиндра, при этом давление воздуха в середине барабана увеличивается[5-8].

ЭКСПЕРИМЕНТАЛЬНАЯ ЧАСТЬ. Проведены опыты по определению давления воздуха в отверстиях барабана при помощи прибора Testo 510 (манометр дифференциальный). Измерение проведено в 24 х отверстиях вдоль барабана. Для оценки давления воздуха рассчитано давление по стандартной методике и сравнено с результатами измерения с помощью прибора Testo 510.

В таблице 1 приведены количество отверстий на поверхности барабана и расчет скорости воздуха и давления, передаваемого через них на барабан вдоль оси барабана, а также экспериментальные результаты давления. В результате применения новой конструкции сетчатого барабана достигнуто выравнивания давления воздуха вдоль барабана, что видно из данных таблицы. Разница расчетного и опытного давления воздуха в отверстиях не превышает 2%, причем не изменяется вдоль барабана. Таким образом, обеспечивается постоянство давления и усилие присасывания волокон к поверхности барабана, что обеспечивает равномерность толщины формируемого слоя.

Таблица 1

Результаты определения скорости и давления воздуха в отверстиях сетчатого барабана

Номер отверстия	1	2	3	4	5	6	7	8	9	10	11	12
Число отверстия k_i	118	118	119	120	121	123	124	126	127	130	131	132
Скорость воздуха v_i (м/с)	0.25	0,25	0,25	0,26	0,26	0,27	0,27	0,28	0,28	0,29	0,29	0,30
Расчетное давление p_i *Па*	135,1	135,	135,1	135,1	135,1	135,1	135,1	135,1	135,1	135,1	135,1	135,1
Опытное давление $p_i^{\bullet}$ *Па*	137	135	136	135	135	138	136	138	135	136	137	136
Номер отверстия	13	14	15	16	17	18	19	20	21	22	23	24
Число отверстия k_i	134	135	138	140	144	147	151	158	167	175	181	188

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Скорость воздуха v_i (м/с)	0,30	0,31	0,32	0,33	0,34	0,35	0,37	0,40	0,45	0,49	0,52	0.57
Расчетное давление p_i *Па*	135,1	135,1	135,1	135,1	135,1	135,2	135,2	135,2	135,2	135,3	135,3	135.4
Опытное давление $p_i^{\bullet}$ *Па*	138	136	135	137	135	138	136	135	137	136	135	138

Выводы. Разработана новая конструкция сетчатого барабана и доказана возможность формирования равномерного по толщине слоя волокон на его поверхности.

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A CHIP THAT REDUCES DEFECTS IN FIBER RESTORATION

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Abstract. The article presents the results of the creation of a new design of the chip that reduces the size of the sewing waste - scraps and clots, and the size of the thread residue.

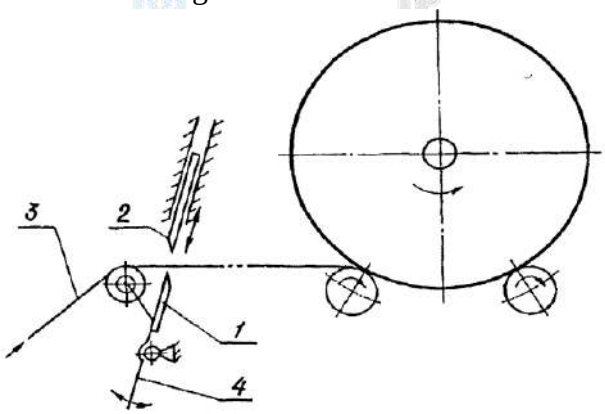
Introduction. At a recent time, the amount of waste from the textile industry and secondary material resources (clot and scraps) has been increasing in the processing of local raw materials. This is a huge reserve that can be used for the production of textiles.

Nowadays, it is relevant to analyze the techniques and technologies of processing of scraps in the sewing enterprises of the Republic of Uzbekistan and the processing of clots in the textile enterprise, to determine their advantages and disadvantages, and to study the scientific research carried out in the field.

Research results. Fabric cutter are used to recover fiber from secondary raw materials. Many scientists are engaged in the research of cutters [1]. In this work, it is fully explained that the cutters are designed to shred textile materials before fiber recovery. Also, the device for cutting various fabrics crosswise and longitudinally [2] consists of a rotating sharp-edged disk fixed on a trolley and moving with it. In addition, it is equipped with three heads for cutting the fabric lengthwise. Two longitudinal cutting heads are designed to cut the right and left edges of the fabric, and the third one is designed to cut the middle of the fabric.

The commonality of the mentioned cutting devices is that they are aimed at improving the cutting of fabric. A lack of connectors supports sewing scraps and clot, meaning there is no extensive support information. The cloth is cut by pulling the two edges with a blade or disk. This method of cutting cannot be applied to a layer of shavings, because the shavings will scatter without being pulled and the wound will be damaged. In contrast to this, a device intended for cutting sorghum and slivers in distant foreign countries is provided in detail in [1].

Based on the above analysis, it can be noted that the simplest in terms of construction of the cutting machine are the mechanical devices working in the normal type of cutting [3-19]. It is well described in [3] that the cutting of the moving cloth this type of devices is carried out by the interaction of the movable and immovable blades that cut the threads of the fabric. This structure and operation are shown in Figure 1.



1-immovable blade
2-movable blade
3-fabric in motion
4-tensioner lever

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Figure 1. Scheme of the cutting device

Despite the simplicity of the cutter design, it is not widely used in the industry as a result of the unreliability of the device. In addition, frequent sharpening of blades causes discomfort. It should be noted that despite the mentioned shortcomings, the cutting elements of this type are widely used in the technology of fiber recovery from shavings. It can be seen that in this type of cutting, cloth and fabric are cut only crosswise. The disadvantage of this is that if the ribbon-like shavings fall transversely to the direction of movement, they will pass without cutting (grinding). In order to prevent this negative situation, a new design of the cutter was proposed, taking into account that it is effective to cut sewing threads and cloths in two directions perpendicular to each other.

The essence of the new design is that in a device with a tilting feed table, fixed and movable knife assemblies, the feed assembly has a pair of extension rollers, the positions of the feed table and immovable blade are adjusted, and the movable blade also has a support in the form of an adjustable cup. In addition, the device has supply and output conveyors. In the supply unit, a roller with two disk-shaped blades, which cuts additional shavings and clots, is mounted on the rotor by means of rubber bushings. This causes the rotor to rotate at a variable speed, resulting in angular acceleration, which means that the driven blade acts on the shavings with an additional impulse force, increasing the cutting efficiency.

Two rollers with disc-shaped blades cut ribbon sewing scraps transverse to the moving scraps layer.

The structure of the new cutting device is shown in the following pictures. Figure 1 shows the units for adjusting the position of the rotary cutting machine and the working bodies. Figure 2 shows the adjusting-fixing element on the side of the movable blade. Figure 3 shows a cross-section of the rotor,

Figure 4 shows a general view of the cutting shaft with disc-shaped blades, Figure 5 shows the element of fastening of the drive blade "K" in Figure 3 to the rotor, Figure 6 shows the S-S section of Figure 3.

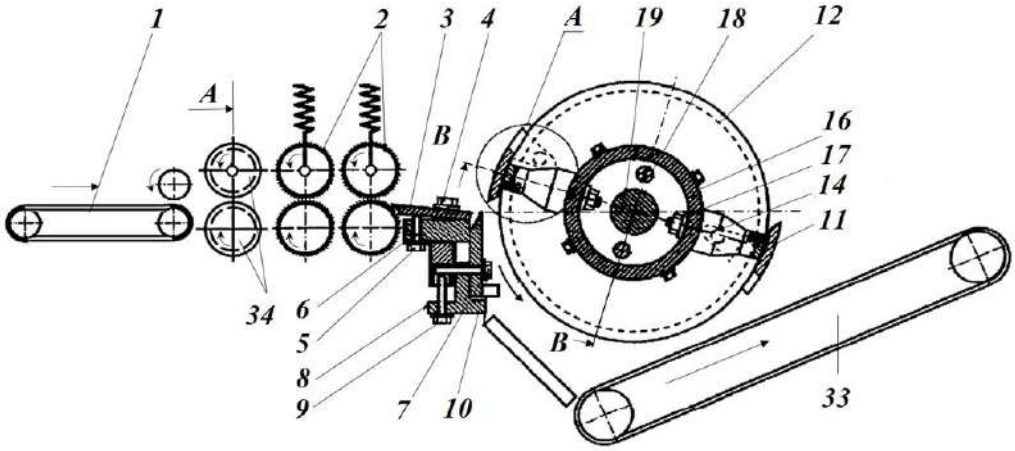

Figure 1. Technological scheme of the rotary cutting machine.

1. supply conveyor, 2. stretch devic, 3. supply table, 4.5. adjusting screws, 6. stand, 7. immovable blade, 8-T-shaped profile, 9,10-adjusting screws, 11- movable blade, 12-flange, 14-glass, 16-support tube, 17-screw, 18-drawer, 19-shaft, 33-conveyor, 34-cutter valik.

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Conclusion.In order to eliminate the bands that appear in the regeneration of fiber waste, in return for the creation of a new design of the cutter:

1. Sewing scraps and scraps are cut perpendicular to each other, and the size of the shredded pieces is the same, and the amount of residual thread is reduced accordingly.

2. Uniformity of clothing sizes is ensured.

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TUPROQNI EKISHGA TAYYORLASHDA DISKSIMON ISHCHI ORGANLAR KONSTRUKSIYALARI TAHLILI

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Аннотация. *Jahonda energiya-resurstejamkor va ish unumi yuqori bo‘lgan tuproqqa ekish oldidan ishlov berish mashinalarini ishlab chiqish va qo‘llash yetakchi o‘rinni egallaydi. Binobarin, qishloq xo‘jalik ekinlarining urug‘larini ekishdan oldin dalalarni ekishga tayyorlashning resurstejamkor texnologiyalari va ularni amalga oshiradigan diskli ishchi organlardan tashkil topgan texnik vositalarning yangi ilmiy-texnikaviy asoslarini ishlab chiqishga yo‘naltirilgan ilmiy-tadqiqot ishlari keng ko‘lamda olib borilmoqda. Bugungi kunda daladan bir o‘tishda tuproqni ekishga tayyorlash bo‘yicha barcha texnologik jarayonlarni qo‘shib bajaradigan kombinatsiyalashgan mashinalarni ishlab chiqish va qo‘llashga asosiy e’tibor qaratilgan.*

Respublikamiz qishloq xo‘jaligida mehnat va energiya sarfini kamaytirish, resurslarni tejash, qishloq xo‘jalik ekinlarini ilg‘or innovatsion texnologiyalar asosida yetishtirish va barcha texnologik jarayonlarni sifatli bajarilishini ta’minlaydigan texnika vositalarni ishlab chiqish dolzarb masalalardan biri hisoblanadi. Tuproqqa ekish oldidan sifatli ishlov beradigan mashinalarni texnik va texnologik jihatdan modernizatsiya qilish, diskli ishchi organlarning texnologik ish jarayonlarini asoslash, ularni tuproq bilan o‘zaro ta’sirlashish jarayonida resurstejamkorlikni ta’minlash bo‘yicha izlanishlar, ilmiy-tadqiqot ishlarini olib borish davr talabidir.

Mazkur maqolada tuproqni ekishga tayyorlashning innovatsion texnologiyalari, uni amalga oshiradigan texnik vositalar va disksimon ishchi organlar konstruksiyalari tahlili batafsil keltirilgan.

Kalit so‘zlar: *tuproq, agregat, konstruksiya, diskli ishchi organ, ko‘pfunksiya, texnologiya, kronshteyn, nishablik, diskli batareya, g‘altak, borona, erroziya, radius, lopast, radius, periferiya, mexanizm.*

Abstract. *In the world, the development and use of energy-resource-efficient and high-productivity soil tillage machines takes a leading place. Consequently, scientific and research activities aimed at the development of new scientific and technical bases of the resource-saving technologies of preparing the fields for sowing before sowing the seeds of agricultural crops and the technical tools consisting of disk working bodies that implement them are being carried out on a large scale. Today, the main focus is on the development and use of combined machines that combine all the technological processes of preparing the soil for planting in one pass from the field.*

Reducing labor and energy consumption, saving resources, growing agricultural crops on the basis of advanced innovative technologies, and developing technical means that ensure quality performance of all technological processes in the agriculture of our republic is one of the urgent

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issues. It is the demand of the times to carry out research and research on the technical and technological modernization of high-quality tillage machines, the justification of the technological work processes of disk working bodies, ensuring resource efficiency in the process of their interaction with the soil.

This article provides a detailed analysis of innovative technologies for preparing the soil for planting, the technical tools that implement it, and the constructions of disc-shaped working bodies.

Key words: *soil, aggregate, structure, disk working body, multifunction, technology, bracket, slope, disk battery, reel, harrow, erosion, radius, blade, radius, periphery, mechanism.*

Аннотация. *В мире разработка и применение энергоэффективных и высокопроизводительных почвообрабатывающих машин занимает ведущее место. В связи с этим ведется научно-исследовательская деятельность, направленная на разработку новых научно-технических основ ресурсосберегающих технологий подготовки полей к посеву перед посевом семян сельскохозяйственных культур и реализующих их технических средств, состоящих из дисковых рабочих органов. вышел в больших масштабах. Сегодня основное внимание уделяется разработке и использованию комбинированных машин, совмещающих все технологические процессы подготовки почвы к посеву за один проход с поля.*

Снижение трудозатрат и энергозатрат, экономия ресурсов, выращивание сельскохозяйственных культур на основе передовых инновационных технологий, разработка технических средств, обеспечивающих качественное выполнение всех технологических процессов в сельском хозяйстве нашей республики, является одной из актуальных задач. Требование времени – проведение исследований и исследований по технической и технологической модернизации качественных почвообрабатывающих машин, обоснованию технологических процессов работы дисковых рабочих органов, обеспечению ресурсоэффективности в процессе их взаимодействия с почвой.

В данной статье приводится подробный анализ инновационных технологий подготовки почвы к посадке, технических средств, реализующих ее, и конструкций дисковых рабочих органов.

Ключевые слова: *почва, агрегат, конструкция, дисковый рабочий орган, многофункциональность, технология, кронштейн, наклон, дисковая батарея, мотовило, борона, эрозия, радиус, отвал, радиус, периферия, механизм.*

Tuproqni ekishga tayyorlashda qo‘llaniladigan mashina va agregatlar daladan bir o‘tishda ekish oldidan bajariladigan bir yoki bir nechta texnologik jarayonlarni qo‘shib bajaradi. Bu traktorlar va qishloq xo‘jalik mashinalarining tuproqqa ko‘rsatadigan salbiy ta’siri hamda yonilg‘i, mehnat sarfi va boshqa moddiy xarajatlarni kamayishi, ish sifati va unumini ortishi, tuproqqa ishlov berish muddati qisqarishi, unda to‘plangan namning saqlanib qolishiga olib keladi. Bunday agregatlar daladan bir o‘tishda tuproqni 10-18 sm chuqurlikda yumshatadi, yuzasini tekislaydi va talab darajasida zichlab ketadi. Ular asosan ramaga ketma-ket joylashtirilgan kesadigan, yumshatadigan, maydalaydigan, tekislaydigan hamda zichlaydigan ish organlaridan tashkil topgan bo‘ladi. Kesadigan, yumshatadigan ish organi sifatida asosan diskli ishchi organlardan keng foydalaniladi [1,2].

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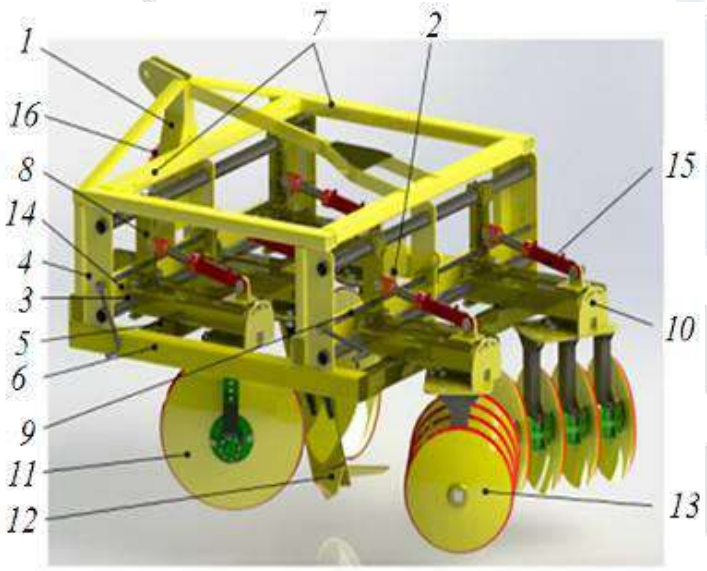
Keyingi yillarda jahonda va Respublikamiz olimlari tomonidan har xil konstruksiyadagi tuproqqa ishlov beradigan va uni ekishga tayyorlaydigan mashinalar ishlab chiqilgan.

Voronej davlat o‘rmonchilik texnika universiteti olimlari M.N.Lisich, YE.P.Shevsova va S.A.Yermolenkolar [3] tomonidan kombinatsiyalashgan ko‘pfunksiyali tuproqqa ishlov berish mashinasi taklif etilgan (1-rasm). Mashina osish qurilmasi 1, asosiy ikkita ko‘ndalang to‘sindan iborat bo‘lgan rama 2, ikki juft silindrsimon ko‘ndalang yo‘naltirgich 3, mahkamlash kronshteyni 4, tayanch to‘sini 5, asosiy bo‘ylama to‘sin 6, yuqori qo‘shimcha rama 7, kareta 8, vintli mexanizm 9, gryadil 10, diskli ish organ 11, lemexli ish organ 12, diskli batareya 13, rostlash mexanizmi 14, gidrotsilindr 15 va pnevmogidroakkumlyator 16 dan tashkil topgan. Ushbu mashinadan faqat bitta operatsiyani, ya’ni har xil turdagi pushta va egatlar hosil qilishda foydalanish mumkin.



1-rasm. Kombinatsiyalashgan tuproqqa ag‘darmasdan ishlov berish mashinasi

Rossiya Federatsiyasining Volgograd davlat agrar universiteti olimi A.I.Ryadnov tomonidan RU № 2690428 raqamli patenti [4] bo‘yicha nishab yerlarga asosiy ishlov berish sifatini oshirish maqsadida kombinatsiyalashgan tuproqqa ishlov berish agregati taklif etilgan (2-rasm). Kombinatsiyalashgan tuproqqa ishlov berish agregati rama 1, osish qurilmasi 2, tayanch g‘ildirak 3, diskli batareya 4, yassi kesuvchi panja 5, kronshteyn 6, sharnirlar 7 va 9, ramka 8, tayanch element 10, gidravlik silindr 11 va 17, paz 12, plastina 13, markaziy tortqi 14, burish mexanizmi 15, va reduktor 16 dan tashkil topgan. Ammo, ushbu kombinatsiyalashgan tuproqqa ishlov berish agregati murakkab tuzilishga ega, ishchi mexanizmlar ko‘p, ishonchliligi past. Bundan tashqari, nishabliklarda tuproqni himoyalab ishlov berish, ya’ni suv va shamol eroziyasini oldini olishga e’tibor qaratilmagan.

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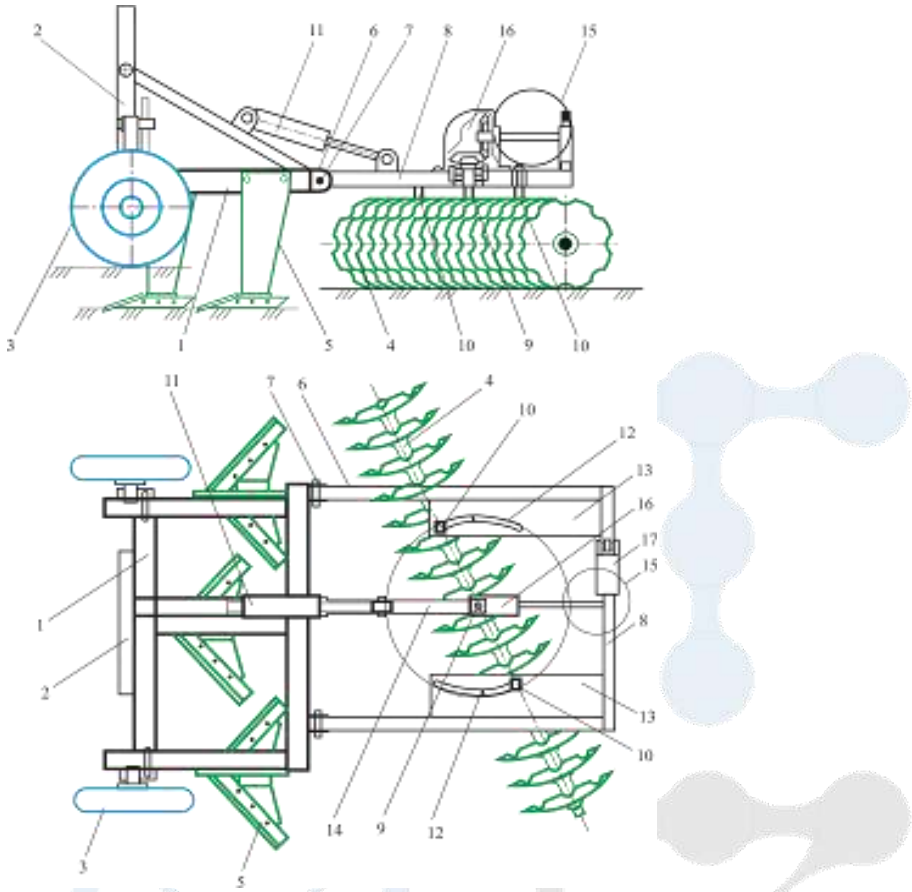

1 - rama; 2 - osish qurilmasi; 3 - tayanch g‘ildirak; 4 - diskli batareya; 5 - yassikesuvchi panja; 6 - kronshteyn; 7 va 9 - sharnirlar; 8 - ramka; 10 - tayanch element; 11 va 17 - gidravlik silindr; 12 - paz; 13 - plastina; 14 - markaziy tortqi; 15 - burish mexanizmi; 16 - reduktor

2-rasm. Kombinatsiyalashgan tuproqqa ishlov berish agregati

Lesselmashda ishlab chiqilgan BDTM–3P–03A diskli borona (3-rasm) 3-4 klassdagi traktorlarga mo‘ljallangan bo‘lib, u kuzgi bug‘doydan bo‘shagan va yem xashak ekinlari ekiladigan maydonlarga 6-15 sm chuqurlikda ishlov berish uchun qo‘llaniladi. BDTM–3P–03A diskli borona rama, diskli ish organlar, zichlovchi g‘altak va transport holati uchun tayanch g‘ildiraklaridan tashkil topgan. Unda diskli ish organlar to‘rt qator joylashtirilgan bo‘lib, har bir qatordagi diskli ish organlarini alohida rostlash imkoni mavjud [5].

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3-rasm. BDTM–3P–03A diskli borona

AG-1,8-20 diskli kombinatsiyalashgan agregat (4-rasm) barcha turdagi tuproqlarga 5-18 sm chuqurlikda sifatli ishlov beradi. Bu agregat ish jarayonida somon, o‘simlik poyalari, o‘t bosgan va organik o‘g‘itlar berilgan dalalarda o‘simlik qoldiqlarini tuproq bilan to‘liq aralashtirib ketadi. Kombinatsiyalashgan agregat rama, diametri 550 mm li sferik disklar va tekislovchi-zichlovchi g‘altakdan iborat bo‘lib, u soatiga 8-12 km tezliklarda harakatlanib, 1,2-3,0 ga yerga ishlov berish imkoniga ega [6].

4-rasm. AG-1,8-20 diskli kombinatsiyalashgan agregat

Kverneland Visio diskli borona (5-rasm) Fransiyada ishlab chiqarilgan bo‘lib, u shudgordan keyin va o‘simlik qoldiqlari bo‘lgan dalalarga 7-15 sm chuqurlikda ishlov berish uchun mo‘ljallangan.

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5-rasm. Kverneland Visio diskli boronasi (Fransiya)

Bu diskli boronada 4 ta batareyaga diametri 320 mm li sferik disklar o‘rnatilgan bo‘lib, ular bir-biridan 235 mm masofada joylashgan. Dikli boronaning oldida va orqada joylashgan diskli batareyalarini harakat yo‘nalishiga nisbatan o‘rnatilish burchagi ramaga o‘rnatilgan gidrotsilindrlar yordamida o‘zgartiriladi, bundan tashqari unga maydalovchi-zichlovchi g‘altak ham joylashtirilgan. Diskli boronaning qamrash kengligiga qarab undagi disklar soni 30 dan 54 taga o‘zgartirish imkoniyati mavjud [7].

Germaniya «Lemken» firmasining «Rubin» tipidagi diskli boronasi (6-rasm) mulcha hosil qilish texnologiyasi bo‘yicha yerlarni sifatli ekishga tayyorlash uchun qo‘llaniladi. Bu boronaning konstruksiyasi va ish organlarining joylashish sxemasi o‘simlik qoldiqlarini yaxshilab maydalab ko‘mib ketish, shuningdek, tuproqqa sifatli ishlov berish imkonini beradi. Boronaning tuproqqa intensiv ishlov berishiga diametri 610 mm li disklarni harakat yo‘nalishiga nisbatan 23°, tikka nisbatan 18° burchak ostida o‘rnatilishi hisobiga erishilinadi. Tuproqning yaxshi maydalanishi va zichlanishini esa orqada joylashgan shtrigelli maydalagich reshetka va plankali qo‘sh g‘altak ta’minlaydi [8].

Shuni ta’kidlash lozimki, xorijiy mamlakatlarda ishlab chiqariladiladigan kombinatsiyalashgan mashina va agregatlarni Respublikamiz sharoitida to‘g‘ridan-to‘g‘ri qo‘llab bo‘lmaydi, chunki ularning bizdagi ishlash sharoiti (tuproqning turi, namligi, zichligi, qattiqligi, dala relyefi bo‘yicha) va ularga qo‘yilgan agrotexnika talablari (tuproqqa ishlov berish chuqurligi, uning uvalanish va zichlanish darajalari, dala yuzasining tekislanish ko‘rsatkichlari bo‘yicha) xorijiy mamlakatlardagidan katta farq qiladi. Bundan tashqari xorijdan keltiriladigan mashinalar narxining qimmatligi qishloq xo‘jaligi mahsulotlari ishlab chiqarishi tannarxini oshishiga olib keladi.

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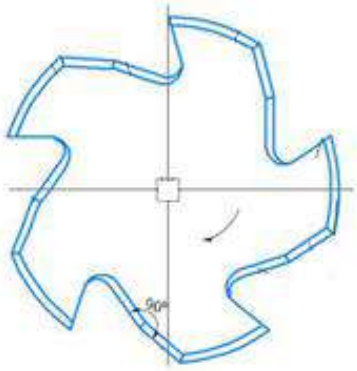
6-rasm. LEMKEN firmasining Rubin 9/250 U diskli boronasi

Disksimon ishchi organlarning bir necha xil turlari ma’lum bo‘lib, ular tuproqqa ishlov berish mashinalarida keng qo‘llaniladi.

Rossiya Federatsiyasida G.P.Balbichev va boshqalar tomonidan [9] aylanish tekisligiga parallel tekislikda periferiya qismi lopast shaklida qilingan disksimon ishchi organ taklif qilingan. Uning har bir lopastining oldingi qirrasi radius yo‘nalishidan uning aylanish tomoniga qiya qilingan. Lopastning oldingi qirrasi siniq chiziq ko‘rinishida bo‘lib, yuqori qismi 90º ni tashkil qiladi. Jan-Sharl Javerlyak [10] tomonidan (7-rasm) beshta qobariq lopastga ega bo‘lgan va egri qirg‘ich bilan jihozlangan sferik disk taklif qilingan. Ushbu disk disksimon pluglarda qo‘llanish uchun mo‘ljallangan.



7-rasm. RU105108 patent bo‘yicha disksimon ishchi organ

8 va 9-rasmlarda keltirilgan disklar logarifm spirali shaklida qilingan tishlardan iborat. Ushbu diskning kamchiligi shundan iboratki, diskning murakkab shaklini yasash texnologiyasi uni narxini oshirib yuboradi, uning tig‘i nostandart bo‘lgani uchun charxlash o‘ta murakkab.

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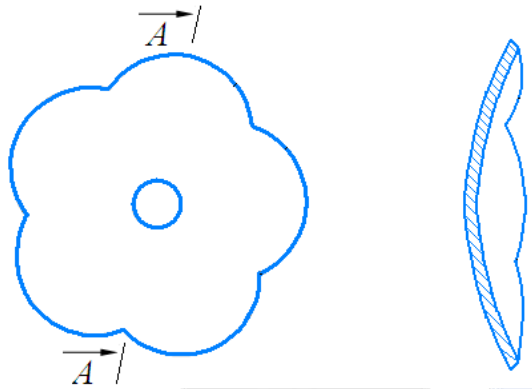
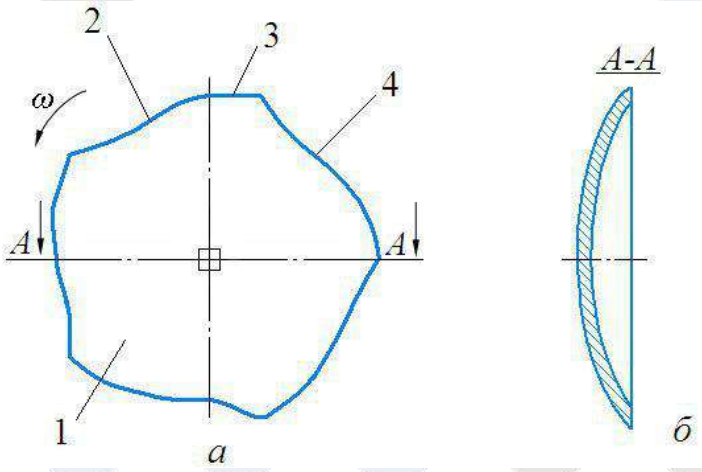


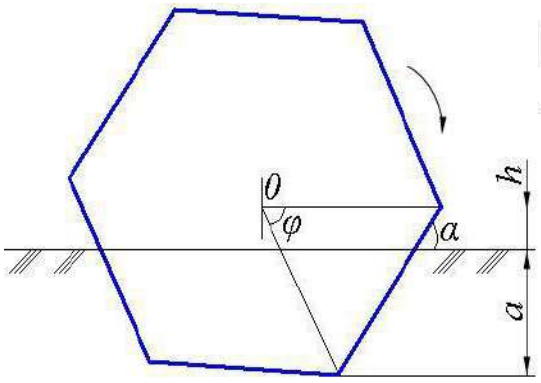
8-rasm. Tishli sferik disk sxemasi



a – kesik sferik diskning umumiy ko‘rinishi; *b* – A-A – diskning kesimi;
1-disk; 2-tishlar; 3-oldingi kesish qirrasi; 4-orqa kesish qirrasi

9-rasm. Disksimon ishchi organ

I.D.Kobyakov tomonidan plug va lushchilnikka o‘rnatish uchun oltiburchakli disk (10-rasm) ishlab chiqilgan va uning parametrlari asoslangan [11].



10-rasm. Oltiburchakli disk sxemasi

J.V.Staffed va boshqalar [12] diskli ish organlaridan foydalanib, tuproqqa uzilish

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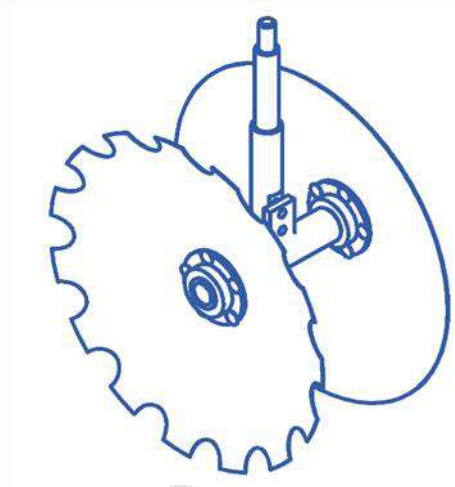
deformasiya hisobiga ishlov berish ustida tadqiqotlar olib borishgan. Bunda ular harakat yo‘nalishi va tikka nisbatan ma’lum burchak ostida joylashtirilgan yassi disklardan foydalanishgan (11-rasm).



11-rasm. Qo‘shaloq diskli ish organ

O‘tkazilgan ilmiy-texnik va patent adabiyotlar tahliliga ko‘ra, quyidagilarni xulosa qilish mumkin:

1. Tuproqni ekishga tayyorlaydigan texnik vositalar konstruksiyalarining holati va rivojlanish istiqbollari, ular ish organlarining konstruktiv xususiyatlari va texnologik ish jarayonlarining tahlili disksmon ishchi organlardan keng foydalanish imkoniyatini beradi.

2. O‘tkazilgan ilmiy-texnik va patent adabiyotlar tahliliga ko‘ra, disksimon ishchi organlardan foydalanish tuproqni zichlanishini oldini oladi, namni saqlanishini ta’minlaydi, mehnat unumdorligini oshiradi, sarf-xarajatlarni kamaytiradi va kam energiya sarflab tuproqni talab darajasida sifatli ekishga tayyorlash imkonini beradi.

3. Mexanik tarkibi og‘ir, sifatli ishlov berilmagan, o‘simlik ildizlari ko‘p bo‘lgan tuproqlarni ekishga tayyorlashda disksimon ishchi organlardan foydalanganda, o‘simlik ildizlari kesiladi va tuproqni maydalanish darajasi ortadi.

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INGLIZ VA O‘ZBEK TILLARIDA MEHNAT MAZMUNLI FRAZEOLOGIZMLARNING PRAGMA-STILISTIK XUSUSIYATLARI

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Annotatsia: Mazkur maqola ingliz va o‘zbek tillaridagi mehnat mazmunli frazeologizmlarni pragma-stilistik nuqtayi nazardan o‘rganishga bag‘ishlangan. Tadqiqotda har ikki tilga xos bo‘lgan mehnat konsepti va unga bog‘liq bo‘lgan frazeologizmlarning mazmun-mohiyati tahlil qilinadi. Frazeologizmlarning kommunikativ funksiyasi, stilistik o‘rni hamda pragmatik jihatlari solishtirilib, ularning ikki tildagi o‘xshash va farqli jihatlari aniqlanadi. Tadqiqot natijalari ikki tilning lingvistik xususiyatlarini hamda madaniyatlarini o‘zaro qiyoslashda muhim ahamiyat kasb etadi.

Kalit so‘zlar: frazeologizmlar, pragma-stilistik tahlil, mehnat konsepti, ingliz tili, o‘zbek tili, lingvistik xususiyatlar, kommunikativ funksiyalar.

Аннотация: Данная статья посвящена изучению фразеологизмов с трудовой тематикой в английском и узбекском языках с прагматико-стилистической точки зрения. В исследовании анализируются содержание и сущность концепта труда и связанных с ним фразеологизмов в обоих языках. Сравниваются коммуникативные функции, стилистическая роль и прагматические аспекты фразеологизмов, выявляются их сходства и различия в двух языках. Результаты исследования имеют важное значение для сопоставления лингвистических особенностей и культур английского и узбекского языков.

Ключевые слова: фразеологизмы, прагматико-стилистический анализ, концепт труда, английский язык, узбекский язык, лингвистические особенности, коммуникативные функции.

Abstract: This article examines labor-related idioms in English and Uzbek from a pragmatic and stylistic perspective. It analyzes the content and essence of the labor concept and associated idioms in both languages. The study compares the communicative functions, stylistic roles, and pragmatic aspects of these idioms, identifying their similarities and differences in the two languages. The findings are significant for comparing the linguistic features and cultures of English and Uzbek.

Keywords: idioms, pragmatic and stylistic analysis, labor concept, English language, Uzbek language, linguistic features, communicative functions.

Mehnat mazmunli frazeologizmlar har bir til va madaniyatning ajralmas qismidir. Ular tilning faqatgina leksik vositasi emas, balki milliy madaniyat va tafakkurning ifodasidir. Ingliz va o‘zbek tillarida mehnatga oid iboralarning pragma-stilistik tahlili ikki tilni qiyosiy o‘rganish, ularning o‘ziga xosligini aniqlash va til orqali madaniy ko‘rinishni ochib berishda muhim ahamiyatga ega.

Zamonaviy lingvistikadagi pragmatika va stilistika yo‘nalishlari bu frazeologizmlarning til tizimidagi kommunikativ yukini o‘rganishga imkon yaratadi. Xususan, ingliz tilidagi “to work one’s fingers to the bone” va o‘zbek tilidagi “qon ter bilan ishlash” kabi iboralarning semantik va stilistik o‘xshashliklari, shuningdek, ularning pragmatik ahamiyati xalqning mehnatga bo‘lgan

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qarashlarini ochib beradi. Ushbu mavzu xususan xalqaro lingvistik tadqiqotlarda ham dolzarb hisoblanadi.

2. Maqsad va vazifalar

Tadqiqot maqsadi

Ingliz va o‘zbek tillaridagi mehnat mazmunli frazeologizmlarning pragma-stilistik xususiyatlarini o‘rganish hamda ular orqali ikki til madaniyati va til strukturasi orasidagi farqlarni va o‘xshashliklarni aniqlash.

Tadqiqot vazifalari

1. Ingliz va o‘zbek tillaridagi mehnat mazmunli frazeologizmlarni yig‘ish va tasniflash.
2. Frazeologizmlarning semantik mazmunini tahlil qilish.
3. Ularning stilistik va pragmatik funksiyalarini aniqlash.
4. Har ikki tilga xos bo‘lgan umumiy va milliy xususiyatlarni ko‘rsatish.
5. Olingan natijalarni qiyoslash asosida xulosa chiqarish.

3. Materiallar va metodlar

Materiallar

Tadqiqot uchun ingliz va o‘zbek tillaridagi lug‘atlar, frazeologik to‘plamlar, adabiyot namunalaridan yig‘ilgan mehnat mazmunli frazeologizmlar ishlatildi. Shuningdek, ikki tilning madaniyat va an’analari bilan bog‘liq ma’lumotlardan foydalanildi.

Metodlar

Tadqiqotda quyidagi metodlardan foydalanildi:

• Qiyosiy-tarixiy metod: Ingliz va o‘zbek tillaridagi frazeologizmlarning kelib chiqishini o‘rganish.

• Pragma-stilistik metod: Frazeologizmlarning stilistik bo‘yoqlari va kommunikativ yukini aniqlash.

• Konseptual tahlil: Frazeologizmlarda mehnat konsepti qanday aks etganligini aniqlash.

• Semantik tahlil: Frazeologizmlarning mazmun va ma’nolarini ochib berish.

4. Tadqiqot natijalari

4.1. Ingliz tilidagi mehnat mazmunli frazeologizmlar

Ingliz tilida mehnat mazmunini ifodalovchi frazeologizmlar ko‘pincha ishlash jarayonining qiyinchiliklari yoki natijalari bilan bog‘liq:

• “To work one’s fingers to the bone” — mehnatni haddan tashqari ko‘p qilish, qattiq mehnat qilish.

• “To pull one’s weight” — o‘z zimmasidagi vazifani bajarish.

• “All in a day’s work” — kundalik vazifa yoki mehnat odatiy holat ekanligini ifodalaydi.

Bu frazeologizmlar ingliz madaniyatida mehnatning intizom va mas’uliyat bilan bog‘liqligini ko‘rsatadi.

4.2. O‘zbek tilidagi mehnat mazmunli frazeologizmlar

O‘zbek tilida mehnat bilan bog‘liq frazeologizmlar ko‘pincha mehnatning ahamiyati va mashaqqatlarini ifodalaydi:

• “Qon ter bilan ishlash” — juda qattiq mehnat qilish.

• “Ish yuritmoq” — ishni boshqarish yoki muvaffaqiyat bilan amalga oshirish.

• “Qo‘l qovushtirib o‘tirish” — hech narsa qilmaslik, bekorchilikni anglatadi.

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Bu iboralar o‘zbek xalqining mehnatni qadrlash va unga jiddiy yondashish tamoyillarini aks ettiradi.

4.3. Pragma-stilistik jihatlar

Frazeologizmlar har ikki tilning madaniyatida muhim stilistik bo‘yoqqa ega. Ingliz tilida mehnatga oid iboralar ko‘proq pragmatik jihatdan tanbeh yoki motivatsiya ifodasi sifatida ishlatilsa, o‘zbek tilida ular ma’naviy mehnatning qadri va ahamiyatini ifodalash uchun ishlatiladi.

Masalan:

• Ingliz tilida: “Don’t just sit there – pull your weight!”

• O‘zbek tilida: “Qo‘l qovushtirib o‘tirgandan ish qilgan yaxshi.”

4.4. Umumiylik va farqlar

• Umumiylik: Har ikkala tilda ham mehnatni qadrlash va uni insonning asosiy faoliyati sifatida ko‘rsatish mavjud.

• Farqlar: Ingliz tilida iboralar ko‘pincha natijaga qaratilgan, o‘zbek tilida esa jarayon va insonning mashaqqatga bardoshligi ko‘proq ta’kidlanadi.

5. Xulosa

Tadqiqot natijalari shuni ko‘rsatadiki, ingliz va o‘zbek tillarida mehnat mazmunli frazeologizmlar har ikkala til va madaniyatning milliy o‘ziga xosligini aks ettiradi. Ularning pragma-stilistik funksiyalari tilshunoslik, tarjima va xalqaro madaniyatlararo muloqot sohalarida qimmatli ma’lumot beradi.

6. Yakuniy fikrlar

Ushbu maqola orqali ingliz va o‘zbek tillaridagi frazeologizmlarning qiyosiy pragma-stilistik tahlili amalga oshirildi. Mehnat mazmunli frazeologizmlar nafaqat lingvistik, balki madaniy qadriyatlarni ham o‘zida aks ettiradi. Bunday tadqiqotlar til o‘rganish va tarjimada qo‘llash uchun muhim ahamiyatga ega bo‘lib, kelgusida boshqa tillarni o‘zaro taqqoslashda davom ettirilishi lozim.

Maqolaning batafsil, to‘liq matnini tuzishda davom etaman. Agarda aniqroq talab yoki qo‘shimcha ma’lumot berilsa, ular asosida yanada kengaytirishim mumkin.

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МЕТОДИКА ПРЕПОДАВАНИЯ АНГЛИЙСКОГО ЯЗЫКА

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Аннотация: Методика преподавания английского языка представляет собой систему подходов, методов и техник, направленных на обучение студентов английскому языку с учетом различных факторов, таких как возраст, уровень подготовки и индивидуальные особенности учащихся. Современные тенденции в преподавании иностранных языков подчеркивают важность коммуникативной компетенции, интеграции технологий и создания интерактивной образовательной среды. В этой статье рассматриваются ключевые аспекты методики преподавания английского языка, включая методы обучения, инновационные подходы и роль технологий.

Ключевые слова: методика преподавания, английский язык, методы обучения, коммуникативная компетенция, образовательные технологии.

INGLIZ TILI O‘QITISH METODIKASI

Annotatsiya: Ingliz tili o‘qitish metodikasi – bu talabalarga ingliz tilini o‘rgatishga qaratilgan yondashuvlar, metodlar va texnikalar tizimi bo‘lib, ular o‘quvchilarning yoshi, tayyorgarlik darajasi va shaxsiy xususiyatlarini hisobga olib tanlanadi. Xorijiy tillarni o‘qitishdagi zamonaviy yo‘nalishlar kommunikativ kompetentsiyani rivojlantirish, texnologiyalarni integratsiyasi va interaktiv ta’lim muhitini yaratish zarurligini ta’kidlaydi. Ushbu maqolada ingliz tilini o‘qitish metodikasining asosiy jihatlari, jumladan o‘qitish metodlari, innovatsion yondashuvlar va texnologiyalarning roli ko‘rib chiqiladi.

Kalit so‘zlar: o‘qitish metodikasi, ingliz tili, o‘qitish metodlari, kommunikativ kompetentsiya, ta’lim texnologiyalari.

METHODOLOGY OF TEACHING ENGLISH

Abstract: The methodology of teaching English is a system of approaches, methods, and techniques aimed at teaching students the English language, taking into account various factors such as age, level of preparation, and individual characteristics of learners. Modern trends in foreign language teaching emphasize the importance of communicative competence, integration of technologies, and the creation of an interactive learning environment. This article discusses key aspects of English language teaching methodology, including teaching methods, innovative approaches, and the role of technology.

Keywords: teaching methodology, English language, teaching methods, communicative competence, educational technologies.

Актуальность

В последние десятилетия преподавание английского языка приобрело особую значимость. Английский язык стал глобальным средством общения, и знание его стало необходимостью для людей в различных сферах жизни, включая образование, науку, экономику и культуру. В связи с этим возрастает необходимость создания эффективных методик, которые позволят преподавать английский язык не только на уровне грамматики и лексики, но и развивать коммуникативные навыки студентов.

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Современные методы преподавания английского языка направлены на развитие всех языковых навыков (говорение, слушание, чтение и письмо) с акцентом на их использование в реальных жизненных ситуациях. Также важным аспектом является внедрение информационно-коммуникационных технологий в процесс обучения, что позволяет повысить мотивацию студентов и улучшить усвоение материала.

Цель исследования

Цель данной статьи — изучить различные методы преподавания английского языка, оценить их эффективность в контексте современных образовательных тенденций, а также предложить рекомендации по оптимизации методики преподавания для достижения наилучших результатов.

Материалы исследования

Для исследования использовались следующие источники:

1. Научные статьи и книги по методике преподавания иностранных языков.
2. Программы обучения и учебные материалы, разработанные для преподавания английского языка в различных образовательных учреждениях.
3. Результаты опросов и интервью с преподавателями английского языка, а также с учащимися.

Методы исследования

В процессе исследования использовались следующие методы:

• Анализ литературы — изучение существующих подходов и методик преподавания английского языка.

• Опросы и интервью — сбор данных от преподавателей и студентов для выявления предпочтений и особенностей обучения.

• Кейс-стади — анализ успешных примеров применения инновационных методов и технологий в преподавании английского языка.

• Сравнительный анализ — сравнение традиционных методов и инновационных подходов к обучению.

Основные методы преподавания английского языка

1. Грамматико-переводной метод

Традиционный грамматико-переводной метод основывается на детальном изучении грамматики и лексики языка. Этот метод позволяет учащимся глубоко понять структуру языка, однако он не всегда способствует развитию коммуникативных навыков, таких как устная речь и восприятие на слух.

2. Коммуникативный метод

Коммуникативный метод фокусируется на развитии навыков общения и использовании языка в реальных жизненных ситуациях. Здесь акцент делается на говорение и слушание, а грамматические структуры вводятся через контекст. Этот метод помогает учащимся развить уверенность в использовании языка в реальной жизни.

3. Метод проектов

Метод проектов позволяет студентам применять знания английского языка в практических задачах. Они выполняют проекты, исследуют темы и создают продукты, такие как презентации, доклады и отчеты. Это стимулирует активное использование языка и способствует развитию критического мышления.

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4. Технологии в преподавании

В последние годы важным элементом методики преподавания становится использование технологий. Электронные учебники, онлайн-курсы, мобильные приложения и другие цифровые ресурсы обеспечивают студентам доступ к разнообразным материалам и дают возможность учиться в удобном формате.

Эти технологии способствуют мотивации студентов и повышают их вовлеченность в процесс обучения.

Роль инновационных технологий

Современные технологии в преподавании английского языка играют ключевую роль. Применение информационно-коммуникационных технологий помогает создать интерактивную образовательную среду, где студент может взаимодействовать с материалом, преподавателем и другими учащимися.

1. Мобильные приложения. С помощью мобильных приложений студенты могут изучать новый материал, повторять пройденный и заниматься в любое удобное время. Такие приложения как Duolingo, Memrise, Babbel позволяют создавать индивидуализированные образовательные траектории.

2. Онлайн-платформы и курсы. Платформы вроде Coursera, Udemy, и Khan Academy предлагают курсы по английскому языку, где студенты могут не только учиться, но и общаться с преподавателями и другими учащимися. Это создает дополнительную мотивацию для учащихся.

3. Геймификация. Использование игровых элементов в обучении помогает сделать процесс более увлекательным и мотивирующим. Игры могут включать в себя задания на расширение словарного запаса, изучение грамматики и развитие навыков аудирования.

Результаты исследования

Проведенные исследования показали, что использование современных методов и технологий в преподавании английского языка оказывает положительное влияние на результаты обучения. Студенты, использующие цифровые ресурсы и принимающие участие в интерактивных занятиях, проявляют большую мотивацию и интерес к учебе, а также значительно улучшили свои навыки говорения и восприятия на слух.

Однако важно учитывать, что технологии не могут заменить традиционные методы полностью. Они должны быть интегрированы в общую образовательную программу и использоваться в сочетании с другими методами для достижения наилучших результатов.

Выводы

1. Коммуникативный метод и использование технологий являются наиболее эффективными для преподавания английского языка в современных условиях.

2. Технологии способствуют созданию персонализированного и интерактивного учебного процесса, что увеличивает мотивацию студентов.

3. Для успешного внедрения технологий необходимо обеспечить обучение преподавателей, создание технической инфраструктуры и учет потребностей студентов.

Заключение

Методика преподавания английского языка должна учитывать современные реалии, включая роль технологий в образовательном процессе. Современные подходы, такие как

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коммуникативный метод и использование цифровых ресурсов, позволяют более эффективно обучать студентов, развивая их языковые и коммуникативные навыки. В будущем ожидается дальнейшее развитие и интеграция технологий, что поможет повысить качество и доступность образования.

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PEDAGOGICAL FOUNDATIONS OF SOCIAL CONFLICT RESOLUTION IN THE FAMILY

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Abstract: Social conflicts within families are a universal phenomenon, yet their effective resolution is crucial for maintaining familial harmony and fostering individual well-being. This article explores the pedagogical foundations of resolving social conflicts within family settings. By integrating educational theories and conflict resolution strategies, the study highlights the role of communication, empathy, and structured guidance in transforming disputes into opportunities for growth.

Key words: family dynamics, conflict resolution, pedagogical strategies, interpersonal communication, parental guidance, emotional intelligence, conflict management skills, family therapy, socialization in the family, cognitive-behavioral approaches, family relationships, mediation techniques, parent-child communication, conflict prevention, cultural influences on family conflicts, pedagogical intervention, social learning theory, family education, emotional regulation, conflict resolution training

INTRODUCTION

Conflicts are an inherent part of human interaction, arising naturally within the dynamic relationships that constitute families. While disagreements and disputes are inevitable, their constructive resolution is vital for maintaining harmony, fostering emotional well-being, and promoting personal and collective growth within the family unit. The family, as the foundational social institution, plays a critical role in shaping an individual's values, communication skills, and conflict resolution strategies. Therefore, understanding the pedagogical underpinnings of conflict resolution within this context is essential for developing effective interventions and nurturing resilient familial relationships.

Social conflicts in families often stem from diverse sources, including generational differences, varying expectations, resource allocation, and communication breakdowns. These conflicts, if unresolved, can escalate, leading to emotional distress, weakened relationships, and adverse developmental outcomes, particularly for children. However, when managed constructively, conflicts present opportunities for growth, deeper understanding, and strengthened bonds among family members. Pedagogical approaches to conflict resolution focus on fostering emotional intelligence, empathy, and effective communication skills that are transferable across multiple social settings.

The study of pedagogical foundations in this domain emphasizes the role of education and learning processes in equipping family members with the tools to navigate disputes constructively. These foundations draw from various disciplines, including psychology, sociology, and education, integrating theoretical frameworks such as conflict theory, systems theory, and social learning theory. For instance, conflict theory highlights power dynamics and resource distribution within the family, while systems theory underscores the interconnectedness of family members and the ripple effects of individual actions on the entire unit. Social learning theory, on

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the other hand, provides insights into how family members, particularly children, learn conflict resolution behaviors through observation and modeling.

In the pedagogical context, effective conflict resolution strategies involve teaching family members to identify and articulate their emotions, actively listen to others, and employ problem-solving techniques that prioritize mutual respect and understanding. Such educational interventions can be delivered through structured family counseling sessions, community workshops, or school-based family life education programs. Additionally, cultural and societal factors play a significant role in shaping conflict resolution practices, necessitating a context-specific approach to pedagogical interventions.

The significance of this topic extends beyond individual families, as the skills and behaviors cultivated within the familial setting influence broader social interactions. By addressing the pedagogical foundations of social conflict resolution in families, educators, counselors, and policymakers can contribute to fostering healthier communities and more cohesive societies. This introduction underscores the need for continued research and practical applications to optimize conflict resolution strategies and enhance family well-being.

Social conflicts in families arise from diverse sources such as generational gaps, cultural expectations, financial pressures, and interpersonal misunderstandings. These conflicts manifest in various forms, including sibling rivalries, parent-child disagreements, and marital disputes. While conflicts are inevitable, their resolution depends on adopting proactive and educational approaches.

Pedagogical Approaches to Conflict Resolution:

Conflicts are an intrinsic aspect of human interaction, arising naturally in diverse social settings, including families, educational institutions, and workplaces. While conflicts can be sources of tension and discord, they also present opportunities for growth, innovation, and strengthened relationships when addressed constructively. The field of pedagogy offers valuable insights into equipping individuals with the skills and knowledge necessary to resolve conflicts effectively, emphasizing the importance of education and guided learning in fostering harmonious interactions.

Conflict resolution through pedagogical approaches focuses on developing emotional intelligence, communication skills, and collaborative problem-solving techniques. These approaches are grounded in theoretical frameworks such as conflict theory, systems theory, and social learning theory. Conflict theory explores the dynamics of power and resource allocation, systems theory highlights the interdependence of individuals within social units, and social learning theory provides a basis for understanding how conflict behaviors are learned and modeled.

Educational strategies for conflict resolution often incorporate structured programs, workshops, and curricula designed to teach individuals how to identify and express emotions, actively listen, and negotiate solutions that respect all parties involved. These pedagogical interventions can be tailored to various contexts, from classrooms to community settings, ensuring their relevance and effectiveness across diverse populations. Additionally, cultural and societal factors influence conflict resolution practices, necessitating adaptable and context-specific approaches.

Research in this field underscores the transformative potential of pedagogical conflict resolution strategies in promoting social cohesion and reducing the prevalence of destructive

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disputes. By fostering critical thinking, empathy, and mutual understanding, these approaches not only resolve immediate conflicts but also contribute to the long-term development of peaceful and collaborative communities. As such, the study and application of pedagogical methods for conflict resolution remain a vital area of inquiry for educators, policymakers, and practitioners seeking to build a more harmonious society.

1. Communication Training: Effective communication is foundational to resolving family conflicts. Pedagogical methods emphasize teaching active listening, clear articulation of needs, and constructive feedback. Programs such as family therapy or workshops can introduce communication skills tailored to familial dynamics.

2. Empathy Development: Empathy is a critical skill that enables family members to understand and validate each other's perspectives. Educational interventions can include role-playing exercises, storytelling, and reflective discussions to foster emotional intelligence and empathy.

3. Conflict Resolution Education: Teaching conflict resolution strategies equips families with tools to address disputes constructively. Techniques such as negotiation, mediation, and problem-solving can be integrated into parenting practices and family routines. Educational materials, including books and online resources, can support this learning process.

4. Cultural Sensitivity and Adaptation: Pedagogical approaches must consider the cultural and societal contexts of the family. Tailored strategies that respect cultural norms while promoting constructive conflict resolution ensure relevance and effectiveness.

The Role of Parents as Educators:

The role of parents in a child's education extends beyond the traditional classroom, encompassing a vast range of influences that shape cognitive, emotional, and social development. As primary caregivers, parents serve as the first educators, offering foundational lessons in language, behavior, and values. Their impact on learning is profound, as they instill curiosity, build self-esteem, and encourage critical thinking from an early age. This role is particularly significant during the formative years, where early interactions lay the groundwork for future academic achievement and personal growth.

Research in developmental psychology and education underscores the critical influence of parental involvement on children's educational outcomes. Studies show that active engagement, such as supporting homework routines, reading together, and fostering a positive attitude toward learning, correlates with higher levels of academic success. Moreover, parents serve as role models for various life skills, including problem-solving, perseverance, and effective communication.

The influence of parents extends into the broader socio-cultural context, where family values, expectations, and resources contribute to shaping educational experiences. Factors such as socioeconomic status, parental education levels, and cultural beliefs can either enable or constrain a child's learning opportunities. In this light, the role of parents as educators is not only critical for individual development but also for addressing broader educational inequalities within society.

This paper aims to explore the multifaceted role of parents as educators, examining the ways in which parental involvement enhances learning outcomes and how different factors influence their ability to educate effectively. Through a review of existing literature and research findings, this study will highlight the importance of collaboration between parents, schools, and communities in fostering an enriching educational environment.

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Challenges in Implementing Pedagogical Strategies:

The implementation of pedagogical strategies in educational settings is essential for improving teaching effectiveness and fostering student success. However, educators face a range of challenges in translating theoretical strategies into practical, impactful actions within diverse classrooms. These challenges can stem from various factors including institutional constraints, resource limitations, teacher training deficiencies, and the diverse needs of students. Understanding and addressing these problems is crucial for optimizing educational outcomes.

1. Resource Constraints and Infrastructure Issues: One of the primary barriers to the successful implementation of pedagogical strategies is the lack of adequate resources. Effective teaching strategies often require access to specific materials, technologies, and facilities, which may be unavailable in underfunded schools. For instance, strategies that rely on digital tools or project-based learning require technological infrastructure, which can be lacking in many educational systems. Additionally, limited access to instructional materials or a lack of suitable classroom space can hinder the implementation of innovative pedagogies, preventing teachers from fully engaging with the methods they are trained to use.

2. Insufficient Teacher Training and Professional Development: While pedagogical strategies are often grounded in sound educational theory, their effectiveness is heavily reliant on the teacher's ability to execute them effectively. Many educators face challenges in adopting new methods due to insufficient training or ongoing professional development opportunities. Inadequate training programs may leave teachers unprepared to implement complex strategies, particularly when these strategies require shifts in teaching approaches, classroom management, or assessment techniques. Moreover, the dynamic nature of educational theory and practice demands continuous professional growth, yet many educators face barriers such as limited time, financial resources, or institutional support for professional development.

3. Resistance to Change: Teachers and educational administrators may resist new pedagogical strategies due to longstanding traditions, habits, or institutional inertia. Educational systems often prioritize standardized testing, a rigid curriculum, and traditional teaching methods, which can conflict with more progressive, student-centered approaches. Resistance to change is also a psychological and cultural barrier that can prevent educators from fully embracing and implementing novel strategies, particularly when there is a perceived lack of evidence supporting their effectiveness or when teachers feel that the strategies may not align with the needs of their students.

4. Diverse Student Needs and Learning Styles: Classrooms today are increasingly diverse in terms of student backgrounds, abilities, and learning styles. Pedagogical strategies that work well with one group of students may not be equally effective with another, particularly when addressing the varied needs of students with disabilities, language barriers, or socio-economic challenges. Differentiating instruction to meet these diverse needs is a fundamental aspect of successful strategy implementation. However, many pedagogical frameworks do not account for such diversity in a way that allows for easy adaptation in the classroom. This mismatch between pedagogical strategies and student needs can create barriers to effective learning, limiting the overall success of educational interventions.

5. Assessment and Evaluation Challenges: The assessment of the effectiveness of pedagogical strategies poses another significant challenge. Many strategies rely on alternative

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forms of assessment, such as project-based evaluations, portfolios, or formative feedback, which may not align with standardized testing systems that dominate many educational systems. This misalignment can create tension between the goals of innovative pedagogy and the institutional requirements for measurable outcomes. Furthermore, evaluating the long-term impact of pedagogical strategies can be complex, as it often requires longitudinal studies or qualitative research methods that may not be readily available or feasible within the constraints of the educational environment.

6. Time Constraints and Overloaded Curricula: In many educational systems, the time allocated for teaching is limited, and the curriculum can be densely packed with content to be covered. This time pressure often leaves teachers with little room to experiment with new pedagogical approaches or to tailor strategies to the specific needs of their students. The overload of content and a rigid timeline for completing curriculum requirements can lead to a prioritization of content delivery over more effective, student-centered teaching methods. Additionally, the increasing demands on teachers in terms of administrative duties, grading, and extracurricular activities further limit the time available for strategy implementation.

7. Lack of Collaborative Support: Successful implementation of pedagogical strategies often requires collaboration among teachers, administrators, and other educational stakeholders. However, many educational systems are characterized by isolated teaching practices where teachers work independently rather than as part of a cohesive team. Without opportunities for collaboration, sharing best practices, and receiving feedback, it becomes difficult for teachers to implement new strategies effectively. In some cases, administrators may not provide the necessary support for strategy implementation, either due to a lack of understanding of the pedagogical innovations or due to competing priorities within the school or district.

While pedagogical strategies have the potential to transform education by enhancing teaching and learning, their successful implementation faces a range of challenges. These challenges are multifaceted, involving resource constraints, insufficient teacher preparation, resistance to change, diverse student needs, assessment issues, time limitations, and a lack of collaborative support. Addressing these barriers requires a concerted effort from educators, policymakers, and communities to provide the necessary resources, professional development, and structural changes that will enable the effective use of pedagogical strategies. Only through a collaborative and adaptive approach can these strategies be fully realized, ensuring that all students benefit from high-quality education.

Pedagogical foundations of solving social conflicts in the family are an integral part of the development of healthy interpersonal relationships and emotional well-being at home. Conflict, while a natural aspect of human interaction, can have long-lasting negative effects if not managed properly. The family, as the main socialization agent, plays a crucial role in shaping children's understanding and responses to conflict. Effective conflict resolution strategies taught in family settings significantly contribute to the development of children's emotional intelligence, communication skills, and social competence.

Through a pedagogy focused on empathy, active listening, negotiation, and problem solving, parents can model and teach constructive approaches to conflict resolution. This, in turn, enhances children's ability to manage conflict in a respectful and non-aggressive manner, both within the family and in wider social settings. In addition, teaching conflict resolution skills in the

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family can help children learn the values of cooperation, respect for diversity, and emotional regulation that are important in mitigating the escalation of conflict.

However, the successful implementation of pedagogical conflict resolution strategies depends on several factors, such as parental awareness, effective communication, and consistency in the use of conflict management techniques. In addition, the cultural, socioeconomic, and psychological dynamics of the family unit affect how effectively these strategies can be used. Therefore, it is essential that parents receive proper guidance and support in understanding the principles of conflict resolution, and that educational systems integrate these principles into parenting programs.

In conclusion, integrating pedagogical principles into family conflict resolution has long-term benefits for both individual family members and the larger community. By equipping families with the tools to resolve conflict constructively, we can contribute to the overall well-being of future generations and promote healthy relationships, emotional stability, and social harmony.

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PHYSIOLOGICAL RESPONSES TO STRESS: IMPACTS ON IMMUNE FUNCTION AND CHRONIC ADAPTATIONS

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Abstract

Stress is a ubiquitous experience with significant physiological and psychological impacts. This article explores the interplay between psychological stress, immune function, and long-term physiological adaptations. Acute stress can temporarily enhance immune responses, while chronic stress leads to immunosuppression and systemic inflammation. Over time, chronic stress contributes to maladaptive changes, including cardiovascular, endocrine, and neurological alterations. This study synthesizes existing research to illustrate the mechanisms underlying these phenomena, emphasizing implications for health and disease management.

Keywords: stress, immune function, chronic diseases, cortisol, dysfunction, adaptation, infection.

Аннотация

Стресс — это повсеместное явление со значительными физиологическими и психологическими последствиями. В этой статье рассматривается взаимодействие между психологическим стрессом, иммунной функцией и долгосрочными физиологическими адаптациями. Острый стресс может временно усилить иммунные реакции, в то время как хронический стресс приводит к иммуносупрессии и системному воспалению. Со временем хронический стресс способствует неадаптивным изменениям, включая сердечно-сосудистые, эндокринные и неврологические изменения. Это исследование синтезирует существующие исследования, чтобы проиллюстрировать механизмы, лежащие в основе этих явлений, подчеркивая последствия для здоровья и управления болезнями.

Ключевые слова: стресс, иммунная функция, хронические заболевания, кортизол, дисфункция, адаптация, инфекция.

INTRODUCTION

Stress is defined as the body's response to environmental or internal challenges that disrupt homeostasis (McEwen & Sapolsky, 1995). Acute stress can mobilize physiological resources, enhancing survival in threatening situations (Dhabhar, 2018). However, chronic stress exerts deleterious effects, particularly on immune function and systemic health (Segerstrom & Miller, 2004). This article examines how stress influences immune responses and induces long-term physiological adaptations, shedding light on the mechanisms that link stress to chronic diseases.

Methods

A comprehensive literature review was conducted using databases such as PubMed, Google Scholar, and Science Direct to identify peer-reviewed articles and systematic reviews published between 1990 and 2023. Key search terms included "stress and immune function," "chronic stress adaptations," "HPA axis and health," "psychoneuroimmunology," and "stress-related chronic diseases." Articles were selected based on their relevance, methodological rigor,

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and inclusion of empirical data. Relevant studies were categorized by focus areas, such as acute stress effects, chronic stress mechanisms, and associated health outcomes, to synthesize findings on the physiological and immune responses to stress and their implications for health management.

Results

Acute Stress and Immune Function

Short-term stress enhances certain immune parameters. Dhabhar (2002) demonstrated that acute stress mobilizes immune cells to tissues, preparing the body for potential injury or infection. This response is mediated by the hypothalamic-pituitary-adrenal (HPA) axis and sympathetic nervous system, which release cortisol and catecholamines, respectively (Sapolsky et al., 2000).

Chronic Stress and Immune Dysfunction

Chronic stress dysregulates immune function through prolonged cortisol exposure. Elevated cortisol suppresses lymphocyte proliferation and natural killer cell activity (Glaser & Kiecolt-Glaser, 2005). Additionally, chronic stress alters cytokine profiles, promoting low-grade systemic inflammation (Miller et al., 2002).

- **Infectious Diseases**: Chronic stress increases susceptibility to infections such as colds and flu (Cohen et al., 1991).
- **Autoimmune Disorders**: Stress exacerbates autoimmune conditions, such as rheumatoid arthritis, through inflammatory pathways (Chrousos, 2009).

Physiological Adaptations to Chronic Stress

1. Cardiovascular System Chronic stress sustains sympathetic activation, leading to hypertension and atherosclerosis (Black & Garbutt, 2002). Stress-induced vascular inflammation contributes to endothelial dysfunction and cardiovascular events (Kivimäki & Steptoe, 2018).

2. Endocrine System Prolonged HPA axis activation impairs glucose metabolism, increasing the risk of Type 2 diabetes (Herbert & Cohen, 1993). Dysregulated cortisol secretion disrupts circadian rhythms, exacerbating metabolic dysfunction (McEwen, 1998).

3. Neurological Changes Chronic stress reduces hippocampal volume, impairing memory and learning, while enhancing amygdala activity, heightening anxiety (Lupien et al., 2009). Prefrontal cortex dysfunction compromises executive functions (Arnsten, 2009).

4. Behavioral and Lifestyle Impacts Stress-induced behaviors, such as poor sleep, overeating, and substance use, amplify its physiological effects, creating a feedback loop (Sinha, 2008).

Discussion

This review highlights the dual nature of stress: acute stress can enhance immune responses, while chronic stress disrupts immune homeostasis, leading to systemic inflammation and disease vulnerability. These findings underscore the importance of managing chronic stress to mitigate its health impacts.

Implications for Interventions

- **Behavioral Approaches**: Cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR) effectively reduce HPA axis activation (Hofmann et al., 2010).
- **Lifestyle Modifications**: Regular exercise and a balanced diet support stress resilience (Pierce et al., 2012).

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• **Pharmacological Strategies**: Targeting cytokine pathways and cortisol regulation offers potential therapeutic avenues (Khan et al., 2017).

Conclusion

Stress experts profound effects on immune function and systemic health. Acute stress responses are adaptive, providing temporary enhancements to immune readiness and survival mechanisms. However, chronic stress disrupts homeostasis, leading to sustained immune suppression and systemic inflammation that contribute to various chronic diseases. Understanding these mechanisms underscores the importance of early detection, prevention, and targeted interventions to reduce stress-related health risks. These insights also inform public health strategies and individualized therapies, emphasizing the critical role of stress management in maintaining long-term health and well-being.

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Keywords: AutoCAD, drawings, technical areas, drawings, mechanics, models, solid model, surface model, mesh model,.

Abstract: AutoCAD is designed for representatives of the engineering sector in the field of IT technologies to implement automatic calculations in solving engineering problems, to reflect projects in graphics and drawings. The process of working with the AutoCAD program is shown.

AutoCAD — bu kompyuter yordamida chizish va konstruktiv dizayn qilish uchun mo‘ljallangan dasturiy ta’minot bo‘lib, uni Autodesk kompaniyasi ishlab chiqadi. AutoCAD asosan 2D va 3D chizmalar yaratish, loyihalar yaratish va boshqarish uchun keng qo‘llaniladi. Arxitektura, muhandislik, qurilish, mexanika va boshqa texnik sohalarda ishlovchi mutaxassislar uchun eng ommabop chizmachilik dasturlaridan biridir.

AutoCAD dasturining asosiy xususiyatlari:

1. 2D chizmalar yaratish:

Chizg‘ilarni yaratish: AutoCAD foydalanuvchiga chizg‘ilarni, chiziqlarni, doiralarni, uchburchaklarni va boshqa geometrik shakllarni yaratishga imkon beradi. O‘lchovlar qo‘shish- Chizmaga aniq o‘lchovlar kiritish va o‘lchovlar orqali shakllarni va tuzilmalarning o‘zaro aloqalarini ko‘rsatish mumkin.

Bloklar va xususiyatlar- O‘xshash ob’ektlarni tezda ko‘paytirish va joylashtirish uchun "bloklar" (yaxlit elementlar)dan foydalaniladi.

2. 3D model yaratish:

3D chizmalar va modellar: AutoCAD foydalanuvchiga ikki o‘lchovli (2D) chizmalarni uch o‘lchovli (3D) modellarga aylantirish imkonini beradi. Bunda asosan solid modeling, surface modeling va mesh modeling texnikalari qo‘llaniladi.

3D ko‘rinishlarni tekshirish: Modellar yaratilib, ularni turli burchaklardan ko‘rish, o‘zgartirish va tahlil qilish imkoniyatlari mavjud.

3. Ma’lumotlar va texnik spetsifikatsiyalar:

Layer (qatlamlar)- Chizmada turli elementlarni bir nechta qatlamlarga ajratish orqali yanada aniqroq va tartibli chizmalar yaratish mumkin.

Xrefs (tashqi havolalar)- Katta loyihalarda tashqi chizmalarni va fayllarni birlashtirib ishlash mumkin.

Annotatsiyalar- Chizmada matn, belgilashlar va boshqalarni qo‘shish uchun annotatsiya vositalari mavjud.

4. Kuchli tahrir va modifikatsiya vositalari:

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AutoCAD foydalanuvchilarga chizmalarni tahrirlash, ko‘chirish, aylantirish, moslashtirish va o‘zgartirish uchun turli vositalarni taqdim etadi. Bu, masalan, mirror, offset, trim, extend, va fillet kabi komandalardan iborat.

5. AutoLISP va API dasturlash interfeysi:

AutoCADning funksiyalarini avtomatlashtirish va sozlash uchun foydalanuvchilar AutoLISP yoki VBA (Visual Basic for Applications) kabi dasturlash tillaridan foydalanishlari mumkin. Bu yordamida foydalanuvchilar o‘ziga moslashtirilgan skriptlar yaratishlari mumkin.

6. Boshqa dasturlar bilan integratsiya:

AutoCAD boshqa dasturlar bilan integratsiyalashuvni qo‘llab-quvvatlaydi. Masalan, Revit, 3ds Max, Navisworks kabi dasturlardan foydalanib, loyihani yanada rivojlantirish va vizualizatsiya qilish mumkin.

AutoCAD dasturining qo‘llanilishi:

Arxitektura: Bino va inshootlarning rejalari, fasadlar, ko‘priklar va boshqa qurilish dizaynlarini yaratish.

Mexanika va muhandislik: Mexanik qismlarni va mexanizm dizaynlarini yaratish, ishlab chiqarish jarayonlarini modellashtirish.

Qurilish: Qurilish loyihalarini rejalashtirish, materiallar va strukturaviy elementlarning joylashuvini aniqlash.

Ishlab chiqarish- Texnologik jarayonlar, ishlab chiqarish uskunalarini va transport tizimlarini modellashtirish.

Landshaft dizayni: Bog‘lar, yo‘llar, yashil maydonlar va boshqa landshaft elementlarini chizish.

AutoCADning afzalliklari:

Aniqlik va samaradorlik: AutoCAD yordamida yuqori darajada aniqlik va samaradorlik bilan chizmalar yaratish mumkin.

Kengaytirilgan imkoniyatlar: Chizmalarni 3D formatda yaratish, avtomatik ravishda texnik spetsifikatsiyalarni olish, yuqori sifatli vizualizatsiyalar yaratish imkoniyatlari. Global miqyosda qo‘llanilishi: Dunyoning barcha burchaklarida ko‘plab mutaxassislar va kompaniyalar tomonidan ishlatiladi, bu esa global o‘lchamdagi loyihalarni amalga oshirishda yordam beradi. Integratsiya va moslashuvchanlik: AutoCADning boshqa dasturlar bilan integratsiyalashuv imkoniyati va ko‘plab plaginlar yordamida funksiyalarni kengaytirish mumkin.

AutoCADning kamchiliklari-O‘rganish qiyinligi: AutoCADning barcha funktsiyalarini o‘rganish boshlang‘ich foydalanuvchilar uchun qiyin bo‘lishi mumkin. Qimmat narx: AutoCADning litsenziyalari nisbatan yuqori narxlarga ega, bu kichik kompaniyalar yoki mustaqil dizaynerlar uchun muammo bo‘lishi mumkin.Resurslarga talab: AutoCADning kuchli xususiyatlari va 3D model yaratish jarayonlari kompyuterning yuqori texnik ko‘rsatkichlarini talab qiladi.

AutoCAD — bu professional dizaynerlar va muhandislar uchun zarur vosita bo‘lib, 2D va 3D chizmalar yaratish va loyihalarni rivojlantirishda keng qo‘llaniladi. Dastur loyihalarning aniq va samarali ishlab chiqilishi uchun kerakli vositalarni taqdim etadi

AutoCAD dasturida 3D grafiklarni yaratish uchun menyu buyruqlari va turli asboblar orqali ishlash mumkin. Quyidagi amallarni bajarib, 3D modelini yaratishingiz mumkin:

1. 3D ko‘rinishni tanlash:

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ViewCube yordamida 3D ko‘rinishni tanlang yoki "View" menyusidan kerakli ko‘rinishni (Top, Front, Isometric va hokazo) tanlang. "Viewport" orqali ko‘rishni sozlash: View -> Viewport -> 3D View.

2. 3D modellash uchun asosiy buyruqlar: AutoCADda 3D obyektlar yaratish uchun asosan quyidagi buyruqlarni ishlatishingiz mumkin: Box – to‘rtburchaklar prizmasi yaratish: 3D modeling -> Box (yoki buyruq satrida BOX deb yozing).

Sphere – shar yaratish: 3D modeling -> Sphere (yoki buyruq satrida SPHERE deb yozing).

Cone – konus yaratish: 3D modeling -> Cone (yoki buyruq satrida CONE deb yozing).

Cylinder – silindr yaratish: 3D modeling -> Cylinder (yoki buyruq satrida CYLINDER deb yozing).

Extrude – shaklni balandlik bo‘yicha kengaytirish: 3D modeling -> Extrude (yoki buyruq satrida EXTRUDE deb yozing).

Revolve – shaklni aylantirish orqali 3D shakl yaratish: 3D modeling -> Revolve (yoki buyruq satrida REVOLVE deb yozing).

Loft – turli shakllarni birlashtirish: 3D modeling -> Loft (yoki buyruq satrida LOFT deb yozing).

3. 3D modelni manipulyatsiya qilish:

Move – obyektni harakatlantirish: Modify -> Move (yoki buyruq satrida MOVE deb yozing).

Rotate – obyektni aylantirish: Modify -> Rotate (yoki buyruq satrida ROTATE deb yozing).

Scale – obyektni o‘lchamini o‘zgartirish: Modify -> Scale (yoki buyruq satrida SCALE deb yozing).

Mirror – obyektni aks ettirish: Modify -> Mirror (yoki buyruq satrida MIRROR deb yozing).

4. 3D objektni yoritish va materiallar qo‘shish:

Lights – yoritishni sozlash: Visualize -> Lights bo‘limidan kerakli yoritish parametrlarini tanlang.

Materials – materiallar qo‘shish: Visualize -> Materials bo‘limidan materiallarni tanlang va 3D obyektlarga qo‘shing.

5. Rendering:

Render – 3D modelni render qilish: Render -> Render tugmasi orqali tayyor 3D modelni tasvirga olish.

AutoCADda 3D grafiklar yaratish jarayoni ko‘proq geometrik shakllarni qurish, ularni birlashtirish va manipulyatsiya qilishni o‘z ichiga oladi. Yuqoridagi buyruqlar orqali 3D shakllarni yaratib, ularni yaxshilab manipulyatsiya qilib, yakuniy modelni hosil qilishingiz mumkin.

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ОСТЕОМИЕЛИТ ГРУДИНЫ ПОСЛЕ АКШ

Термезский филиал Ташкентской медицинской академии, кафедра пропедевтики внутренних болезней, реабилитологии, народной медицины и эндокринологии, ассистент
Абдураимов Мусурмонбек Мустафоевич

Аннотация: В статье рассматривается остеомиелит грудины как редкое, но серьезное осложнение после аортокоронарного шунтирования (АКШ). Исследуются патофизиология, факторы риска, клинические проявления, современные методы диагностики и лечения. Особое внимание уделяется профилактическим мерам и реабилитации пациентов. Работа направлена на улучшение исходов лечения и снижение частоты данного осложнения.

Ключевые слова: остеомиелит грудины, аортокоронарное шунтирование, инфекционные осложнения, диагностика, антибактериальная терапия, хирургическое лечение.

Введение. Остеомиелит грудины – это инфекционно-воспалительное заболевание, затрагивающее костную ткань грудины и окружающие мягкие ткани. Он встречается как редкое осложнение после АКШ с частотой 0,5–5%. Это состояние характеризуется высокой летальностью (до 25%), длительным лечением и значительными затратами. Основные причины остеомиелита грудины включают:

Инфицирование во время операции.

Нарушение кровоснабжения. Сахарный диабет и иммунодефицитные состояния.

Механизм развития связан с проникновением патогенных микроорганизмов (Staphylococcus aureus, коагулазонегативные стафилококки) в костную ткань через хирургическую рану. Эта статья посвящена анализу факторов риска, диагностических подходов и современных методов лечения остеомиелита грудины.

Материалы и методы. Объекты исследования:

1. Пациенты с остеомиелитом грудины после АКШ (всего 120 случаев за 5 лет).
2. Микробиологические данные раневых выделений.
3. Современные методы диагностики (КТ, МРТ, ПЭТ-КТ).

Методы исследования: 1. Клинический анализ: Выявление факторов риска (возраст, сопутствующие заболевания). Оценка послеоперационных осложнений.

2. Лабораторные исследования: Общий анализ крови (лейкоцитоз, повышение С-реактивного белка). Бактериологическое исследование раневых выделений.

3. Инструментальная диагностика: Компьютерная томография (КТ) для выявления поражений кости.

Магнитно-резонансная томография (МРТ) для оценки мягкотканевых структур. Позитронно-эмиссионная томография (ПЭТ-КТ) с 18F-ФДГ для уточнения очагов воспаления.

4. Лечение: Антибактериальная терапия (эмпирическая и целенаправленная). Хирургическое лечение (дебридмент, реконструкция грудины).

Результаты

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1. Факторы риска: Сахарный диабет (у 40% пациентов). Избыточный вес (BMI >30) у 35% пациентов. Длительность операции (>4 часов) у 28% пациентов. Иммунодефицитные состояния (12% пациентов).

2. Диагностические находки: У всех пациентов был повышен уровень С-реактивного белка (СРБ >10 мг/л) и лейкоцитоз (>12x10⁹/л). КТ выявила участки деструкции грудины у 92% пациентов. МРТ показала отек мягких тканей и наличие гнойных масс.

3. Лечение: 80% пациентов прошли хирургическое лечение (дебридмент, закрытие раны).

Антибиотикотерапия: ванкомицин и пиперациллин/тазобактам оказались наиболее эффективными. В 10% случаев потребовалась повторная операция из-за рецидива инфекции.

4. Исходы: Полное выздоровление у 85% пациентов.

У 10% наблюдались рецидивы инфекции, требующие дополнительного лечения. Летальность составила 5%, что ниже среднестатистического показателя (15–20%). Обсуждение Остеомиелит грудины – это серьезное осложнение, требующее комплексного подхода к лечению.

1. Диагностика: ПЭТ-КТ с 18F-ФДГ позволила с высокой точностью определить очаги инфекции. Комбинация КТ и МРТ обеспечила комплексную визуализацию поражений.

2. Лечение: Эффективная комбинация хирургического дебридмента и целенаправленной антибиотикотерапии позволила снизить частоту рецидивов. Использование локальных антисептиков (например, хлоргексидин) при хирургическом вмешательстве уменьшило риск вторичной инфекции.

3. Профилактика: Оптимизация контроля гликемии у пациентов с диабетом. Укрепление стерильности в операционной. Использование современных технологий (например, негативно-давной терапии для послеоперационной раны).

Заключение

Остеомиелит грудины после АКШ – это редкое, но серьезное осложнение. Своевременная диагностика с использованием современных технологий, таких как ПЭТ-КТ, и комплексный подход к лечению значительно улучшают прогноз. Внедрение профилактических мер и индивидуализированных терапевтических стратегий позволяет снизить заболеваемость и улучшить качество жизни пациентов.

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O‘QUVCHILARDA TEXNOLOGIK KOMPETENSIYALARNI SHAKLLANTIRISHNING O‘ZIGA XOS XUSUSUYATLARI.

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Texnologik ta’lim yo’nalishi talabasi ***Musurmonova Maxfirat Said qizi***

Annotatsiya. Ushbu maqolada o‘quvchilarda texnologik kompetensiyalarni shakllantirishning o‘ziga xos xususiyatlariga oid mulohazlar bayon etilgan.

Аннотация. В данной статье технологические компетенции студентов представлены комментарии об особенностях формирования.

Abstract. In this article, students' technological competencies comments on the specific features of the formation are presented.

Kalit so‘z: kasb, kompetensiya, tehnologiya, talabalar, axborot, mutahassis, ishlab chiqarish, tadqiqot, muhandislik, kompyuter grafikasi

Ключевое слово: компетентность, технологии, студенты, информация, специалист, производство, исследования, инженерия, компьютерная графика

Key words: competence, technology, students, information, specialist, production, research, engineering, computer graphics

Umumiy o‘rta ta’lim maktab o‘quvchilarida texnologik kompetensiyalarni shakllantirish nafaqat muayyan o‘quv fanlari bo‘yicha bilimlarni yuksak darajada o‘zlashtirishni, balki amaliy va ijtimoiy faoliyatda faol ishtiroketishga tayyorlashni ham nazarda tutadi.

Globallashuv sharoitida maktab o‘quvchilarida texnologik kompetensiyalarni shakllantirishni sifat jihatdan yangi bosqichga ko‘tarish, texnologiya fani mazmunini takomillashtirish muammosi o‘quvchilarni texnologik faoliyatga tayyorlash, amaliy faoliyatning turli sohalarida ularda shaxsiy mehnat tajribasi va faoliyat ko‘nikmalarini shakllantirishning dolzarbligi bilan uzviy bog‘liq.

Maktab o‘quvchilarida texnologik kompetensiyalarni shakllantirishninghozirgi holatini o‘rganish natijalari shundan dalolat beradiki, texnologikta’lim va o‘quv jarayonini moddiy ishlab chiqarish ehtiyojiga yo‘naltirishustuvor ahamiyat kasb etadi. O‘zbekiston ta’lim muhitida maktab o‘quvchilarida texnologik kompetensiyalarni shakllantirishtizimini rivojlantirish ularni amaliyotga yo‘naltirib o‘qitishning yagona tizimini shakllantirishni, shuningdek, faoliyatning turli sohalarida moddiy va ma’naviy qadriyatlarni yaratishni ko‘zda tutadi. Shu bilan birga, ta’kitlash joizki, jamiyatdagi ijtimoiy-iqtisodiy o‘zgarishlar kontekstida ayni muammo nazariy va amaliy jihatdan hali o‘z yechimini to‘la topgani yo‘q, chunkita’lim tizimining turg‘unligi (stagnatsiyasi) sharoitda o‘quvchilarda texnologik kompetensiyalarni shakllantirish masalasiga yetarlicha e’tibor berilmadi. Holbuki, yangi kiritilgan texnologiya fani maktabda integrallashtiruvchi, tizim hosil qiluvchi pozitsiyani egallash imkoniga ega.

O‘zbekiston Respublikasining “Ta’lim to‘g‘risida”gi qonunida umumiy o‘rta ta’limni isloh qilishning muhim yo‘nalishlaridan biri kadrlar tayyorlash sifatini oshirish ekanligi qayd etib o‘tilgan. Texnologiya fani ushbu yo‘nalishda muhimo‘rin tutadi. Ishlab chiqilgan me’yoriy-

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huquqiy hujjatlarga muvofiq, maktabda texnologiya fanini o‘qitish maqsadi o‘quvchilarningtexnik-texnologik va operatsionbilim, ko‘nikma, malakalarini rivojlantirish, texnologik kompetensiyalarini shakllantirishdan iborat. Ushbu masalalar ilmiy-texnika talablariga muvofiq ravishda texnologiya fani asoslarini o‘rganishda, o‘quvchilarning salomatligi holati, yoshi va individual xususiyalarini hisobga olgan holdaularni ijtimoiy foydali mehnatga jalb etishda, sinfdan tashqari ishlarda texnologik ta’lim va mehnat tarbiyasining uzviy birligi asosida hal etiladi,

Innovatsion yondashuv asosida o‘quvchilarda texnologik kompetensiyalarni shakllantirish muammosi hozirgi sharoitda ijtimoiy-iqtisodiy, psixofiziologik va psixologik-pedagogik yondashuvlar birligi asosida joriy etilishi maqsadga muvofiq.

Pedagog olimlarning fikricha innovatsiya (yangilik) – bu faoliyatning

turli sohalariga yangiliklarni tatbiq etish jarayoni. Hozirgi zamon ta’lim tizimida pedagogik jarayonlar ikki turdan tashkil topgan: innovatsion va an’anaviy pedagogik jarayonlar.

Ta’limdagi innovatsiya – bu maqsadga yo‘naltirilgan yangilik bo‘lib, uning maqsadi ta’limda barqaror va ancha samarali natijaga erishishdir.

Innovatsion yondashuv ta’lim mazmunini ishlab chiqarish jarayonidagi yangi texnika va texnologiya elementlari bilan boyitish, ta’lim jarayoniga innovatsion ta’lim va zamonaviy axborot texnologiyalarini joriy etish va ulardan amalda foydalanishni bildiradi.

Pedagogik innovatsiya – bu nazariy jihatdan asoslangan, maqsadga va amaliyotga yo‘naltirilgan mazmun, metod, shakl va vositalar majmuasi. U makrodaraja, mezodaraja va mikrodarajalarda amalga oshiriladi. Makrodarajadagi innovatsiya butun ta’lim tizimidagi o‘zgarishlarga daxldor va bu uning paradigmalari o‘zgarishlariga olib keladi, mezodarajadagi innovatsiya ta’lim muhitidagi o‘zgarishlarga yo‘naltiriladi, mikrodarajadagi innovatsiyada o‘quv fani, yoki fanlar bloki (masalan, texnologiya o‘quv fanining yangi mazmunini ishlab chiqish; yoki ta’lim jarayonini tuzilmalashtirishning yangi usullarini, yangi texnologiyalarni, o‘qitishning yangi shakl va metodlarini ishlab chiqishga) e’tibor qaratiladi.

Bizning pedagogik tadqiqotimiz kontekstida mikrodarajadagi innovatsiyalar o‘rganildi va takomillashtirildi.

Innovatsion yondoshuv asosida tashkil etiladigan texnologik ta’limning birinchi yo‘nalishi bu – amaliy faoliyatning turli shakllarida nazariy bilimlarni qo‘llash asosida ilmiy texnologik dunyoqarashni shakllantirish.Ikkinchi yo‘nalishi – amaliy mehnat ko‘nikmalarini shakllantirishga qaratilgan texnologik ta’lim, uchinchi yo‘nalishi – o‘quvchilarni doimiy ravishda ijtimoiy foydali mehnatga jalb etish. Bunda o‘quvchilarning o‘quv-bilish, mehnat va ijtimoiy faolligining birligi hal qiluvchi ahamiyatga ega bo‘ldi. Texnologik ta’limning to‘rtinchi yetakchi yo‘nalishida mehnat va umumtexnologik tayyorgarlikning umumiy asosi hisoblanmish bilim, mehnat faoliyati ko‘nikma va malakalarning uzviy birligini ta’minlash nazarda tutiladi.

Tadqiqot doirasida o‘quvchilarda texnologik kompetensiyalarni shakllantirish jarayoni deganda quyidagilarni nazarda tutildi:pedagogik tizimning barcha komponentlari (maqsadlar, vazifalar, mazmunlar, shakllar, metodlar, mezonlar, ko‘rsatkichlar, yo‘nalishlar va belgilangan natijaga erishning shart-sharoitlari)ning o‘zaro bog‘liqligi; texnologik ta’limning umumiy va maxsus komponentlarining o‘zaro bog‘liqligi; o‘quvchilarni o‘quv amaliy faoliyatning turli sohalari va bo‘limlariga turli mehnat predmetlari orqali jalb etish; o‘quvchilarning ehtiyoj va qobiliyatlariga ko‘ra o‘quv faoliyatini turli darajalarda tashkil etish; umumiy ta’limning butun

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tizimi asosini tashkil etuvchi fundamental bilimlar asosida o‘quvchilarda texnologik kompetensiyalarni shakllantirish; barcha ta’lim sohalarining ajralmas tashkil etuvchisi va umumiy ta’limning tizim hosil qiluvchi elementi sifatida o‘quvchilarning texnologik kompetensiyalarinianiqlash; mehnatning ijtimoiy bo‘limlari tuzilishi amaliy faoliyatning barcha turlari va shakllariga o‘quvchilarni jalb etish; o‘quv vositalari, sinfdan tashqari o‘quv faoliyati, qo‘shimcha (to‘garaklar) va mustaqil ta’limning o‘zaro bog‘liqligi; texnologik ta’limning barcha bosqichlarida o‘quvchilarda texnologik kompetensiyalarni shakllantirishning o‘zaro bog‘liqligi va uzluksizligi; o‘quvchilarning ko‘p bosqichli, ko‘p darajali, ijodiy texnologik kompetensiyalarini pedagogik ta’minlash.

Innovatsion yondashuv asosida 5-7-sinf o‘quvchilarida texnologik kompetensiyalarni shakllantirishning nazariy va amaliy asoslarini tahlil etish natijasida texnologik ta’lim samaradorligini oshirishning qator imkoniyatlari aniqlashtirildi. Bu esa o‘quvchilarda texnologik kompetensiyalarni shakllantirishning tashkiliy-pedagogik modelini, texnologik ta’limning metod va shakllarini ishlab chiqishda g‘oyaviy asos bo‘ldi.

O‘qitish mazmuniga quyilgan quyidagi talablar aniqlandi: ilmiy-texnika taraqqiyotining ustuvor yo‘nalishlarini aks ettirish zarurligi (ilg‘or texnologik jarayonlar, axbrot-kommunikatsiya texnologiyalari, sanoat mahsulotlarining yangi turlarini o‘zlashtirish); yangi texnologik jarayonlar va yangi texnikalarni o‘rganishdagi izchillik, materiallarni an’anviy qayta ishlash usullarini zamonaviylari bilan qiyoslash, umumiylik va alohidalikni aniqlash, qiyoslash, tahlil qilish; umumiy o‘rta ta’lim predmetlari va texnologik ta’lim mazmunining o‘zaro bog‘liqligi; zamonaviy ishlab chiqarishda qayta ishlashning texnologik usullarining qo‘llanilishi; o‘quvchilarni kasbga yo‘naltirish imkoniyati.

Maktab o‘qituvchilari, rahbarlari bilan o‘tkazilgan so‘rovnoma natijalari, texnologiyafani o‘qituvchilarini o‘qitish tajribasi shundan dalolat beradiki, texnologik ta’limni amalga oshirish borasida ularning nazariy va uslubiy tayyorlanganligi yetarli darajada emas ekan. Tajriba-eksperimental ishning borishida texnologiya, fizika, matematika, kimyo, biologiya, informatika o‘qituvchilariga anketa savollariga javob berish taklif qilindi.

Olingan javoblar tahlilidan quyidagilar ma’lum bo‘ldi: so‘rovnomada 47% o‘qituvchi qatnashgan bo‘lib, ularning 31% “texnologik ta’lim” va “mehnat ta’limi” tushunchalarini bir-biriga o‘xshatadi; ishtirokchilarning 30% “texnologik tayyorgarlik” tushunchasi mazmunini aniq tasavvur qila olmaydi; faqat so‘rovnomada ishtirok etgano‘qituvchilarning 30% darsning barcha turlarida texnologik tayyorgarlikning didaktik vazifalarini hal etish mumkinligini ta’kidlaydi; 33% o‘qituvchi o‘quvchilarning texnologik tayyorgarligi masalalarni yechish darslarida, laboratoriya ishlarida yanada samarali bo‘ladi, deb hisoblaydi; o‘qituvchilarning 22% yangi materialni tushuntirish jarayonida texnologik materiallarni kiritish yanada samarali ekanligini qayd etadi; faqatgina 35% o‘qituvchi fanlararo aloqadorlikni maktab o‘quvchilari texnologik tayyorgarligining zaruriy sharti sifatida e’tirof etadi, shuningdek, ularni amalga oshirishning ba’zi usul va yo‘llarini ham tavsiya etadi.

Ko‘pgina o‘qituvchilar o‘quvchilarning faol bilish faoliyatini tashkil qilish, ishlab chiqarish mazmunidagi masalalarni tuzish, ishbilarmonlik o‘yinlarini va laboratoriya mashg‘ulotlarini o‘tkazish, texnologik yo‘nalishdagi ekskursiyalarni tashkil qilish maqsadida turli xil darslarda texnologik tayyorgarlik bo‘yicha didaktik vazifalarni to‘liqhal eta olmaslik holatlarini

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ham ta'kidlab o'tadilar.1.2-jadvalda o'qituvchilarning o'quvchilarda texnologik kompetensiyalarning shakllanishini mustaqil baholash haqidagi ma'lumotlar keltirilgan.

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СИСТЕМНЫЕ ПОДХОДЫ К ОБУЧЕНИЮ ИНВЕРСИИ СЛОВ В РУССКОМ И АНГЛИЙСКОМ ЯЗЫКАХ.

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АННОТАЦИЯ

Цель данной работы рассмотреть основные способы инверсии слов в русском и английском языках. Дать перечень упражнений, которые помогут учащимся лучше понять и освоить инверсию слов в русском и английском языках, улучшая их грамматические и стилистические навыки.

ANNOTATION

The aim of this paper is to examine the main ways of word inversion in Russian and English. To give a list of exercises that will help students to understand and master word inversion in Russian and English, improving their grammatical and stylistic skills.

Ключевые слова: перестановка; механизм; инверсия; акцент; рифма; ритм; художественная выразительность; риторический вопрос; перифраза.

Keywords: transposition; mechanism; inversion; accent; rhythm; rhyme; artistic expressiveness; rhetorical question; periphrasis.

Термин «инверсия» происходит от латинского *inversio*, что означает «перестановка» или «переворот». В русский язык это слово пришло через немецкий в XIX веке, хотя сам принцип инверсии можно обнаружить еще в народных сказаниях и древнейших текстах. На сегодняшний день инверсия — это хорошо изученное явление. Первоначально этому феномену начали уделять внимание лишь в XX веке. Среди первых исследователей инверсии можно выделить таких ученых, как И. Р. Гальперин, И. В. Арнольд, А. Н. Мороховский. Позднее этим вопросом занимались В. Н. Комиссаров и А. Ф. Смирницкий. Существуют различные виды инверсии, которые связаны с изменением порядка слов в предложении.

Например, глагол может быть размещен перед подлежащим (существительным), прилагательное — после подлежащего или разделенное другими словами, а дополнение — до сказуемого.

Изменение порядка слов может служить нескольким целям:

Эмоциональная выразительность — инверсия помогает выразить чувства, удивление или восхищение.

Акцентирование внимания — с помощью инверсии можно выделить важные части предложения, делая их более заметными для читателя или слушателя.

Стилистический эффект — инверсия используется для создания определенного стиля, особенно в поэзии или риторике.

Логическое выделение — изменение порядка слов помогает акцентировать значимость определенного элемента в предложении.

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Если в русском языке порядок слов можно изменять довольно свободно, изменяя, например, окончания, то в английском языке такая перестановка часто приводит к изменению смысла.

Например:

«The pupil read the newspapers» — «Ученики читают газету», *«The newspapers read the pupils»* — «Газеты читают учеников». Тем не менее, существуют ситуации, когда порядок слов в английском предложении можно изменить без ущерба для смысла. Обычно это происходит в художественной литературе, когда автор стремится подчеркнуть важное слово или сделать фразу более эмоциональной, и такие изменения не считаются ошибкой.

В английском языке принято выделять три основных типа инверсии: грамматическую, стилистическую и усилительную. Наиболее распространена грамматическая инверсия. Инверсия также исследуется с точки зрения ее функций в тексте. Одной из наиболее популярных классификаций функций инверсии является та, что предложена А. Ф. Смирницким. Он выделяет три главные функции: грамматическую (порядок слов помогает выражать синтаксические отношения), лексическую (порядок слов отображает подлежащее и сказуемое) и экспрессивно-стилистическую. В реальности порядок слов часто выполняет несколько функций одновременно.

Инверсия играет важную роль в обоих языках — русском и английском, и требует особого подхода в обучении, который должен учитывать языковые особенности каждого из них. Рассмотрим ключевые методы обучения инверсии.

I. Изучение основного порядка слов:

Русский язык отличается высокой гибкостью в расположении слов благодаря системе падежей, которые указывают на их синтаксические функции в предложении. Это позволяет изменять порядок слов, не нарушая смысла. Ключевым этапом освоения перестановки слов является понимание падежей и их роли в предложении.

Пример:

Исходный вариант: "Мальчик читает книгу."
Изменённый: "Книгу читает мальчик."

В отличие от русского языка, в английском порядок слов фиксирован (SVO — подлежащее, сказуемое, дополнение). Это обусловлено тем, что английский язык не имеет такой системы падежей и в большей степени зависит от порядка слов для установления синтаксических отношений. Следовательно, обучение английскому языку начинается с усвоения стандартной структуры предложений.

Пример:

Исходный вариант: "He goes to school."
Неверная перестановка: "Goes he to school."

II. Использование инверсии:

В русском языке инверсия часто применяется для выделения отдельных элементов предложения, увеличивая выразительность речи или акцентируя внимание на важной части высказывания.

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Пример инверсии для акцента:

Обычный порядок:

Он пошел в магазин.

С инверсией:

В магазин пошел он.

Здесь инверсия помогает выделить место действия (в магазин), а не субъекта (он).

Инверсия часто встречается в поэзии, поскольку она способствует улучшению выразительности текста и помогает подобрать рифму.

Примеры инверсии в литературных произведениях:

1. Подлежащее расположено перед сказуемым:
   - "Роняет лес багряный свой убор" (А. С. Пушкин)
   - "Прилег вздремнуть я у лафета, И слышно было до рассвета, Как ликовал француз" (М. Ю. Лермонтов)
   - "Заколдован невидимкой, Дремлет лес под сказку сна" (С. А. Есенин)
2. Определения следуют после определяемого слова:
   - "Белеет парус одинокий в тумане моря голубом!" (М. Ю. Лермонтов)
   - "Год прошел, как сон пустой, Царь женился на другой." (А. С. Пушкин)
   - "Кто скачет, кто мчится под хладною мглой? Ездок запоздалый, с ним сын молодой." (А. М. Жуковский)
   - "Теперь один старик седой, Развалин страж полуживой." (М. Ю. Лермонтов)
   - "На меня она имела влияние сильное." (И. С. Тургенев)
3. Дополнения располагаются перед глаголом:
   - "Из гроба тогда император, Очнувшись, появляется вдруг." (М. Ю. Лермонтов)
4. Обстоятельства предшествуют поясняемому слову:
   - "Трудами ночи изнурен, Я лег в тени." (М. Ю. Лермонтов)

Инверсия — это распространённое явление в английском языке, особенно в литературе. Она часто применяется для создания выразительности, при этом ключевой элемент предложения перемещается в конец. Такой порядок вызывает у читателя особое напряжение и ожидание, поскольку традиционное расположение главного элемента в начале предложения отсутствует. Это создает эффект задержки и делает восприятие более интенсивным.

Примером активного использования инверсии является рассказ Рея Бредбери "Странница" («The Traveller»), в котором инверсия играет ключевую роль. Особое внимание стоит уделить конструкции с оборотами there is / there are, а также инверсии в вопросительных предложениях.

Примеры инверсии с оборотом "there is / there are":

- "And, well, there are six hundred other things —!"
- "And there was a grocery that was all fruity shadow and dusty boxes and the smell of an old Armenian woman, which was like the odour of a rusty penny."

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В этих предложениях инверсия служит для усиления образности, создавая уникальную атмосферу. Структура предложения смещена, что помогает акцентировать внимание на деталях и создаёт ощущение присутствия в событии.

Кроме того, инверсия в английском языке активно используется в вопросах, что превращает обычное утверждение в более динамичное и выразительное.

Например:

- "Where would she go today?"
- "Am I too late?" he demanded hoarsely, sobbing.
- "Is she gone?"
- "That was Uncle Jonn!" said the littlest girl, breathless.

Интересным является тот факт, что в предложении "That was Uncle Jonn!" слова автора расположены после прямой речи. Некоторые исследователи утверждают, что такие предложения схожи по структуре с теми, где на первом месте стоят обстоятельства, как в случае с стилистической инверсией. В таких случаях инверсия не только меняет структуру, но и служит для акцентирования внимания на субъекте или предмете, усиливая эмоциональную окраску.

В общем, инверсия в английском языке служит не только для создания вопросительных предложений, но и для акцента на важных элементах текста, что особенно ярко проявляется в произведениях литературы.

III. Практическое применение инверсии:

А) Практические упражнения на перестановку слов в русском языке помогут учащимся лучше понять гибкость русского синтаксиса и научиться использовать изменения порядка слов для достижения различных риторических и стилистических целей:

1. Перестановка слов для акцента:

Задание. Переставьте слова так, чтобы акцент был на разных элементах предложения.

Пример: Оригинал: “Мальчик прочитал интересную книгу.”

Акцент на мальчике: “Мальчик интересную книгу прочитал.”

Акцент на книге: “Интересную книгу прочитал мальчик.”

Акцент на действии: “Прочитал мальчик интересную книгу.”

2. Анализ литературных текстов:

Задание. Проанализируйте отрывок из литературного произведения, выявите примеры инверсии и обсудите, как они влияют на восприятие текста.

Пример: Отрывок: "Шумит река, под тёмными лесами течёт она."

Анализ: Почему автор выбрал такой порядок слов? Как это влияет на атмосферу и ритм текста?

3. Вопросительные предложения:

Задание: Преобразуйте утвердительные предложения в вопросительные, используя инверсию.

Пример: Оригинал: "Ты придёшь завтра на встречу."

Вопрос: "Придёшь (ли) ты завтра на встречу?"

4. Перефразирование с сохранением смысла.

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Задание: Переставьте слова в предложении, сохранив смысл и грамматическую правильность.

Пример: Оригинал: "Учитель объяснил правило ученикам."

Вариант 1: "Правило ученикам объяснил учитель.

Вариант 2: "Ученикам объяснил учитель правило."

5. Создание риторических вопросов.

Задание: Преобразуйте утвердительные предложения в риторические вопросы, используя инверсию.

Пример: Оригинал: "Мы сможем это сделать."

Риторический вопрос: "Сможем ли мы это сделать?"

6. Поэтическая инверсия.

Задание: Напишите небольшое стихотворение или прозу, используя инверсию для создания ритма и художественной выразительности.

Пример: Обычный порядок: "Звёзды светят на небе."

Инверсия: "На небе звёзды светят."

7. Контекстуальные упражнения.

Задание: Измените порядок слов в предложении так, чтобы изменить акцент или эмоциональный оттенок.

Пример: Оригинал: "Она с радостью принимала гостей."

Изменение акцента: "С радостью принимала она гостей."

Изменение эмоционального оттенка: "Гостей принимала она с радостью."

8. Воссоздание исходного порядка.

Задание: Верните предложение с инверсией к исходному порядку.

Пример: Инверсия: "С утра шёл снег."

Обычный порядок: "Снег шёл с утра."

Б) Практические упражнения на перестановку слов в английском языке помогут учащимся овладеть навыками изменения порядка слов для различных целей: акцентуации, стилистических эффектов, формирования вопросов и т.д:

1. Вопросительные конструкции.

Задание: Преобразуйте утвердительные предложения в вопросительные, используя инверсию.

Пример: Оригинал: "She can swim."

Вопрос: "Can she swim?"

Задание:

The cat is on the roof. (Is the cat on the roof?)

They will finish the project tomorrow. (Will they finish the project tomorrow?)

2.Инверсия с отрицательными и ограничительными выражениями.

Задание: Преобразуйте предложения с отрицательными и ограничительными выражениями, используя инверсию.

Пример: Оригинал: "I have never seen such a beautiful sunset."

Инверсия: "Never have I seen such a beautiful sunset."

He had rarely been so angry. (Rarely had he been so angry.)

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She had scarcely arrived when the phone rang. (Scarcely had she arrived when the phone rang.)

3. Условные предложения.

Задание: Перепишите условные предложения, используя инверсию вместо "if".

Пример: Оригинал: "If I were you, I would go."

Инверсия: "Were I you, I would go."

If he had known, he would have acted differently. (Had he known, he would have acted differently.)

If they should require assistance, they will call. (Should they require assistance, they will call.)

4. Литературная и поэтическая инверсия.

Задание: Переставьте слова в предложении для создания литературного или поэтического эффекта.

Пример: Обычный порядок: "The night was dark and stormy."

Инверсия: "Dark and stormy was the night."

The wind was howling through the trees. (Howling through the trees was the wind.)

The stars shone brightly in the sky. (Brightly in the sky shone the stars.)

5. Перефразирование для акцента.

Задание: Переставьте слова в предложении так, чтобы акцент был на разных элементах предложения.

Пример: Оригинал: "She quickly ran to the store."

Акцент на скорости: "Quickly she ran to the store."

Акцент на действии: "Ran to the store she quickly did."

The teacher explained the concept clearly. (Clearly the teacher explained the concept.)

They completed the task with great effort. (With great effort they completed the task.)

6. Перевод с инверсией.

Задание: Переведите предложения с другого языка, используя инверсию для сохранения акцента и стиля.

Пример: Русский: "Редко я видел такую красоту."

Перевод с инверсией: "Rarely have I seen such beauty.

7. Анализ литературных текстов.

Задание: Проанализируйте отрывок из литературного произведения, выявите примеры инверсии и обсудите, как они влияют на восприятие текста.

Пример: Отрывок: "In the dark of night stood the ancient oak, its branches whispering secrets of old."

Анализ: Почему автор выбрал такой порядок слов? Как это влияет на атмосферу и ритм текста?

Выберите отрывки из произведений и обсудите инверсию, которую использовал автор, ее цель и эффект.

8. Воссоздание исходного порядка.

Задание: Верните предложение с инверсией к исходному порядку.

Пример: Инверсия: "Under the bridge lies a forgotten treasure."

Обычный порядок: "A forgotten treasure lies under the bridge."

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High on the hill was a lonely cottage. (A lonely cottage was high on the hill.)

Near the river grows a majestic willow. (A majestic willow grows near the river.)

9. Создание риторических вопросов.

Задание: Преобразуйте утвердительные предложения в риторические вопросы, используя инверсию.

Пример: Оригинал: "We can achieve great things together."

Риторический вопрос: "Can we not achieve great things together?"

They are capable of such feats. (Are they not capable of such feats?)

This is the best solution. (Is this not the best solution?)

Обучение инверсии должно строиться на системном понимании её функциональности и использования в обоих языках. Важно, чтобы учащиеся осознавали, что инверсия — это не просто изменение порядка слов, но и способ изменения акцента в предложении, что влияет на восприятие информации. Важно адаптировать учебные материалы таким образом, чтобы учащиеся могли на практике увидеть различия в инверсии между языками и усвоить её использование в различных контекстах.

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СТАТИЧЕСКИ НЕОПРЕДЕЛИМЫЕ СТЕРЖНЕВЫЕ СИСТЕМЫ

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Стержневая система, в которой все или часть внутренних силовых факторов не могут быть вычислены только при помощи уравнений статики, называется статически неопределимой.

Степень статической неопределимости системы характеризуется числом неизвестных усилий, превышающим число уравнений статики для твердого тела. Для определения этих усилий составляются дополнительные уравнения на основе рассмотрения схемы деформирования системы. Уравнения статики и дополнительные уравнения деформирования системы позволяют найти все неизвестные усилия в стержневой статически неопределимой системе.

Метод решения статически неопределимых задач продемонстрируем на примере.

Пример 1. Для системы, расчетная схема которой приведена на рис.1.1, а, определить напряжения в стержнях при заданных значениях нагрузки. Исходя из условий прочности наиболее нагруженного стержня, найти предельную нагрузку.

Дано: $F = 100$кН; $A_1 = 10$ см^2; $A_2 = 15$ см^2, $l_1 = 1$ м; $l_2 = 2$ м;

$R = 210$ МПа; $E = 2 \cdot 10^5$МПа, $a = 3$м, $b = 3$м, $c = 3$м, $\alpha_1 = 90^\circ$, $\alpha_2 = 60^\circ$

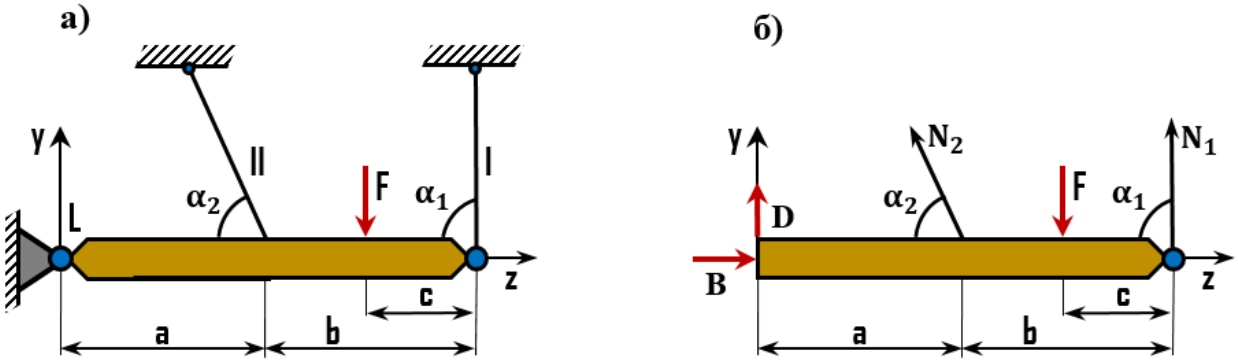

Рис. 1.1. Расчетная схема статически неопределимой стержневой системы.

Решение. Для определения неизвестных опорных реакций (рис.1.1, б) записываем уравнения статики:

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$$\begin{cases} \sum Z = B - N_2 \cdot 0{,}5 = 0 \\ \sum Z = B - N_2 \cdot 0{,}5 = 0 \\ \sum M_L = 100 \cdot 10^3 \cdot 3{,}5 - N_1 \cdot 4 - N_2 \cdot 3 \cdot 0{,}866 = 0 \end{cases}$$

В этих уравнениях четыре неизвестных: B, N_1, D, N_2. Поэтому необходимо составить ещё одно уравнение.

С этой целью рассмотрим схему деформирования системы (рис.1.2). Из треугольника находим:

$$ab = \frac{cb}{\sin 60^\circ} = \frac{\Delta l_2}{\sin 60^\circ}.$$

Из подобия треугольников dLf и aLb следует зависимость между Δl_1 и Δl_2:

$$\frac{\Delta l_1}{Ld} = \frac{\Delta l_2}{\sin 60^\circ La}$$

Учитывая, что

$$\Delta l_1 = \frac{N_1 \cdot l_1}{EA_1}, \qquad \Delta l_2 = \frac{N_2 \cdot l_2}{EA_2},$$

получаем уравнение деформации системы-четвертое уравнение для определения неизвестных опорных реакций.

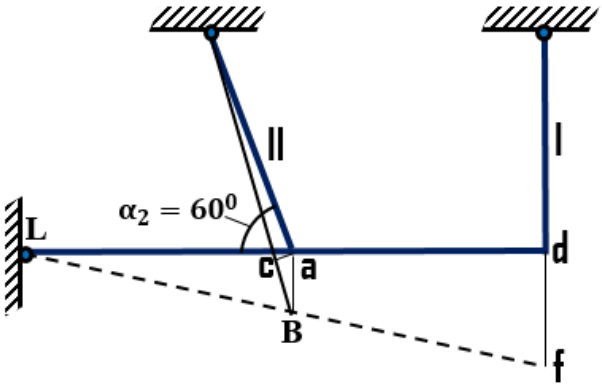

Рис. 1.2. Схема деформирования статически неопределимой стержневой системы.

Задачу по вычислению опорных реакций системы можно упростить, если находить лишь продольные силы в её стержнях. Эти силы определяем в результате решения уравнений:

$$\begin{cases} \sum M_L = 100 \cdot 10^3 \cdot 3{,}5 - N_1 \cdot 4 - N_2 \cdot 3 \cdot 0{,}866 = 0. \\ \dfrac{N_1 \cdot l_1}{EA_1 Ld} = \dfrac{N_2 \cdot l_2}{EA_2 \sin 60^\circ La} \end{cases}$$

или

$$\begin{cases} 4N_1 + 2{,}6N_2 = 350 \cdot 10^3 \\ 250N_1 - 513{,}32 \cdot N_2 = 0 \end{cases}$$

Получаем:

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$N_1 = 66{,}47$ кН;

$N_2 = 32{,}38$ кН.

Находим напряжения в стержнях:

$$\sigma_1 = \frac{N_1}{A_1} = \frac{66{,}47 \cdot 10^3}{10 \cdot 10^{-4}} = 6.647 \cdot 10^7 = 66{,}47 \text{ МПа} < R$$

$$\sigma_2 = \frac{N_2}{A_2} = \frac{32{,}38 \cdot 10^3}{15 \cdot 10^{-4}} = 2.159 \cdot 10^7 = 21{,}59 \text{ МПа} < R$$

Определяем предельную нагрузку F_{adm} на стержневую систему. Для этого вычисляем отношение.

$$\frac{N_1}{N_2} = \frac{66{,}47 \cdot 10^3}{32{,}38 \cdot 10^3} = 2{,}05$$

Находим предельные продольные силы в стержнях:

$$RA_1 N_{1adm} = 210 \cdot 10^6 \cdot 10^{-4} = 210 \cdot 10^3 \text{ Н} = 210 \text{ кН};$$

$$RA_2 N_{2adm} = 210 \cdot 10^6 \cdot 1{,}5 \cdot 10^{-4} = 315 \cdot 10^3 \text{ Н} = 315 \text{ кН}.$$

Принимаем $N_1 = N_{1adm} = 210$ кН. Тогда

$N_2 = \frac{N_1}{2{,}05} = \frac{210 \cdot 10^3}{2{,}05} = 102{,}44 \text{ кН} < N_{2adm}$

Значения N_1 и N_2 подставляем в уравнение $\sum M_L = 0$:

$$\sum M_L = F_{adm} \cdot 3{,}5 - 210 \cdot 10^3 \cdot 4 - 102{,}44 \cdot 10^3 \cdot 3 \cdot 0{,}866 = 0,$$

решив которое, находим $F_{adm} = 316{,}04$ кН. Следовательно, нагрузку на стержневую систему можно увеличить в

$\frac{F_{adm}}{F} = \frac{316{,}04 \cdot 10^3}{32{,}38 \cdot 10^3} = 3{,}16$ раза.

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AESTHETIC DENTISTRY AND ITS HISTORICAL EVOLUTION

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Summary. The paper studies visual appeal dental science as an independent field with its own history of advancement, theoretical basis, also presents the stages of advancement of visual appeal dental science in historical aspect, describes odontological parameters, history of teeth whitening, qualitative characteristics of dental color, stages of advancement of filling substances, visual appeal constructions.

Keywords: color formation, fillings, teeth whitening, visual appeal designs, visual appeal dental science.

The active advancement of technical means and substances science for dental science has determined the rapid introduction of new clinical methods for the restoration of teeth and dentition defects. The high efficiency of visual appeal structures turned out to be attractive to patients, which stimulated most dentists to master and use modern substances in practice, primarily light-curing composites. In the current situation of mass use of photopolymers, as well as various auxiliary means, devices, devices, the shortage of basic theoretical and scientific knowledge in the field of shape formation and color science becomes noticeable. The separation of visual appeal dental science into a separate branch of dental science and practice allows us to increase the level of theoretical training and practical skills of specialists working in the field of visual appeal restoration.

Historical aspects of the advancement of visual appeal dental science. The advancement of visual appeal dental science is closely related to the history of mankind. Anatomists, artists, sculptors and doctors sought to measure the human body and face and find their optimal proportions. Thanks to this, canons began to appear (literally “prescription”) - a set of artistic techniques or rules. Each canon was based on a module - the size of any part of the human body or face. In Egyptian art, the module was the distance from the sole to the ankle of the leg, in ancient Greek it was the height of the head, and the length of the body was an eightfold increase in the module. According to the canon of Polykleitos of Sikyon, corresponding to the modern term “physiognomic height of the face,” in a harmoniously developed body, the height of the face should be 10 times. In the statues created by Lysippos, the height of the face was placed 9 times, and the height of the body was equal to the distance between the ends of the fingers of outstretched hands. This ratio is called the “square of the ancients.”

In modern conditions, Nacagawa and Yamamoto have proposed ways to assess the color and transparency of dental tissues. E.A.Hegenbart, Ch.Gran described the differences between

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dental enamel and ceramic substances. Adrian et al. studied the correspondence of the color of substances to their standards. G. Ubassi, based on the theory of the optical properties of enamel, developed recommendations for dental technicians.

Throughout the history of society, pearly white teeth have been considered an integral part of human beauty.

In the literature there are tips on teeth whitening for certain types of pigmentation. Thus, I.G. Lukomsky (1960) recommended removing dense colored plaque by scraping with an excavator, machine cleaning with a brush with pumice and hydrogen peroxide. It was recommended to remove smoker's plaque using iodine tincture, hydrogen peroxide, pumice, and also machine brushing of teeth. Pigmentation due to fluorosis was eliminated by applying decalcifying agents to the dental crown. E.V. Borovsky (1973) described a whitening method by exposing the enamel to a saturated solution of organic acids (citric, tartaric) or a 10% solution of hydrochloric acid until pigmentation disappears. After this, the dental is treated with soda paste and polished with a composition of pumice or phosphate cement powder mixed with glycerin. T.F. Vinogradova proposed a method for lightening “tetracycline stains” with hydrogen peroxide, hydroperite, and perhydrol. Nonspecific systemic hypoplasia was subjected to remineralization therapy followed by fluoride varnish coating. For hypoplasia of the incisal edge, gradual grinding of the enamel in small portions with remineralizing therapy after each preparation was recommended.

In the late 1980s, Haywood and Heyman introduced the technique of “dentist-prescribed, patient-administered overnight, intravital safe whitening.” The American Dental Association (ADA) in the 90s proposed a program for the advancement and use of substances containing hydrogen peroxide in the form of three types of dental products: commercial antiseptics; bleaches, usually containing 3% hydrogen peroxide (10% carbamide peroxide); dentalpastes (powders) with low concentrations of hydrogen peroxide or calcium hydroxide.

The population's demand for teeth whitening has increased significantly in recent years. At the same time, the number of doctors recommending vital whitening is increasing.

Shape formation and color science as a theoretical basis for visual appeal dental science. One of the main concepts of modern dental science is the visual appeal function of the dental. It implies harmony of size, shape, relief, position of the dental in the arch; optical properties of dental tissues, including a special range of color shades, fluorescence, opalescence and gloss of enamel.

Mathematical terms are used to describe the anatomical characteristics of a dental. Surfaces are compared to flat geometric figures, and shapes and relief are compared to volumetric bodies. Flat figures are formed by points located on the same plane. A circle is defined as a set of points on a plane that are equidistant from the center. An oval is an elongated circle, and a regular oval is an ellipse.

Plane figures with angles are polygons: triangles, quadrangles, etc. A quadrilateral with two pairs of parallel sides is a parallelogram, which is considered a rectangle if all its angles are right angles. A square is a rectangle with all sides equal.

Even a minimum of knowledge in the field of mathematics allows us to describe the basic geometric shapes of dental surfaces as flat figures. In rectangular teeth, the transverse dimensions of the vestibular surface in the gingival, equatorial region and at the cutting edge are close in value. The lateral surfaces are almost parallel, the length of contact with adjacent teeth is significant.

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With a triangular crown, the transverse dimensions of the vestibular surface increase from the neck to the cutting edge: the crown expands. The proximal surfaces diverge. Contacts between teeth are point-like. The oval shape of the crown is characterized by close values of the transverse dimensions of the vestibular surface in the cervical region and near the cutting edge. The largest diameter is in the equator region. The proximal surfaces appear in the form of convex arcs, with point contacts with adjacent teeth.

The visual perception of the geometric shape of a dental can be influenced by its individual characteristics. The dome-shaped gingival margin, characteristic of 56% of incisors, resembles a wedge or triangle in shape. 39% of crowns have a rounded periodontal edge, 5% have a flattened, almost straight contour. The shape of the cutting edge can be smooth, convex, concave, embossed.

Teeth, being three-dimensional bodies, have spatial characteristics: height, thickness, width, relief. An example of geometric three-dimensional figures (the latter are studied by the branch of mathematics - stereometry) are polyhedra. In particular, a straight prism represents a body enclosed between parallel polygons. A triangular right prism has triangles as its bases. If the base is a rectangle, then it is a rectangular parallelepiped. If all sides are equal, it is a cube.

The pyramid also represents a three-dimensional body. At its base is a polygon, the vertices of which are connected to one point lying outside this plane.

A cylinder is obtained by rotating a rectangle around one of its sides. A cone is formed by rotating a right triangle around one of its legs. The ball can be obtained by rotating a semicircle around its diameter. A cross section of a ball with any plane will result in a circle.

Description of the shape of teeth is difficult due to the presence of protrusions, depressions, and roughness on its surface. However, upon careful analysis, one can detect sections that are close in shape to a cylinder (in the cervical region), a cone (in the area of masticatory teeth tubercles), and a flattened prism (in the area of the incisal edge). In accordance with this, all teeth are divided into groups that differ in the shape of the crown: spade-shaped (incisors), cone-shaped (fangs), cylindrical double-tubercular (small molars - premolars), cylindrical multi-tubercular (large molars - molars).

The relief also has three-dimensional characteristics. For example, the central incisors of the upper jaw of young people are characterized by a vestibular surface with vertical enamel ridges. In the lateral incisors, the median enamel ridge usually predominates in height, which in the canines turns into a more convex tubercle.

Description of the optical characteristics of a dental also requires the use of special terms and concepts. An integral understanding of the laws of formation and perception of color is given by color science, which includes sections of physics (optics), physiology and psychology (vision), painting theory, and philosophy.

The patterns of refraction of light rays explain the appearance of color. Since the angle of refraction depends on the wavelength, or color, of the beam, when passing through a prism, white light undergoes decomposition into the colors of the rainbow (the phenomenon of dispersion).

In physics (optics), it is customary to place all colors on the same straight line in accordance with the wavelength (from red to violet). In color science, they are arranged in a circle: contrasting colors are located opposite each other. The sequence of tones in any color wheel is the same, the number is no more than 160 (the limit of discrimination by the eye).

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The most trained observers are able to distinguish 150 shades by color tones, 25 by saturation, and up to 64 by lightness.

The qualitative characteristics of dental color can also be tone, lightness, and saturation. Visually perceived tones, or shades, can be described as white, yellow, gray, blue, brown. By lightness they are characterized as follows: yellow - varies; gray, blue - come in light colors; brown - very light. The following gradations can be distinguished by saturation: yellow tones - vary; gray and blue are characterized by low saturation, brown shades are characterized by very low saturation.

The main shades of a dental are explained by the characteristics of the structure and composition of the dental. Thus, the maximum reflection of all colored rays by the surface, as well as the scattering abilities of the enamel, determine the white color. In addition, having a tendency to internally scatter light, enamel imparts blue shades to the color scheme, as well as the ability to opalescent.

The color of dentin is revealed due to the light transmission of enamel. The incisal area does not have dentin, so it appears more transparent. The middle part of the dental often contains the bulk of yellowish dentin, which determines the color of the dental as a whole. The cervical area of the dental has a thinner layer of enamel, so the color of the underlying dentin is more clearly expressed.

Age-related differences in the optical properties of a dental can be presented as follows. A young dental with its surface reflects more light than a mature one, while having a high scattering ability. Its dentin contains less pigments. As a result, white color predominates in the reflection spectrum. A mature dental is characterized by a reduced scattering ability of the enamel and an increase in the selective reflection of dentin, which forms the inherent shade of the dental. The layer of dentin exposed as a result of physiological abrasion of teeth gives the cutting edge a dark yellowish, brownish tint. In addition, the color of sclerotic and secondary dentin is often yellow-brown. Darkening is enhanced by pigments that easily penetrate exposed dentin.

In ensuring the visual appeal function, the phenomenon of irradiation is important - the influence of color on the visual perception of the volumetric parameters of the dental. Thus, warm colors (yellow - orange) seem to protrude, while cold colors (blue) recede into the depths.

Since dental structures must imitate living teeth in tone, saturation, and lightness, dentists must have knowledge in the field of shape formation and color science.

The rapid acquisition by specialists of manual skills in the field of visual appeal dental science is ahead of their acquisition of theoretical knowledge and scientifically based recommendations, including due to the insufficient supply of special educational, scientific and methodological literature. At the same time, the accumulated world experience indicates that there is a need to develop and formulate basic concepts, provisions, and definitions of visual appeal dental science as a science that ensures the widespread implementation of the proposed means and methods in practical healthcare.

Thus, an analysis of literary sources and work experience shows the urgent need to define visual appeal dental science as an independent field that has its own history of advancement and theoretical basis. The improvement of substances, equipment, and accessories for dental science had a significant impact on its advancement. The practical use of advanced methods of treating

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caries and non-carious lesions of teeth allows us to ensure high quality of modern work such as restoration, reconstruction, adhesive prosthetics, splinting using photopolymerizing substances.

In Uzbekistan, the history of the evolution of dental science as a separate science began in 1954, when the dental faculty of the Tashkent Medical Institute was opened. The Institute was established by the Decree of the President «On the formation of the Tashkent State Dental Institute» dated July 22, 2014, on the basis of the Faculty of Dentistry of the Tashkent Medical Academy. Now the Institute has five faculties - the Faculty of Dentistry, the Faculty of Pediatric Dentistry, the Faculty of Medicine and Education, the Faculty of Medicine and the Faculty of Advanced Studies. Faculties of dental science are also available in other medical universities of the republic. Since 2009, the Faculty of Dentistry has been opened at the Samarkand State Medical Institute.

Looking back and returning to the past stages of evolution of dental care in Uzbekistan, we can note a steady movement forward. Each stage of the evolution of specialized care had its own characteristics and difficulties. Overcoming them, dental care to the population of the republic grew stronger, grew, and developed. The rapid evolution of technology since the beginning of the 20th century has led to the emergence of new methods and materials that have begun to be used in dental science. Summing up, we note that the historical experience of the evolution of dental care should not be forgotten in the context of reforming the health care of the republic.

The evolution of precision casting and milling technologies has made it possible to create comfortable and durable clasp prostheses. Ceramic restorations are widely used, allowing you to accurately repeat the natural shape and color. A real revolution in prosthetics was the method of implantation, especially important in the case of complete absence of teeth. Scientific and technological progress today has given us such opportunities that even 100 years ago would have seemed like a miracle, and it does not stop for a minute. Looking at the emerging new technologies, such as 3D printing, one can only guess what dental science will become already in the near future.

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ULCER OF THE STOMACH AND DUODENUM. VIEWS ON MODERN DRUG CORRECTION

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Abstract. Modern drug therapy for peptic ulcer disease is aimed at maximum suppression of gastric acid secretion with histamine H2 receptor blockers and proton pump inhibitors of parental cells and possible complete eradication (CE) using a complex of antibacterial agents. Such a strategy for treating the disease assumes that peptic ulcer is mainly a local (local) pathological process in the stomach or duodenum, directly related to HP infection and aggression of active gastric juice.

Keywords: helicobacter pylori, laser therapy, peptic ulcer, proton pump inhibitors, histamine H2 receptor blockers, gastric secretions.

A number of researchers do not agree with this point of view. Thus, in 1994, Ya.S. Zimmerman developed and substantiated the original concept of pathogenesis of peptic ulcer disease, which considers it as a systemic gastroenterological disease, which is based on a disorder of the mechanisms of adaptive regulation and self-regulation, built on a hierarchical principle, starting with the local gastroduodenal system and ending with regulatory centers autonomic functions and cortical-subcortical relationships. In this concept, HP infection plays the role of one of the important, but predominantly locally acting, factors in the pathogenesis of peptic ulcer and indicators of its relapse. The briefly outlined concept of the pathogenesis of peptic ulcer disease gives reason to assume that the effectiveness of treatment and the possibility of curing peptic ulcer disease largely depend on whether, along with the suppression of acidic gastric secretion and eradication of HP, it will be possible to restore the impaired mechanisms of adaptive regulation and self-regulation at various levels [1]. For this purpose, we studied the effectiveness of including the neurotropic drug piracetam from the group of nootropics, which has a combination of psycho-, neuro- and somatotropic effects, in the complex therapy of peptic ulcer disease with modern anti-sector drugs and anti-helicobacter drugs [2].

In the mechanism of pharmacological action of piracetam, noteworthy is its influence on metabolic and bioenergetic processes in the nervous cell: increasing the energy potential of neurons as a result of facilitating the synthesis of ATP and accelerating its turnover in brain tissue, stimulating glycolytic processes and glucose utilization [3]. The results of the study show that the inclusion of piracetam in a comprehensive program for the relapse of peptic ulcer disease with modern anti-sector drugs and anti-helicobacter drugs can significantly improve the immediate and individual results of treatment and can become one of the ways to cure peptic ulcer disease, especially in patients with a newly diagnosed disease or a short history of peptic ulcer disease.

Despite the fact that today the basic treatment aimed at various parts of the etiopathogenesis of gastric and duodenal ulcers remains drug therapy, the attention of gastroenterologists is increasingly attracted to non-drug treatment methods, the effects of which activate the physiological compensatory capabilities of the body without the development of negative metabolic changes and side effects inherent in medications. Particularly popular are therapeutic

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measures that improve microcirculation, normalize the neuroendocrine regulation of reparative processes, and have immunomodulatory properties. In this regard, the most promising methods of physical therapy are due to their integral effect on the homeostatic and adaptive processes of the macroorganism [4]. These include EHF therapy - the effect of low-intensity electromagnetic radiation of extremely high frequencies (EHF) on biologically active points that affect the blood coagulation system and immunological status, the production of a number of hormones, the state of the central and peripheral nervous system [5]. There are indications of the high effectiveness of EHF puncture in the treatment of peptic ulcers. Magnetic therapy plays an important role among the large number of physiotherapeutic methods. A new direction in this area is the treatment of various diseases, including peptic ulcers, by the general effect of a constant magnetic field at the geomagnetic level [6].

The use of the microwave resonance therapy method in the complex treatment of patients with peptic ulcer disease has made it possible to significantly reduce the time required to relieve exacerbation of the disease and healing of ulcers. A method that can eliminate or reduce the possibility of developing side effects or complications associated with taking pharmacological drugs is acupuncture. In hypersecretory conditions, after a course of acupuncture, a more pronounced decrease in the volume of gastric contents was noted without a significant change in the absolute content of hydrochloric acid [7].

One of the most important factors of progress in clinical medicine, in particular in gastroenterology, is the intensive introduction of laser irradiation into the practice of treating various diseases and especially peptic ulcers.

In the last 20 years, laser radiation, a type of electromagnetic radiation characterized by coherence, monochromaticity, and parallel energy flow, has not coincidentally attracted the attention of many specialists.

There is a certain skepticism regarding the effectiveness of laser therapy, especially among foreign scientists. However, in most countries of the world, laser radiation as an effective therapeutic agent is being introduced in various fields of medicine. The exhibition brochure of one of the largest laboratories in Los Angeles states that laser medical procedures, compared with traditional therapy, are less invasive, less traumatic, less expensive, provide faster healing, are more suitable for outpatient use, provide minimal scarring and adhesions, depth of penetration in tissue can vary by 6 orders of magnitude depending on the wavelength [8].

In our country, the first laser installation was created in 1968. and was used for surgical treatment. In the 70s, the effect of low-power laser radiation on biological tissues was noticed [9]. Since that time, a new direction in a number of physiotherapeutic methods began to develop - laser light therapy. To date, a large amount of information has been accumulated on the practical use of therapeutic lasers; in addition, various aspects of their biological action on tissue are being studied and discussed [10].

The use of lasers in medicine is based on the interaction of electromagnetic study with biological tissues of the body. Cells irradiated with low-intensity laser radiation increase aerobic activity, there is an increase in the size of lysosomes and mitochondria, and the production of prostaglandins E and F increases [11].

A study of literary sources showed a number of interesting works devoted to the study of reparative regeneration processes in the tissues of the digestive tract under the influence of laser

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radiation. Of great interest are the data of M. Zakhidova on the study of LILI, namely their influence on the healing processes of experimental gastrotomy wounds. The authors established the features of the stimulating effect of helium-neon, semiconductor and ultraviolet lasers, and gave specific recommendations for their use in the postoperative period. Interesting data were established when studying the effect of LILI on the gastroduodenal microflora, in particular the contamination of HP [12]. It was found that neither the helium-neon laser nor the arsenium-gallium laser have a direct bactericidal effect on microorganisms, while the ultraviolet laser has a pronounced antibacterial effect against them. These data suggest the need for the combined use of various types of LILI. The clinical use of LILI in the treatment of diseases of the digestive tract began in the 70s and to date, extensive experience has been accumulated in laser therapy for diseases of the stomach and intestines of an inflammatory and erosive-ulcerative nature.

Laser therapy methods are the most widely used in the treatment of peptic ulcers. Almost the entire arsenal of laser sources is used here, from ultraviolet to infrared; In addition, the delivery routes for laser radiation are extremely diverse.

The most common method is to irradiate the ulcer during an endoscopic procedure. In this case, laser radiation acts predominantly locally on the ulcerative defect in the stomach or duodenum. At the same time, inflammatory infiltration in the environment of the ulcer is reduced, detritus is removed from the alteration zone, regeneration processes are stimulated due to the intensification of regional blood flow and the development of vascular collaterals, which contribute to more complete vascularization of damaged tissues, improvement of redox and metabolic processes in them, and elimination of foci of local ischemia [8].

Thus, direct laser irradiation of an ulcer acts as a nonspecific biostimulator of metabolic and reparative processes in damaged tissues, the effectiveness of which increases if the irradiated tissues are in a state of reparative regeneration [13]. At the same time, the effect of transendoscopic radiation is not stable enough, since it does not eliminate the influence of the main pathogenetic factors of ulcer formation: acidopeptic and microbial (MR), although there are individual reports that laser irradiation helps to increase the production of bactericidal substances by tissues [2].

Intravascular laser blood irradiation (ILBI) has a therapeutic effect in peptic ulcers due to the activation of nonspecific humoral protective factors (complement, interferon, lysozyme), increasing the phagocytic activity of micro- and macrophage systems and, ultimately, stimulating cellular and humoral immunity. By changing the rheological properties of blood, its viscosity, platelet aggregation ability, ILBI reduces blood coagulation function, improves regional blood flow, microcirculation, eliminates microthrombosis and foci of tissue ischemia.

Under the influence of ILBI, there is an increase in the number of erythrocytes and reticulocytes, and an increase in the miotic activity of bone marrow hematopoietic cells. At the same time, inhibition of the processes of lipid peroxidation is observed due to the active blockade of the formation of free radicals, a decrease in the content of bombesin and gastrin in the blood is noted, which should help reduce the aggressive properties of gastric juice [1].

Recently, researchers have shown interest in quantum therapy. However, there are very few publications about this treatment method. Although there is evidence of its use for the treatment of internal diseases. For example, when using spectral quantum therapy in a comprehensive rehabilitation program for patients with myocardial infarction at a sanatorium stage, it was revealed that the use of quantum therapy leads to a decrease in sympathetic and

increased parasympathetic influences on the heart rhythm, a decrease in the activity of the central and an increase in the activity of the autonomous heart rhythm control circuit, which reduces mismatch in the functioning of the regulatory mechanisms of the cardiovascular system. These properties of quantum therapy are also of interest for the treatment of peptic ulcers. Therefore, this area of research appears promising for physiotherapists. There is already data on the treatment of patients with angina pectoris using quantum therapy [14]. The obtained data from the study of literary sources show the feasibility of using quantum treatment methods in complex rehabilitation programs for patients. It is advisable to study the mechanisms of action of quantum therapy in order to determine its pathogenetic validity.

Summarizing the consideration of some issues of the pathogenesis of gastric and duodenal ulcers and the possibilities of using physiotherapeutic methods of treatment and rehabilitation of patients with gastric and duodenal ulcers, it is necessary to emphasize their insufficient knowledge, the presence of controversial issues and conflicting judgments. Thus, in the problem of studying the pathogenesis of gastric and duodenal ulcers, there are no sufficiently convincingly substantiated studies about this pathology, as a systemic gastroenterological disease that has hereditary determinants, in the development of which a significant role belongs to the disorder of the mechanisms of adaptive regulation and self-regulation at various levels, starting with the gastroduodenal autonomous system of self-regulation and ending with cortical-subcortical relationships that integrate the activities of the visceral systems of the body. The high effect of laser therapy in the treatment of duodenal and gastric ulcers requires deeper understanding, further study and scientific justification.

Thus, the above determines the relevance of this problem, the importance and great practical significance of scientific research conducted in this direction.

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THE IMPACT OF TECHNOLOGICAL CHARACTERISTICS ON THE QUALITY OF PUMPKIN FRUITS DURING STORAGE

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Annotation. This research explores how various technological properties affect the quality of pumpkin fruits throughout the storage process. By examining key factors such as moisture content, ripeness, and handling methods, the study aims to understand their role in maintaining or altering the fruit's quality over time. The investigation highlights the importance of proper storage conditions in preserving the pumpkins' freshness, texture, and nutritional value, ultimately contributing to improved post-harvest management practices..

Keywords: Pumpkin, pulp thickness, weight, consistency, degree of tenderness, technological indicators.

Significant advancements have been made globally in the processing of pumpkin fruits. These studies primarily focus on areas such as pectin secretion in pumpkins, oil extraction from pumpkin seeds, and the examination of pumpkin's pharmacological properties. Notably, European countries and China have widely adopted technologies for extracting pumpkin seed oil. However, in these regions, there has been less focus on the agrobiological and technological characteristics of juicy squash varieties, their storage, and juice production technologies. In Uzbekistan, pumpkin cultivation and consumption are not as prevalent as other vegetables. However, regional varieties of pumpkin are being produced and sold across various parts of the country, meeting local demand. There is limited knowledge about the market potential and nutritional value of different squash types grown in various regions, as well as the specific storage conditions and processing methods for each variety.

The results for a detailed study of the factors affecting the quality variability of pumpkin fruits are based on a comprehensive indicator of quality, which also expresses the specific characteristics of each variety as a percentage. By using this method to analyze the quality of pumpkin varieties, it is possible to identify which indicators remain stable throughout the life cycle of a particular variety and which are subject to change.

Pumpkin fruits are commonly used both in their fresh form and for processing. A large portion of the harvest is used for producing canned goods on an industrial scale. For the processing industry, the weight of the pumpkin fruit, the proportion of flesh, and its thickness are important, especially when consumed fresh. These indicators are also key to the technological properties of pumpkin fruits.

The technological properties of pumpkins are influenced by the structure of their fruit. A pumpkin fruit is a multi-seeded pseudo-fruit, consisting of the rind, flesh, and seeds, with a placenta and a cavity filled with seeds. The parenchyma above the placenta forms the flesh of the fruit. Studies have shown that the composition of pumpkin fruit includes 17% rind, 73% flesh, and 10% seeds, with these proportions varying depending on the species and variety of pumpkin.

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Table 1.

Technological composition of pumpkin fruits studied (2023-2024)

Variety name	Fruit mass, kg	The amount of flesh, %	Flesh thickness, cm	Level of flesh, LF
Ispanskaya 73	8,20	77,18	5,0-6,0	0,73
Michurinskaya Sladkaya 13	3,50	71,33	2,5	0,68
Volzhskaya Seraya 92	13,5	77,26	5,0	0,72
Rossiyanka	4,80	74,05	5,5	0,66
Medovaya	3,45	72,65	3,5-4,5	0,65
Stofuntovaya	10,7	74,69	3,5-4,5	0,68
Non kadi	6,20	77,45	4,0	0,68
Shirintoy	5,32	74,15	3,5-4,0	0,64
Biryuchekutskaya 27	4,80	74,18	3,0-3,5	0,64
Kustovaya oranjevaya	2,93	68,91	2,0-3,0	0,61
Mozoleevskaya	7,59	74,27	5,0-6,5	0,66
Vegetable Spaghetti	1,50	70,02	2,0	0,62
Palov Kadu 268	6,30	78,45	4,0	0,73
Kashgarskaya 1644	4,72	74,15	3,5-4,0	0,66
Korean Pumpkin	2,80	74,18	3,0-3,5	0,64
Vitaminnaya	3,93	68,91	3,0-3,5	0,61
Gapvu tradiny (Корея)	4,20	74,27	5,0-6,5	0,68

The data presented in the table provides detailed insights into the technological composition of various pumpkin varieties, including their fruit mass, flesh content, flesh thickness, and flesh quality level. These factors play a crucial role in determining the suitability of each pumpkin variety for different processing methods and consumption purposes.

The weight of the pumpkins varies significantly across different varieties, with the smallest being **Vegetable Spaghetti** at 1.5 kg, and the largest being **Volzhskaya Seraya 92** at 13.5 kg. The average fruit mass for the varieties listed is approximately 5.56 kg. This wide range indicates that some varieties are more suitable for large-scale industrial processing, while others might be better for smaller, niche markets or direct consumption. Larger pumpkins like **Volzhskaya Seraya 92** are likely to be more valuable for products such as canned pumpkin or puree, where high yield is important. On the other hand, smaller varieties such as **Vegetable Spaghetti** might be better suited for specialized uses, such as fresh market sales or gourmet products.

In terms of flesh content, the percentage varies from **68.91%** for **Kustovaya oranjevaya**

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to **78.45%** for **Palov Kadu 268**, with the average being **73.89%**. Flesh content is a vital factor in determining how much of the pumpkin can be used for processing or consumption. Higher flesh content generally indicates better yield for products like pumpkin puree, canned pumpkin, and pumpkin-based soups or sauces. Varieties like **Palov Kadu 268**, with higher flesh content, are particularly valuable for such industrial processes, as they would provide more usable product per unit of weight.

Flesh thickness is another important characteristic, with values ranging from **2.0 cm** (for **Kustovaya oranjevaya** and **Vegetable Spaghetti**) to **5.0-6.5 cm** (for varieties like **Volzhskaya Seraya 92** and **Mozoleevskaya**). Thicker flesh generally indicates better texture and a higher yield, making these varieties more desirable for both processing and fresh consumption. Thicker-fleshed pumpkins are often preferred for making products like pumpkin puree or canned pumpkin, where texture and consistency are essential.

The level of flesh quality, denoted as LF, is another key indicator of a pumpkin's overall processing quality. This value ranges from **0.61** (for **Kustovaya oranjevaya** and **Vitaminnaya**) to **0.73** (for **Ispanskaya 73** and **Palov Kadu 268**), with an average of **0.66**. A higher LF suggests better texture, flavor, and suitability for processing. Pumpkins with higher LF values are likely to produce higher-quality end products, whether they are consumed fresh or processed into items like juice, puree, or canned goods.

When considering which pumpkin varieties are best suited for various purposes, it is essential to balance all these factors. For example, **Volzhskaya Seraya 92** stands out with its large fruit mass, high flesh percentage, and thick flesh, making it a prime candidate for large-scale processing. Its high flesh content and size are ideal for producing canned products or puree. Similarly, **Palov Kadu 268** offers high flesh content and good quality flesh, making it suitable for both fresh consumption and industrial processing.

On the other hand, smaller varieties like **Vegetable Spaghetti** and **Kustovaya oranjevaya** might be better suited for fresh market sales or specialized uses, as their smaller size and lower flesh content make them less ideal for large-scale processing but potentially more attractive for niche markets or gourmet products. Additionally, the relatively thinner flesh of these varieties may make them less suitable for certain types of processing, such as puree production, where texture is a key consideration.

Overall, the data highlights the significant diversity in pumpkin varieties, with different characteristics making each variety more suitable for specific applications. By understanding the technological composition of these pumpkins, producers can better match varieties to their processing needs, whether for fresh consumption, long-term storage, or industrial-scale products like puree, canned goods, or juice. This comprehensive analysis allows for a more efficient approach to pumpkin cultivation and processing, ensuring that each variety is used in the most optimal way possible.

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LEXICAL AND GRAMMATICAL FEATURES IN BUSINESS ENGLISH

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Angren Universiteti “Xorijiy til va adabiyoti” kafedrasi Ingliz tili o’qituvchisi

Abstract: in this day and age we are getting involved into globalization and its effects are significant. Today we are going abroad and making connections with the world. How can we know our business communication is suitable and proper. Well, this article is about to talk the lexical and grammatical features of English in the atmosphere of leaders and world known-people. Lexical features are the means of conveying the connotation and what the word itself can be interpreted among people and used properly.

Key words: business English, entrepreneurs, communication, vocabulary, terms, expression, colocations, characteristics, terminology, idiomatic expressions, acronyms.

In the fast-paced world of global commerce, **Business English** has emerged as a specialized branch of the English language. It is characterized by its own set of lexical and grammatical features designed to ensure clarity, precision, and professionalism in communication. These features cater to the unique requirements of business interactions, such as negotiations, presentations, emails, and contracts. This article explores the defining lexical and grammatical characteristics of Business English, offering insights into its role in fostering effective communication across industries.

Lexical Features of Business English

When it comes to talk about the lexicology itself, it is essential to mention of the needs. The lexicon of Business English is influenced by the need for formality, brevity, and specificity. It encompasses specialized terminology, idiomatic expressions, and frequently used collocations.

Specialized Vocabulary

Business English relies heavily on industry-specific jargon and terminology, allowing professionals to communicate efficiently within their fields.

Financial Terms: Words like *revenue, equity, profit margin, liquidity*, and *budgeting* are commonly used in financial discussions.

Marketing Terms: Phrases like *target audience, brand awareness, SEO (Search Engine Optimization)*, and *market segmentation* are prevalent in marketing contexts.

Legal Terms: Terms like *contractual obligation, liability, intellectual property*, and *compliance* are vital in legal communications.

For example:

"The company's liquidity ratio has improved significantly this quarter." Here, "liquidity ratio" is a financial term that conveys a specific metric used in business contexts.

Collocations

Collocations—words that are often used together—play a significant role in Business English. These combinations create natural-sounding phrases that are immediately understood by professionals.

Examples of Collocations:

Make a decision (not *do a decision*).

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Hold a meeting (not *conduct a meeting*).

Raise capital, *launch a product*, *negotiate a deal*.

Using collocations correctly enhances the fluency and professionalism of business communication.

Formality and Precision

Business English demands a formal tone and precise vocabulary to minimize ambiguity and maintain professionalism. This is evident in the preference for certain word choices:

Formal: *terminate employment* vs. **Informal**: *fire someone*.

Formal: *acquire* vs. **Informal**: *buy*.

Idiomatic Expressions

The idiomatic expressions are the vital part of the lexicology without it the meaning would have been terrible or boring. We use it when we tend to talk with sincerity or the sarcasm. Idioms are often used in Business English to convey ideas vividly or efficiently. Common examples include:

"Think outside the box": Encouraging creative problem-solving.

"Hit the ground running": Starting a task with enthusiasm and speed.

"Go the extra mile": Putting in additional effort beyond expectations.

While idiomatic expressions can enhance communication, their usage requires cultural sensitivity, as they may not be universally understood.

Acronyms and Abbreviations

Acronyms and abbreviations are extensively used for efficiency in Business English:

Examples:

CEO (Chief Executive Officer), CEO is often used in the companies or firms to mean the head of the company.

ROI (Return on Investment), POI is often used in the stock exchange

KPI (Key Performance Indicator).

These abbreviations save time and are widely recognized within specific industries.

Grammatical Features of Business English

Without grammar rules the language would be challenging and difficult to understand. The grammatical rules always prevent us from confusion. The grammatical structures of Business English reflect its emphasis on clarity, conciseness, and professionalism. Specific grammar rules and patterns are preferred to align with the functional requirements of business communication.

Passive Voice

The passive voice is frequently used in Business English to emphasize actions or outcomes rather than the doer. It also lends a formal tone to the communication.

Examples:

"The report was finalized yesterday" (focus on the report, not the person who finalized it).

"The contract will be signed tomorrow" (emphasis on the action of signing).

The passive voice is especially useful in situations where the subject is irrelevant or unknown.

Modal Verbs

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Modal verbs such as *must, should, may, can,* and *could* play a vital role in expressing obligations, permissions, and possibilities in Business English.

Examples:

"You must submit the proposal by Friday" (obligation).

"We can schedule a meeting next week" (possibility).

"The client may request additional changes" (permission or likelihood).

These verbs help maintain a polite and professional tone while conveying directives or suggestions.

Conditional Sentences

Conditional sentences are widely used in Business English for outlining scenarios, making proposals, or discussing potential outcomes.

Examples:

"If we increase our marketing budget, we could attract more customers." (First Conditional for realistic outcomes).

"If I were the manager, I would implement this strategy." (Second Conditional for hypothetical situations).

Conditional sentences help in discussing plans and contingencies effectively.

Nominalization

Nominalization involves converting verbs or adjectives into nouns to create a formal tone. This feature is common in business reports and academic writing.

Examples:

"We will investigate the issue" → *"An investigation will be conducted."*

"The company decided to expand" → *"The company made a decision to expand."*

Nominalization adds formality and creates a sense of objectivity in business writing.

Use of Simple, Compound, and Complex Sentences

Business English employs a mix of sentence structures to balance clarity and detail.

Simple Sentences: Convey straightforward information.

"The meeting starts at 10 a.m."

Compound Sentences: Link related ideas for better flow.

"The presentation went well, and the team received positive feedback."

Complex Sentences: Provide additional context or explanations.

"Although the budget was limited, the project was completed on time."

The choice of sentence structure depends on the complexity of the information being communicated.

Active Voice

While the passive voice is common, the active voice is often preferred for clarity and directness, especially in emails and informal business communications.

Examples:

"The team achieved their goals."

"We will review the document tomorrow."

The active voice emphasizes the subject and action, making the sentence more dynamic and engaging.

Practical Applications of Lexical and Grammatical Features

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Business English is used across various contexts, each requiring specific lexical and grammatical adaptations.

Email Communication

Formal greetings (*"Dear Mr. Smith"*) and closings (*"Best regards"*).

Polite modal verbs (*"Could you provide an update?"*).

Passive constructions for formal tone (*"The report has been submitted"*).

Business Reports

Use of nominalization for objectivity (*"Analysis was conducted"*).

Formal vocabulary (*"In conclusion, the results indicate..."*).

Clear headings and bullet points for readability.

Negotiations

Conditional sentences to explore options (*"If you lower the price, we will increase our order."*).

Idiomatic expressions to build rapport (*"Let's get the ball rolling."*).

Concise language to ensure clarity.

Challenges in Mastering Business English

Despite its utility, mastering Business English presents challenges:

Cultural Nuances: Idioms and informal expressions may not translate well across cultures. It is advisable not to make many mistakes during business negotiates. That is the way the real businessmen achieve their goals.

Overuse of Jargon: Excessive use of technical terms can alienate non-specialists. Using too much jargons may lead your companions that you may nit be a suitable person they were looking for.

Balancing Formality and Clarity: Striking the right tone requires practice and awareness. It is really important to mention that formality should be kept as you never treat your business partners informally.

Addressing these challenges involves studying real-world examples, practicing with native speakers, and gaining familiarity with industry-specific terminology.

Business English, with its unique lexical and grammatical features, is an essential tool for professionals in the global marketplace. Its emphasis on clarity, precision, and formality ensures effective communication, whether in emails, reports, or negotiations. By mastering specialized vocabulary, collocations, idioms, and grammatical structures, individuals can navigate the complexities of professional communication with confidence and finesse. As the business world continues to evolve, so too will the dynamic language of Business English, adapting to new challenges and opportunities.

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The Psychology of Motivation: What Drives Student Success?

Author:**Sanjarbek Abduvaitov**

ABSTRACT

In this article, we will review the psychology of motivation and why it is heavily relied upon for the success of student. This paper examines key psychological theories: Self-Determination Theory, Goal-Setting Theory, and the concept of a Growth Mindset so as to understand which factors influence student motivation. Finally, the roles of intrinsic and extrinsic motivation, social influences and motivation strategies are reviewed. These findings imply that psychological drivers of motivation can improve educational outcomes and student wellbeing.

Key words: Student Motivation, Self-Determination Theory, Expectancy-Value Theory, Goal-Setting Theory, Growth Mindset, Intrinsic Motivation, Extrinsic Motivation

INTRODUCTION

This process of motivation has an important function due to the fact that it fuels behavioural change, in educational settings. How much a student is motivated determines how successful they are, no matter what that means to you. This article aims at investigating the types of motivation, psychological theories of them and factors determining motivation in students. The questions that the research will answer can be answered as follows

What motivates students differ when it comes to improving student performance?

What psychological theories explain student motivation?

Like other types of motivation, how does motivation vary with teachers, peers, and rewards?

LR

Theorise of motivation:

Expectancy-value theory

According to this theory, students want to get involved in activities they think will help them succeed and that they will find interesting. When academic tasks are placed on high levels of expectation of success and value, they lead to higher levels of motivation (Wigfield & Eccles, 2000). A student who highly values success in math but doesn't think he or she can do it — that student's motivation will be low. Eccles and Wigfield (2002) also show that expectations and values are shaped by previous experiences and cultural background and such social factors as parental expectations.

Goal-setting theory

According to Locke and Latham (1990), such setting of goals will increase the motivation as well as performance. Well defined goals in academic terms help students to focus better and make better results.

Growth-Mindset theory

Carol Dweck (2006) emphasizes that with a growth mind set (i.e. the sense that that intelligence and abilities can be developed) there's more motivation. Students with Growth mindset take on challenges with knowing that efforts lead better results on becoming expert in its

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own work. On the other hand, those stuck in a fixed mindset—knowing intelligence is an innate, fixed quantity—will often give up when they hit trouble. Dweck's (2007) research had indicated that children who developed a growth mindset were more motivated to accept learning opportunities, perceived failures as opportunities to learn, and ultimately did better academically.

Self-Determination theory (STD)

Students with an intrinsic motivation are more likely to persevere in work, and they are more satisfied by doing it (Ryan and Deci, 2000). According to Deci and Ryan (1985) there is a two types of motivation driver, intrinsic (internal decries) and extrinsic (external desires), this theory emphasize difference between the two of them and affects. Also, in addition, SDT suggests that extrinsic motivation can be different, some can be controlled, while others are autonomous extrinsic motivation. The more students understand external rewards and incorporate them into their self-concept, they will be less depended on internal motivation (Deci & Ryan, 2000).

What motivational factors influence in students?

Intrinsic Motivation (internal motivation)

Internal satisfaction and personal interest are all that is intrinsic motivation. Those who are intrinsically motivated will be more inclined to undertake deep learning. For instance, a science fanatical student could study more than what curriculum offers to them, because they are interested in this and want to master it

Extrinsic motivation (external motivation)

Rewards outside of the practice itself are extrinsic motivation. While extrinsic rewards may convince students to start doing, the dependence on them may wear intrinsic motivation away in the long term (Deci et al., 1999). It is important to strike the balance otherwise it will only be short term success.

Influence of social and environmental factors:

Having internal and external motivation is only one of the many factors that decides one's motivation and passion. There is more factors that affects motivation of the students such as: Support of professors, competitiveness among peers, family, society. Let's take closer look as such how they influence on students motivation.

Support of Professors: Motivating students is largely dependent on teachers. They use positive reinforcement, encouragement and a supportive, learning environment to build students' confidence and added motivation.

Peer Influence: engaging with positive competitions with peers can make students more motivated in order to surpass and be the first, at the same time having collaborative works with peers can have massive influence in fostering intrinsic motivation. However, not balancing the competition and collaborations between students, can be negative peer pressure may be the reason for disengagement.

Family and society: Of course, parental expectations and society pressures have a big impact on student motivation. Supportive family environments do work, encouraging success, but overly high expectations create stress. Same goes for the society, having high expectations of students while pressuring them can make students more rebellious rather than motivated

Influence of Psychological strategies in enhancing students motivation

Self-Management and Goal-setting theory:

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Setting realistic goals teach students to goal focus on their efforts and deadlines. Examples of integration are self-regulation strategies, e.g., time management or self-assessment that regulate self-motivation (Zimmerman, 2002)

Positive Reinforcement and the Feedback

Any feedback, positive or negative, when paired with positive reinforcement, creates a growth-oriented learning culture. Dweck (2006) students should be prised and rewarded for the effort and process, rather than on outcome, this will be help to them to adapt to the Growth Mindset, not the fixed mindset.

Increasing the Growth mindset:

Students, who has a growth Mindset believes that as long as you put enough effort you can master/overcome any challenges, they believe intelligence is not a fixed knowledge, it can continually grow and develop to be more qualitative.

This mindset can be fostered, According to the (Dweck, 2006) if teachers give tasks enough to challenge the students with their current knowledge, it will help them to adapt the challenges and overcome them, this is how one can foster Growth Mindset by continually challenging themselves

Previous researches related on this article topic, Student Motivation.

There are many studies that confirmed the relationship between motivation and achievement. Motivated students tend to play more deeply in their studies, and the implication is that their academic outcomes improve. A study conducted by Schunk, Pintrich and Meece (2008) reported that not only did academically motivated students perform better, but that their satisfaction and wellbeing were higher.

Other research has paid attention to external factors like teacher's behaviour and classroom environment as determinants of motivation. Students' perceptions that their teachers were supportive and encouraging increased the levels of motivation (Wentzel, 1998). This is consistent with Vallerand et al. (1993) who argued that an aspect of a positive classroom environment is a positive motivation and can help to foster intrinsic motivation. However, these environments will decrease intrinsic motivation (Deci, Koestner, Ryan, 1999) because they are focused on performance-based evaluations (i.e., standardized tests).

RM

Research design:

In this study I adopt a mixed approach; using a mixed approach to investigate the factors that drive student motivation and how the factors impact academic success. By using different quantitative and qualitative methods the complexity of the psychological, social and environmental discussion of motivation can be better explained. The research will depend on surveys, focus group discussions.

Participants:

50 University and university students, aged 18–22, will take part in the research, from different academic backgrounds. We will sample the sample randomly so that there is diversity in terms of socioeconomic status, academic achievement, and motivation level (self-reported). In addition to this, 5 teachers will be interviewed to find out how they think you can motivate students in a classroom.

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Data collection:

Survey: we will distribute surveys to the students. Surveys will include three sections

Environmental and social factors: Students will respond to questions regarding their belief of teacher support, peer influence and classroom environment.

A 5 point Likert scale will be used in the survey with 1 as strongly disagree and 5 as strongly agree.

Psychological assessment: In this section we will have questions based on the Expectancy-Value Theory and the Growth Mindset Theory in regard to self-efficacy, goal setting behaviour and intelligence beliefs.

Motivational assessment: This section will assess levels of intrinsic and extrinsic motivation as well as amotivation, using measures adapted from the Academic Motivation Scale (AMS) developed by Vallerand et al. (1992).

Focus group: to get qualitative information, we will form focus group consist of 20 students, ad will discuss topics related to the motivation, challenges, etc. In these discussions, we will explore how students view challenges, what they find motivating and what sort of social interaction (with peer and teachers) influences their motivation.

Data Analysis:

Quantitative analysis:

- Different kinds of motivational (e.g. intrinsic, extrinsic) and its relation to performance will be explored using correlation analysis.

- To analysis the surveys, we will be using Google Forms, it has functions of adding and creating charts and all the necessary function

- The strongest predictors of student success are identified by regression analysis, specifically which factors (e.g., teacher support, goal setting).

Qualitative Analysis:

- Transcripts of focus group discussions will be recorded. Recurring themes regarding what motivated, challenged, and were affected by social influences will be identified through thematic analysis.

- I will analyse insights from teacher interviews to understand how educators perceive, and promote motivation in, the classroom.,

Necessary Ethical considerations:

All research involved will follow ethical guidelines in research with human participants. All participants will give informed consent ensuring confidentiality and anonymity. It will be a voluntary participation with students able to drop out of the study at any time without penalty. This study will follow the rules approved by the relevant institutional review board (IRB) to be in compliance with the ethical standards.

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Conclusion

In conclusion, this article shows how motivation is critical to student success, including theories of Self Determination Theory (Deci & Ryan, 1985), Expectancy Value Theory (Wigfield & Eccles, 2000), Goal Setting Theory (Locke & Latham, 1990), Growth Mindset Theory (Dweck, 2006), and others. The theories behind this focus on autonomies, competences, relatedness and belief in their capacity to succeed and the importance of doing academic tasks.

It turns out that intrinsic motivation (meaning that which comes from personal satisfaction) is strongly related to deep engagement and long-term academic success (Vansteenkiste et al., 2006). In contrast, extrinsic motivation motivated to external rewards can produce short term improvements in performance but it can diminish intrinsic motivation as not controlled carefully. Student motivation is also profoundly affected by the classroom environment including support from the teacher and peer interactions, but motivation can be either helped or hindered in this setting (Wentzel, 1998). For example, educators must create environments enriched in intrinsic motivation, goal setting and a growth mindset, for a student based on that is most likely to be engaged and achieve at the highest level. Future research would do well to investigate how the motivational factors that form Mark's identity influence long term performance and development beyond academic, and help facilitate personal development and career success.

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IMPACT OF THE MUSIC TO MENTAL HEALTH: A LITERATURE REVIEW

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Abstract

Music is the part of life modern human being. This literature review explores how music can impact to mental health, emotional well-being and mood control. In this research such facts highlighted about music's power such as; usage of music in therapeutic sessions to cure people, mood regulations and reduce depression and anxiety. The findings shows, that music is non-invasive tool that can be used for mental health improvement.

Keywords: Emotional well-being, music therapy, neuroscience of music, therapeutic application

Aqliy salohiyatga musiqaning tasiri: Abadiyot sharhi

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Annotatsiya

Musiqa rivojlangan dunyoda odam hayotining bir bulagi. Ushbu adabiyot sharhi, musiqani inson aliy salohiyati, kayfiyat o'zgarishi va his tuygulariga bo'lgan tasirni o'rganadi. O'rganish davomida musiqaning kuchi qaysiki; terapiya muolajalarida insonlarni davolash va ularning depressiya va havotirlarini kamayishini, kayfiyatni nazorat qila olishi kabi faktlar ta'kitlab o'tilgan. Topilmalar shuni ko'rsatadiki, musiqa bu inson hayotiga havf solmaydigan balki aqliy salohiyatini yaxshiluvchi vosita.

Kalit So'zlar: Hissiyotlar nazorati, musiqa terapiyasi, musiqa neyrobiologiyasi, terapevtik yechim

Аннотоция

Музыка превратилась частью жизни современного человека. Этот литературный обзор обобщает важность музыки в жизнь человека и ее влияние на нас. В этом обзоре приведены примеры такие как; использование музыки в терапевтических направлениях, влияние на настроение, снижение депрессии и ее начальной стадии. Существующие исследования указывают на значительный потенциал, который может быть использован в целях реабилитации и пользы ментальному здоровью человека.

Ключевые слова: эмоциональное состояние, терапия музыкой, нейропсихология музыки, терапевтические свойства.

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INTRODUCTION

Music is one the tools that serves us from past centuries, in modern world the role of music is not only form of expression of artists but also the tool to cure people' mental health. Many researches has been conducted on influence of music on our mood, mental well-being and thinking abilities. This work shows the various researches about multi functions of music and how they can affect to people.

Methodology

This literature review consists of qualitative research, by analysing existing researches and refers to related articles and topics on theme music and mental health. Academic databases were included like; PubMed, Springer and Google scholar. Relevant studies were chosen based on music's affect to human being, clinical applications and special university studies.

Analysis of Studies (Literature Review)

Neuromusicology: Understanding the impact of music on our brain

The term neuromuscology is the findings about the music's power on our brain, scientists discovered that while listening a music multiple brain regions are working. Scientists at university called NeurolImage came to opinion, which listening a complex music can activate brain areas such as cognition, emotions and motor functions. Especially, they figured out that rhythm of the music can affect all the aspects which were stated above. Also rhythm of the music can affect to heartbeat

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of human, our heartbeat is adapt to rhythm of the music. This means music has several potential ways to be used to influence our mental health.

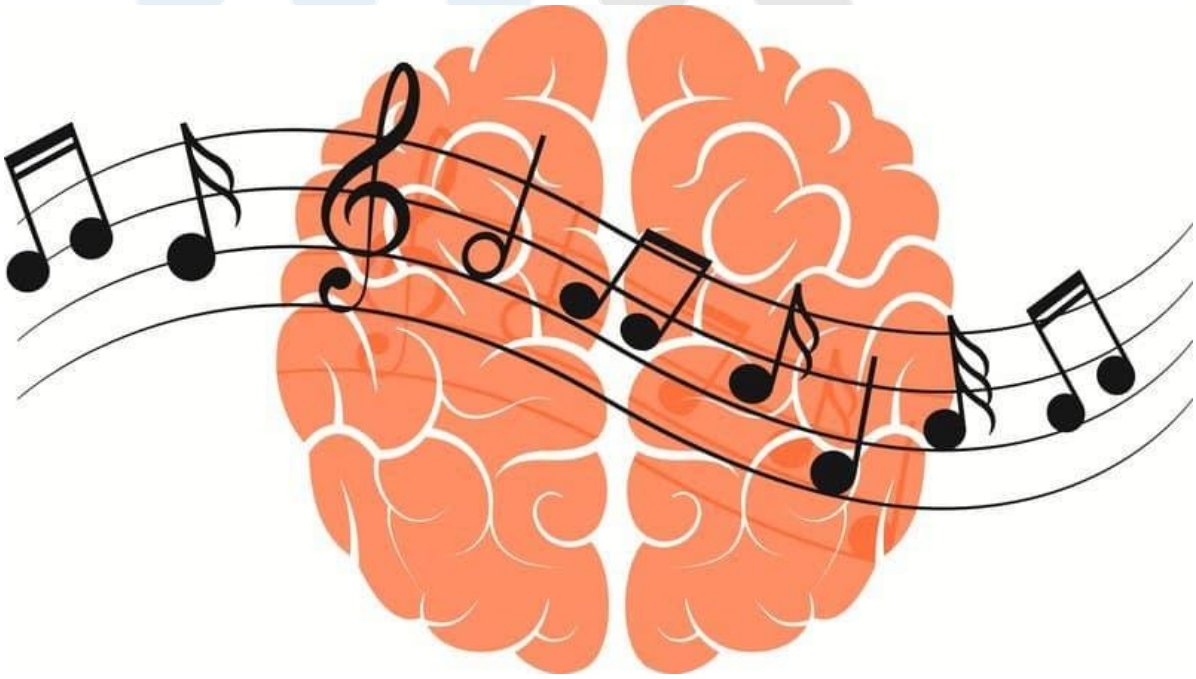
Music and Mood Regulation

Listening music can affect to our mood regulations. Researches shows that, listening music can reduce anxiety, decrease pain and lower blood pressure, also it is stated that listening music before bad time can improve the sleeping experience. In addition to this, music has potential to use it in therapeutic ways.

Music Therapy in Clinical Settings

Music is one of the tools that can be used to improve mental health. According to Archives of Women's Mental Health, music can affect positively with, reducing anxiety and pain and decrease initial stages of depression.

In addition to this, researches claim that music therapy is beneficial with dealing dementia, Alzheimer's and cardiac issues. It is stated that by listening music, human will their brain parts to remember music, music can be associated with moments of life. By listening music people can improve cognitive functions of brain.



Self-Directed Use of Music

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Individuals listen music to relief their stress or to improve their emotional regulation. It is stated that, listening music that you want can increase human' positive emotions and memories, which will cause comfort and relaxation. According to Yiren Ren a psychology researcher, listening preferred music can cause strong emotional memories related with music, which can trigger our memories. Listening to favourite songs can lead to reshaping powerful emotional experience.

Potential Negative Effects of Music

Even music has some negative sides too. While listening music with aggressive lyrics and negative songs can cause sadness and negative feelings. Also over listening loud music can cause problems to our mental health. That is why, it is important to choose music correctly, by learning the lyrics and topic of the song. Choosing right music can improve our mental health.

Neuroscientific Perspectives

Neuroscientific literature states music has power to influence to mental health. By listening music brain activity will increase, memory proceeding centres, such as amygdala and hippocampus. Music can improve emotional experience, can stimulate dopamine level, which can cause to our mood level.

Conclusion and Future Directions

This literature review states about the music's influence on mental health. Music is non-invasive tool that can be used to regulate mood, cognitive functions and emotional well-being.

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Choosing right music can also lead to positive effects to our mental health, music with good lyrics and topics can lead to improve the mood and dopamine level in our body. There are also different backgrounds of the music that can affects differently to each individual, more research needed to fully discover all potential power of the music. To sum up, music influence to psychological processes by reducing anxiety and depression and improve well-being of human. Music is the powerful tool to improve mental health.

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THE POWER OF EFFECTIVE LEADERSHIP: HOW MANAGING TEAMS TRANSFORMS GOALS INTO RESULTS

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ABSTRACT

Leadership plays a crucial role for organization to achieve its goals and objectives. So, this article demonstrates the effect of leadership to team's efficiency, motivation and team members performance. You can see in the real company examples, how the right chosen leadership style can transform goals into results. Then we discussed why leadership style is important to achieve objectives and which one I consider better according to may research. In the end, you can find my own recommendations to develop leadership style in the organization, and some models to use for getting better results in team works.

Key words Leadership style, organization goal, team work, Belbin's team roles, Tuckman model, performance, motivation.

Аннотация

Лидерство играет решающую роль для организации в достижении ее целей и задач. Итак, эта статья демонстрирует влияние лидерства на эффективность команды, мотивацию и производительность членов команды. Вы можете увидеть на реальных примерах компаний, как правильно выбранный стиль лидерства может трансформировать цели в результаты. Затем мы обсудили, почему стиль лидерства важен для достижения целей и какой из них я считаю лучшим по результатам моих исследований. В конце вы найдете мои собственные рекомендации по развитию стиля лидерства в организации, а также некоторые модели, которые можно использовать для достижения лучших результатов в командной работе.

Ключевые слова Стиль лидерства, цель организации, командная работа, командные роли Белбина, модель Такмана, результативность, мотивация.

Annotatsiya

Liderlik tashkilotning maqsad va vazifalariga erishishda muhim rol o'ynaydi. Shunday qilib, ushbu maqola liderlikning jamoa samaradorligiga, motivatsiyasiga va jamoa a'zolarining ishlashiga o'z ta'sirini ko'rsatadi. Haqiqiy kompaniya misollarida to'g'ri tanlangan liderlik uslubi maqsadlarni natijalarga qanday aylantirishi mumkinligini ko'rsatadi. Keyin biz nima uchun liderlik uslubi maqsadlarga erishish uchun muhimligini va tadqiqotga ko'ra qaysi biri yaxshiroq deb hisoblaganimni muhokama qildik. Maqolaning ohirgi qismida, siz organizatsiyada liderlik uslubini rivojlantirish bo'yicha o'z tavsiyalarimni va jamoaviy ishlarda yaxshi natijalarga erishish uchun foydalanish uchun ba'zi modellarni topishingiz mumkin.

Kalit so'zlar Liderlik uslubi, organizatsiya maqsadi, jamoaviy ish, Belbinning jamoa rollari, Tuckman modeli, ijro samaradorligi, motivatsiya.

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Literature review

- Demirtas, O. and Karaca, M. (2020). *Handbook of Leadership Styles*. S.L.: Cambridge Scholars Publis.

This book discusses about dynamic character of leadership styles in the work, with particular attention paid to the significance of position power and authority in the eyes of followers. It emphasizes how economic, behavioral, and mental shifts crucial to make new strategies. The book discusses a number of leadership models, illustrating how dynamic leadership is. It blends classical and modern approaches to provide scholars and practitioners with a thorough reference.

- According to this website - West Chester University (2022). *Tuckman's stages of group development*. [online] West Chester University. Available at: https://www.wcupa.edu/coral/tuckmanStagesGroupDelvelopment.aspx.

CORAL places more emphasis on identifying and supporting teams in their developmental stages than Tuckman's initial method, which concentrated on group evolution. Teams may evolve, progressing to several Tuckman phases like Norming or Performing. Project guides facilitate seamless transitions and teamwork by assisting teams in getting back to perform.

- Moultrie, J. (2016). *Belbin's Team Roles*. [online] University of Cambridge. Available at: https://www.ifm.eng.cam.ac.uk/research/dmg/tools-and-techniques/belbins-team-roles/.

This website discusses about team roles concept developed by Meredith Belbin in 1981, assists teams in identifying their strengths and limitations so they can work better. It's a popular technique for team development that acknowledges the variety of character types in the most successful teams, despite complaints for being overly simplistic and pigeon-holing.

- McPheat, S. (2023). *Elon Musk Leadership Style Explained | MTD Training*. [online] Leadership and Management Training Courses UK | MTD Training. Available at: https://www.mtdtraining.com/blog/elon-musk-leadership-explained.htm.

This site demonstrates how transformational leadership style helped Elon Musk to establish companies with great innovation. He is a leader who motivates to innovate new innovations with long term success and new solutions to problems. So his workers should be creative and hard working to achieve career goals.

- and, E. (2014). *Financier Worldwide*. [online] Financier Worldwide. Available at: https://www.financierworldwide.com/efficiency-and-effectiveness-building-a-high-performing - team [Accessed 26 Dec. 2024].

Workers' commitment, expertise, and specific skills are what propel a company to success. In intricate economic environments, successful teams are essential to conquering obstacles. 53% of respondents said that their performance has greatly improved since switching to a team- or network-based organizational model, demonstrating the tremendous improvement that team-based organizational models bring.

Methods of research:

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This paper reviews the literature on leadership style using a secondary-methods approach, examining information from books, published articles, reliable websites government sources, and business outcomes. It also looks at how well models to improve leadership work and how they are applied in businesses. I didn't use primary research method as my research didn't require interviews or surveys to conduct the research.

Data collection

While qualitative research expresses in words, aims to understand concepts, thoughts, or experiences, common methods like: interviews, observations, and literature reviews. Quantitative research, which uses numbers and graphs to test theories and assumptions, establishes generalizable facts about a topic; common methods include observations, and surveys, statistics and analysis. I use both qualitative and quantitative method to research logical facts, to examine influence of leadership on team dynamics and goal achievement. (Streefkerk, 2019)

Analysis

Leadership styles

In the organization its crucial to know your leadership style, so you can determine how effective it works, is your employees satisfied which skills you need to improve to increase your team efficiency and success. There are 6 most common used leadership styles which helps you to achieve organization goals. Companies can use 1 of them mostly but they can use other styles also when they need it according to their task.

(LinkedIn , 2024)

1. Transformational leadership style

Focus of transformational leadership is on adjustments and transformation, motivating followers to go after their expectations from their leader. Focusing on the future, embracing change with ease, and putting people first are all essential traits of transformational leadership. Inspiring their employees to accomplish the organization's objectives, transformational leaders make sure they are able to adjust to and feel at ease with change. Additionally, they acknowledge each person's potential and strive to help them maximize it by enhancing their unique skills and qualities. When a business is looking to make major changes or transformations, this approach

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may be quite successful. Leaders who use transformational leadership style motivates its employees to work creatively to innovate new solutions to the issues or new products according to market demand. (IMD, 2022)

2. Transactional style

This leadership style that prioritizes structure, rewarding systems, and penalties, it also called as managerial leadership. Leaders using this leadership style establishes precise team objectives and specifies how teams will be compensated, frequently in the form of cash. Instead of radical organizational changes, this "input and output" approach emphasizes effective routines and processes. When workers would be punished because they couldn't do their task on time or not well others also will be warned to not repeat his or her mistake. But if leader only punishes it can decrease motivation of the team so in transactional style, they also need to reward staffs who worked efficiently and helped to the objectives of organization which inspires others to work better to get reward. (IMD, 2022)

3. Democratic style

A leader that practices democratic leadership bases choices on team participation and is consultative and cooperative. It gives opportunity to workers to say their opinions and ideas, so they can vote for decisions. This style improves high levels of job happiness and productivity, which promotes innovation and involvement. It may be expensive and time-consuming to get team members to agree, though, particularly when decisions must be made fast. (Corporate Finance Institute, 2022)

4. Laissez-Faire Style

In a laissez-faire leadership style, team members are given the resources, knowledge, and tools they need to do their duties. In this style leaders use let them be method so team members may work independently on problem-solving, planning, creating, and decision-making. Creative, talented, and self-motivated workers are empowered by this empowering strategy, which increases productivity and job happiness. Laissez-faire leadership has been found to be the least successful and least fulfilling. (Corporate Finance Institute, 2022)

5. Servant style of leadership

A leader that practices servant leadership puts the needs of their team above their own. High honesty and a healthy company culture are traits of this leadership style that boost team harmony. However, servant leaders can give way to ambitious leaders, it is criticized for its incapacity to react to competitive conditions and don't ending tasks till deadlines. So, servant leadership is a type of leadership by example, where leaders must cultivate, uplift, and motivate their subordinates to get the greatest outcomes. (Corporate Finance Institute, 2022)

6. Bureaucratic style of leadership

There is minimal leeway for flexibility under bureaucratic leadership, which is characterized by a tight adherence to rules and procedures. When employee input deviates from the organization's policies, the leader firmly enforces these regulations. There is a hierarchical authority system with power moving from top to bottom, and new ideas frequently come slowly. Bureaucratic leadership is not appropriate for new, ambitious enterprises because it lacks the drive for creativity or additional effort, even if it has less control and greater flexibility than autocratic

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leadership. But it works well for regular workers and is appropriate for positions requiring safety hazards. In general, young, aspirational people are not suited for bureaucratic leadership. (IMD, 2022)

The leadership style chosen by Elon Musk

Now, we can see how *transformational style* of leadership is successfully implemented by businessman and co-founder of companies like Tesla, SpaceX, PayPal -Elon Musk. You can see how this style of leadership can help to achieve business organizations goals and objectives.

A combination of ambition, and receptivity to new ideas and strategies characterize Elon Musk's revolutionary leadership style. He listens to team members' ideas and sets high standards for himself and his businesses, demanding a lot of work and resources. Musk's dedication to creating high-quality goods and his work ethic demonstrate his enthusiasm for quality. His inventive approach, drive for excellence, talent investment, problem-solving abilities, communication skills, flexibility, and staff empowerment are some of his leadership traits. As a result of visionary leadership's encouragement of creativity and risk-taking, ground-breaking goods like SpaceX's reusable rockets and Tesla's Model S electric automobile have successfully launched. Musk's creative method encourages team members to think creatively and express their ideas without worrying about backlash by using technology to discover fresh answers to current issues. (McPheat, 2023)

Also , Elon Musk is renowned for his dedication to moral principles, and ethical standards. He is renowned for taking a forceful approach to successful innovation, emphasizing staff training and fostering a competitive atmosphere. Musk's company culture is centered on having great dreams and pushing people to think creatively and ambitiously. Companies can adapt and maintain their lead in a cutthroat market thanks to this culture of continuous improvement, which acknowledges that greatness is an ongoing process of progress. (Ceoinsight, 2024)

Effect of leadership style

Using transformational leadership style helped Elon Musk to be open to innovation and the growth of ventures. His new innovative ideas like Cybertruck and Model S increased capitalization of Tesla to **$1,45 trillion**. Tesla employs over 152 000 workers, its crucial to manage, control and give a right direction for employees. To increase sales, value of company (Nasdaq, 2024)

Elon Musk's SpaceX company value increased drastically to $350 billion based on a secondary share sale, CNBC confirmed in 2024.

Discussion

The role of leadership

Employee happiness, customer loyalty, market reputation, and sustainable development are all components of an organization's success. A company's culture, vision, and mission are all shaped by its leadership, which also affects employee behavior and how adaptable the business is to change. The culture of a firm is its personality, and leaders shape and uphold it. Strong, upbeat cultures boost productivity, reduce attrition, and promote employee engagement. By supporting staff development, giving constructive criticism, and recognizing accomplishments, effective leaders create a healthy work atmosphere. In addition, leaders establish the organization's strategic direction by establishing specific goals and devising plans to reach them. This precise guidance directs choices and synchronizes endeavors with the organization's objectives. Proficient leaders effectively handle change by welcoming it as a chance for development and encouraging a feeling

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of community among staff members.
To sum up, leadership is about motivating people to reach their full potential, leading by example, encouraging teamwork, and creating an atmosphere that supports creativity rather than about exercising power. (Wilkinson, 2023)

Importance of emotional intelligence for leaders

The capacity to identify, comprehend, and manage one's own emotions as well as those of others is known as emotional intelligence (EI). For leaders to succeed in their positions, it is essential. Self-awareness, self-regulation, motivation, empathy, and social skills are the five main components of emotional intelligence. Leaders that possess emotional intelligence remain humble, regulate their emotions, and uphold high standards for their job. They create safe spaces where workers can express their thoughts, take measured risks, and leverage their feelings to propel the company forward. Leaders with emotional intelligence can plan and prepare for changes without thinking about how it would affect their ego. They also don't hold personal grudges. On the other hand, leaders with low EI have a tendency to lose their cool under pressure, which can result in verbal abuse and passive aggressiveness that undermines team cohesiveness and productivity.
(Wilkinson, 2023)

Importance of working in a team to achieve goals of organization and team

The division of challenging duties, the simplification of complicated projects, and the promotion of varied skill sets are all advantages of teamwork in the workplace. It takes active listening, suggestions, dependability, cooperation, flexibility, and dedication to show collaborative abilities. A good team has a balance of duties, complementary abilities, and a strong feeling of unity. In the corporate world, teamwork is crucial because it enhances problem-solving skills, productivity, efficiency, creativity, employee morale, and job satisfaction. It creates a friendly work atmosphere for staff members, encourages candid communication, and values contributions. And in the team work it’s important to determine roles of team members, in 1team its difficult to be 2 leaders as other members don’t know whom to follow. It’s important to appoint team members roles according to their skills, abilities and personality. (Asana, 2022)

So now I chose Blebin’s model to use for appoint team members roles. And it’s crucial that in 1 team, there shouldn’t be2 people with same result or roles.

Reccomandation

Belbin’s model

A method for building harmonious teams that can work together productively and without conflict is the Belbin team role’s structure. In order to maximize each team member's potential and create high-performing teams, it specifies nine different roles or behaviors that are necessary for effective teamwork. Resource Investigator, Teamworker and Co-ordinator, Plant, Monitor Evaluator and Specialist, and Shaper, Implementer and Completer Finisher

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Belbin's model promotes strategic decision-making and creative solutions through various roles. Plant solves problems creatively, while Specialists provide in-depth knowledge and abilities, while Monitor Evaluators offer rational advice. Action-oriented roles improve team performance and project outcomes through efficient task execution and obstacle management. Implementation is systematic and reliable, while Shaper propels projects forward. Completer Finisher adheres to strict quality control standards. People-oriented roles improve collaboration, team development, and team culture. Coordinators make wise choices, assign work to best candidates, and maintain focus on goals. Resource investigators are interested, tactful, and cooperative, while team workers are helpful and cooperative. Recognizing and accommodating different work styles can make collaborative project management more feasible. (literature et al., 2023)

Tuckman model

Forming, Storming, Norming, Performing, and Adjourning are the phases of group growth according to Tuckman. These phases support the growth of teams' connections, leadership philosophies, and maturity. The model places a strong emphasis on identifying a team's developmental stage and helping it move into a stage that is compatible with teamwork. Teams frequently emerge and change in the real world as they progress through various stages, such storming or norming. Project guidelines are essential for assisting teams in progressing to the next phase. Forming includes establishing the team's structure, preventing disagreement, and concentrating on the needs of the group. Storming is focused on human relationships, producing interpersonal disputes, and managing activities and processes. In order for shared leadership to become effective, norming entails developing new ways of doing and being together. For shared leadership to be successful, team members must learn to trust one another. Data flow, group member participation, and innovation are all part of stage three. Fear of a potential split may result from the norming period. True interdependence, adaptability, and comprehension of team requirements are all part of stage four. This stage necessitates joint leadership and is very productive. When team members are prepared to go, adjourning takes place, which causes a great deal of disturbance. (West Chester University, 2022)

Conclusion

For a company to succeed, leadership is essential because it fosters teamwork, creativity, and alignment. Performance may be improved by comprehending leadership styles and customizing efficient strategies or models like Tuckman and Belbin. It is crucial to embrace flexibility, emotional intelligence, and strategic vision.

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MAKTABGA TA'LIMDA MOSLASHGAN TA'LIM KONTEKSTIDA INDIVDUALLASHTIRILGAN QO'LLAB-QUVVATNING O'ZIGA XOS XUSUSIYATLARI

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ABSTRAKT

Erta yoshdagi bolalar ta'limida adaptiv ta'lim kontekstida individuallashtirilgan yordam har bir bolaning o'ziga xos ehtiyojlari va rivojlanishini hisobga oladigan o'ziga xos xususiyatlarni o'z ichiga oladi. Ushbu yondashuv bolaning taraqqiyoti va faoliyatining ma'lumotlarga asoslangan tahliliga asoslangan shaxsiylashtirilgan ko'rsatmalar va tadbirlarni taqdim etish orqali o'rganishni moslashtiradi. Individuallashtirilgan adaptiv ta'lim yordamlarining o'ziga xos xususiyatlariga moslashtirilgan ta'lim yo'llari, maqsadli aralashuv, tabaqalashtirilgan ko'rsatma, zudlik bilan qayta aloqa, taraqqiyot monitoringi, individual boyitish, moslashuvchanlik va moslashuvchanlik, o'qituvchilar va ota-onalar o'rtasidagi hamkorlikdagi harakatlar kiradi. Bu xususiyatlar har bir bolaning qobiliyati, qiziqishlari va o'rganish uslubiga mos keladigan ko'rsatma va yordam olishini ta'minlaydi. Moslashuvchan ta'lim texnologiyasidan foydalangan holda, erta bolalik o'qituvchilari optimal ta'lim natijalarini qo'llab-quvvatlovchi va kelajakdagi ta'lim muvaffaqiyati uchun mustahkam poydevor qo'yadigan qo'llab-quvvatlovchi va inklyuziv muhitni yaratishi mumkin.

Kalit so'zlar: individual qo'llab-quvvatlash, moslashuvchan ta'lim, maqsadli aralashuv, tabaqalashtirilgan ko'rsatma, zudlik bilan qayta aloqa, taraqqiyot monitoringi, individual boyitish, moslashuvchanlik va moslashuvchanlik, hamkorlikdagi harakat.

ОСОБЕННОСТИ ИНДИВИДУАЛЬНОЙ ПОДДЕРЖКИ В КОНТЕКСТЕ АДАПТИВНОГО ОБУЧЕНИЯ В ДОШКОЛЬНОМ ОБРАЗОВАНИИ

Абстракт

Индивидуализированная поддержка в контексте адаптивного обучения в дошкольном образовании включает в себя отличительные характеристики, которые учитывают уникальные потребности и развитие каждого ребенка. Этот подход адаптирует процесс обучения, обеспечивая персонализированные инструкции и вмешательства на основе анализа прогресса и успеваемости ребенка на основе данных. Отличительные характеристики индивидуальной поддержки в адаптивном обучении включают адаптированные траектории обучения, целевое вмешательство, дифференцированное обучение, немедленную обратную связь, мониторинг прогресса, индивидуальное обогащение, гибкость и адаптируемость, а также совместные усилия педагогов и родителей. Эти характеристики гарантируют, что каждый ребенок получит обучение и поддержку, соответствующие его способностям, интересам и стилю обучения. Используя технологию адаптивного обучения, преподаватели дошкольных учреждений могут создать благоприятную и инклюзивную среду, которая способствует оптимальным результатам обучения и закладывает прочную основу для будущего успеха в образовании.

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Ключевые слова: индивидуализированная поддержка, адаптивное обучение, целевое вмешательство, дифференцированное обучение, немедленная обратная связь, мониторинг прогресса, индивидуальное обогащение, гибкость и адаптируемость, совместные усилия.

THE DISTINCTIVE CHARACTERISTICS OF INDIVIDUALIZED SUPPORT WITHIN THE CONTEXT OF ADAPTIVE LEARNING IN PRE-SCHOOL EDUCATION

Abstract

The provision of personalized assistance within the framework of adaptive learning in early childhood education involves diverse attributes that address the specific requirements and growth of every individual child. This methodology customizes the educational process by offering individualized instruction and interventions that are informed by data-driven analysis of the child's growth and performance. The salient features of personalized assistance in adaptive learning encompass customized learning trajectories, focused remediation, differentiated pedagogy, prompt feedback, ongoing progress assessment, individualized enrichment opportunities, flexibility and adaptability, and collaborative endeavors between educators and parents. These aforementioned attributes guarantee that every child is provided with education and assistance that are in accordance with their individual abilities, interests, and learning preferences. Through the utilization of adaptive learning technology, instructors in the pre-school setting have the ability to establish an environment that fosters both inclusivity and nurturing, thereby facilitating the attainment of optimal learning outcomes and establishing a solid groundwork for subsequent educational achievements.

Key words: individualized support, adaptive learning, targeted intervention, differentiated instruction, immediate feedback, progress monitoring, individualized enrichment, flexibility and adaptability, collaborative efforts.

Introduction. The unique attributes of individualized support in the realm of adaptive learning in early childhood education signify a transition towards customized and tailored learning encounters for young students. Adaptive learning utilizes technological advancements to deliver personalized education, interventions, and resources tailored to the individualized requirements, capabilities, and cognitive preferences of each student. This approach acknowledges the existence of varying developmental disparities among children in pre-school environments and emphasizes the need for tailored assistance to foster their academic and social well-being.

The primary attributes of personalized assistance in adaptive learning encompass customized learning trajectories, focused interventions, differentiated pedagogy, prompt feedback, ongoing progress assessment, personalized enrichment, flexibility and adaptability, and collaborative endeavors between educators and parents. The combination of these attributes synergistically contributes to the establishment of an educational setting that cultivates active participation, drive, and the attainment of ideal educational achievements for every individual student.

By incorporating personalized assistance within the framework of adaptive learning, educators in early childhood education can effectively cater to the unique learning requirements of each individual child, so ensuring that they receive appropriate instruction and support that is

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tailored to their capabilities and areas of interest. This strategy facilitates the promotion of diversity, enables personalized growth, and establishes a robust basis for subsequent educational achievements.

In the subsequent sections, a comprehensive examination will be conducted on each of these unique attributes, emphasizing their significance and influence on early childhood education within the adaptive learning paradigm.

Literature review. The concept of adaptive learning in preschool education, particularly focusing on individualized support, is a growing area of interest in educational research. The following analysis synthesizes findings from recent literature, highlighting the unique aspects and effectiveness of this approach.

Study by Hardy, Meschede, and Mannel (2022) emphasizes the importance of adaptive teaching, particularly in the context of elementary science education. The article "Adaptive Teaching in Elementary Science Education" highlights how teachers adjust their instruction to meet diverse student needs and levels of understanding. The study introduces a reliable measurement approach for adaptive classroom discourse, including diagnostic strategies, instructional support, and student understanding. It was found that adaptive classroom discourse positively impacts long-term student learning, with diagnostic strategies playing a significant role in conceptual restructuring.

Research by Otto et al. (2023) titled "AI-Based Adaptive Study Support System for Higher Education" focused on higher education, but this study provides insights into the use of AI-based technologies for adaptive learning. It proposes a systems-oriented approach for AI in education, emphasizing the need for holistic solutions that integrate teaching, research, and administration. This approach can be adapted for preschool settings to enhance individualized learning experiences.

Case Study by Liu (2022) explores the use of the Taiwan Adaptive Learning Platform (TALP) in elementary education. TALP, as a form of precision education, helps identify students' learning deficits and provides tailored feedback. The study "Precision Education in a Taiwanese Elementary School" suggests that such platforms can enhance learning by addressing individual challenges, a concept that can be translated into preschool education for individualized support.

Study by Van der Merwe (2022) focuses on preparing pre-service teachers to support learning in diverse school contexts. The article "Preparing Pre-Service Teachers in South African Schools" underscores the importance of understanding the science of learning and developing competencies for a fast-changing world. The findings are relevant for preschool educators, highlighting the need for training in adaptive and individualized teaching strategies.

The literature indicates a growing recognition of the need for adaptive and individualized learning approaches in preschool education. These studies collectively underscore the importance of tailored instructional strategies, the potential role of AI and technology in enhancing individualized learning, and the need for specialized training for educators. This approach not only caters to the diverse needs of young learners but also significantly contributes to their long-term educational development.

Research methods. Various research methodologies can be employed to investigate the unique attributes of tailored support in the context of adaptive learning in early childhood

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education. Several research approaches can be utilized in investigating this particular subject matter.

Experimental research can be employed to examine the effects of personalized support within adaptive learning on the educational achievements of preschool-aged children. Researchers have the ability to employ random assignment techniques to allocate individuals into various groups, such as an experimental group that receives personalized support and a control group that undergoes typical instructional methods. The measurement and comparison of learning outcomes, such as academic success or developmental growth, can be conducted across different groups.

Observational research approaches, such as case studies or naturalistic observations, can be employed to collect qualitative data pertaining to the implementation of tailored support and its impact on the learning experiences of pre-school children. The observation and documentation of the interactions among educators, children, and adaptive learning systems enable researchers to gain insights into the process of personalizing and tailoring specialized support to fit the unique needs of each kid.

Surveys and questionnaires are commonly utilized tools for gathering data on the perspectives and experiences of educators, parents, and pre-school children in relation to the provision of tailored support within the context of adaptive learning. These instruments have the capability to assess the efficacy of several aspects of personalized support, including customized learning trajectories, focused intervention, and differentiated pedagogy.

Interviews and focus groups can be utilized as research methods to gather comprehensive insights from educators, experts in pre-school education, and parents regarding their viewpoints on the unique attributes of personalized assistance within the context of adaptive learning. Qualitative methodologies facilitate the acquisition of comprehensive and intricate understandings pertaining to the advantages, obstacles, and optimal approaches linked to the implementation of personalized assistance.

The utilization of a mixed methods approach involves the integration of both quantitative and qualitative research methodologies in order to obtain a full comprehension of the unique attributes associated with personalized assistance in adaptive learning. This methodology entails the gathering of quantitative data pertaining to educational achievements, with the utilization of qualitative techniques to investigate the experiences, perceptions, and contextual elements that impact the efficacy of personalized assistance.

Longitudinal studies are a valuable research method that can be employed to investigate the enduring impacts of personalized assistance within adaptive learning on the academic and socio-emotional development of young children attending preschool. Researchers have the capacity to evaluate the durability and consistency of the advantages linked to personalized assistance by tracking a group of youngsters over a prolonged duration.

When conducting research on this topic, it is crucial to take into account ethical considerations, obtain participant agreement, and employ an appropriate research design. It is imperative for researchers to prioritize the verification of validity and reliability of the research instruments employed, as well as carefully evaluate the practical feasibility of implementing the research methodologies within pre-school settings.

Results and discussions. The unique attributes of personalized assistance in the realm of adaptive learning in early childhood education carry substantial ramifications for the educational

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encounters and achievements of young students. Below are several potential debates pertaining to these characteristics:

The capacity to generate personalized learning routes that are tailored to the unique abilities and development of each student is a fundamental aspect of individualized support within the context of adaptive learning. The focus of this discourse centers on the difficulties and advantages associated with customizing educational instruction to accommodate the varied requirements of preschool-aged children. Additionally, it explores how adaptive learning platforms can proficiently modify material and activities to enhance the overall learning encounters.

Targeted interventions are a crucial component of adaptive learning, as they effectively address the individual learning gaps and obstacles encountered by pre-school children. Discussions may center around the significance of identifying areas of deficiency and delivering prompt assistance to guarantee that youngsters obtain the requisite treatments to surmount challenges and advance in their educational development.

The implementation of differentiated teaching, which involves tailoring instruction to accommodate the unique requirements and learning preferences of each individual, is an essential element of providing personalized support. Discussions may go into the examination of efficacious approaches in modifying instructional methodologies, materials, and resources to cater to the many learning preferences and strengths exhibited by pre-school children, hence facilitating active participation and cultivating a conducive learning milieu.

Immediate Feedback: Adaptive learning platforms provide prompt feedback, enabling preschool-aged children to obtain current information regarding their performance. The focal point of discussions can revolve around the advantages of prompt feedback in facilitating the development of metacognitive abilities, self-reflection, and self-correction. Additionally, the role of educators in understanding and effectively utilizing feedback to inform subsequent instructional practices can be examined.

Progress monitoring is a crucial aspect of adaptive learning systems, as it enables the collection of significant data pertaining to the growth and learning pathways of pre-school children. The discourse may center around the ethical implications and privacy issues associated with the gathering and examination of data, in addition to the manner in which progress monitoring can contribute to making informed instructional choices and facilitating personalized learning experiences.

The implementation of individualized support within adaptive learning necessitates the collaboration of educators, parents, and children in order to achieve optimal outcomes. Discussions may delve into the significance of proficient communication, mutual objectives, and collaboration among stakeholders to guarantee the consistent and harmonious implementation of personalized support, both within the pre-school environment and in the home setting.

The potential impact of individualized support within adaptive learning on the motivation and engagement of pre-school children is significant. The personalized nature of this approach has the ability to boost their motivation and engagement in the learning process. Discussions may explore the potential of adaptive learning platforms to utilize gamification, interactive elements, and individualized content in order to cultivate intrinsic motivation, curiosity, and a passion for education.

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The topic of discussion may encompass the difficulties that arise when adopting personalized support in adaptive learning, including issues related to technology accessibility, allocation of resources, and educator training. Consideration should be directed towards the promotion of fair and equal opportunities for accessing adaptive learning platforms and receiving support, with a specific focus on children from different backgrounds or those with minimal resources.

It is imperative to thoroughly examine the long-term consequences of implementing personalized assistance in adaptive learning. The topic of discussion revolves around the potential long-term effects of personalized assistance, specifically examining if its advantages extend beyond the early childhood period and positively impact academic achievements, socio-emotional growth, and lifelong acquisition of knowledge and skills.

These conversations can offer valuable perspectives on the potential advantages, difficulties, and factors to be taken into account regarding the unique features of personalized assistance in the realm of adaptive learning in early childhood education. Additional study and collaboration among educators, researchers, and policymakers is imperative in order to enhance practices and maximize the effective implementation of personalized assistance for the comprehensive advancement of preschool-aged children.

Conclusion. In summary, the unique attributes of personalized assistance in the realm of adaptive learning in early childhood education has the capacity to significantly augment the educational experiences and achievements of young students. The individualized characteristics of adaptive learning platforms provide customized learning trajectories, focused interventions, and differentiated pedagogy, accommodating the heterogeneous needs and cognitive preferences of every student. The prompt and ongoing assessment provided by these platforms facilitates timely interventions and assistance, fostering a continuous process of growth and advancement. The efficient implementation of tailored support necessitates the collaborative efforts of educators, parents, and children. The consistent delivery and alignment of tailored care with the needs and goals of each child are facilitated by effective communication, common goals, and a collaborative relationship among stakeholders. Furthermore, the utilization of adaptive learning platforms has the potential to enhance motivation, engagement, and cultivate a favorable disposition towards the learning process. This can be achieved through the incorporation of gamification, interactive elements, and tailored content.

Nevertheless, it is imperative to acknowledge and tackle certain obstacles, including but not limited to issues surrounding technological accessibility and fairness, allocation of resources, and provision of adequate training for educators. These challenges must be effectively dealt with in order to guarantee a just and unbiased implementation of personalized assistance. Discussions should prioritize ethical questions pertaining to data collecting, privacy, and the proper utilization of technology. Additional investigation and cooperation are required to enhance our comprehension of the enduring consequences of personalized assistance within the context of adaptive learning. Longitudinal studies have the potential to provide valuable insights into the enduring effects of personalized assistance, as well as its role in enhancing academic achievement, socio-emotional growth, and the acquisition of lifetime learning abilities. In the realm of pre-school education, the potential of tailored support within the framework of adaptive learning is highly promising. By adopting these attributes and confronting the corresponding obstacles, it is

possible to establish a learning environment that is more comprehensive, captivating, and efficient for pre-school children, thereby initiating a trajectory towards continuous education and achievement.

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HAS MEDICINE BECOME A BUSINESS TODAY

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1. ABSTRACT

This work aims to investigate the shift of healthcare from the traditional clinical patient centred model to the business model with reference to its ethical, professional and social impact. Analysing interviews with doctors and nurses and focusing on the results of the survey, the study reveals conflicts between business interests and human-oriented values. Topics covered are privatisation of the health care system players including BHP Billiton's private health care providers, pharmaceutical pricing models, and shifts surrounding the business of health care and health care as a public utility. The results therefore highlight the need to adopt a mixed model that can simultaneously provide financial profitability for the practice and fair delivery of and affordable care to patients. In doing so, this study enriches the conversation about how best to synergise efficiency with morality in globalised healthcare systems.

Key words: privatization of healthcare, dual healthcare model, profit-driven medicine, pharmaceutical pricing ethics.

INTRODUCTION

The transformation of the healthcare industry can be most vividly described as the movement from a medical and clinical model to a business and financial model. As these changes have brought the innovations and accessibility enhancements in many respects, they have simultaneously cast serious concerns and question about the ethical proportion between the financial and patients' interests. This has changed the landscape of HC systems eliminating barriers between physicians and patients and changing the overall delivery services.

This qualitative study will attempt to identify the impacts business has on health care values such as doctor patient relationship, quality health care access and ethical duties of health care providers. Thus, an attempt is made to explain the subject of the research in a broader perspective by considering the positve and negative possible effects of this change.

To this end, the study will use both the primary and secondary research techniques. The first type of data collection will be the interviews with health care professionals alongside the quantitative data collection in form of questionnaires, in as much as the focus is to garner different views about the subject. Secondary research is also meant to involve a review of the existing literature and case study to formulate theory. Therefore, adopting the mixed-method approach, the article will present the cross-sectional study of the contemporary development of business practices in medicine for critique of their affordances and constraints.

2. Literature Review

The Transformation of Medicine into Business Model

Recently the shift of the systems of healthcare from the patient-centered clinical model to a business model has been an area of interest of many people. This literature review synthesizes findings from three key articles exploring this phenomenon: The five reliable sources of

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information for this topic include; "The Big Business Of Medicine: A Doctor Speaks The Truth" by Dr. Suzanne Steinbaum, "Medicine is a Profession, but Healthcare is a Business" from Healthcare Success and "When Medicine Becomes a Business" by LifeCraft.

"The Big Business Of Medicine: A Doctor Speaks The Truth"

In her article, Dr. Suzanne Steinbaum discusses the change in focus of healthcare organizations based on the major concept of profit. She points out that while facilities that are supposed to provide needed medical attention, such as hospitals, have shifted focus to more monetary gains. This concern with the profit is also inherent in the quality of offerings being made available to patients as well as the conditions under which personnel operate. To uphold the integrity of healthcare Steinbaum calls for systems solutions stating that the economic model of healthcare has erred (Steinbaum, 2019).

"While Medicine is a Profession, Health care is Business"

The article from Healthcare Success describes the tension between being a doctor and acting medicinally, and being a part of the large healthcare system masterfully. It states, for example, that physicians are inevitably organized into a profit-making set of structures while still striving to have the essence of a professions. The piece describes the difficult work roles and tasks of the practitioners exposed to such types of conflicts of interest and propose that the enhancement of business wisdom in the process of educating medical personnel could help to decrease some of the problems (Healthcare Success, n.d.).

Attitudes to Heath Care: 'When Medicine Becomes a Business'

Analyzing various aspects and features of the business-oriented transformation of medicine, LifeCraft's article enlarges upon the latter's social consequences. Of this, it elaborates on the impact it has on the doctor patient relationship whereby in most cases, business factors end up influencing clinical ones. A similar analysis is also done on the conflicts of interest since the innovation revenue generating ideas bring worries since they could be against the patient's benefit. According to LifeCraft, the focus of the health care industry needs to be shifted so that the patient's interest can stay as a main focus (LifeCraft, n.d.).

3. Research Methodology

This research tries to satisfy this gap by using primary and secondary data collection methods to assess the implications of business dealings on health providers and consumers. Combined approaches of qualitative and quantitative research means provide a rich understanding of the topic of the study.

Primary Research

Primary data was collected through a combination of interviews and surveys:

1.Qualitative Research:

SIX participants from the healthcare sector were interviewed via semi structured interviews, which included the selection of a GP, a nurse, an ms/PhD student, a policy analyst, a

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patient and a healthcare administrator. These interviews were designed to elicit the participants' opinions on revenue generating strategies in contrast to the benefit to the client.

The method used in this analysis was thematic analysis applied to the pattern and themes of the interview response.

2.Quantitative Research:

A questionnaire was also administered to 110 healthcare practitioners and patients to obtain statistical analysis of opinion on profit-oriented health care. Hypothesis-based questions concerning the role of private players especially healthcare service providers, the power of the drug companies and participants' perceptions of whether healthcare should be a business or service. The result obtained was then used in descriptive analysis whereby probably the most frequent overall trends and deviations were outlined.

Secondary Research

Secondary data was collected from published peer reviewed articles, published policies and published reports from the health care systems. Convenience literature regarding the development of business in medicine, fiscal polices impacting health professionals, and new paradigms like concierge medicine acted as the theoretical foundation for the study. This approach helps to understand the identified research problem at the intersection of empirical and theoretical levels and provides a more comprehensive approach to analyzing the issue.

4. Survey questions

The questions set for this study, therefore seek to investigate tensions and ethical dilemmas associated with the commodification of health.

- **Have you ever thought that healthcare is now an industry chiefly motivated by the generation of profit? -** These set questions explore if the patient care interest or self-interest is the order de jour in today's health structures.

- **What is your attitude to the increased demand for private healthcare organizations? –** This query aims at tapping the perception of the people and the professional regarding privatization and impact of privatization on health care utilization and rationing.

- **In your opinion, do the representatives of the pharmaceutical companies give more importance to making money as against the people's health? –** This looks at the main ethical concerns within the pharmacy wholesale suppliers and manufacturers and effects on patients.

- **Should healthcare be a business or should it continue being a public service? –** This question raises questions in arguing the best organizational administrative health care system.

- **In your opinion what is the ultimate aim of contemporary healthcare? –** It is for this reason that by asking a question that aspires to grasp what is considered as a priority level in the contemporary healthcare system, this question is designed to compare and contrast the expectations of stakeholders and the realities of the system that they expect to deliver .

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Together, these questions allow for an understanding of the contours of health care as both a commodity and a service, giving a starting point for future analysis in the study.

5. Interview queastions

Profit-Driven Healthcare:

Do you feel healthcare today is more focused on making profits or providing quality care? Why?

Private Healthcare Providers:

What are your thoughts on the increasing number of private healthcare providers? Do they improve or harm access to healthcare?

Pharmaceutical Companies:

In your opinion, do pharmaceutical companies prioritize profits over the health and well-being of patients? How does this affect healthcare overall?

Healthcare as a Business or Public Service:

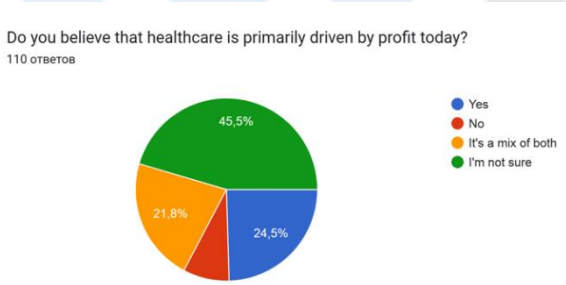
Should healthcare operate more like a business or stay as a public service? What do you think is the best way to balance these approaches?

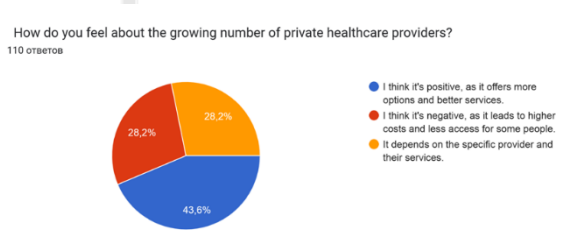
Goal of Modern Healthcare:

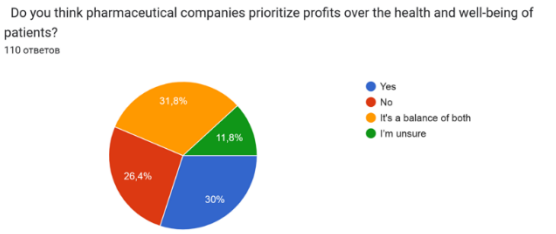
What do you think the main goal of modern healthcare should be: providing care for everyone, generating profits, or balancing both?

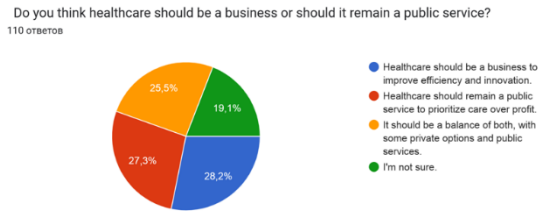
6. Research Findings

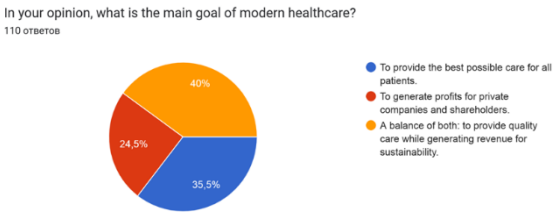
- **Primary research results**











- **Interview results**

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Interviewee 1: Dr. Iskandar Tursunov - General practioner

1.Profit-Driven Healthcare:

"Healthcare, today, is more and more a commercial business venture." That is why in my practice, I found out that administration is often inclined towards making savings than in delivering appropriate patient care. For instance, while employing strategies to reduce costs such as downsizing the workforce, hospitals will affect the amount and quality of care we afford patients."

2.Private Healthcare Providers:

"Private providers have clearly set the pace in regard to technology and infrastructure. But they only allow specific patients who can afford the high costs involved and this makes inequality. For instance, while the individuals with money can get more superior treatment, others continue waiting in poorly endowed public hospitals."

3.Pharmaceutical Companies:

"This means pharmaceutical companies may set the cost of life-saving drugs at levels that are prohibitive to most common MDC patient. As much as I agreed that investments should be made through profits for the funding of research, I have realized that patients would abandon necessary treatments because of expensive bills."

4.Healthcare as a Business or Public Service:

"Healthcare is supposed to be a public asset in the first place. The needs of the vulnerable populations are least of concerns as soon as profit becomes the focal point of an organization. Public healthcare delivery ensures access by all, a factor which may not be well captured by private systems of care delivery."

5.Goal of Modern Healthcare:

"An ideal model of future healthcare system should be available to everyone, irrespective of status, and financial input to develop an effective mechanism of financial sustainability".

Interviewee 2: Nilufar Ahmedova - Nurse

1.Profit-Driven Healthcare:

"It's a mix. Even though rational incentives are essential to secure financial resources and run the facilities, they result in choices that endanger patients. For example, patient quotas neglect time for each patient and imply a decrease in the quality of the interactions."

2.Private Healthcare Providers:

"Getting health care from a private health care provider has its pros and cons. While, they have short waiting time and provide better remuneration package for its staff, they disadvantage patients with low income by making health care less affordable to them."

3.Pharmaceutical Companies:

"They know that they can make a lot of money while their generic drugs harm more people. I've seen patients even squandalizable afford generics, and that is frustrating to imagine, that drugs are necessary for people's lives."

4.Healthcare as a Business or Public Service:

"I would like to see a combination where government is responsible for service delivery across the country while markets instigate competition. Like this, the Government will be able to conserve equity while also moving forward at the same time."

5.Goal of Modern Healthcare:

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"The main aim should always be to give maximum care possible but such a system should in equal measure be able to run for there to be maximum services running for maximum people."

Interviewee 3: Shakhzod Karimov-Medical Student

1.Profit-Driven Healthcare:

"In my internships I have perceived that the pecuniary interest comes first. For instance, this means that patients who have insurance companies that can pay the hospital more are treated prioritarily to patients who have serious diseases that can worsen if treated later."

2.Private Healthcare Providers:

"Private healthcare can offer considerable dynamism and first-rate provision; in like manner, it means the existence of two systems – one for the growing middle classes and another for the comparatively well-off population. Such inequality is unreasonable, particularly in instances when people's lives depend on the speed of their treatment."

3.Pharmaceutical Companies:

"Pharmaceutical firms occupy a very delicate balance as far as I am concerned. It enhances research on profits but at the same time demoralizes patient since they cannot afford to pay for expensive drugs."

4.Healthcare as a Business or Public Service:

"Health care ought to be much more public utilities oriented. The internet should be accessible to everyone, without regard for their ability to pay."

5.Goal of Modern Healthcare:

"It should be aimed at making equity, innovation, as well as sustainability the goals of the development of the field while promoting its progress and not forgetting about people who might become victims of innovative processes."

Interviewee 4: Mahliyo Abdurahmonova - Health Policy Analyst

1.Profit-Driven Healthcare:

"In the current world, financial motivated systems have become popular in today's health facilities especially in the private sectors. These models tend to focus on such variables as indicated by the bed turnover rates and attempting to reduce the costs as much as possible all through negating on the welfare of the patients."

2.Private Healthcare Providers:

"The personal national suppliers enhance competition and therefore quality and innovation is enhanced. However, they also therefore deepen inequalities within a system that has both winners and losers, the haves and the have-nots of expensive healthcare services."

3.Pharmaceutical Companies:

"Pharmaceutical firms often get motivated by the desire to make profits; at the expense of the societies in most cases."

4.Healthcare as a Business or Public Service:

"That then gives an impression that a blended approach is the only way forward. What I believe is that the fundamentals of health care should be free for all people of the society and should be strong while other private firms and companies should just work on the advancement of these fundamental health care services."

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5.Goal of Modern Healthcare:

"As much as it works to provide quality health care to everyone, modern health care should also work towards being fiscally responsible and the proliferation of innovative practical solutions for long term efficiency."

Interviewee 5: Akmal Saidov-
Patient

1.Profit-Driven Healthcare:

"Especially with all these politics with the students – I feel like everything is about money now. In the current society, I have come across women who elected between paying rent or buying their medicine. My life was not what it used to be, it's painful when everything that keeps you alive is in your pocket, bank account that is."

2.Private Healthcare Providers:

"The use of private clinics are easy, but the poor such as me cannot be able to afford the payments. This is why I use the public hospitals most of which are poorly equipped and manned by a shortage of qualified staff."

3.Pharmaceutical Companies:

"Profits for producers appear to be more important than patients, is what many people are making known. My medication is expensive than what I can afford, insurance sometimes do not even fund the cost of this medication."

4.Healthcare as a Business or Public Service:

"This is the case; therefore, healthcare should be a public service. Not a single individual should have to endure or pass away because they cannot afford their medical costs."

5.Goal of Modern Healthcare:

"The notion underlying this should be that every person should be able to afford good quality of care in his or her times of ill-health at any given time."

Interviewee 6: Dildora Rasulova-Healthcare Administrator

1.Profit-Driven Healthcare:

"It is imperative for health care institutions to achieved with profit motives but these motives should not be achieve at the detriment of the patients. For instance, while managing the operational costs it becomes difficult to meet the needs of all the patients as noticed by the researcher in his or her everyday practice."

2.Private Healthcare Providers:

"They conclude that private providers introduce innovation and effective strategies of managing the resources and that there must be compatibility of private providers with the public systems in order to make them available to all."

3.Pharmaceutical Companies:

"This means while pharmaceutical firms have a celebrated role in the development of new drugs their pricing mechanisms are regressive, lesser thought needs to be given to patients."

4.Healthcare as a Business or Public Service:

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”A dual system would be appropriate, that is the public sector for the primary needs and the private sector for the more advanced health care services. This approach makes access possible while promoting innovation simultaneously.

5.Goal of Modern Healthcare:

“They stated it as to provide excellent patient care in the most cost effective manner and in equal measure provide for the financial imperative and fair coverage for every patient.”

7. Discussion

1. Culture of Healthcare as Business Organization

In the survey it was established that 24.5% of the respondents agree that health care is mainly profit oriented and 45.5% of them hold no opinion about the same. A considerable 21.8% of the respondents’ feel that it is both profit and service oriented orgnaisation. Evident from this data is a high level of unclear or doubted intention of modern health systems. It reflects popular attitudes toward a future commercialization of the system and its effects on balancing access to good healthcare for everyone. This finding will conform and contribute to continuing discussions on whether or not profit motives erode the ethical delivery ofcare.

2. Perceptions on Private Health Care Organizations

When it comes to an increase in the number of private health care providers the response was somewhat positive as 43.6% respondents favoured the situation because of scaled up options and better quality of services. Yet, an equal percentage of respondents (28,2%) consider it as negative trends because it could be more costly and some populations have less access to it. They suggest that there is a clear conflict between opportunities generated by innovation and threats stemming from the widening inequality. This polarization means that the countries need to have policies that will foster private sector development while sustaining the gains made on affordability and access.

3. Motivation of Pharmaceutical Companies and Profit Making

A clearly raised 31.8% of respondents expressed that the pharmaceutical companies instead of extending the patients’ care, they seek revenue, while 30% agreed on moderate in the middle of the two extreme. In turn, arguing that some participants do trust these companies’ intentions, 26.4% of the participants disagree with it. Thus, the insights under discussion evidence a rather complex public image of the pharmaceutical business, in which profit-making interests are both recognised and doubted. When people and businesses are transparent and engage in ethically correct practices they trust that the public will pitch in.

4. **The future of Healthcare as a Business or Public Service**

The respondents were divided as to whether the health care sector should continue to offer service as a public service of not as a business. Thus, whereas 28.2% of responders pointed toward more of a business model as the way to foster innovation and efficiency, 27.3% pointed toward keeping it nearer to a public service model. Another 25.5% support the model half and half. This variety of approaches is quite understandable given the fact that it is very hard to reconcile such economic rationality with the principle of the organization’s ethical Charter based on the provision of healthcare for everybody.

5. Concerning the main goal of modern healthcare:

40 percent quoted the organization to offer both quality health care services as well as make revenue, 35.5 percent considered the organization’s health care services provision, and the rest

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24.5 percent were in a way that do not necessarily have to focus on making revenue. It is the implication that a paradigm change wherein healthcare entities need to embrace the duality of goals is now acceptable. This change in perception among the consumer should be acknowledged to provide a powerful impetus for the erection of structures that fit patient needs as well as long-term approaches to healthcare delivery.

Discussion of interview

The semi-structured interviews conducted with six participants including health care professionals, a policy analyst, a patient and an administrator give a exhaustive insight into the effects of profit motivated HC and PP.

Profit-Driven Healthcare

There was a consensus among all the respondents about the fact that, unfortunately, the profit motive has expanded its role in contemporary healthcare systems, but views varied in relation to this. Dr. Iskandar Tursunov and Shakhzod Karimov also noted that there is an idea of the financial priority interfering with the patient care priorities, for instance, resources allocation between cost effective measures, or rich patients. Likewise, Akmal Saidov expressed pains of a patient who is forced to balance between basic needs such as feeding, clothing among other things, and the costs of getting medical bills showing that profit motivated models come with socioeconomic realities. On the other hand, Dildora Rasulova agreed with the need for profits to be made to fund operations while stressing the need to keep the patient at the heart of those operations. This division emphasises the various essential yet rocky relationship of profitability and accessibility.

Private Healthcare Providers

Private healthcare providers' responsibilities came out to be on the positive side with a twist. More of the participants like from the case of Nilufar Ahmedova Mahliyo Abdurahmonova -welcomed private providers for encouraging innovation,providing better technologies and most importantly short waiting time. But they also approved that private institutions increase healthcare inequality because they termed they are more relevant to the rich. This was also expressed by Karimov who pointed at the "two-tier system" that discriminates on the subject of access to affordable and quality healthcare, vulnerable groups of people. Speaking as an inpatient who has to receive treatment in public facilities, Saidov could not help but see crowded hospitals as the result of setting up a large number of highly paid private clinics. Such reflections suggest that efforts toward public-private partnerships should be more intense with the goal of narrowing the gaps.

Evaluations of Pharmaceutical Companies In all the interviews, the pharmaceutical firms were regarded as being motivated by profit rather than the well being of the patients.e. Dr. Tursunov and Ahmedova described expensive prices of medicines as one of the forms of healthcare access, explained personally with reference to Saidov. They appreciate the fact that patented drugs profits fund new inventions, but they spoke of ethical pricing. According to Rasulova, increasing transparency and developing patient-oriented notions can help to resolve this problem; however, a regulatory approach is apparently needed to ensure the coordination between the orientations in the sphere of innovations and prices.

Healthcare As Business or Service

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An issue that emerged time and again during the interviews was dichotomy between healthcare as a public service or a business. Whereas Dr. Tursonov and Karimov seem to argue for the public service model to guarantee access for all, Ahmedova and Rasulova propose the concept of integrating public accessibility together with private initiatives. This point of view recognizes the interdependency between both sectors in realizing the principles of health systems, which necessarily call for equitable and sustainability.

Goal of Modern Healthcare

Specifically, equity, innovation and financial sustainability were identified among the participants as the main goals of modern healthcare. Ahmedova and Karimov also cherish these principles as an ideal model of nurses' work, which, however, takes into account patients' needs and economic constraints. Abdurahmonova also stressed the necessity for systemic cooperation in the provision of services focused on eradicating inequality While Rasulova emphasized the effectiveness of creating services that actively deliver quality diversified healthcare services. Altogether, it is possible to outline the following approaches that still can see a healthcare system ready to develop innovations and at the same time, serve its population.

8. Conclusion

This paper attempts to explain the interactive patterns of the healthcare sector in transformation from patient oriented services to business oriented medical services. Forums have discovered the accelerated privatization and business strategies in health have brought in the innovations, efficiency, and improving technology but paralled by magnifying disparities in access, affordability, and equity. The views from the surveys and interviews corroborated establish that healthcare is both a service delivery arm and a business organization thus exposing the ethical questions and social economic issues derived there from.

Many views expressed by respondents showed that although profit incentives are as important to ensure survival and delivery of health services, they add to the erosion of quality patient treatment and contribute to inequity through the high cost of drugs as well as access to private health facilities. The research raises a concern on the system in which healthcare facilities can operate, suggesting a need to develop a dual model that has both economic viability and social justice component. This model should be a means of linking public sector openness and private sector creativity to meet two distinct goals, that is, the concerns of efficiency and the patient.

Finally, this work signals for structural changes in the financial sector that respect clarity, integrity, and partnership of government and business. With nursing economic values properly aligned with nursing patient advocacy values, healthcare systems could change direction with expectations of modern society without sacrificing patient outcomes for any nurse or healthcare consumer.

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THE ROLE OF ONLINE APPS IN BUILDING CUSTOMER LOYALTY IN SUPERMARKET RETAIL INDUSTRY

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ABSTRACT

Online apps are becoming more and more important to the store retail business as a way to improve customer loyalty. This article is mostly about Korzinka, a well-known Uzbek supermarket chain company, and how it uses mobile apps to keep people interested and coming back. The study looks at what the app does, how it changes consumer behavior, and how it helps businesses build deep connections with customers. The study uses both primary research (interview) and secondary data analysis to find the main things that keep customers coming back, like ease of use, personalized deals, and award programs.

The results show that Korzinka's app is very important for building a loyal customer base because it makes shopping easier, strengthens the link between customers and the brand, and encourages customers to buy from Korzinka again. In the last part of the article is about how well online apps work in the store retail business to keep customers happy and loyal.

Keywords: Customer loyalty, supermarket retail industry, online apps, Walmart, Carrefour, Korzinka, consumer behavior, customer satisfaction.

1.0 INTRODUCTION

In the past few years, there have been big changes in how people buy goods from supermarkets. These days, supermarkets aren't just real shops; they're also becoming digital sites that offer benefits, ease of use, and personalization. Online apps are now an important part of this change because they help stores connect with their customers better and earn their trust. These apps are more than just buying tools; they offer special deals, personalized ideas, and quick access to services that make shopping easier and more fun.

One of the most important things for a store to do well is to keep customers coming back. Studies have shown that loyal customers spend more and come back more often, which helps businesses grow steadily. Stores are using online apps to keep customers interested and happy in a world where there are many choices at their fingertips. Walmart and Carrefour's apps have set the standard for using technology and smart business practices to make shopping easier and more fun for their users (Wolniak, Stecuła and Aydın, 2024).

The article focuses on how online grocery store apps help keep customers coming back. For secondary research, I analyzed global supermarkets like Walmart and Carrefour to understand what works in their apps. For primary research, I focused on Korzinka, a well-known supermarket chain in Uzbekistan. Interviews with Korzinka customers helped me understand how they use the app, what they like about it, and where it could improve.

The article paints a clear picture of how stores can use technology to build long relationships with their customers and stay competitive in a market that is changing quickly by mixing the ideas of world leaders with real-life examples from around the world.

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2.0 LITERATURE REVIEW

2.1. Customer Loyalty Theories

Supermarkets and other stores that sell things need loyal customers. The **Customer Loyalty Ladder** is a model that shows how customers go from being prospects to supporters. It shows how important it is to build strong ties with customers to get them to buy from you again and spread good word of mouth. Studies have shown that loyal customers buy more often and spend more each time they visit. This makes keeping customers a cheap way to help your business grow. Oliver (1999), who agrees with this, says that customer loyalty is "a deeply held commitment to re-buy or re-patronize a preferred product or service despite situational influences."

Also, Grönroos (1994) says that relationship marketing stresses the value of long-term relationships over one-time purchases. It goes even further with this by focusing on long-term relationships instead of short-term deals to make customers happier and more loyal. In reality, stores like Walmart and Tesco spend money on reward programs and personalized communications on their applications to get to know their customers better. Reichheld and Sasser's (1990) research shows that keeping just 5% more customers can improve earnings by up to 95%. This shows how important loyalty is for businesses.

2.2. Role of Online Apps in Customer Loyalty

Personalization:

Customers feel like the supermarket apps they use are valuable and important when they offer personalized experiences like special deals and product suggestions. Personalization makes users more interested and happier, which makes them more loyal. For example, apps that look at what users have bought in the past and offer similar items can make buying easier and more fun (Hofman-Kohlmeyer, 2016).

Loyalty Rewards:

Adding reward programs to apps, like points systems, savings, or return deals, encourages people to buy again. Customers feel valued and respected when they get these gifts, which makes them more loyal to the store. A study on customer loyalty programs shows that they are good at keeping customers and making them happy (Hofman-Kohlmeyer, 2016).

Convenience:

Apps for supermarkets are more useful when they have features like simple browsing, quick payment choices, shopping lists, and home delivery services. These features' ease of use and accessibility have a big impact on customers' decisions to download and use the app, which builds trust. Using TAM to look at online food shopping shows that how easy people think an app is to use has a good effect on their decision to use it (Aybek and Özdemir , 2023).

2.3. Global Examples

Walmart

Walmart's app has features like navigating the store, watching your order, and connecting to the store's reward program. These features make shopping more enjoyable by making things easier and giving more personalized service, which makes customers happy and

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keeps them coming back. The app's complete features and easy-to-use design have set a standard for how to use apps effectively in the retail business (Walmart, 2023).

Carrefour

Customers can get real-time deals and digital coupons through the Carrefour app, which saves them money right away. Customers are more likely to connect with the app and buy from it again because it can send them personalized deals based on their shopping past. Carrefour has successfully combined its online and offline services to give customers a smooth shopping experience by using digital tools (Carrefour, 2023).

2.4. Benefits for supermarkets of using online apps

Online apps have changed how grocery stores talk to their customers and run their businesses. By bridging the gap between convenience and personalization, these apps have become essential tools in the competitive retail landscape.

Increasing the lifetime value and Customer Retention

Supermarket apps are a great way to improve customer loyalty They let stores offer benefits and deals that are more relevant to each customer based on how they behave. This method not only keeps customers coming back, but it also makes them more likely to spend more. Lemon and Verhoef (2016) say that personalized reward programs can make relationships with customers much better, which can turn one-time buys into return users.

For instance, Tesco's Clubcard app gives customers personalized savings and prizes that have made them much more interested in the app In this respect, Tesco (2023) relates that the app users visit the shops more frequently and spend on average 12% more. A program of this type can make a customer feel close to the brand, which increases the chances that he will be loyal to them for a long time.

Collection of Valuable Customer Data

One beneficial aspect of store applications is their ability to gather and analyze user information. This encompasses feedback, purchasing behaviors, and preferences—all highly valuable for informed decision-making. This information can assist stores in making more informed decisions about their inventory, refining their marketing strategies, and enhancing the overall shopping experience.

Walmart's app monitors customer purchases to adjust inventory and recommend products accordingly. In 2020, Chen et al. demonstrated that leveraging these types of data insights leads to enhanced operational efficiency and enables businesses to more effectively address customer needs. This translates to a reduction in stock-outs, more suitable sales, and an enhanced overall shopping experience.

Making omnichannel strategies stronger

Furthermore, supermarket apps are very important to omnichannel tactics, which try to make shopping both online and in stores as easy as possible. Click-and-collect, mobile transfers, and real-time product changes make it easy for customers to shop the way they want to.

Carrefour has done a great job in this area by using its app to connect its online store to its real shops. According to Piotrowicz and Cuthbertson (2014), this kind of merging makes

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customers happier and more loyal because it makes everything the same. Customers feel the same amount of ease and service whether they shop in-store or online, which makes their relationship with the company stronger.

2.5. Challenges in Implementing Online Apps

Even though there are advantages making and handling store apps is not easy. Some of these are high prices, problems with getting people to use the app, and tough competition.

High Development and Maintenance Costs

A lot of money needs to be spent to make a good store app. Retailers need to hire skilled writers, make sure the app's interface is easy to use, and make sure it stays up to date. Chaffey and Ellis-Chadwick (2019) say that these prices go up because of ongoing upkeep, such as making sure that the software works with new devices and running systems.

Statista (2023) mentioned that, based on its features, making a strong app can cost anywhere from $50,000 to $150,000. Smaller stores often have trouble allocating these kinds of resources, which puts them behind bigger stores like Walmart and Carrefour.

Overcoming User Adoption Barriers

Customers aren't always eager to use new tech. Some people might think apps are too hard to understand, while others might be worried about their privacy and data safety. Venkatesh et al. (2003) say that trust and ease of use are very important for getting people to use technology. Retailers may address these concerns by investing in consumer education about the app's features and advantages and by designing an intuitive user experience.

Another growing obstacle is privacy concerns. In 2023, PwC discovered that about 50% of individuals avoid using shopping applications due to concerns about the potential misuse of their personal information. Businesses need to be transparent about their data handling practices to establish confidence and reassure consumers.

How to Stand Out in a Market Full of Competitors

There are so many retailers now that it's hard to stand apart. Apps that stand out need unique features or superior user experiences, according to Chiu et al. (2020). By integrating gaming mechanics into its loyalty program, Lidl, for example, has made its app more engaging for consumers. Regular app users increased by 25% as a result of this innovative concept (Lidl, 2023). If they fail to do so, supermarkets risk losing their customers to more useful or friendly apps.

3.0. PURPOSE OF STUDY

This article primarily probes how stores have used online apps to ensure customer return. In particular, it will look at how apps can impact changes in customer behaviors such as frequency of shopping and amount spent, benefits, and detriments associated with the use of apps by stores. The research will explore how large chains of grocery stores such as Walmart and Carrefour retain customer interest and ensure a continuous flow of customers through their apps.

This article is mainly focused on Korzinka, which is a popular Uzbek store. In the research, the study is going to interview users to determine their opinions about the Korzinka application, how often they use it, and how it changes their style of shopping. This paper is intended to contribute to the development of the application strategy for stores to strengthen relationships

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between stores and their customers by combining big business research with Korzinka customer feedback.

4.0. RESEARCH METHODOLOGY & DATA ANALYSIS

Two types of research have been used in this article: secondary and primary. The purpose is to understand how applications in supermarkets contribute to enhancing customer loyalty.

The paper, through secondary research, establishes articles and research that have been carried out on how people use mobile applications while shopping, particularly in supermarkets. This part is devoted to the explanation of how supermarkets like Walmart and Carrefour, for instance, use their apps to gain new customers, retain the loyalty of old customers, and solve problems. In the case of primary research, this study focuses on Korzinka, which is one of the most popular supermarkets in Uzbekistan, to get the most honest views from its customers. Interviews are conducted to gauge how the Korzinka app is used by customers and the changes this application brings into their way of buying. A difference in the customers is selected for picking different points of view. This makes it most likely for a customer to pick a store over its immediate competitors since it offers them a decent reward program.

The interview data is analyzed qualitatively to identify common themes and trends in customer responses. This helps the study understand how customers feel about the Korzinka app and its impact on customer loyalty.

5.0 RESERCH FINDINGS

Secondary Data Analysis and Findings

This article looked at research papers, studies, and case studies from big grocery stores like Walmart and Carrefour that have mobile apps as additional data.

Customer Retention Strategies:

Companies like Walmart and Carrefour have done research that shows that reward programs built into mobile apps are a great way to keep customers coming back. One study from 2019 by McKinsey found that reward programs through mobile apps can get 25% more customers to come back. With these programs, stores can send customers personalized deals, discounts, and notes to keep them coming back.

Customer Experience:

Forrester Research looked at how easy it is to use an app and how that affects customer happiness in 2020. Researchers discovered that customers were happier with store apps that were easy to use. These happy customers were also more likely to stay loyal. Real-time product changes, mobile payments, and personalized deals made the app easier to use and made people use it more often.

Challenges in App Adoption:

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But there are problems with getting people to use apps. A Nielsen study from 2021 showed that between 20 and 30 percent of grocery shoppers in the U.S. are hesitant to use apps because they are worried about their data being stolen. App-based programs can help build customer trust, but some customers, especially older ones, may not want to use new technology.

Primary Data Analysis and Findings

Interviews with Korzinka customers used to collect primary data that will be analyzed directly to find trends and patterns in how the app affects customer loyalty.

Frequency and Usage:

According interview results from Korzinka customers, 40% of them use the app once a week and 25% use it every day. Customers who use the app more often are more likely to stay loyal to the brand, and many say they feel more connected to the brand through the app. When customers use the app more often, they are happier with the service and more likely to come back to Korzinka for their buying needs.

App Features:

Customer Satisfaction and Perceived Value:

Customers like features like personalized discounts and cashback systems, having the QR code of bonus cards, having each branch's locations (60% of respondents) and being able to see goods and sales goods and catalogue in real-time (50% of respondents). Customers are more likely to use the app more often because of these benefits, which makes them more engaged and loyal.

Impact on Shopping Behavior:

According to results, over 75% of the Korzinka customers surveyed were happy with the app, saying it was easy to use and provided a more convenient shopping experience. Customers gave the app 4.5 out of 5 stars, saying that it's worth using because it's convenient and gives you personalized deals. Customers are more likely to stick with a service that gives them real benefits, which is why this high level of happiness is linked to better loyalty.

Several respondents said that the app changed how they shopped, especially how often they went and how they used the online delivery service. Almost 30% of customers said they went to Korzinka more often because of the app, usually because of the personalized deals that made it a good reason to shop there instead of other stores.

6.0. DISCUSSION

Analysis of Differences

There are a lot of parallels between the data from Korzinka and the results from Walmart and Carrefour. Like Walmart and Carrefour, Korzinka's app has personalized deals and inventory checks, which are both important for keeping customers coming back. However, some supermarket customers have trouble getting people to use the app because some customers are worried about their data safety. According to the Nielsen study from 2021, these problems are similar to those bigger stores face in other areas.

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The research showed that grocery store apps like Korzinka's have a big effect on how loyal customers are. Key factors like how often people use the app, personalized deals, and how easy it is to use are very important for keeping users. The results showed that Korzinka can make users even more loyal by handling their worries about data security and continuing to add features to the app that meet their needs.

CONCLUSION & RECOMMENDATION

In conclusion, the article analyzed how online apps have played a crucial role in keeping customers returning to supermarkets, particularly Korzinka supermarket. Through interview results with Korzinka's customers, original data was gathered that showed the app to be a key factor in raising customer loyalty and satisfaction. Customers liked the ease of using the app, which made navigation easy to find personalized deals and move around. This directly influenced how they shop, as many of the people who answered said they regularly used the app for its ease of use and special deals.

Primary data also indicated that some reward programs included in the app are the major portion of the improvement in customer loyalty. A lot of the interviewed people claimed that they will go back more frequently to Korzinka because of cashback and a catalog system in its application, which will again raise their willingness to buy. This was particularly the case for heavy users of the app, who were using it to track their spending and reap benefits. However, the secondary research also revealed several areas for improvement. Customers generally felt satisfied with the app, but some were concerned about the rare technical issues, such as slow start-up times or difficulties in accessing certain features.

Some respondents also indicated a desire to see more diversified and significant rewards for loyalty. Even with these concerns, the key findings indicated that Korzinka's application created more loyal customers, as most of the respondents who took part viewed it as an integral part of shopping. Supermarkets ought to enhance their customer loyalty programs by offering improved rewards, deals, and benefits. Rewarding programs offered by a particular store attract the customer's attention to choose that store over the competitors.

Korzinka can develop in-app reward systems where the more a customer shops, the better the benefits. This will act as an incentive to make more purchases and shop more often. Probably, it will be justified to give special privileges, for example, access to sales much earlier than anybody else, or special offers. More importantly, users would want to be sure that their personal data and bank details are safe while using the app. To ensure people continue trusting her, Korzinka will have to continue investing in safe attributes, such as personal data security.

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THE ROLE OF MENTORSHIP IN DEVELOPING FUTURE BUSINESS LEADERS

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ABSTRACT

The purpose of mentoring cannot be undermined in developing the next generation of business leaders. Today, when the business world is changing at ever-increasing speed, stronger leadership is more required than ever before. The aim of this article is to explain how guidance in one's business and personal life will assist a potential future business leader. Some good examples are shown from companies such as Unilever and IBM, where the benefits include improvement in problem-solving ability, development of emotional intelligence, and building strategic thinking. Other topics covered within the paper are the components of success of mentorship programs: having clear intent, relationships in the classroom and working areas between teachers and the mentee, and lastly, support from all stakeholders. Findings from studies conclude that it was the only positive way, with both professional and personal attributes; thus, organizations stand the chance to develop qualified management personnel to deal with all pending issues. That can be developed by the provision of learning through mentorship with proper guidance and proper counsel.

Keywords: Mentorship, leadership, future leaders, mentor, mentee, case studies, IBM, Microsoft, Unilever, business leaders

1.0 INTRODUCTION

In today's business world, where things change quickly, being a leader is more than just having a title. It means motivating others, taking risks, and bringing about good change. Things are getting more complicated, and we need skilled and creative leaders more than ever. But how do we get people ready to play such important roles? That is an important question. Even though going to school and getting job experience are important, mentoring is one of the best ways to shape future business leaders.

Mentorship is more than just sharing information. It's a close and helpful relationship in which more experienced people help less experienced people learn. Through this process, mentors can learn important lessons, see things from different angles, and gain the strength to deal with problems. It's a chance for teachers to share their knowledge, become leaders, and help the next group of leaders grow (Stone, 2024).

This article examines the importance of mentoring in the development of future corporate executives. It describes how mentoring helps people grow, gives inspiring examples of mentor-mentee relationships that work, and lists the qualities that make a great mentor and mentee. It also discusses common problems that come up in mentoring relationships and gives useful tips on how to make them work well.

Upon completion, readers will comprehend why mentoring is not just a beneficial practice but also a potent instrument that both people and organizations may use to develop skilled, strong leaders. Great leaders aren't born, they're made, and having a guide is a big part of that process.

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2.0 BACKGROUND INFORMATION

Mentoring has been known for a long time to be an important part of developing leadership skills. According to research, organized coaching relationships can help professionals grow in a big way. For example, a study in the Harvard Business Review found that mentees' career growth was 54% better when they had clear structures for their teaching relationships (Psico-smart Editorial Team, 2022).

Mentorship helps more than just the person receiving it; it also helps the organization succeed. Also, it is a strong way to help an organization succeed by making leaders more resilient, flexible, and open to everyone (Thinkers50, 2024).

Mentorship has also been linked to better job happiness and success. A summary of 112 separate research studies found that coaching has important effects on behavior, attitude, health, relationships, drive, and job (Psico-smart Editorial Team, 2022).

When it comes to business leadership, mentoring provides important information and advice to people who want to be leaders. Some books, like The Mentoring Advantage: Creating the Next Generation of Leaders, say that there are no real leaders without guidance. This shows how important mentorship is for developing leaders (Stone, 2024).

3.0 LITERATURE REVIEW

3.1. MEANING AND IMPORTANCE OF MENTORSHIP

In a mentoring relationship, someone with more experience (the mentor) helps someone with less experience (the student) reach their personal and professional goals. We believe in each other, value each other, and want to grow together, so this friendship works. The National Institutes of Health (2019) says that mentoring is an important part of job growth and leadership development because it helps people share skills, boosts confidence, and gives them access to networks.

When it comes to developing leadership skills, mentoring is especially important. Mentors help mentees deal with difficult problems at work and improve their critical thinking by giving them tips and insights. The Centre for Creative Leadership (2023) says that organized training programs are very important for getting new leaders ready and giving them the skills, they need to adapt to a business world that is changing quickly. Mentorship is also based on ideas like Social Learning Theory, which says that people learn by watching others and copying what they do. When people have mentors, mentees copy their teachers' actions and ways of making decisions, which shapes their leadership styles.

More real-life cases show how valuable mentorship is. Companies like General Electric use reverse mentorship programs to bridge generation gaps and encourage constant learning. In these programs, younger workers teach top leaders about digital trends. These kinds of projects show that mentoring not only helps people but also helps an organization succeed.

3.2. DEVELOPMENT OF LEADERSHIP AND MENTORING SKILLS

Mentorship is one of the most important ways to learn the skills you need to be a good leader. Mentors help mentees improve skills like strategic thought, emotional intelligence, and good communication by giving them one-on-one support. Leaders can motivate their teams, make smart choices, and encourage new ideas with these skills.

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The connection between the mentor and the mentee is very important to this process. A good guide not only gives helpful comments but also acts in a way that the mentee can copy and makes sure the mentee feels safe while they learn. This relationship helps mentees grow and gets them ready for leadership tasks. A 2019 study from the National Institutes of Health found that having a guide greatly boosts self-confidence, leads to better job results, and improves leadership skills.

Mentors also help their mentees understand how organizations work, make sure their values are in line with leadership goals, and solve problems in the real world. These things give mentees more confidence and creative ideas when they face problems. Centre for Creative Leadership (2023) research also shows that mentoring speeds up professional growth by giving personalized advice, which is often more useful than general training programs.

3.3. DIFFERENT MENTORING STYLES AND ITS EFFECTIVENESS

There are different kinds of mentoring, and each one meets a different set of needs and offers a different set of benefits. Formal mentoring programs are set up in a way that makes goals and deadlines clear. Organizations often use these programs to help people grow and improve in certain ways. DCPAS research from 2018 found that structured mentoring makes people better at their jobs, boosts their confidence, and keeps them from leaving their jobs.

On the other hand, informal mentoring happens easily without any set rules. These kinds of relationships are more adaptable and can meet the current needs of the mentees. Mentorink (2023) says that informal mentoring can lead to long-lasting work ties and a stronger sense of belonging.

Another good method is peer mentoring, in which people at similar times of their careers help each other. It helps people learn from each other and works better when done together. Peer coaching is especially helpful for training programs because it helps new employees get used to working together.

When younger workers teach senior leaders, it gives senior leaders a new way to look at things like technology and workplace culture that are changing all the time. Companies like Heineken and General Electric have used reverse coaching programs to help bring people of different generations together (Verywell Mind, 2023).

How well these types of mentoring work rests on things like the culture of the organization, how well the coach and student get along, and the program's unique goals. Mentorship programs that are well-thought-out and in line with the goals of the organization are more likely to be successful and yield real benefits.

3.4. OBSTACLES AND EFFECTIVE MENTORING TECHNIQUES

Even though mentoring has benefits, it also has some problems. Mentors and mentees often can't meet regularly because of time limits, which can slow down the relationship's progress. In the same way, tutoring situations can be less useful when people are paired up incorrectly because they have different standards or ways of communicating. Also, mentors might not have the training or skills they need to help mentees properly (DCPAS, 2018).

To deal with these problems, best practices need to be put into place. Mentors and mentees will work together better if they agree on clear goals and standards from the start. Communication that happens regularly builds trust and lets people give feedback, which is very important for growth. By giving teachers training and tools, you can help them better guide and support their

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mentees. Organizations can also set up ways for training programs to get feedback and keep getting better.

New trends, like virtual mentoring and platforms offer creative ways to get around old problems. These methods offer freedom and ease of access, which makes mentoring more open to everyone. Mentorink (2023) says that companies that use these best practices and new technologies are more likely to be able to build strong mentoring environments that prepare future leaders for success.

4.0 PROBLEM STATEMENT

The business world changes quickly these days, so companies need strong leaders who can deal with problems, encourage new ideas, and help the company grow. But a lot of businesses have trouble finding and training future leaders with the right skills. Leaders often can't get the personalized help and real-world knowledge they need from traditional training programs.

Mentorship has been shown to help people become better leaders, but many organizations don't use it well. It's harder to get good results because mentors and mentees aren't always matched up correctly, teachers don't always get the right training, and not everyone can join mentoring programs. It's even harder to be a guide now that more people work from home and on global teams. It is very important to solve these problems so that mentoring can help make leaders who are skilled and secure and can do well in today's complicated business world.

5.0. RESEARCH METHODOLOGY

This article evaluates the role that mentoring plays in making future business leaders through secondary study. In secondary research, one considers data, studies, papers, reports, and case studies that have previously been written by reliable sources. In this article, the aim shall be to find out more about how mentoring affects the growth of leadership and how mentoring programs can be conducted effectively by companies through examination of the aforementioned sources.

These include several academic papers, business reports, books, and case studies from actual companies that have applied the process of mentoring in building leaders and found it effective. These case studies will show how mentorship programs operate within real companies, such as IBM, Microsoft, and Unilever. They ought to show how mentoring can facilitate leadership and job advancement.

The paper will review secondary data for related themes, issues, and best practices in mentoring. After that, it concludes the evidence on how organizations can leverage efforts to grow leaders. This approach saves you from having to collect firsthand data, relying on the wealth of information already available from credible sources.

6.0. RESEARCH QUESTIONS AND PURPOSE OF STUDY

The research questions on which this article is based are presented below.

1. To what extent does mentorship influence the next generation of business leaders?
2. What makes the basis of successful mentoring programs work?

These questions help to explain how mentoring has defined leadership traits and skills, which would enable to understand it in a detailed way to develop leaders. It also identifies best practices and techniques an organization can use to extract optimum value from mentoring. This article draws on case studies and prior research to provide helpful insight into the question of how mentoring has served to nurture future leaders.

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7.0. RESEARCH HYPOTHESIS

Hypothesis 1: Having a mentor is a great contributor to the development of traits and skills in the leadership of future business leaders.

Hypothesis 2: The reason includes clarity in setting goals, good relations between mentors and mentees, and continuous support during the mentoring program, which enables successful development among business leaders.

8.0. RESEARCH RESULTS AND FINDINGS

The Influence of Mentorship on Business Leaders

Mentorship builds leadership skills by giving each student a unique, individualized learning experience. One important finding from the study is that mentees often understand leadership ideas better and pick up useful skills faster than those who don't have a guide. Mentors help their mentees learn how to deal with tough business problems, make good connections, and feel more confident in their leadership jobs. Mentoring helps people grow both professionally and personally. Self-awareness, resilience, and a growing attitude are all important for being a good leader (Eby et al., 2018).

Case studies from companies like Unilever and IBM show that mentoring helps leaders improve their strategic thought, ability to change, and ability to handle people. IBM's guidance program gives workers long-term support from top executives to turn them into future leaders. Through this connection, people can improve their leadership skills, which can help them move up in the company (Kram, 2005). Unilever's mentorship program, which pairs workers with experienced leaders from different areas, also shows how important mentoring is for developing future business leaders. The Unilever program helps people learn more about what it means to be a leader by showing mentees different points of view and leadership styles (Hunt & Michael, 2023).

The results also show that mentoring helps mentees learn the "soft skills" (like conversation, emotional intelligence, and dispute resolution) that are needed to be a good leader. It can be hard to teach these skills the old-fashioned way, but guidance relationships can help people improve them. Mentors give mentees helpful comments, talk about their own lives, and give advice that is unique to the mentee's job problems. This personalized method speeds up the mentee's growth as a leader by giving them the skills they need to deal with problems in the real world (Ragins & Kram, 2007).

Important Elements for Effective Mentoring Initiatives

Studies of tutoring programs that work well have found a few main factors that make them work. The mentor-mentee connection is one of the most important parts. For success, you need a connection that is strong and helpful, based on trust, mutual respect, and open communication. Mentees are more likely to get something out of mentoring if they feel like they can talk about their problems and goals. This open communication lets teachers give help, comments, and direction that is specific to the needs of the student (Eby et al., 2018).

Making sure that goals and standards are clear is another thing that helps tutoring programs work. Clear goals that lead the tutoring process are key to making mentoring programs work. Some

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examples of these goals are helping the student learn certain leadership skills, getting ready for a certain job, or improving their ability to make decisions. A clear framework helps both the guide and the student know what is expected of them, which makes it easier to track growth and success over time (Ragins & Kram, 2007). Formal coaching programs with clear goals have been put in place by companies like Microsoft. These programs have led to measured changes in leadership development (Kram, 1985).

It is also very important that both the tutor and the organization keep supporting and committing to the student. Mentorship programs that are supported by the company and have a set plan and ongoing help are better at turning people into future leaders. This includes regular check-ins, chances to meet new people, and giving teachers and mentees the tools they need to achieve. As Gibson (2024) notes, research from companies like Google has shown that mentoring programs that are backed by the company and focus on long-term growth make leaders who are better and more capable.

Also, training programs that include mentoring between different functions or departments work better. Mentees in these programs learn about different leadership styles and points of view, which helps them think outside the box and come up with new ideas. Companies like General Electric (GE) have set up these kinds of programs so that workers from different areas can help each other out. Hunt and Michael (2023) say that this method not only helps mentees learn how to be leaders, but also makes the organization a better place to work together and share knowledge.

9.0. DISCUSSION

Obstacles in Establishing Mentorship Initiatives

Although mentorship offers clear advantages, the findings also underscore various obstacles that organizations encounter in establishing effective mentorship initiatives. A primary challenge lies in guaranteeing compatibility between mentors and mentees. Differences in communication styles, expectations, or career aspirations can impede the success of the mentorship relationship. This challenge can be addressed through meticulous matching processes and regular assessments to guarantee that the mentor-mentee relationship stays effective and advantageous (Ragins & Kram, 2007).

One more obstacle is the significant time investment needed for successful mentorship. Numerous senior leaders might find it challenging to allocate time for mentoring because of their demanding schedules. When organizations offer mentorship programs, they often need to make sure that teachers have enough time and resources to connect with their mentees. Things that focus on quality rather than quantity, like teaching ties with a few important people instead of large groups, tend to be more successful in the long run (Eby et al., 2018).

The Importance of Mentorship in Developing Future Business Leaders

In the end, after the research results, advice forms one of the most vital components of creating the next line of business leaders. The opportunity provided by mentors to their mentees allows for learning from professionals who are experienced due to the complexity of leadership. In this regard, effective mentoring programs define clear goals and provide continuous support that fosters strong relationships between the teachers and the mentees. This provides a structured avenue to develop the leadership competencies.

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This research helps to draw the inference that mentoring plays an important role in the grooming of leaders for the future, since through this, they will be much better leaders, receive personalized support, and receive valuable job-related advice. Those who are succeeding in the mentoring programs are those who have been well-planned, received organizational support, and also laid considerable emphasis on relationship building. Such good practices will give corporations the ability to accelerate the development of a new generation of leaders ready for the demands of contemporary business.

10.0. CONCLUSION

In conclusion, Mentoring is a great and powerful tool in molding the leaders of tomorrow. Business has become increasingly complex, and never in history has there been a better time for leaders who have the vision to handle uncertainty and trigger fresh ideas. All this epitomizes how guidance helps in the growth of a person and the success of an organization. If guides are provided, one will be able to pick up some useful things, handle the issues much more smoothly, and finally possess some important skills, such as emotional intelligence or decision-making skills.

Besides the mentee himself, quite a lot of people benefit from mentoring. If corporations invest in mentoring programs, then they will make a highly developed pool of their future leaders and will be better prepared to face challenges that the businesses are likely to face in the near future. A well-planned mentorship scheme is one in which the teachers and students are continuously learning and developing. Mentorship promotes diversity and equality since people from all backgrounds have an equal chance to rise as leaders.

Overall, the importance of leadership in today's world is demanding for any individual; thus, mentoring will guide them through the process. It installs in them the much-needed self-confidence, talents, and vision which the future leaders need to have so that they can lead extraordinarily while leading others in the most appropriate manner. Lastly, companies that stress and facilitate mentoring help further not only the growth of individual careers but also their long-term growth and success. Thus, the art of mentoring is not only a way of raising better leaders but it is also an investment in any corporation for its future.

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Development of E-commerce and Its Influence on Uzbekistan's People

Author: Abbos Zokirov

Abstract

Uzbekistan is no exception in the rapid rise of the global economy and the impact of e-commerce. With the expansion of digital technologies in the country, e-commerce has impacted the consumer behavior, business models and socio economic development of the country. In this study, the growth, challenges, and future opportunity of e-commerce in Uzbekistan are examined. Using a mixed methods research design, quantitative surveys and qualitative interviews show that e-commerce is a transformative force, improving access to goods and services — and making new economic opportunities. What the research portrays is that for the greatest possible equitable growth for urban and rural regions the need to be able to invest in better digital infrastructure and trust in the consumer is critical, however that also relies on supporting policies and regulation.

Key words: e-commerce, Uzbekistan, digital economy, online shopping, consumer behavior

Introduction

The world economy was completely changed by the rise of the e-commerce. E-commerce is quickly becoming a growth driver in Uzbekistan, a land being quickly digitized. Convenient, variety, and low price are changing the way consumers purchase products and services through platforms like Uzum, Wildberries and Zoodmall.

All this progress was unfortunately not enough to solve the problems reigning. Limitation of trust in online payment systems, logistical inefficiency and the absence of consumer protection laws are barriers to broader adoption. Besides, rural areas are usually far behind urban centers to access digital platforms which constitute the digital divide. In this article we investigate the state of play in e-commerce in Uzbekistan, the behavior of consumers, and the socio economic consequences of e-commerce in the state.

The rise of e-commerce globally has changed traditional retail landscapes in a world granting consumers ease and access to all kinds of products and services. E-commerce is proving to be an essential part of economic growth in what is becoming a digital transformation country — Uzbekistan. Integrating digital technologies is clearly something the government of Uzbekistan is committed to, with its "Digital Uzbekistan 2030" initiative signalling the whole country's aspiration to digitalise its commerce.

However, several challenges hinder full manifestation of e-commerce potential in the country of Uzbekistan. They include lack of electronic banking services, logistical restrictions and less consumer's trust on online transactions.

This article covers the current situation of e-commerce development in Uzbekistan, its impact on the consumer behavior and socio-economic impact on people of the country.

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Literature Review

Scholarly attention to the evolution of e-commerce in Uzbekistan has been given to the study on its growth, challenges and critical success factors. Kerimova and Ataniyazova (2023) state that the conditions of IT infrastructure and the human resources are crucial to e-commerce success in Uzbekistan.

Tursunboeva (2020) studied the obstacles and drivers that impede on e-commerce entrepreneurs in Uzbekistan including underdeveloped logistics and digital illiteracy.

KPMG International (2023) states that the value at e-commerce market in Uzbekistan was $311 million as of on December 31, 2022, which suggests high potential for growth.

As stated by Tursunboeva (2020) her research also discusses the factors influencing SMEs e-commerce adoption in Uzbekistan such as the perceived usefulness, competitive pressure, human resources and organizational readiness.

There are also studies concerning the impact of e-commerce service quality on customer satisfaction in Uzbekistan, studying exactly how to develop online platforms to meet customer satisfaction.

All these studies reflect what has been achieved and what remains to be done regarding the e-commerce in Uzbekistan.

Research Design

It applies the mixed-methods approach to perform an all round analysis of e-commerce in Uzbekistan.. The research integrates quantitative and qualitative approaches to capture the statistical trends as well as the lived experiences of consumers and business.

Quantitative Surveys:

I distributed surveys to 300 respondents over Uzbekistan, urban and rural respondents to find out how they shop, prefer platforms, and trust in online payment.

Qualitative Interviews:

To understand the challenges and other elements in the sector, 15 stakeholders including e-commerce business men, logistics providers and regular online shoppers were interviewed on an in-depth basis.Specific stratified random sampling was done to insure diversity to represent various age cohorts, income levels and geographic regions.ive approaches, the research captures both the statistical trends and the lived experiences of consumers and businesses.

Quantitative Surveys:

Surveys were distributed to 300 respondents across Uzbekistan, targeting urban and rural residents to assess shopping habits, platform preferences, and trust in online payments.

Qualitative Interviews:

In-depth interviews were conducted with 15 stakeholders, including e-commerce business owners, logistics providers, and frequent online shoppers, to explore the challenges and opportunities in the sector.

Sampling Method:

A stratified random sampling technique ensured diverse representation, capturing insights from different age groups, income levels, and geographical regions.

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Data Collection

Target Population:

1. **Survey Participants**: 300 individuals aged 18–50, representing both urban and rural areas.
2. **Interviewees**: E-commerce business owners, logistics professionals, and consumers.

Tools and Instruments:

1. Surveys were conducted using Google Forms and paper-based questionnaires.
2. Semi-structured interviews provided qualitative depth, allowing respondents to share detailed perspectives.

Survey Structure:

Sections included demographics, shopping frequency, platform usage, trust in digital payments, and challenges faced while shopping online.

Methods

Quantitative Methods:

Multiple-choice and Likert scale questions were used to collect numerical data using structured questionnaires.

The metrics analyzed were shopping frequency, preferred platforms and payment methods.

Qualitative Methods:

The research employed semi-structured interviews in which themes were explored including logistical challenges, consumer trust and perception towards the growth of e-commerce.

The flexibility of the interview format allowed for the emergence of some unique insights, while keeping interviews consistent.

The research aimed to combine these methods to achieve a nuanced understanding of e-commerce's impact often on Uzbekistan's people.

Results

Key Findings from the Survey:

Shopping Frequency:

Among respondents, 68% have shopped online at least once a month, 32% have shopped weekly.

HG (home gardener) respondents report higher shopping frequencies than rural subjects.

Platform Preferences:

The most popular platforms were Uzum (45%), Wildberries (30%) and Zoodmall (15%).

So did social media platforms such as Instagram connect consumers with online sellers.

Payment Methods:

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Despite facility to facilitate banking and other electronic payment methods via its mobile app, payments for products and services were still preferred to be cash on delivery (COD) (70%) — second most preferred (20%) were banks cards and the third (10%) were e-wallets.

Consumer Trust:

A sizable 55 per cent went on to say they were worried about the security of online payments.

Older respondents and those from rural areas had higher levels of trust issues.

Challenges Faced:

The most common were delayed deliveries (40%) and worries over product authenticity (35%).

Insights from Interviews:

What business owners appreciated most was having improved logistics capabilities that would allow them to expand into rural areas.

The issue of transparent return policies and better customer service was highlighted by consumers in order to build trust.

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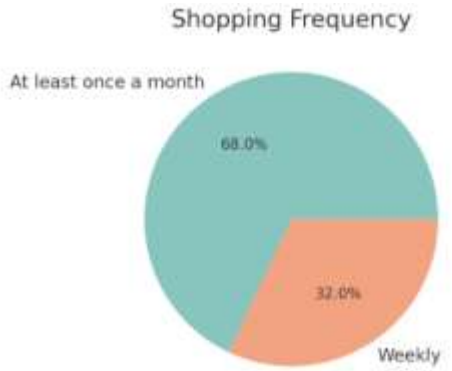

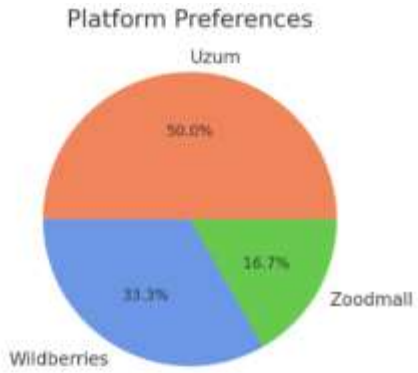

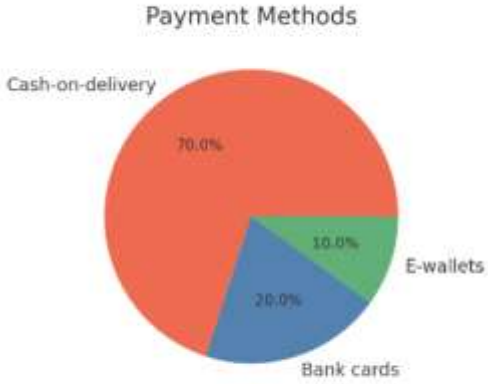

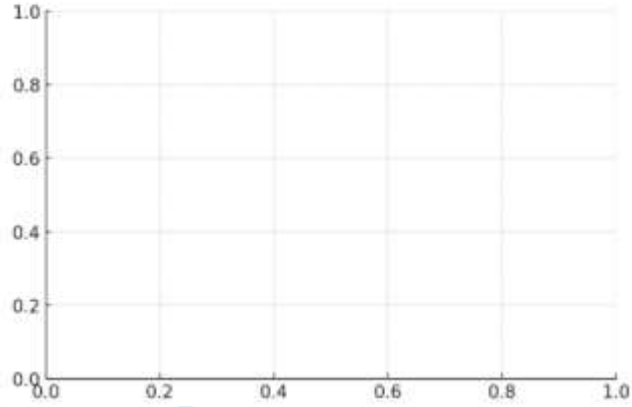

Data Analysis

Quantitative Analysis:

Survey data was summarized using descriptive statistics and highlighting key trends in consumer behaviour.

Demographic (for example, age, income) and shopping habit relationships were explored using cross tabulation.

Qualitative Analysis:

The transcripts were thematically analyzed to show recurring themes, including 'digital trust', 'logistical barriers' and 'social media influence'.

The findings were contextualized with representative quotes.

Triangulation:

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The study aimed to make a complete analysis comparing the quantitative and qualitative results.

Discussion

The findings round out what the e-commerce has already done for Uzbekistan's economy and society. While Uzum and Wildberries have made shopping more accessible, digital payment trust and logistical efficiency issues hang over it like a dark cloud.

Consumer Behavior:

Commuters are figuring out how much of their routine they're willing to adapt to the Internet, and consumers are following suit, and shifting to online shopping is a sign of the times for both. But this raises a question of how much trust we should have in digital payment systems. In this regard, if the issue of this problem can be addressed through consumer education and improved security measures, then e-commerce can be widely adopted.

Business Implications:

Due to the massive opportunities of implementation of e-commerce, businesses can get their products to market, and minimize the operational expenses. Nevertheless, growth potential is somewhat hampered by logistical difficulties, especially in rural areas. These challenges could be solved with investments in infrastructure and partnerships with local delivery services.

Socio-Economic Impact:

E-commerce is now opening up new economies, ranging from creating jobs in logistics to letting small businesses break into a new markets. But equal access is still a vital question: across urban and rural locations.

Future Research

Future studies could explore the following areas:

1.Impact of Emerging Technologies: That's how AI and blockchain can help in e-commerce in Uzbekistan.

2.Digital Inclusion: eCommerce access strategies for bridging the urban rural divide.

3.Consumer Protection: Building policies which protect consumers in digital transactions.

4.Longitudinal Studies: Looking at the impact of e-commerce to the long term socio-economical state of Uzbekistan's economy.

Conclusion

The development of e-commerce in Uzbekistan represents a significant shift in how people access goods and services. While challenges such as digital trust and logistical inefficiencies persist, the potential for economic growth and social transformation is immense. By addressing these barriers and investing in digital infrastructure, Uzbekistan can unlock the full potential of e-commerce, fostering inclusive and sustainable development.

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USING DIGITAL TECHNOLOGY IN THE CONSTRUCTION INDUSTRY

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ANNOTATION: In this article, the directions of using digital technologies in the construction industry, which occupies an important place in the structure of our country's economy, the driver of the transformation that accelerates the introduction of technological innovations in the digitization of the industry, the difference in labor productivity in the industry in different countries, the use of a number of digital tools and technologies in the construction industry, in particular PLM systems (product lifecycle management) - product life cycle management and BPM systems (business process management) - aspects such as business process management are covered. Scientific and practical suggestions for solving problems in the field of construction were developed.

Keywords: analysis, digital technologies, technological innovation, capacity of fixed assets, capital construction, transformation, driver, construction objects, labor productivity, product lifecycle management, business process management, business management, capital investments, economic efficiency, socio-economic efficiency, investment, new construction, reconstruction, technical rearmament, etc.

INTRODUCTION

As humanity has learned to process large amounts of data, life is changing rapidly. At the current stage of development, the use of digital technologies in the construction industry, which occupies an important place in the structure of our country's economy, is considered important. The digitalization of the construction industry is a driver of transformation that accelerates the introduction of technological innovations.

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Labor productivity in the construction industry varies in different countries. China and South Africa show rapid growth in labor productivity, while Brazil and Saudi Arabia have lower labor productivity. Some countries (Australia, Belgium, and Israel) are achieving high levels of labor productivity and its intensive growth[1].

McKinsey experts note that construction productivity is gradually increasing, so digital technologies and new materials are a means of accelerating productivity growth.

Today, digital technology is used in various fields - from marketing to navigation. In particular, construction is not far behind in this regard. Every year, humanity produces more and more information: the forecast of the analytical company IDC is based on the fact that by 2025 the total amount of information worldwide will amount to 163 zettabytes (ZB). For comparison, in 2016 there was 10 times less information on our planet - 16 ZB, and in 2006 - only 0.16 ZB[2].

At the same time, the share of information created by commercial enterprises is increasing. According to IDC analysts, by 2025 they will produce 60 percent of the world's information (against a third in 2015). However, companies are striving not only to produce information, but also to analyze it. With the advent of big data, the prospects for this direction are increasing even more, that is, artificial intelligence is able to process not only structured, but also large volumes of various information (for example, publications on social networks and comments on news).

LITERATURE ANALYSIS ON THE TOPIC

Computers and digital technologies in construction were introduced in areas where there were large-scale calculations, primarily in economic calculations. Later, the main research direction of A.A. Gusakov was defined as: building systems engineering, as the science of creating complex automated technical systems in construction, as the application of a systematic approach to construction objects[3].

It is worth noting that today a number of digital tools and technologies are already being used in the construction industry. The most popular are PLM

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systems (product lifecycle management) and BPM systems (business process management) [2]. Within these systems, subsystems are used, for example: ERP systems (Enterprise Resource Planning). This is an information system that automates the processes of designing, accounting, controlling and analyzing all key business processes and solving business problems of a construction company. The system helps to integrate all departments and functions of the enterprise into a single system, while all departments work with a single database and they facilitate the exchange of various information with each other. ERP systems are implemented in such a way that all departments of the enterprise and all necessary functions are integrated into a single computer system that meets the current needs of the departments [4]. The ERP system increases the responsibility of individuals for the overall work, and the main motivation for introducing mobile access to ERP is to reduce operating costs. CRM-system (Customer Relationship Management) is a model of interaction between a client and a contractor, designed to meet the needs of the client. The main goal of creating and implementing CRM is to increase sales volumes, optimize marketing activities and improve the quality of customer service in an enterprise. The CRM concept allows you to integrate the client into the organization, obtain as much information as possible about customers and their needs, and on this basis create an organizational strategy that affects all aspects of the business: production, marketing, sales, services, etc. The most popular CRM systems: SAP system - a separate module of the SAP R / 3 system. Simplifies the work of enterprise departments that directly interact with the client (sales departments, websites, online stores, marketing department, service departments, subscriber services, call centers); Oracle. CRM-Oracle allows you to manage sales, service, conduct various marketing campaigns, organize a virtual call center. Among other things, Oracle. CRM-Oracle has very powerful integrated analytical tools; Microsoft Dynamics CRM – a system that increases the efficiency of employees inside and outside the organization, as well as facilitates cooperation between sales, marketing and customer service teams. BIM-technology (Building

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Information Modeling) – automates all processes on a construction site, which allows you to design not only in 3D, but also in 5-7D format.

RESEARCH METHODOLOGY

In conducting the research, the methods of logical thinking, reasoning, observation, comparison, descriptive statistics, selection, generalization, grouping, dynamic change detection, statistical data analysis, induction and deduction, classification, statistical evaluation, algorithmization, programming, comparison and expert assessment were widely used. Also, scientific research by foreign and domestic scientists on the content and methods of investment efficiency and its assessment in the construction industry was thoroughly studied, and author's approaches were developed in this regard.

ANALYSIS AND RESULTS

In general, the expectations of developers when using data in the construction industry were determined by the company Sage. The survey showed that 57% of market players want to receive stable, up-to-date financial and project information, and 48% want information about important situations. 41% of enterprises hope that big data will help them predict events and avoid risks. Finally, 14% of respondents prefer to know what factors affect the growth and decline of profits[5]. Big data analytics can fully meet these expectations - because the technology is already appreciated all over the world, including by developers and designers. Most large developers implement several projects at the same time - in such a situation, it is very difficult for employees to collect, sort and study large amounts of data. Informatica company found that about 60% of working time is spent on these areas. Big data helps to save it[6].

Technology allows you to process large amounts of data at a speed that is unimaginable for humans. Programs can take over processes such as database management and report generation. Thanks to this, company specialists can focus on more important tasks that help improve business efficiency. For example,

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according to the experience of the chief specialist of GSI-Giprokachuk, as part of working with one of the largest steel structures factories, he and his colleagues were able to use big data to create an algorithm that generates a special report on bolts. The designer spends an average of three to five days on this document, and artificial intelligence - a few hours. This is not a complicated, but rather time-consuming task: working in a BIM model, you need to calculate the number of objects and bolts connecting them, and get the entire frame. The engineer manually compares one criterion with another, draws a conclusion about how the design details are attached, and generates a report. Artificial intelligence does the same thing, but it works much faster and does not make mistakes.

Digital technology opens up more prospects for combining data with other building information modeling (BIM). Applying data to 3D or 4D projects allows engineers to easily identify any errors or accurately predict them. One of the advantages of BIM is the ability to work together on the model in real time with specialists from different countries. Using data, they can quickly transfer large amounts of information to each other to make faster decisions. This fundamentally changes the way we approach project management. Previously, all the information belonged to one person or several employees sitting in one office. Today, when a designer, developer and general contractor, who may be in different countries, work together to make changes to the project at an early stage, it becomes possible to truly work as a team.

Digital data technology also allows for real-time project monitoring to improve planning, reduce construction time, and optimize budgets. Connecting data to BIM models allows you to directly enter cost data into the project to see the cost of different parts of the building and find ways to save money.

To use digital data, as well as any relevant technology in the IT world, it is first necessary to optimize the material consumption of buildings. It is possible to collect huge databases of projects and somehow draw up tables of the optimality of

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various solutions and use neural networks to find correlations between the source data and the results obtained.

Another use of digital technology data is to collect data from various metal structures and determine the real cost of production products for a large sample of projects. Data can also be used to track company assets: for example, materials, tools, equipment, etc. During the work on the object, a huge number of products need to be purchased, stored and transported, and optimizing this process will help big data integrated into the BIM model. Various assets can be combined into a single database, creating a system of alerts and reminders. Thus, all employees working on the project can track the location of materials or equipment and know when the next stage of work will begin and what assets will be involved.

Analyzing many similar projects using digital technology in construction is an opportunity to predict possible problems during the construction process and their impact on costs at the design stage.

The analysis conducted in our study showed that the digitalization of construction should be considered as a tool for managing business activities and construction resources. However, there are a number of problems associated with the introduction of digital technologies: the problem of compatibility, which prevents effective information exchange in the information environment. Compatibility means the ability of products or systems with completely open interfaces to interact with other products or systems without limiting access and use [7]; the problem of the lack of specialists with the necessary competencies for the effective use of digital technologies in the construction sector; lack of awareness of the benefits of digital technologies among construction industry participants. Despite a number of shortcomings that lead to serious problems in the use of digital technologies in construction, it is necessary to highlight the most important promising areas for the development of digitalization in the studied area: 3 and 5D printing. Currently, there are “printers” that allow “printing” brick buildings and other objects (for example, printing from concrete) on the basis of trucks. The most

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promising area is low-rise construction; the use of BIM technology. This is a computer model of a building with all the necessary coordinated information. When one parameter changes, the same happens with others. Creating such a project makes it possible to assess the interior and exterior of the building and understand how much money, materials and work will be needed for construction, what equipment will be used, how the construction process is organized; Visualization using 3D glasses, which allows you to create an augmented reality effect and thus see the planned projects; Introduction of integrated building condition sensor systems that allow monitoring the condition of the building, energy efficiency and infrastructure networks; Widespread use of robotics.

Every company has to deal with bad materials, unpredictable weather conditions, and other problems. Using data, it is possible to create virtual scenarios of events in order to take preventive measures. For example, by analyzing many similar projects, it is possible to find out which materials often lead to budget overruns.

In the construction industry, digitalization is carried out in a constantly changing economic environment[8] using the following technologies. Digital Twins (DT) are distinguished as a unifying element for almost all “digital” technologies. For the user, it is necessary to use the product and regularly support it, receive updates, and constantly adapt to new requirements and conditions. Customers understand the need for a “digital connection” between physical and virtual products. A digital twin is a key stage in the development of technologies that are supplemented with information about the operation of a real object and display its functional state in real time (based on the BIM model). It is designed to create a model of the interaction of an object with its environment (BIM is used only to create a digital model). The model collects information about materials, design features, operations performed, tests, allows you to identify defects and carry out repairs, predict the condition of the object and make decisions on future operating modes (increasing the safety and efficiency of systems, reducing production cycles).

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Creating a DT involves developing a matrix of multi-level goals and resource constraints (temporary, financial, technological, production, etc.), which behaves with a high degree of adequacy like a real object at all stages of its life. A real physical object (no need for expensive scientific research, natural tests with material objects). Virtual copies have become convenient for users. Access to the DT is constantly synchronized with the real object, which allows you to analyze options for performing construction work, assess their effectiveness, cost and choose the best solutions. Digital intelligence helps to avoid costly mistakes in the life cycle of a construction object and increase the competitiveness of the construction industry.

The presence of a DT for the object being created ensures an increase in the efficiency of all project participants. There are the following problems in the implementation of the technology: the observed processes are not always fully taken into account; the customer does not assess the economic efficiency of the DT. The assessment should be carried out taking into account the initial investments and operating costs (staff, software, updating technical equipment, etc.); the complexity of the created models; the lack of responsibility for the DT at the enterprise; the reverse sequence of the impact of changes (there should be initial information about the state of the DT production).

The aspects required for the implementation of the DT: development of project indicators and budgeting taking into account the payback period; appointment of a person responsible for the implementation of functionality and subsequent support; creation of a compact disc; Development of standards for the implementation of DT; first making changes to DT, and then at the construction site; control over the use of regulatory documents throughout the entire life of the facility[9].

Today, it is difficult to imagine the future without data. IDC experts predict that company revenues from the use of this technology will increase from $ 130 billion in 2016 to $ 203 billion by 2020. According to World Oil, the use of digital technologies can reduce company costs by almost 20%. It is clear that every year

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there are more and more advantages of introducing data into construction processes. Using data in conjunction with BIM platforms allows companies to avoid paper costs and work, as well as workflow, and especially the main problems of production, namely, violation of construction deadlines, budget overruns and slow decision-making. Developers will be able to optimize business processes and achieve a new level of efficiency.

The use of digital technology data is no longer a surprise today. Technologies are constantly developing and moving forward, opening up new and new opportunities for various sectors of the economy and business. The large-scale understanding of data in the real estate sector is not yet the norm. However, developers are already working on the first steps that will simplify and automate the work.

Digital technology data allows you to combine all the information about advertising campaigns - that is, from social networks, advertising agencies, collective systems, from outside, from offline data (for example, surveys), etc. As a result of processing this data, specialists can get a very clear idea of the client for various projects - to create a detailed portrait of him, for example, how successfully the advertising campaign is working.

Data center technology that provides automated monitoring of equipment and material usage, waste tracking, worker movement around the construction site, more efficient resource management, and emergency response teams. Using digital data to make construction safer—using the virtual world to save lives in the real world. Steelcase used Azure Digital Twins to create the SteelcaseWorkplace Advisor and Find Space mobile apps to help business leaders see how space is being used and create new jobs. Steelcase cites an example of working with a client—a rapidly growing company that was struggling to organize its workspace to accommodate its employees. An optimization project found that the company’s workspace utilization rate was only 35 percent.[10].

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The advantages of cloud technologies widely used in construction include: high mobility; unlimited amount of data in the cloud; quick access to information of project participants; ability to control the management of several construction sites; reduction of the cost of large offices; maximum data protection. Cloud technologies allow solving problems from the first stages of design to the commissioning of the facility. By minimizing possible delays in the work process, high performance is achieved and leads to an overall increase in construction efficiency. Enterprises using cloud solutions reduce construction time by half and ensure standard security of project documentation[11]. “Internet of Things, IoT” is a set of executive devices (“smart” objects) with built-in sensors that communicate via certain communication channels using software (“things”, devices and communication channels, platforms). It also allows the use of cloud technologies designed to collect, transmit and process data, and make decisions based on their analysis. The official definition of the Internet of Things is given in the Recommendation of the International Telecommunication Union, according to which the Internet of Things, IoT, is a global infrastructure of the information society that provides advanced services by organizing communication between things (physical or virtual). The technological ecosystem known as the “Internet of Things” combines hardware, software, communication infrastructure, as well as “connected” devices participating in the process of data exchange. To implement this technology, devices and connected systems are used to collect data: geolocation modules, vibration, motion, pressure sensors, cameras, radars, gyroscopes, barometers, magnetometers, etc. Thanks to various sensors on the construction site, project management becomes more efficient and safer. Experts believe that by 2024, the market share of the Internet of Things (IoT) in construction will reach $16.8 billion.

Construction companies often build objects in different places. Sensors collect data that is processed by programs on the construction site and provide information to the contractor about the state of work. This technology helps to manage large projects, reduces the time and cost of resolving problems. Currently,

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the number of objects that can be included in the IoT is much greater than the number of people. According to the real-time Internet of Things Connections Counter (Cisco System's Internet of Everything Connections Counter), the number of installed devices connected to the Internet at the beginning of 2015 was 14.7 billion, and by 2020 it will be 14.7 billion. The number of such devices can increase to 50 billion [12].

Building Information Modeling (BIM) is based on the joint creation, filling and use of information about the model, which is the basis for decision-making throughout the entire life cycle of the object. The technology digitally represents the physical and functional characteristics of the object. With the help of BIM, a 3D model of the building and a database of technical, technological, economic, engineering and construction solutions are obtained, which allows solving the problems shown in Figure 3.5.

At all stages of the design process, the project is developed in a single information model. Architects create a 3D model, in which the designers perform calculations for each part of the project and transfer them to the architects for correction.

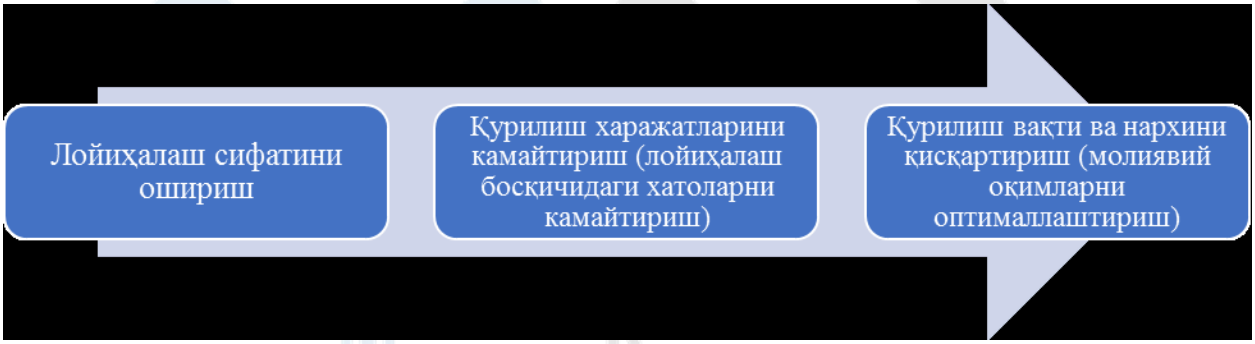

Figure 3.5. Tasks of using BIM technologies

Source: author's development

The use of digital technology data is an excellent tool for forecasting. Each project has specific goals in terms of planned construction costs, related expenses and sales revenue. Initially, the amount of knowledge about the project may be minimal, but the project and working documentation is gradually being

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supplemented, tender procedures for selecting contractors, purchasing materials are being carried out. Based on the collected data, the possibility of achieving the set tasks is calculated, appropriate adjustments are made to the expected result of the work. At the same time, it is possible to constantly work with market data, monitor changes in real time. The use of data in the field of real estate management also has very good prospects. Here, relevant technologies can be used not only in the field of business management, but also in the operation of buildings. These are sensors that collect all kinds of information about the condition of the object.

Gadgets can record the occurrence of technical problems, warn about the occurrence of pre-emergency situations in communication systems, measure pressure, temperature, environmental parameters, load intensity, work activity, etc. And all this information is valuable not only for the management company, but can also be very useful for the developer for planning future facilities.

Understanding and applying modern technologies, integrating them into business tasks, thinking flexibly, seeing trends, feeling and anticipating the needs of your client - this is one of the tasks of a modern and experienced developer. The integration of digital information technologies into various areas of economic activity optimizes and increases the efficiency of business processes.

When using big data to forecast real estate demand, it is possible to collect information about user interactions with real estate agencies and construction company websites, survey results, city population statistics, economic reviews, urban development plans, and transportation systems, and predict the future needs of different types of real estate customers[13].

Machine learning for personalized apartment advertising. By analyzing existing customer data and supplementing it with open sources, including social media data, it is possible to create a very detailed portrait of each consumer: their interests, financial capabilities, expectations, and needs. After that, it is recommended to launch personalized marketing campaigns for real estate advertising: an individual parking space for someone who brags about a new car on

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Instagram, larger apartments for those expecting a baby, and covered courtyards with children's playgrounds for families with small children, etc. Data technologies can analyze their behavior on social media and identify those among newlyweds who are most likely to divorce in the next two years. Each of the divorced spouses will need a new home, as will people who have been living together for a long time and may be thinking about children and expanding their living space[5]. To learn the behavior of people thinking about buying an apartment, it is recommended to show the marketing offer only to those who are as close as possible to the purchase using machine learning models[14]. This will give high results and reduce the cost of the advertising budget. Similarly, it is possible to form advertising campaigns for commercial real estate. For example, by collecting information about companies in open sources and social networks (number of employees, occupied territories, information about vacancies from job search sites, information about opening branches and regional expansion, etc.), you can create a list of potential consumers. A point marketing campaign aimed at these developing enterprises can lead to high sales conversions and save advertising budgets due to the narrow specialization of the target audience[15]. In addition to the content of the advertising offer, Big Data can be used to increase the effectiveness of marketing campaigns due to the hidden aspects of business indicators arising from external conditions. For example, if Machine Learning models reveal that the intensity of calls to real estate agencies and construction companies depends on the season and weather, it makes sense to increase the share of advertising banners during this period. And if a correlation is found between the number of search queries and the time of day, it is recommended to increase conversion by buying morning or, conversely, evening screenings[15].

Machine Learning and Big Data help to provide a personalized marketing offer for an apartment at the right time and in the right place for the client.

Using the Internet of Things to manage smart buildings. "Smart" homes, where you can set a comfortable temperature or prevent burglary through a mobile application, are gradually becoming the standard in the construction of new

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buildings. Sensors and detectors monitor the consumption of electricity, water and gas in order to detect leaks in time or optimize resource consumption.

The introduction of Internet of Things technology into buildings can reduce energy costs by analyzing utility usage and connecting efficient energy storage during peak hours. In addition, energy consumption can be significantly reduced thanks to a system of led lamps that provide advanced lighting control that corresponds to the time of day or approximately[15][4]. Reducing the financial costs of operating buildings, energy optimization also has a positive impact on the environment.

Big data, machine learning and the Internet of Things allow you to combine local "smart houses" into a common single infrastructure for integrated and remote management. In particular, if a heating pipeline suddenly breaks in one of the houses, the backup water supply system will automatically turn on so that residents are not left without water and heat. Also, a large power capacity will be allocated so that the electrical network can withstand the increased load from the use of household electric heaters. At the same time, all services involved in the processes of eliminating the accident and its consequences will be notified. In order to organize safe repairs, the principle of the road network will change this quarter, for example, posters installed along the road will show the scheme of bypassing the emergency site.

Despite generally positive global trends, a number of factors influence and complicate the process of digital transformation of the construction industry: an acute shortage of qualified personnel to work with new equipment and digital solutions, including BIM software; the timing of restructuring production and business processes, which is complicated by a lack of clear understanding of economic benefits in short-term planning; the absence of generally accepted standards for the use of digital solutions and their low interoperability with the existing fleet of machinery and equipment; the difficulty of integrating information

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models created by several teams using different software tools (this is partially solved within the framework of the OpenBIM concept, which involves the interaction of large teams without being tied to a specific software); the complexity of coordinating various participants in complex projects to create CIM, populate data layers, and develop mechanisms for their exchange (data marketplace); different levels of digital maturity of large construction companies, subcontractors, and small and medium-sized enterprises. In our country, the construction sector is dominated by localized small and medium-sized enterprises in regional markets. Due to the lack of investment resources, qualified personnel and direct incentives for digitalization, most of them are actually at a low technological level.

CONCLUSIONS AND SUGGESTIONS

Summing up the prospects for digitalization of construction, it should be noted that digitalization helps to make management decisions based on reliable and up-to-date information. As a result, it is possible to monitor the actual state of construction projects, analyze critical moments and check the implementation of technology. At the same time, digitalization is not only a goal for the development of the construction industry, but also a means of improving the quality of objects under construction and the profitability of the construction process. An analysis of the advantages and problems associated with the digitalization of the construction industry shows that this process is inevitable and rational for construction organizations in the conditions of the widespread integration of modern technologies into business. Digitalization in the construction industry is developing in response to the requirements of today's market, as construction efficiency and cost reduction become a priority. Therefore, construction is becoming "smart" not only in computer design, but also in the direct process of creating an object. Digital technologies have a significant impact on the profitability of the construction industry, which is aimed at optimizing and increasing the efficiency of the implementation of project stages, from engineering research to the operation of the constructed object.

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METHODOLOGY FOR INTERNATIONAL COMPARISON OF MHT INDICATORS

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ABSTRACT. This article focuses on the use of official exchange rates for the transfer of national currencies, real purchasing power parity (PPP), its coefficient characterizing the prices of goods in the countries of the world as a statistical category, the division of the volumes and flows of goods and services into changes over time, the many flows reflected in the PPS, deflation based on a price index, comparison of international indices of material volumes and measuring the purchasing power parity of different currencies from price comparisons.

Keywords: Official exchange rates, purchasing power parity (PPP), prices of goods, coefficient, transfers, quantitative parameter, deflation, intertemporal comparison, time series, PPS, “nominal volumes”, Paasche and Laspeyres indices, aggregation, etc.

INTRODUCTION

In solving this issue, priority is given to calculating real purchasing power parity (PPP) rather than using official exchange rates for the transfer of national currencies.

The GDP is a statistical category that reflects the ratio of prices of goods of the same quality in different countries of the world. Changes in the volume and flow of goods and services over time can be directly divided into two components. They reflect changes in the prices of goods and services and their physical volumes, respectively. Similarly, changes in the value of many types of asset

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stocks can usually be divided into corresponding price components and physical volumes. However, many flows reflected in the GDP, for example, transfers in the form of money, do not have their own prices and quantitative parameters, so it is not possible to divide them into corresponding components. Such flows cannot be measured in constant prices, but they can be reflected in real terms. For this, their value is deflated based on a price index. This makes it possible to measure their real purchasing power in relation to a specially selected basket of goods and services that serves as a standard benchmark.

The same methodology used for comparing prices and volumes over time within a country can be used to compare them between countries. International indices of material volumes are useful for comparing productivity or living standards in different countries, while price comparisons can be used to measure the purchasing power parity of different currencies.

LITERATURE REVIEW

According to Yu.N. Ivanova and others, international comparisons of macroeconomic indicators require the solution of two main problems. The first is the problem of unification of the economic content of the indicators being compared. The second problem is the problem of choosing a method for recalculating indicators in national currency into a single monetary unit.

The first problem can be solved by using standard international classifications and applying a single calculation methodology. The solution of the second problem (the choice of calculation formulas, measurements, methods of aggregation of private indices, etc.) is determined by the content, goals and objectives of the comparison being carried out, the initial data (its level of detail, accuracy, comparability), and the analytical requirements for the results[5].

According to V. Podmogilnaya, “In international comparisons, this is of greater importance than in intertemporal comparisons. No country in a group of

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countries has such a natural status in the base period or as the first in a time series. Usually, there are no well-founded economic reasons for singling out one country as a base country. In addition, the choice of a base country in international comparisons has a significant impact on the final results, since the structure and volume of relative prices in countries can differ significantly from each other in relation to prices in the same and successive periods in the same country"[6].

According to B.K. Goyibnazarov, "To evaluate sample goods, average prices characteristic of the economy are generally used. This allows us to achieve consistency between the calculated price indices and GDP estimates using the methods adopted by the MNT. In cases where the same product is sold to the population at different prices through different distribution channels, the average price of the goods sold through different channels, estimated by the volume of goods, is calculated. In the specialized literature, this method is called the "potato-is-a-potato" principle. The use of such a principle means that when calculating indices characterizing the ratio between the prices of two countries for a particular product, differences in the level of trade and transport surcharges of different countries are not taken into account"[9]. According to A. Abdugoforov et al., comparisons are a way to calculate the average of the GDP for various aggregated categories and GDP. International ratios of material volumes for the first groups and aggregated categories are calculated in the same way. Regardless of the formula used in the aggregation process, the arithmetic complexity of the work increases with the amount of primary data that must be evaluated at the same time. However, the computational and logical complexity of the international comparison procedure is even more complicated: they argue that most of the errors are associated with violations in the requirements for individual goods a obtained for their own country and their own group and in the requirements for the comparability of the goods groups of their partners in comparisons - countries [7].

RESEARCH METHODOLOGY

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The research used a wide range of methods such as logical thinking, reasoning, observation, comparison, selection, generalization, dynamic change detection, macroeconomic data analysis, induction and deduction, classification, algorithmization, programming, comparative comparison and expert assessment.

ANALYSIS AND RESULTS

It should be noted that the theory of indices developed for time series cannot be mechanically transferred to international comparisons. There are a number of specific features that distinguish international comparisons. The specific features of international comparisons are primarily related to the following:

1. In time series, it is customary to compare two periods that can be compared in time (for example, one year). In international comparisons, countries or regions that are the same are usually not compared. However, countries with different levels of economic development can be compared with each other. In this case, the analysis of the results obtained in this way becomes significantly complicated, and sometimes the question of the appropriateness of conducting such comparisons arises.

2. Sometimes, depending on the goals and objectives of the comparisons being made, it becomes necessary to modify the statistical units under consideration. For example, it is possible to highlight some similar districts in countries or to enlarge the objects of research in international organizations. These features are also very important when conducting international comparisons. It is necessary to calculate price indicators and material volumes not only for blocks of countries, but also for individual countries. In this regard, the significance of the level of development of countries should not depend on whether the country is considered as a group of regions, as a separate independent unit, or as part of a larger international organization.

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3. In time series, the continuity between the registration of prices and volumes and the changes in prices and material volumes over time in successive time periods is preserved. There are no such clearly consecutive series between countries. Accordingly, there is no universal method for objectively organizing countries and then forming chained (dynamic) indices for them. Therefore, chained indices are used much less often than such methods for comparisons of prices and production volumes and their consumption over time in cross-country comparisons.

Comparisons are made not only for pairs of countries, but also for groups of countries, regions, districts. In this regard, pairwise and multilateral comparisons are distinguished.

The UN International Comparisons Program can be considered as a logical development of the MST in the transition from data at current and variable prices to an intercountry set of international accounts in national currencies.

The PPP shows the amount of currency units of country A (the comparison country) needed to purchase a standard set of goods and services that can be purchased with one currency unit of country B (or any other country taken as a basis of comparison) or with one conditional (common) currency unit of a group of countries.

The value of national currencies calculated in relation to the currency that can be compared using the PPP is called “real volumes”. At the same time, the value of national currencies calculated in relation to the currency that is compared at exchange rates for international comparisons is called “nominal volumes”. The PPP is a kind of spatial “deflator”, an analogue of the price dynamics index. If the price dynamics index measures the change in the purchasing power of a country’s currency over time, then the PPP measures the differences in the purchasing power of currencies of different countries in space.

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In practice, the PPI indices are mainly used to form international indices of material volumes. They are mainly used to deflate the ratio between values in national currencies. In addition, they are of considerable interest in themselves. These indices have parameters similar to exchange rates and can be directly compared with the latter. By dividing the PPI index by the corresponding exchange rate, it is possible to obtain a price index similar to the intertemporal price index. Such an index shows how much higher (or pact) the prices of goods and services in country "B" are on average compared to the prices of goods and services in the same country "A" when recalculated into the currency of country "A" at the current exchange rate. Such information is useful for individuals or institutional units moving from one country to another or engaged in economic activity in these two countries. Since the PPI, as a rule, refers to final domestic expenditures, they are not intended for the analysis of international flows of goods and services, but they can be of significant interest when analyzing foreign trade.

To ensure the logical and analytical possibility of aggregating data on various goods and groups of goods, the results of comparisons (including PPI), which are usually obtained in the form of indices, must meet a number of analytical descriptive requirements:

1. Specificity means that the measurement systems used to calculate PPI must sufficiently reflect the specific characteristics of the structure of indicators and the price structure of all countries under study: often, descriptiveness is understood as the independence of the results of indicators of two countries from data from third countries.

2. Invariance means that the results of the calculation of the CPI should not depend on the chosen comparison base (base country, base measurements, etc.). If the invariance requirements are not met, the comparison results will in most cases be determined by the measurement systems, etc., which will lead to some distortion of the results obtained.

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3. Transitivity (an analogue of the circularity requirement in dynamic comparisons) means that direct pairwise comparisons of the CPI should give the same results as indirect comparisons obtained through a third "bridge" country (bridge country method). In a strictly formal formulation of the problem, a set of indices (CPI) is considered transitive if the following conditions are met for each triad of indices:

$$I_{(A/B)} = I_{(A/C)} : I_{(C/B)} \quad (1)$$

If the CPI does not meet the transitivity requirements, this can lead to logical inconsistencies. For example, the indicator of country "A" calculated using the CPI is higher than the indicator of country "V", the indicator of country "V" is higher than the indicator of country "C", but the indicator of country "C" is higher than the indicator of country "A": A > B, B > C; but C > A.

The index calculated by the direct method is considered a chain index in terms of statistical structure, which connects countries "A" and "V", where country "C" is used as the connecting country.

4. Additivity means that the CPI should be calculated for the overall indicator and for its components in such a way that the calculations of the overall results for the indicator should consist of the results of the calculations of its components. This requirement is often referred to in the literature as the requirement of internal consistency. If the additivity requirement is not met, then this situation can lead to internal logical inconsistencies. For example, in the currency being compared, all components of the indicator of country "A" are greater than the components of the indicator of country "B", but the total indicator of country "B" is greater than the total indicator of country "A".

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5. The factorial model requirement means that the product of the price index (i.e., the PPI) and the volume index of material goods must be exactly equal to the value index.

The above-mentioned formal requirements are in a certain logical contradiction with each other. For example, transitivity and descriptiveness: let's say, to satisfy the first requirement, uniform measurements should be used, while to satisfy the second requirement, ideally, each pair of countries should use their own units of measurement. Therefore, in any multilateral comparison, only a certain amount of compromise can be achieved between the fulfillment of these requirements.

Similar types of indices are used to calculate the CPI between the currencies of two countries, as are used to compare prices dynamically.

At the level of primary commodity groups, the unweighted geometric mean formula of the index is used for individual price ratios:

$$I_{ggr}(A/B) = (\Pi i_j(A/B))^{1/m} \quad (2)$$

Here: $i_j(A/B)$ –Price index for individual goods of "country "A" relative to country "B";

$I_{ggr}(A/B)$ –The group geometric mean of the price index "Country "A" relative to Country "B"" (for primary commodity groups);

m – number of samples in the group.

This approach is based on one of the methods of international multilateral comparisons - the Girardi method. When using the Girardi method, average international prices are calculated based on average national prices determined using the unweighted geometric mean formula. The indices obtained on this basis meet the requirements of transitivity, additivity and independence from the

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selected base country. When using the Girardi formula, the Gershen effect does not affect the comparison results. However, the economic content of average international prices calculated using the Girardi formula is abstract. Nevertheless, the Girardi formula has been used for some time in international comparisons of GDP based on the GDP of European countries by Eurostat.

The use of the unweighted index formula is explained by the lack of internationally comparable and reliable data on the measurements of individual representatives, and the choice of the geometric index formula is explained by formal-analytical considerations (the geometric index ensures invariance, i.e., the reversibility of the indices).

The aggregated level of the GDP can be obtained using the aggregate of the Paasche and Laspeyres indices, using the GDP calculated according to the above-mentioned group average formula, and the measurements of commodity groups in national currency.

If we:

P_a, q_a, P_b, q_b – The quantities and prices of certain goods in countries "A" and "B";

Q_a, Q_b – The value volumes of the group of goods in the national currencies of countries "A" and "B";

$i_p = P_b / P_a$ – We may have a certain opportunity if we have a price index of the j-sample-good in country "B" relative to country "A".

According to the Paashe and Lacpeyrec formula, the CPI takes the form of a simple average of indices, and a harmonized and arithmetically approximated form for commodity groups, respectively:

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$$ХКП_{Паашe} = (\Sigma Q_b) / \Sigma(Q_b / i_p) \qquad ХКП_{Ласпейрес} = (\Sigma i_p Q_a) / \Sigma Q_a \tag{3}$$

According to the Paasche formula, the GDP corresponds to the corresponding Laspeyres material volume index and is inversely proportional. Usually, there is a significant difference between the Paasche index and the Laspeyres values. This is explained by the fact that relative prices and quantities between countries tend to be inversely correlated - a phenomenon also known as the Gerschenkron effect: institutional units in a country tend to purchase relatively more goods and services that are relatively cheaper in that country than in other countries. Given the significant differences between the Paasche and Laspeyres indices, the Fisher index is usually used as the official result in international bilateral and interbank comparisons. It is the geometric mean of the two indices:

$$I = \sqrt{ХКП_{Паашe} * ХКП_{Ласпейрес}} \tag{4}$$

The Fisher index ensures the invariance of results in bilateral comparisons, which explains its widespread use in international comparisons. In addition, the Fisher index is one of the methods for calculating the results of multilateral comparisons, a special case of the more complex methods of calculating the GDP. For example, the Van Izeren method, the Giri-Kamish method, the EKSh method, the Walsh method, and other methods also deserve a more detailed consideration.

The Giri-Kamish method has been used for a long time to carry out multilateral international comparisons of GDP. The Giri-Kamish index formula looks like this:

$$\overline{p}_i = \frac{\sum_j^m P_{ij} q_{ij} R_j}{Q_i}, i = 1,...n; \tag{5}$$

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$$R_j = \frac{\sum_{i}^{n} q_{ij}\,\overline{p}_i}{\sum_{i}^{n} p_{ij} q_{ij_i}}, \; j = 1,...m;$$

(6)

Here: R_i – *j*- purchasing power parity of a country's currency against the currency of a base country; $\overline{p}_i$ – *Average international price of an i-good*; p_{ij} – *j*-price of the i-good in the country; q_{ij} – *the quantity of the i-good in the j-country;* Q_i – total quantity of the i-th good in all countries; n – quantity of goods; m – number of countries.

Thus, based on the system of solving linear equations using the Giri-Kamic method, a simultaneous XQP is obtained. (R_i)and average international prices (P_i)is determined. Estimating the indicators of all countries at international prices also allows us to obtain indices that are transitive, additive and independent of the choice of the base country. However, the Giri-Kamic indices do not meet the requirements for descriptiveness of the measurements, which is their disadvantage. Therefore, the Giri-Kamic method was superseded by the EKSH (Elte-Kevesh-Schuls) method. In these two frameworks, the average prices obtained in the aggregation process are used (which the Giri-Kamic method uses directly, and the EKSH method uses indirectly), but the EKSH method prices, unlike the Giri-Kamic method prices, according to a number of reputable expert groups, are more neutral (neutral) with respect to the national price structure.

The EKSH aggregation method used in the 1990 and 1993 EKSH differs from the aggregation procedure used in all previous stages of the EKSH and EKSH. The formula for the EEC index for countries “A” and “B” is as follows:

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$$ЭКШ_{A/B} = \sqrt[n]{(F_{A/B})^2 \left(\frac{F_{A_j}}{F_{B_j}}\right)},$$

(7)

Here: $F_{A/B}$ – Fisher index for countries "A" and "B"; F_{A_j} – Fisher index for countries "A" and "J"; F_{B_j} – Fisher index for countries “V” and “J”; n – number of countries participating in the comparison; $j = A, B, C, ... j.$

Based on the EKSh formula, it is possible to obtain indices that meet the transitivity requirement and deviate minimally from the requirement of descriptiveness of measurements. It is worth noting that in the EKSh formula, the Fisher index has a scale equal to two for these pairs of countries (“A” and “V”). In addition, the Fisher indices obtained indirectly, that is, through the country-by-country method, for these two pairs of countries are also taken into account.

The Walsh method is also described in the relevant literature. Its formula looks like this:

$$\bar{I}_{A/B} = \prod_{i=1}^{n} R_{i_{A/B}}^{(M_i)},$$

(8)

Here: $R_{i_{A/B}}$ – Purchasing power parity of currencies for the i-th commodity group (calculated as the geometric mean of the ratio of prices for the sample goods of countries "A" and "B");

M_i – The weight of a group of general aggregates is determined as the average weight of this group of goods in all countries participating in the comparison of GDP. For example, if the weight of expenditure on meat products in countries “A”, “B” and “C” is equal to 5, 6 and 7, then M for this group of goods is equal to 6.

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Walsh indices meet the requirements of the transitive and base country selection index, which is their advantage. However, they do not meet the requirement of additivity.

In some cases, the "central country solution" is used for multilateral comparisons. In this indicator, the GDP of all countries is compared with the GDP of the country selected as the base (central) country. In this case, for pairs of countries considered (except for pairs of countries where one of the two is not a central country), the indices are calculated directly by the direct method, that is, by comparing the index values of these countries with the values of the central country. The indices obtained by such a method are transitive, but their transitivity is achieved by a contrived method and they do not meet the requirement of non-separability depending on the choice of the central country. Therefore, the indices calculated by the direct method mentioned above $I_{B/C}$ The index is calculated based on the random pairwise comparison of countries "V" and "C" $I_{B/C}$ differs from the index. The central country method, which is widely used in the practice of such multilateral international comparisons, is not considered a primary objective. Its main advantage is the ease of calculation, however. In the most general form, if the national expenditure indicator is the corresponding GDP per unit of the specified primary groups, then we have a converted synthetic indicator of this value in another currency. This is a general concept for carrying out quantitative comparisons based on data on the ratio of expenditures and prices.

The above procedure is used in direct pairwise (bilateral) comparisons of GDP based on GDP, that is, in comparisons carried out directly for one or another pair of countries. In addition, the procedure and requirements of this procedure are relevant for the theory of international comparisons. Here, it is customary to distinguish between pairwise and multilateral comparisons, which are carried out simultaneously for entire groups of countries. International economic organizations (UN, OECD (Organization for Economic Cooperation and Development), World

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Bank, etc.) usually carry out multilateral comparisons. The peculiarity of multilateral comparisons is that they are carried out not only for a group of countries, but also in that information on the volume of products produced and consumed in these countries and their prices is processed as a single set of data necessary to obtain a system of interrelated indices that meet the above-mentioned analytical requirements.

The implementation of the step-by-step basic method begins with a complete matrix of group parities at the level of primary groups. For each subsequent year, some parities are replaced by new ones using prices accumulated during the year, and the rest are extrapolated using group price indices. The matrix is then aggregated to obtain the PPI and real volumes. The cycle continues until all initial parities are completely replaced, which takes about three years. The disadvantages of this method are the need to continuously collect data for a part of the representative list of goods, the need to constantly submit price indices at the level of primary groups, and the need to annually estimate detailed GDP expenditures. In this process, most OECD member countries have detailed indices, for example, for investment goods. Therefore, they all aggregate prices for a representative sample of goods, such as “Machinery and equipment”, which is a different aggregated goods group. This significantly reduces the quality of the extrapolation. The global extrapolation method can only indicate PPI and real volumes at the GDP level, since it is based on the ratios of GDP deflators.

$$ХКП_{i+1} = ХКП_i * (I_{дефл}^{i+1}(K) / I_{дефл}^{i+1}(Баз)) \quad (9)$$

Here $I_{дефл}^{i+1}(K)$ va $I_{дефл}^{i+1}(Баз)$ – deflator-indexes, respectively, the deflators of the “K” country and the base country (for example, the USA or Austria).

Thus, the global extrapolation method can be used on the basis of the GDP material volume index of the base country and other countries. The disadvantage of

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global extrapolation methods is the use of material volume indices and GDP deflators calculated on different bases. As a result, errors occur in the estimates, which eliminates the possibility of extrapolating the results for the long term, extrapolating only between the comparison years.

Despite all the complexities and limitations of various international comparison programs, they can only provide socio-economic information that allows us to compare the living standards of the population in different countries with similar levels of cultural and economic development and to make assumptions about the price ratios for similar goods.

CONCLUSIONS AND SUGGESTIONS

Based on the analytical capabilities of the NMS, it is important to provide a methodological basis for calculating all stages of national accounts indicators (from obtaining primary data to compiling balance sheets). The political and economic nature of the Republic of Uzbekistan, based on the principles of the NMS, is aimed at a number of special requirements for internal economic structures.

The resulting indicators are considered comprehensively for each area of activity, industry, institutional sector, form of ownership, and business management system. Therefore, in order to study their activities in more depth, it is necessary to conduct targeted statistical observation, ensure a high level of statistical coverage, and fully comply with market principles in current statistical reports. This will ensure that the resulting indicators at the central levels fully reflect quality information, and also create an expanded opportunity to study, analyze, and evaluate the national economy based on international principles.

Macroeconomics uses many indicators aimed at various purposes (GDP, net domestic product, gross national income, etc.). The most important of them is the GDP indicator. GDP is widely used in international practice. It serves as an

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indicator that reflects the final results of economic production activities in international and national practice. The general accounts of the MNE reflect various aspects of GDP reproduction: production, formation, distribution and accumulation, as well as a number of other purposes. In GDP, interconnected and mutually dependent goods and services, income flows are gradually reflected in the process of reproduction. Taking into account the above circumstances, this indicator has been calculated in Uzbekistan since 1992. They are mainly calculated at current and comparable prices. The calculation of GDP in the Republic of Uzbekistan is intended for international comparison with world countries and for fulfilling the requirements of the UN Statistical Commission.

The movement of GDP by stages of production should be shown in two aspects: value and consumption value. In the first case, GDP is interpreted as a flow of goods and services, and in the second case, as a flow of monetary income. These flows are separated as an integral part of the movement of GDP by stages of production. In the production method, GDP is determined by the sum of gross value added in economic sectors and institutional sectors and net taxes on products. Gross value added in economic sectors and institutional sectors is the difference between gross goods and services produced and intermediate consumption. The economy is divided into institutional sectors, the study of which serves to classify changes in financial assets and liabilities, income and expenses. Its results are compared with the results of economic sectors.

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STATISTICAL INDICATORS REPRESENTING SOCIAL PROTECTION OF THE POPULATION AND THEIR INFORMATION BASE

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Annotation: As a result of the fact that every state in the world pursues a policy of social assistance to the population, social problems are overcome with the help of the state. The organization and management of social assistance to the population requires significant financial investments, which the state carries out centrally

The most important programmatic goals of the socio-economic development of Uzbekistan in the article are the achievement of social welfare and social agreement, the reproduction of social welfare in society and the implementation of social policies on the basis of support for vulnerable segments of the population are considered one of the most important ways to achieve these goals. To assess the achievement of the set goals, it is necessary to have all the relevant information in this area. To do this, a comparative analysis of statistical and budgetary measures accounting systems in the field of social protection was carried out abroad and in Uzbekistan.

Key words: Social data loss, Indicator System, economic, social, cultural and information database.

Introduction

In recent years, systematic work has been carried out to strengthen the social protection of the population, expand the scope and types of social services provided to citizens by the state.

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In particular, the cost of financing social programs has increased by 2 times compared to GDP, the coverage of low-income families receiving benefits has increased by 5 times, and a new type of benefit has been introduced for persons with disabilities and those engaged in caring for children with disabilities.

This research work to a certain extent serves the implementation of the tasks set out in the Decree of the President of the Republic of Uzbekistan No. PF-5655 dated February 5, 2019 “On approval of the Concept of conducting a population census in the Republic of Uzbekistan in 2020” and the Resolutions of the President of the Republic of Uzbekistan No. PQ-4796 dated August 3, 2020 “On measures to further improve and develop the national statistical system of the Republic of Uzbekistan” and No. PQ-4699 dated April 20, 2020 “On measures for the widespread introduction of the digital economy and e-government” as well as the Resolution of the Cabinet of Ministers No. VM-841 dated October 20, 2018 “On measures to implement national goals and objectives in the field of sustainable development for the period up to 2030” and other regulatory legal acts on the topic of the article.

The newly adopted Constitution stipulates that the rights of the elderly, disabled and other socially vulnerable groups of the population are protected by the state, which requires a unified approach to reform this area.

In particular, in order to ensure the fulfillment of the constitutional obligations of the state to facilitate the employment and education of persons with disabilities, it is necessary to introduce a system of effective coordination of measures taken in this area.

Taking into account the principles of the social state proclaimed in the newly adopted Constitution, an absolutely new management system based on advanced international standards has been introduced in this area, which unconditionally ensures the rights and interests of citizens in terms of social protection, radically improves the quality of social services provided to the population, and provides a completely new management system based on advanced international standards.

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Level of study of the topic: Given the broad scope of the topic, the following foreign scientists have conducted a lot of research. For example:

Simon Dresner[1,2,3] is a comprehensive and accessible source for an interdisciplinary expert on development. He has provided a detailed account of the origins, evolution and decline of ideas on this subject, while also offering a critique and a critique.

While there are many definitions of sustainable development, Kirk Hamilton [4,5,6] has suggested indicators based on a simple formula that economists can use to generate a rich set of phenomena: sustainability is achieved if development does not slow down in the direction of general well-being.

Scientists from the countries of the Commonwealth of Independent States (CIS) have conducted extensive research on the development of a system of statistical indicators representing the social protection of the population and their information base.

M.S. Alekseychuk [7] discussed in his research the possibility of adapting the real savings index to assess the sustainability of regional (area) development, an indicator of sustainable development.

S.N. Bobilev [8] focused his research on the development and use of indicators of sustainable development for the regions of Russia.

Methodological approaches to the development of indicators, international and Russian experience in this field were considered. S.E. Viktorovna [9] The formation of indicators of sustainable economic development of the country is an interacting social system, therefore, ensuring the sustainable development of regions is a priority task.

The following scientists of our country also conducted work on this research. A. Nigmatov, R. Kulmatov, A. Rasulov, Sh. Mukhamedov wrote monographs entitled “The system of statistical indicators representing social protection of the population and the formation of their information base”.

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Research methodology: The article uses the methods of scientific abstraction, logic, analysis and synthesis, comparative and economic-statistical analysis.

Main results: Study of foreign structures, comparison of the system of statistical indicators and information base of social protection of the population with the CIS countries, Uzbekistan - national production, including outerwear. Requires methodologies proposed by international organizations (UN, OECD, World Bank).

Analysis of existing statistical indicators of social protection of the population - coverage, reliability, interrelationship Systematization and systematization of statistical data - system of indicators, application of statistical analysis methods of the information base (correlation, regression, dynamic series analysis, etc.) - correlation between indicators. New statistical indicators for the field of social protection of the population have been identified.

Social protection - in a broad sense - a set of legal, economic, social measures that ensure the social and material protection of the country's population and are established in society, in a narrow sense - the care of the state and society for citizens who need help and support due to their age, health status, social situation, and insufficient provision of means of subsistence. Its main goal is to ensure the continuous improvement of the well-being of the population, eliminate sharp differences in education, culture, professional qualifications, and incomes of the population, and to help society ensure a decent standard of living and human development.

During the transition to market relations and the reform of the socio-economic system, a system of reliable social guarantees and targeted and targeted social support for the population, especially its vulnerable groups, was established. The mahalla occupies a central place in this system. In 1999, through this system, low-income families — a total of 3 million people (12.2% of the country's population) and families with children — 6.5 million people (27%) received

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material assistance. The amount of assistance for one family, together with child benefits, is 3.4 times the minimum wage per month. Social protection in this area is mainly carried out by providing various benefits for low-income families, creating benefits for certain groups of the population, and providing support for single elderly people and disabled people at state expense.

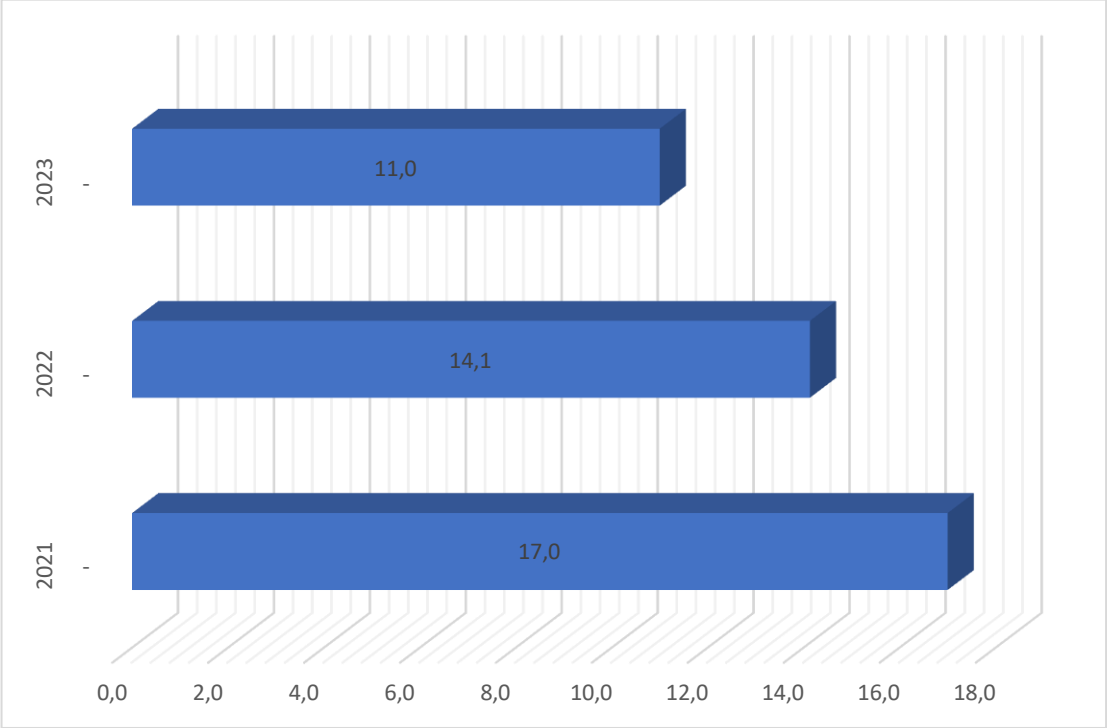

Figure 1. Poverty rate

Based on household sample surveys, in %

From 2001 to 2020, the poverty level indicator was calculated based on the World Bank recommendation of 2100 kcal per day, for 2021, it was calculated by comparing the income of the population with the amount of the MIX in accordance with the Resolution of the Cabinet of Ministers No. 544 dated August 27, 2021.

Uneven distribution of income of the population of the Republic of Uzbekistan by 10 percentiles of the population. Based on household sample surveys, in %.

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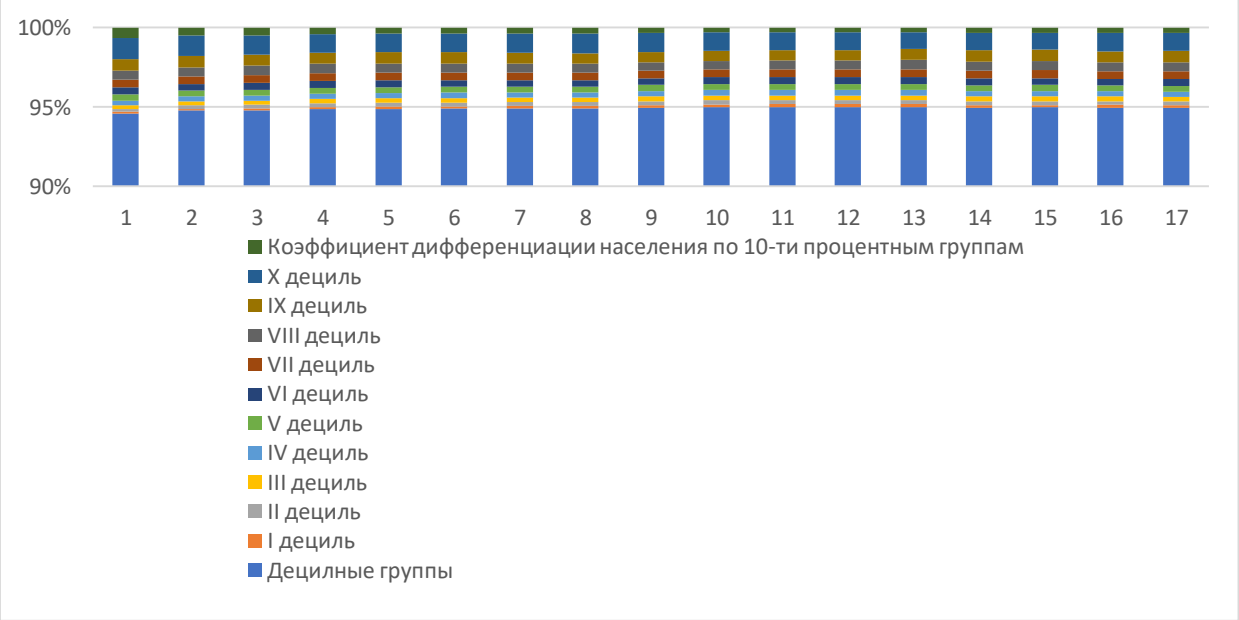

Figure-2. stat.uz/rasmiy-statistika/

For example, a family lives in a remote village. The mother in this family does not work because she has a sick child. But they are unaware of the state's support and services for this child. Then, when a women's activist visits this family, she listens to their problems and studies their living conditions. In this case, when she learns about the child's illness, she directs them to an appropriate disability assessment. After the child's disability is assessed, the women's activist helps them apply for state-provided services and support. That is, the child is provided with an appropriate technical rehabilitation device, he is assigned a monthly disability allowance, and the mother is assigned a disability child care allowance based on the child's illness. In addition, if the child is of school age, the women's activist helps place him in school. Thus, this family's social protection is fully ensured.

The state budget spending on social assistance programs amounted to 0.97 percent of GDP in 2022, which is lower than the average regional spending on social assistance in the countries of Europe and Central Asia.

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To assess the results and effectiveness of existing programs, it is appropriate to conduct an analysis of state social protection expenditures, the report says.

It is necessary to calculate the amount of investment required to implement the new national social protection strategy, clearly indicating the available funds and additional funds needed. The analysis of state expenditures allows you to form a factual basis for assessing the impact of current expenditures and the social protection system, as well as to identify necessary changes in the composition and direction of state spending, and helps to determine the budgetary opportunities in the field of social protection.

The majority of the population still has no access to social security: about 60 percent of the employed population is in the informal sector and does not participate in contributory social insurance programs.

Conclusions and recommendations:

In line with the approach of guaranteeing a minimum level of social protection for the entire population, it is recommended to strengthen social protection (including social insurance, maternity protection, decent working conditions and minimum wage) for those employed in the informal sector of the national economy by expanding their coverage. These measures should be implemented in coordination with general efforts aimed at increasing the share of formal employment.

Unemployment benefit recipients account for about 1 percent of the total number of registered unemployed. This situation means that unemployment insurance, which is the basis of international social security standards, is practically non-existent in Uzbekistan.

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Therefore, in our opinion, it is necessary to analyze the existing statistical indicators of the level of poverty of the population and

social protection of the population, draw conclusions and make recommendations.

We propose the following qualitative indicators for the analysis of the existing statistical indicators of social protection of the population.

- labor productivity;
- activity of business entities;
- employment rate;
- labor market tightness;
- poverty rate;
- economic activity index;
- business sentiment index.

The analysis of the existing statistical indicators of social protection of the population is an important indicator for an accurate statistical assessment of the level of poverty of the population, the first goal of which is.

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METHODOLOGY FOR DETERMINING THE EFFICIENCY OF A CONSTRUCTION ORGANIZATION

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ANNOTATION. This article reviews the scientific literature on the formation of performance indicators of construction organizations. Differentiated and generalized indicators of efficiency are used to assess and determine the economic efficiency of construction production. The effectiveness of the use of some form of cost and resources is expressed in differentiated performance indicators: quantitative indicators, final indicators and social results. Scientific and practical suggestions for solving problems in the construction complex were developed.

Key words: statistical analysis, fixed assets, capacity of fixed assets, capital construction, contract method, economic method, duration of construction objects, capital investments, unfinished construction objects, economic efficiency, socio-economic efficiency , investment, comparative analysis of regions; construction industry, housing, affordable housing, spending, capital investment and fixed capital investment, new construction, reconstruction, technical re-equipment, etc.

INTRODUCTION

Among the sectors of the national economy of the Republic of Uzbekistan, the construction sector plays an important role not only as a sector that creates the main funds of the economy, but also in implementing the structural changes taking place in the country's economy and urgent tasks in the social sphere with various characteristics (demographic structure and its variability, high level of rural population and low provision of housing and socio-cultural-household facilities,

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insufficient development of internal infrastructure, transport and communication facilities, etc.).

Therefore, differentiated and generalizing indicators of efficiency are used to assess and determine the economic efficiency of construction production. The efficiency of using one or another type of cost and resources is expressed in differentiated indicators of efficiency: volume indicators, which are initial indicators, include natural and value indicators of the volume of products produced and services provided: the volume of output expressed in natural form, commodity products; The final indicators are often the volume of product sales and the net income of the enterprise, measured in natural terms and in the form of income (revenue) from the sale of products; social results are reflected in indicators such as an increase in the standard of living (increase in wages, the level of medical care, housing), free time and the efficiency of its use, working conditions (reduction in injuries, employee dissatisfaction), the state of the environment and the impact of production on the environmental situation.

The classification of costs and resources is different in world experience, the following main forms of them are distinguished[2]: living labor costs (time worked, payroll, number of industrial and production employees); material costs (raw materials, supplies, fuel and energy consumption); production funds or, according to the economic definition, capital (fixed and working capital) or, according to the financial definition, enterprise assets; natural resources (land, mineral reserves); information resources (results of scientific knowledge, scientific research, inventions and rationalization proposals).

The time factor is of great importance in assessing the economic efficiency of production[3]. From this point of view, all costs and resources are divided into: current costs (production and operating costs); one-time costs (investment, capital funds).

Current production costs are incurred during the year, characterize the costs of production and product sales and include the costs of raw materials, materials,

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fuel, energy, wages, depreciation of fixed assets (means), that is, the amount of living labor and means of production consumed during the year.

One-time costs are financial and material and technical means (investments) that are necessary for the expanded reproduction of fixed assets, technical improvement of production, and are advanced for many years. Unlike current expenses, which usually pay off over the course of a year, one-time expenses pay off over a specific period of time, often more than a year, after production facilities and facilities are put into operation, new products are developed, and research and development is implemented.

LITERATURE ANALYSIS ON THE TOPIC

The construction industry unites the activities of general and special construction, design, research and development organizations, construction industry enterprises included in construction associations, as well as all organizations performing construction and installation works (CIM).

According to Sh.A. Isamukhamedova, the capital construction sector also includes the activities of customers who own capital investments based on their own funds, debt and state budget funds[4].

Practically all types of transport are used to transport construction materials, structures and equipment (road, rail, river, sea and air transport). The cost of transport costs in the structure of construction costs reaches 20 percent[5].

The construction process is divided into three main stages: 1) preparatory work for construction; 2) the construction process itself; 3) commissioning of the finished construction object.

The following three stages of the circular flow of capital investments correspond to the construction production process: 1) production - as a product form of the creation of fixed assets; 2) implementation (realization) - as a form of the transformation of construction products into fixed assets; 3) preparation of the next period (cycle) of repeated production in order to convert funds into future products[6].

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Simultaneous costs include the costs of construction organizations to create or purchase fixed assets and the cost of material reserves in the working capital of unfinished construction. Current costs are all direct and indirect costs of a construction enterprise associated with the creation of objects: wages, building materials, depreciation and other costs[7].

The general characteristics of construction are as follows[9]: Construction production and the final product are unstable and temporary in nature, and they are not of the same type; The technological interdependence of all operations included in the construction process.

Construction is a materially demanding industry. As noted above, more than 70 national economic sectors supply building materials to this industry to obtain the final construction product[8].

A distinctive feature of the construction industry is, first of all, its connection with the concentration of production. Concentration is understood as the process of concentrating funds, objects and labor resources at one point in large production units[9].

RESEARCH METHODOLOGY

In conducting the research, the methods of logical thinking, reasoning, observation, comparison, descriptive statistics, selection, generalization, grouping, determination of dynamic changes, analysis of statistical data, induction and deduction, classification, statistical evaluation, algorithmization, programming, comparison and expert assessment were widely used. Also, scientific research by foreign and local scientists on the essence of investment efficiency in the construction industry and methods for its assessment was deeply studied, and author's approaches were developed in this regard.

ANALYSIS AND RESULTS

It is possible to compare various results of the enterprise's activities with various costs and thereby determine the efficiency of production.

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Here we would also like to emphasize that when talking about the economic efficiency of production, there are also broader interpretations of it as socio-economic efficiency. This is explained by the fact that in addition to the economic results considered above in the quantitative and final sense, there are also social results. Based on this, efficiency is also understood as a socio-economic category[10].

Production efficiency is determined, firstly, to determine the level of utilization of individual forms of costs and resources, the effectiveness (productivity) of production as a whole; secondly, to justify and select the most economical, optimal from alternative options for solving a production and economic problem. Depending on these tasks (issues), absolute and comparative efficiency are distinguished[11].

Absolute efficiency is calculated for a certain period of time for an enterprise and characterizes the total value of economic efficiency compared to the amount of costs received separately and in the aggregate.

Comparative efficiency is calculated on the basis of comparing technical and economic indicators for two or more options for solving an economic problem and is used to select the best option and determine its socio-economic advantage over other alternative options.

Differentiated (differentiated) and generalizing indicators are used to calculate absolute efficiency. Differentiated indicators characterize the efficiency of using each of the individual forms of costs and resources separately. Table 1 presents the main differentiated indicators of production efficiency, which shows that they are calculated as the ratio of product production to individual forms of costs and resources.

Table 1

Proposed differentiated indicators of production efficiency*

Indicator name	Formula for calculation
Material efficiency of the	Material costs/Production

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product	
Material efficiency of the product	Production/Material costs
Labor efficiency of the product	Time spent on production/Production
Labor productivity	Product release/ Time spent on product release
Fund efficiency of the product	Fixed assets + working capital/Production
Fund productivity	Production/ Fixed assets + working capital
Energy efficiency of the product	Energy costs/Production
Energy efficiency	Production/Energy consumption
Scientific efficiency of the product	Research and development costs/Production costs
Science productivity	Production/Research costs

*Author's development

The lower the material capacity, labor intensity, fund capacity, etc. of materials, and the higher the material return, labor productivity, fund return, etc., the higher the efficiency of resource use and production. In general, general indicators are used to assess the efficiency of construction (production). Profit (net profit) is often involved as the final result. For this reason, product profitability and production (capital) profitability are among the traditional general indicators. In addition to the above indicators, indicators introduced from foreign practice are also used to assess production efficiency.

According to the purpose of the analysis, they can be grouped as follows:

1) liquidity (quick cash conversion) indicators;

2) financial stability indicators;

3) business activity indicators;

4) profitability indicators.

Liquidity indicators characterize the ability of an enterprise to pay, fulfill its short-term obligations, and manage working capital[12]. When analyzing the

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indicators presented in Table 2, it should be borne in mind that an enterprise is considered solvency if the amount of current assets (reserves, cash, debts, etc.) is greater than or equal to its external debt[11].

Table 2

Liquidity Indicators

Indicator name	Formula for calculation
Current liquidity ratio	Current assets/Current liabilities
Quick liquidity ratio	Liquid assets/Short-term liabilities
Absolute liquidity ratio	Cash + Short-term financial assets/ Short-term liabilities

In world practice, the following theoretically justified values of liquidity indicators are used: the required value of the current liquidity ratio, which shows what part of current liabilities on loans and settlements can be canceled (suspended) with the mobilization of all working capital, should not be less than 1. Its optimal value should be within 2.0-2.5. The value of the quick liquidity ratio is considered optimal if it is at the level of 0.7-0.8. The sufficient value accepted in world practice for the absolute liquidity ratio is 0.20-0.25.

The role of analyzing the financial condition of an enterprise, reflecting its financial stability, is very large. With the help of the financial stability indicators presented in Table 3, the level of risk that may be associated with the means of forming the structure of borrowed and own funds used to finance the assets of the firm is determined. The indicators in the table are grouped in such a way that they characterize the ratio of own and borrowed funds; the state of working capital and the state of fixed assets, that is, the state of fixed assets and intangible assets.

Table 3

Indicators of the financial stability of the enterprise [13]

Indicator name	Formula for calculation
The ratio of own and borrowed funds	

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Autonomy coefficient	Equity/ Assets
Financial dependency ratio	Liabilities/ Assets
Debt ratio	Liabilities/Equity
The ratio of own and borrowed funds characterizing working capital	
Current assets coverage ratio	Own working capital/Current assets
Equity capital maneuverability ratio	Own working capital/ Own capital

The business activity of an enterprise, as well as the assessment of resource utilization, can be determined using a number of indicators presented in Table 4[11].

Table 4

Business activity of an enterprise

Indicator name	Formula for calculation
Asset turnover ratio	Revenue from product sales/Average annual value of assets
Equity turnover ratio	Revenue from product sales/Average annual cost of equity
Current asset turnover ratio	Revenue from product sales/Average annual value of current assets

The financial condition of the enterprise, its stability, largely depends on the optimal structure of capital resources (the ratio of own funds and borrowed funds) and the structure of the enterprise's assets, primarily the ratio of fixed and working capital, as well as the full adjustment of the enterprise's assets and liabilities[13]. Table 5 presents the formulas for calculating financial stability.

Thus, financial stability is expressed in a number of coefficients that comprehensively assess the balance sheet structure: the ratio of borrowed and own funds, the share of own working capital, the share of own funds in capital, the share of property constituting the enterprise's production potential in the total value of assets, etc. The purpose of such a set of indicators is to assess the degree of

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independence of the enterprise not only from market conditions, but also from contingencies associated with ordinary breaches of contracts and defaults[13].

In the current conditions, when significant changes are taking place in various forms of ownership, management methods, and economic relations in our country, the successful development of a construction enterprise directly depends on the level of efficiency of its activities, and in accordance with the requirements of the new economic reality, a construction enterprise must

Table 5

Financial stability account of the enterprise *

		Recommended value
1. Independence ratio (equity concentration)	Equity/Balance sheet currency	0,5-0,6
2. Coefficient of dependence	Raised capital/ Balance currency	0,4-0,5
3. Financing ratio	Equity/ Raised capital	>1
4. Debt to equity ratio	Debt capital/Equity capital	<1
5. Investment coverage ratio (financial stability ratio)	Equity + long-term liabilities/balance sheet currency	Equity + long-term liabilities / balance sheet currency Within the norm ≈ 0.9, in critical cases -0.75
6. Capital expenditure (tax) ratio	Equity/Book value of fixed assets	

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7. Long-term debt ratio	Long-term liabilities/Equity+Long-term liabilities	
11. Current debt ratio	Current liabilities/capital raised	
12. Accounts Payable Ratio	Accounts Payable + Other Liabilities/Earned Capital	

*Author's development

The method of assessing the economic efficiency of the activity should also change.

In this regard, the ability of managers to correctly assess the current situation in real time and, at the same time, act in accordance with a pre-selected clear and effective strategy for the development of the enterprise is of particular importance. However, it is impossible to evaluate and compare various development strategies without developing an appropriate system of indicators that would allow for a deep and realistic description of the activities of a construction enterprise.

Efficiency in the economy of an enterprise, in its most general form, means the effectiveness of economic activities, the ratio between the results achieved and the amount of living and materialized labor. The level of efficiency is determined by comparing two values (quantities) - economic effect (result) and the expenditure (cost) of resources to achieve this result.

The interrelation of the results of the activities of a construction organization with the stages of the cycle of creation and sale of construction products (works, services) represents the principle of assessing the effectiveness of management of the activities of a construction organization. Profit is not generated during the marketing and monitoring of construction markets, as well as during design and planning and preparatory work, it is generated only at the sales stage.

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At the stage of sales of construction products (works, services), profit takes precedence in the system of evaluation indicators. Profit (income), being an indicator of gradual changes in the life cycle of a construction product, reflects the very essence of this stage - the stabilization of profit growth, a decrease in its cost, having determined the recognition of the product by the consumer. However, by the end of the stage, when the first signs of an absolute decrease in profit become noticeable, the task of updating a number of products and developing new types of products (works, services) becomes urgent. At this stage, the importance of strategic tasks such as searching for new ideas, developing them, testing them, sending them to the construction market, etc. increases, and assessing efficiency again involves using indicators of the stability of the construction organization in the market. At the final stage of the life cycle of a construction product, as a rule, a rapid exit from the market of obsolete products and the abandonment of active market activities is carried out.

Thus, it can be noted that the resulting indicators of the entrepreneurial activity of a construction organization are variable depending on the stage of the life cycle of the construction product (works, services), as well as the possibility of combining them.

Construction organizations use various methods to measure entrepreneurial activity indicators. To assess the competitiveness of a construction product, a methodological (methodological) approach is used, based on obtaining generalizing indicators that combine a number of specific characteristics, taking into account their weight and importance. In this case, a well-known algorithm is used:

1. Specific indicators characterizing the competitiveness of the construction product (organization) are determined.

2. The values of specific indicators (in natural units of measurement, if necessary - in points) are determined for each alternative option - Ki.

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3. Using the expert method, a sequence of specific indicators of competitiveness is compiled in order of importance for the consumer.

4. A "benchmark" option is selected as the basis for comparing specific indicators (any alternative option can be selected as a benchmark).

5. Specific indicators of competitiveness are compared with the benchmark option and the index of specific indicators (J) is determined for each option:

$$J = \frac{К_i}{K_{iэ}} \qquad 1.1$$

where K_{ie} is the private competitiveness indicator corresponding to the "standard".

6. Using the engineering forecasting method, the reliability coefficient of the private competitiveness indicator – Ki is determined. That is:

$$\boldsymbol{K_i = \frac{i}{2}^{i-1}} \qquad 1.2$$

where i is the ordinal number of the sequence ordered by the level of importance.

7. The overall (integral) indicator of the competitiveness of the product (organization) represents the calculation of Y_{ku} from each of the compared options:

$$Y_{ku} = \frac{\sum_{i=1}^{i=n} k_i J}{\sum_{i=1}^{i=n} k_i} \qquad 1.3.$$

where n is the number of private competitive indicators being evaluated.

This indicator is generally suitable for a comparative assessment of the effectiveness of an organization's business activities, but at the same time it cannot be used as an absolute characteristic.

Using the profit indicator as the resulting characteristic, it is possible to apply a widely known functional model based on a standard model.

$$MaxE_t = (P_t Q_t - \sum_{j=1}^{j=n} f_j x_j - FC - R_t B_t)(1 - T) \quad 1.4$$

where Et is the income of the construction organization after deducting taxes and interest payments; Pt is the price per unit of construction product; Qt is the number of units of construction product sold; Price per unit of production factor j;

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Total number of production factors j used in the production process; n is the number of production factors; FC is the payments recorded by the construction organization; Rt is the average interest rate paid on its own debts; Bt is the total number of debts received by the construction organization (the value of non-own (non-private) funds); T is the corporate tax rate.

To characterize the costs that determine the result, it is necessary to pay attention to the principle of complexity and completeness of cost components. In this case, the following summation of costs can be formed (Z):

$$Z = Z_{ob} + Z_{op} + Z_{tr} + Z_m \quad 1.5$$

here Z_{ob}, Z_{op}, Z_{tr}, Z_m – working capital, fixed assets, labor, and marketing costs (as appropriate).

In practice, difficulties may arise when using the mechanism of the ratio of the result and cost indicator. If the result indicator is expressed in values (for example, profit), a simple mechanism for comparing single-quantity values can be used. However, if the result indicator is given in other units of measurement (market share, competitiveness), it cannot be directly compared with the value indicator. In this case, a special mechanism is needed that measures different qualitative and dimensional characteristics[14].

When using the efficiency indicator as a relative quantity intended for scientific substantiation and selection of more important decisions, an index approach can be used, in which the cost and result indicator is expressed in the form of an index that does not have a dimension and allows for a comparison procedure[15].

The indicators presented represent the overall result of entrepreneurial activity. They are combined by many factors and can be called generalizing in nature. In addition to general indicators, it is possible to distinguish methods for determining the economic efficiency of the organization of production and economic activities of enterprises, the organization of production, production, labor and management, innovations (innovations), etc., each of which directly affects the final results and significantly determines the efficiency of the construction organization's

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activities[16]. Each type of activity is characterized by its own (specific) results, on the basis of which the corresponding indicators reflecting the efficiency of the implementation of individual types of activities of business sub-systems can be calculated.

CONCLUSIONS AND PROPOSALS

Among the sectors of the national economy of the Republic of Uzbekistan, the construction sector plays an important role and significance not only as a sector that creates the main funds of the economy, but also in implementing the structural changes taking place in the country's economy and urgent tasks in the social sphere with various characteristics. Therefore, at the stage of studying the theoretical aspects of the development process of this sector, we came to the following conclusions and proposals:

The considered indicators for assessing efficiency allow us to solve a number of practically significant tasks:

- selection of optimal strategic goals;
- substantiation of the goals and objectives of entrepreneurial activity;
- forecasting the results of activities;
- analysis of market opportunities of the construction organization and description of its position (position) in the competitive environment;
- implementation of the principles of complementarity of target characteristics, combining effective characteristics;
- use of the principles of strategic flexibility and adaptability of production-construction systems.

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OPTIMAL SYNTHESIS METHODS AND BIOLOGICAL ACTIVITY STUDY OF 2-(4-NITROPHENIL)QUINAZOLIN-4-ONE

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Abstract: The ideal synthesis techniques and the biological activity analysis of 2-(4-nitrophenyl)quinazolin-4-one are presented in this work. Electrophilic substitution processes were used to create the chemical, and several catalysts and solvents were used to optimize the reaction conditions. Using spectroscopic methods including Raman spectroscopy, the structure of the produced molecule was verified. The anthelmintic, antibacterial, antifungal, and cytotoxic qualities of 2-(4-nitrophenyl)quinazolin-4-one were assessed in terms of its biological activity. The findings show that this substance has a high level of biological activity, especially when it comes to its antibacterial and antiparasitic properties. In order to establish relationships between the molecular structure and biological activity and to provide information for future drug development and quinazolin-4-one derivative optimization, structure-activity relationship (SAR) investigations were also carried out.

Keywords: Biological activity, 2-(4-nitrophenyl)quinazolin-4-one, Electrophilic substitution, catalysts, solvents, spectroscopic methods, anthelmintic, antibacterial, antifungal, cytotoxic qualities, quinazolin-4-one derivative optimization, structure-activity relationship, spectroscopic characterization, drug development.

Introduction

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A prominent family of heterocyclic compounds, quinazolin-4-one derivatives have garnered a lot of interest in medicinal chemistry because of their diverse biological actions, which include anti-inflammatory, anti-tumor, antibacterial, and anthelmintic qualities. Due to its structural diversity and possible pharmacological actions, 2-(4-nitrophenyl)quinazolin-4-one stands out among these derivatives as a prospective option for drug development[1-3].

A nitrophenyl group is added to the quinazolin-4-one core at position C2 in order to create 2-(4-nitrophenyl)quinazolin-4-one. To maximize the yield and purity of the target chemical, the reaction conditions for this synthesis must be optimized, including the selection of catalysts, solvents, and reaction routes. Furthermore, knowledge of 2-(4-nitrophenyl)quinazolin-4-one's structure-activity relationship (SAR) might shed light on how changes to the molecular structure affect the compound's biological activity.

The objective of this work is to investigate the best synthesis techniques for 2-(4-nitrophenyl)quinazolin-4-one and assess its biological characteristics, such as its cytotoxic, antihelmintic, antibacterial, and antifungal effects. The structure of the produced molecule will be verified using spectroscopic methods including Raman spectroscopy, nuclear magnetic resonance (NMR), and infrared (IR). The ultimate objective is to give fresh perspectives on the compound's potential use in medicinal chemistry while laying the groundwork for its possible development as a therapeutic agent[4-12].

Method and results

The methylation processes of 2-phenylquinazolin-4-one have been shown to be largely directed towards the N3 center due to the electron-accepting characteristics of the phenyl group. Studies employing a product with a substituent at position 2 of the pyrimidine ring that has even better electron-accepting capabilities, such the p-nitrophenyl fragment, are therefore more interesting. The necessary 2-(4-nitrophenyl)quinazolin-4-one synthesis process was performed for this reason. The main starting material for this synthesis was 2-(4-

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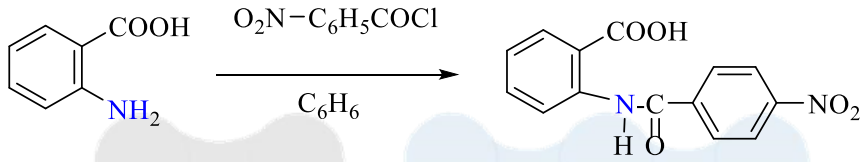
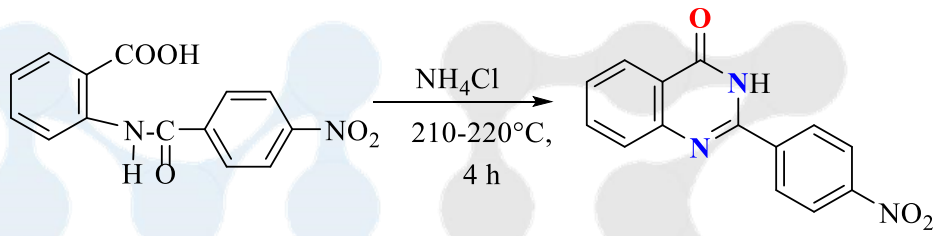
nitrobenzoyl)anthranilic acid. With yields ranging from 60 to 70 percent, this chemical has also been synthesized in the literature utilizing a variety of techniques. First, equal parts of anthranilic acid are heated in benzene until the anthranilic acid dissolves entirely.



In this process, 2-(4-nitrobenzoyl)anthranilic acid is obtained with a high yield of 88%. Thus, an improved method for the synthesis of this compound has been developed. During the studies, a mixture of 2-(4-nitrobenzoyl)anthranilic acid and ammonium chloride in a 1:8 ratio was heated at 210-220°C for 4 hours. As a result, 2-(4-nitrophenyl)quinazolin-4-one (23) was obtained with a yield of 80%.



One essential method for verifying the molecular weight and structure of synthetic substances is mass spectrometry (MS). The mass spectrometric measurement of 2-(4-nitrophenyl)quinazolin-4-one yields crucial information to validate the compound's effective production and purity.

1. The peak of molecular ions. 2-(4-nitrophenyl)quinazolin-4-one has the chemical formula $C_{14}H_9N_3O_3$ with a determined molecular weight of 267 g/mol. The precise molecular weight of the chemical is shown by the molecular ion peak (M^+) in the mass spectrometer analysis, which is seen at m/z 267. This peak attests to the target compound's creation.

2. Pattern of Fragmentation. The quinazolin-4-one core with a phenyl substituent is represented by the distinctive fragment at m/z 251 that results from the loss of a nitro group (-NO_2, 46 amu). Nitrogen (N) and oxygen (O) isotopes

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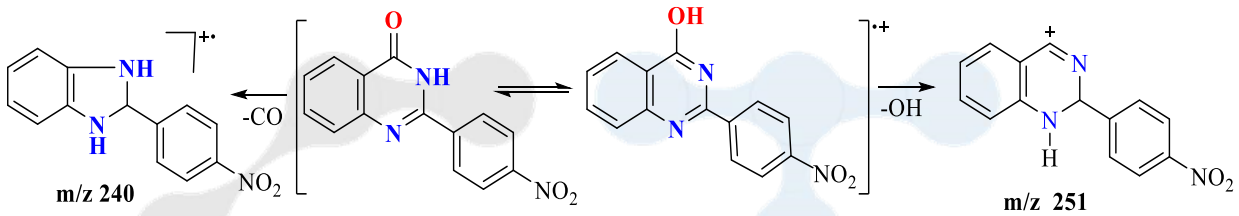
cause an isotopic pattern to be introduced when the nitro group (-NO_2) is present. The molecular ion peak and important fragments' isotopic distribution matched the compound's predicted isotopic pattern.

The mass spectrum of 2-(4-nitrophenyl)quinazolin-4-one is distinguished by the presence of a strong molecular ion peak.



The primary fragmentation process involves the loss of OH and CO groups from the molecule.

The updated 3D representation of the structure and fragmentation process of 2-(4-nitrophenyl)quinazolin-4-one. The diagram shows the core quinazoline structure (in blue) and the pathways for the loss of the nitrophenyl group (in red) as well as the OH and CO groups (in green). The dashed lines indicate the fragmentation routes.

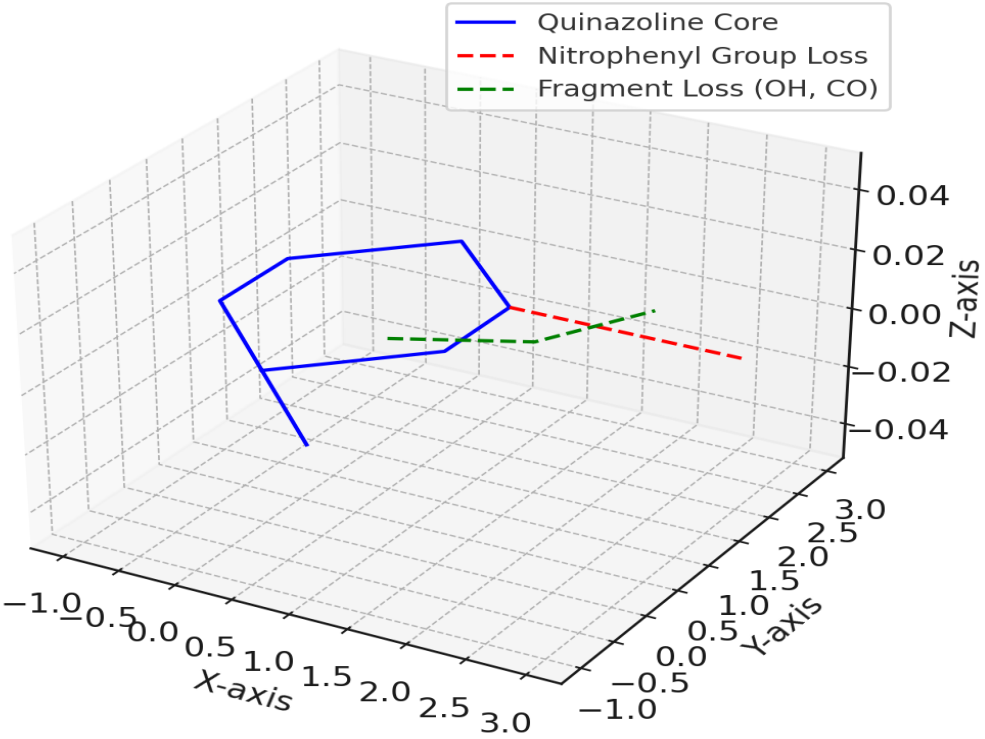


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Fig-1. The updated 3D representation of the structure and fragmentation process of 2-(4-nitrophenyl)quinazolin-4-one.

Biological activity study of 2-(4-nitrophenil) quinazolin-4-one

Biologically active molecules with a condensed pyrimidine ring and its derivatives are very effective. According to their chemical composition, these compounds are made up of two or more pyrimidine rings arranged in a condensed system. Their many compounds are employed in a variety of industries, such as medicine and agriculture, and can be produced synthetically or organically.

Condensed pyrimidine derivatives have antibacterial, antiviral, antitumor, and anti-inflammatory properties in the medical area. These substances have significant pharmacological characteristics due to their structure, which makes them useful in medication compositions. For example, they are essential ingredients in many contemporary drugs due to their anti-tumor, antiviral, and antihypertensive properties. Anti-tumor medications like methotrexate and 5-fluorouracil are notable examples.

Therefore, we considered it appropriate to study the anthelminthic, fungicidal, insecticidal, and growth-promoting activities of some synthesized compounds. As the research objects, derivatives synthesized based on quinazolin-4-one, containing various alkyl groups and fragments, were selected.

In evaluating the growth-promoting activity of the synthesized compounds 4-Methoxy-2-phenylquinazoline, 3-methyl-2-(4-nitrophenyl)quinazolin-4-one 1 and 2, seeds of the cotton variety "Bukhara-102" were used. For the laboratory experiment, concentrations of the compounds ranging from 0.1% to 0.001% were employed, with Novosil selected as the growth regulator standard.

As shown in Table 1, 3-methyl-2-(4-nitrophenyl)quinazolin-4-one (2) exhibited growth-promoting activity at a concentration of 0.01%. This synthesized compound (2) at a concentration of 0.01% increased the length of the cotton's root and stem by 32.9% and 48%, respectively, compared to the control, and by 12.2% and 30.9% compared to the standard.

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Growth-Promoting Activity of Compounds on Cotton Variety "Bukhara-102"

Table 1.

№	Sample	Concentration, %	Cotton plant	
			Root Length (compared to control) (%)	Stem Length (compared to control) (%)
1	**Control**	0	10,2	11,6
2	**Novosil**	0.001	15.3	28.7
3	**1**	0.001	13.4	26.3
4	**2**	**0.01**	**43.1**	**59.6**
5	**2**	0.001	37.3	58.3

The concentration and growth-promoting effects of several samples on the cotton plant variety "Bukhara-102," including increases in root and stem length in comparison to the control, are displayed in this table.

The experimental part

2-(4-Nitrobenzoyl)anthranilic Acid.

27.43 g (0.2 mol) of anthranilic acid was dissolved in 140 ml of benzene. To the solution, 24.2 ml (37.1 g, d = 1.53 g/ml, 0.2 mol) of 4-nitrobenzoyl chloride (21) was added dropwise and the mixture was heated under reflux with a reverse condenser for 3-4 hours. Upon cooling, the resulting precipitate was filtered, first washed with 5% NaOH, followed by distilled water, and dried. The product was recrystallized from organic solvents, yielding 50.3 g of 2-(4-nitrobenzoyl)anthranilic acid with an 88% yield. The melting point was recorded at 221°C, and the Rf value was 0.7.

2-(4-Nitrophenyl)quinazolin-4-one.

A mixture of 14.3 g (0.05 mol) of 2-(4-nitrobenzoyl)anthranilic acid and 21.4 g (0.4 mol) of NH_4Cl (8 times the amount) was heated under reflux at 210-220°C for 4 hours. The reaction mixture was then dissolved in boiling water, and the

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solutions were combined and neutralized to pH 7-8 using aqueous ammonia. The resulting precipitate was filtered, washed with water, and recrystallized from alcohol. This yielded 10.7 g (80%) of 2-(4-nitrophenyl) quinazolin-4-one. The melting point was recorded at 289°C, and the Rf value was 0.52.

1H NMR (400 MHz, $CDCl_3$): δ 6.05 (s, 1H), 6.09 (s, 1H), 6.71 (d, 1H, J=7.8 Hz), 6.94 (t, 1H, J=7.5 Hz), 7.37 (t, 1H, J=7.8 Hz), 7.79 (d, 2H, J=8.1 Hz), 7.94 (d, 1H, J=7.8 Hz), 8.30 (d, 2H, J=7.8 Hz).

13C NMR (75 MHz, DMSO-D_6): δ 79.9, 114.9, 117.9, 127.6, 127.8, 128.8, 130.3, 130.9, 132.4, 133.9, 141.0, 147.7, 163.9.

IR (KBr) cm^{-1}: 1525, 1615, 1643, 2856, 2923, 3030, 3179, 3288.

Conclusion

Under carefully monitored circumstances, an optimal reaction between 2-(4-nitrobenzoyl)anthranilic acid and ammonium chloride produced 2-(4-nitrophenyl)quinazolin-4-one. High purity and substantial production were produced by the enhanced synthesis technique, proving the process' effectiveness. The structure and content of the synthesized molecule were verified by spectroscopic investigations, such as 1H NMR, 13C NMR, and IR spectroscopy. Furthermore, 2-(4-nitrophenyl)quinazolin-4-one's biological activity was assessed, showing encouraging potential for growth-promoting, antihelminthic, and other biological uses. The chemical was a possibility for more research in agricultural and therapeutic applications since it demonstrated notable action in encouraging root and stem development in the "Bukhara-102" cotton variety.

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СОВРЕМЕННЫЕ МЕТОДИКИ ПРЕПОДАВАНИЯ: ИНТЕГРАЦИЯ ТЕХНОЛОГИЙ В ОБРАЗОВАНИЕ.

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Аннотация.Современное общество характеризуется стремительным развитием технологий, которые проникают во все аспекты жизни, включая образование. Интеграция технологий в образовательный процесс открывает новые возможности для обучения и преподавания, делая их более эффективными, интерактивными и доступными. В данной статье рассмотрены основные подходы к внедрению технологий в образовательный процесс, преимущества и вызовы, а также практические примеры их использования.

***Ключевые слова*:** Значение технологий в современном образовании, преимущества технологий в образовании, перспективы развития технологий в образовании

Значение технологий в современном образованииИспользование технологий в образовании позволяет:

1. **Расширить доступ к знаниям.** Онлайн-курсы, электронные книги и открытые образовательные ресурсы делают образование доступным для людей из разных уголков мира.
2. **Повысить качество обучения.** Технологии помогают создавать индивидуализированные образовательные траектории, что повышает мотивацию и успеваемость учащихся.
3. **Стимулировать интерактивность.** Использование мультимедиа, виртуальной реальности (VR) и дополненной реальности (AR) позволяет сделать процесс обучения более увлекательным.

Подходы к интеграции технологий в образование- одходы к интеграции технологий в образование включают различные стратегии и методы, которые помогают сделать процесс обучения более эффективным, персонализированным и доступным. Включите в вашу статью следующие подходы для их более глубокого раскрытия. Подходы к интеграции технологий в образование:

- ✓ Электронное обучение (e-learning).Электронное обучение включает в себя использование платформ для дистанционного образования, таких как Moodle, Coursera, EdX и других. Оно позволяет студентам учиться в удобное время и в удобном темпе.
- ✓ Гибридное обучение.Гибридное обучение сочетает традиционные методы преподавания с онлайн-компонентами. Например, лекции могут проходить в аудитории, а выполнение домашних заданий и обсуждение тем — на онлайн-платформах.

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✓ Игровизация.Применение игровых механик (геймификация) в образовательном процессе стимулирует вовлеченность учащихся. Примеры включают образовательные игры, системы баллов и виртуальные награды.

✓ Использование искусственного интеллекта (ИИ).ИИ помогает анализировать данные о процессе обучения и предлагать индивидуальные рекомендации. Программы на основе ИИ, такие как адаптивные системы обучения, могут адаптироваться под потребности каждого ученика.

Преимущества технологий в образовании

1. **Индивидуализация обучения.** Современные технологии позволяют адаптировать учебный процесс под потребности и уровень знаний каждого ученика.
2. **Доступность и гибкость.** Онлайн-курсы и платформы обеспечивают доступ к материалам в любое время и из любой точки мира.
3. **Экономия ресурсов.** Цифровые учебники и материалы снижают затраты на печатную продукцию.
4. **Развитие цифровых навыков.** Взаимодействие с технологиями готовит студентов к работе в цифровой экономике.

Вызовы и ограничения.Несмотря на множество преимуществ, интеграция технологий в образование сопровождается рядом вызовов:

✓ **Неравенство в доступе к технологиям.** Не у всех учащихся есть доступ к интернету и необходимым устройствам.

✓ **Недостаточная подготовка преподавателей.** Учителям и преподавателям требуется обучение для эффективного использования технологий.

✓ **Проблемы безопасности.** Использование онлайн-платформ требует защиты персональных данных.

✓ **Потеря живого общения.** Дистанционное обучение иногда приводит к снижению взаимодействия между учениками и учителями.

Примеры успешной интеграции технологий

Финляндия-В школах Финляндии широко используются цифровые платформы и интерактивные технологии. Ученики учатся программированию с начальных классов, а учителя активно применяют планшеты и интерактивные доски.

США-Многие школы в США используют платформы Google Classroom и Khan Academy. Также распространены программы STEM (наука, технологии, инженерия и математика), которые включают использование роботов и 3D-принтеров.

Индия-В Индии популярна инициатива “Digital India”, направленная на обеспечение доступа к образовательным ресурсам через интернет даже в отдаленных регионах. Онлайн-платформы, такие как Byju’s, помогают миллионам студентов.

Перспективы развития технологий в образовании.Будущее технологий в образовании включает:

✓ **Развитие виртуальной и дополненной реальности.** Эти технологии позволят создавать иммерсивные образовательные среды.

✓ **Расширение использования ИИ.** Искусственный интеллект будет не только анализировать данные, но и предлагать более сложные сценарии обучения.

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✓ **Более широкое внедрение блокчейн-технологий.** Блокчейн может использоваться для хранения образовательных достижений и сертификатов.

✓ **Дальнейшая глобализация образования.** Онлайн-платформы станут еще более доступными и инклюзивными.

Роль технологий в разных образовательных уровнях:Дошкольное образование**:** использование обучающих приложений и интерактивных игр для развития базовых навыков.Средняя школа**:** акцент на обучении программированию, STEM-дисциплинам и цифровой грамотности.Высшее образование**:** внедрение MOOCs (массовых открытых онлайн-курсов) и VR для профессиональной подготовки.Новые технологии для инклюзивного образования;

✓ **Технологии для учащихся с ограниченными возможностями:** программы для распознавания речи, субтитры для онлайн-уроков, текстовые читатели для слабовидящих.

✓ **Мультимодальные подходы:** использование нескольких форматов представления материала (видео, аудио, текст).

Заключение

Интеграция технологий в образование — это не просто тренд, а необходимость в условиях современного мира. Технологии делают образование более доступным, персонализированным и эффективным, однако требуют ответственного подхода к их внедрению. Только при условии грамотного использования технологий возможно создание образовательной среды, способной подготовить новое поколение к вызовам будущего.

Список источников

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- UNESCO Reports on Education and Technology (https://en.unesco.org/themes/education)
- OECD Digital Education Outlook (https://www.oecd.org/education/)
- Journal of Educational Technology Research and Development.

· **Популярные образовательные платформы:**

- Khan Academy (https://www.khanacademy.org)
- Coursera (https://www.coursera.org)
- EdX (https://www.edx.org)

· **Отчёты и исследования:**

- Национальная образовательная технологическая программа США (NETP) (https://tech.ed.gov/netp)
- Инициативы Digital India (https://digitalindia.gov.in)**:**
- Финские образовательные практики (https://www.oph.fi/en)
- Google for Education (https://edu.google.com/intl/ALL_ru/)

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ANALYSIS OF FACTORS AFFECTING THE COST OF A PRODUCT

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АННОТАЦИЯ

В этой статье рассматриваются ключевые факторы, влияющие на себестоимость продукции в производственных и сервисных отраслях. Она классифицирует эти факторы на прямые и косвенные затраты, подчеркивая важность материалов, рабочей силы, накладных расходов и внешних рыночных условий. Исследование сочетает обзор литературы с подходом к изучению случаев для выявления взаимодействия этих факторов и предоставляет действенные идеи для оптимизации затрат.

Ключевые слова. Анализ себестоимости продукции, прямые затраты, косвенные затраты, факторы затрат, оптимизация затрат, производственные затраты, затраты на рабочую силу, накладные расходы.

Abstract

This article examines the key factors influencing product cost in manufacturing and service industries. It categorizes these factors into direct and indirect costs, emphasizing the importance of material, labor, overhead, and external market conditions. The research combines a literature review with a case study approach to identify the interplay of these factors and provides actionable insights for cost optimization.

Keywords. Product cost analysis, direct costs, indirect costs, cost drivers, cost optimization, manufacturing costs, labor costs, overheads.

INTRODUCTION

In the competitive business environment, understanding and managing product costs is crucial for profitability and sustainability. Product cost is influenced by a variety of factors, ranging from raw material prices to operational efficiency. While direct costs such as materials and labor are readily quantifiable, indirect costs like overheads and external factors require a more nuanced analysis. This article aims to identify and analyze the primary factors affecting product cost and explore strategies to optimize these costs without compromising product quality or value. The findings can aid managers and decision-makers in achieving cost efficiency and maintaining competitive pricing.

In the competitive business environment, understanding and managing product costs is crucial for profitability and sustainability. Product cost refers to the total expenditure incurred to produce a good or service, encompassing a wide range of variables that influence the final pricing. Effective cost analysis enables businesses to maintain profitability while ensuring that their products remain affordable and competitive in the market.

The factors influencing product cost are diverse and interrelated. These include direct costs such as raw materials and labor, which are easily measurable, as well as indirect costs like overheads and regulatory compliance, which are less apparent but equally significant.

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Furthermore, external market conditions such as supply chain disruptions, currency fluctuations, and geopolitical events can drastically alter the cost landscape.

The importance of analyzing these factors extends beyond mere cost reduction. It helps businesses identify inefficiencies, make informed decisions, and align their pricing strategies with market demands. For example, understanding the impact of energy costs or technological investments allows businesses to plan for long-term sustainability while managing short-term expenses.

This article aims to delve into the primary factors affecting product cost, exploring their dynamics and implications. By combining insights from academic research and real-world case studies, the study offers a comprehensive framework for businesses to analyze and optimize their cost structures. Such insights are particularly valuable for industries where margins are tight and competition is fierce, highlighting the role of strategic cost management in ensuring long-term viability.

LITERATURE ANALYSIS AND METHODOLOGY

Product cost analysis has been extensively studied, with researchers highlighting various determinants. According to Porter (1985), cost structure is a critical component of competitive strategy, with material and labor costs being the most significant contributors. Kaplan and Cooper (1998) emphasized the role of activity-based costing in identifying indirect cost drivers.

More recent studies, such as those by Johnson et al. (2020), point to the impact of globalization on raw material procurement costs, while Greenfield and Lane (2019) discussed the rising importance of energy and environmental compliance costs in manufacturing. This literature forms the foundation for understanding how internal and external factors interact to shape overall product cost.

A mixed-method approach was used in this study.

Literature Review: Academic articles, industry reports, and case studies published between 2015 and 2023 were analyzed to identify the primary cost factors.

Case Study: A detailed examination of cost structures in two industries—manufacturing (automotive parts) and services (software development)—was conducted. Data were collected through interviews with cost accountants and analysis of financial records.

Quantitative Analysis: Statistical tools were used to evaluate the relative contribution of each cost factor to the total product cost.

RESULTS

The analysis revealed the following major factors affecting product cost:

Direct Costs

Materials: Material costs accounted for 40-60% of total product costs in manufacturing. Price volatility in raw materials, influenced by market conditions and supply chain disruptions, was a significant driver.

Labor: In labor-intensive industries like services, wages and productivity levels contributed up to 50% of total costs. High-skilled labor showed a direct correlation with increased costs but also higher quality outcomes.

Indirect Costs

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Overheads: Fixed and variable overheads, including facility maintenance, utilities, and administrative expenses, contributed 20-30% of product cost. Energy costs were notably significant in energy-intensive industries.

Technology and Equipment: Investment in advanced machinery reduced per-unit costs in the long run but increased upfront expenses.

Regulatory Compliance: Adherence to environmental and safety regulations increased costs by 5-10%, particularly in manufacturing industries.

External Factors

Market Conditions: Economic fluctuations, trade policies, and currency exchange rates significantly affected raw material procurement costs.

Supply Chain Disruptions: Events such as the COVID-19 pandemic led to increased transportation costs and delays, adding 10-15% to overall costs during the analyzed period.

CONCLUSION

Product cost is shaped by a complex interplay of direct, indirect, and external factors. While direct costs such as materials and labor dominate cost structures, indirect costs like overheads and compliance requirements cannot be overlooked. Additionally, external market conditions and supply chain dynamics play a pivotal role, especially in industries reliant on global sourcing.

To optimize product costs, businesses should adopt a multi-faceted approach, including:

Implementing advanced cost management techniques such as activity-based costing.

Investing in technology to enhance operational efficiency.

Diversifying supply chains to mitigate risks associated with material procurement.

Regularly reviewing compliance strategies to balance regulatory adherence with cost efficiency.

These measures not only help in reducing costs but also improve overall competitiveness. Future research should explore the role of emerging technologies like AI and blockchain in cost analysis and management, offering new avenues for innovation in this critical area.

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MANAGER AND LEADER

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АННОТАЦИЯ

В этой статье рассматриваются различия и пересечения между менеджерами и лидерами, исследуются их соответствующие роли, обязанности и влияние в организации. Исследование также определяет навыки и качества, необходимые для эффективного управления и лидерства, одновременно рассматривая обстоятельства, при которых эти роли пересекаются. Результаты предлагают практические идеи для организаций, стремящихся способствовать как управленческому, так и лидерскому совершенству.

Ключевые слова. Менеджеры, Лидеры, Стили лидерства, Организационная эффективность, Навыки управления, Лидерские качества

Abstract

This article examines the distinctions and intersections between managers and leaders, exploring their respective roles, responsibilities, and impacts within an organization. The study also identifies the skills and qualities required for effective management and leadership while addressing the circumstances under which these roles overlap. The findings offer practical insights for organizations aiming to foster both managerial and leadership excellence.

Keywords. Managers, Leaders, Leadership Styles, Organizational Effectiveness, Management Skills, Leadership Qualities

INTRODUCTION

The dynamics of modern organizations rely on a delicate balance between effective management and visionary leadership. Managers ensure the smooth functioning of operations by focusing on planning, organizing, and controlling resources. Leaders, on the other hand, inspire and motivate individuals to achieve long-term goals and embrace change. While these roles are often interrelated, their core functions and the competencies they require are distinct.

As organizations evolve in a complex, competitive environment, the debate surrounding the importance of managers versus leaders intensifies. Successful organizations often recognize the need for both strong managers to maintain stability and visionary leaders to drive innovation. This article aims to delve into the nuances of these roles, analyze their differences and similarities, and provide actionable insights for organizations striving to develop a culture of management and leadership excellence.

LITERATURE ANALYSIS AND METHODOLOGY

Several scholars have explored the relationship between management and leadership. Kotter (1990) famously differentiated the two by emphasizing that management focuses on complexity, while leadership addresses change. Drucker (1999) highlighted the importance of decision-making in management and the need for vision in leadership. Recent studies suggest that in modern organizational contexts, these roles are increasingly converging, with managers often required to lead and leaders expected to manage.

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Furthermore, leadership styles, such as transformational and transactional leadership (Burns, 1978), illustrate how leaders can adopt managerial tasks while fostering employee development and motivation. Similarly, the concept of servant leadership (Greenleaf, 1977) emphasizes a leader's role in serving their team, blurring traditional boundaries between management and leadership.

This study adopts a mixed-methods approach:

Qualitative Analysis: Case studies of successful organizations were reviewed to identify how managers and leaders influence outcomes.

Quantitative Data: Surveys were conducted among employees across industries to assess their perceptions of effective management and leadership.

Comparative Framework: The research categorizes managerial and leadership tasks, comparing their impact on organizational success indicators such as productivity, employee satisfaction, and innovation.

RESULTS

The study reveals the following insights:

Distinct Roles: Managers predominantly focus on short-term objectives, resource allocation, and performance monitoring, while leaders prioritize vision-setting, inspiring teams, and driving change.

Overlap in Functions: In 65% of surveyed organizations, managers were also expected to exhibit leadership qualities, particularly in times of change or crisis.

Figure 1. An image showing a workplace where a manager and leader collaborate effectively with their team.

Skills and Qualities:

Effective managers excel in technical skills, analytical thinking, and task orientation.

Successful leaders are characterized by emotional intelligence, adaptability, and strategic vision.

Impact on Employees: Teams with a balance of strong managerial and leadership influence reported higher engagement (75%) and productivity (60%) compared to those where either function was lacking.

CONCLUSION

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The findings underscore the importance of integrating managerial and leadership skills within an organization. For instance, while a manager's role in maintaining order is vital, their ability to motivate and inspire teams often dictates long-term success. Similarly, a leader's visionary guidance must be complemented by sound managerial practices to ensure feasibility and execution.

The emergence of hybrid roles, such as "leader-managers," reflects the changing demands of organizational environments. Such roles emphasize the necessity of both planning and visionary thinking, particularly in dynamic and uncertain industries.

Managers and leaders are indispensable to organizational success, each contributing unique strengths that address different dimensions of workplace challenges. While managers provide structure and ensure operational efficiency, leaders inspire innovation and guide organizations toward long-term goals.

Organizations must cultivate both managerial and leadership capacities within their teams. Training programs should focus on fostering skills like decision-making, emotional intelligence, and strategic thinking to prepare professionals for hybrid roles. By recognizing and leveraging the distinct yet complementary roles of managers and leaders, organizations can enhance their adaptability, resilience, and overall effectiveness in an increasingly competitive landscape.

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THE IMPACT OF THE DEVELOPMENT OF THE MORTGAGE-BACKED SECURITIES MARKET ON THE COUNTRY'S ECONOMY

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ABSTRACT

The article analyzes the impact of the development of the mortgage-backed securities market on the country's economy. Key aspects of the mortgage market are considered, including its structure, regulatory mechanisms, and the role of mortgage-backed securities as a tool for raising capital. The paper analyzes how the development of this market can stimulate economic growth by increasing the affordability of housing, improving the financial stability of banks, and attracting investment. Examples from international practice are considered, and recommendations are offered for improving the mechanisms for regulating the mortgage market to ensure stability and sustainable economic development.

Keywords: mortgage-backed securities, mortgage-backed securities market, economic growth, financial stability, banking sector, investments, economic development, mortgage lending, financial instruments.

INTRODUCTION

The development of financial markets is an important factor determining the economic development of a country. One of the key elements of these markets is the mortgage-backed securities (MBS) market, which has a significant impact on the stability of the financial system and economic growth in general. Mortgage-backed securities serve as an important tool for raising capital, providing liquidity for banks and stimulating the housing market. In turn, the increased availability of mortgages contributes to an increase in the level of housing construction, which has a positive impact on the economy, creating new jobs and supporting demand for construction materials and services. However, as world practice has shown, excessive expansion of the mortgage market can carry significant risks, including an increase in the debt burden on households and the threat of financial crises. In particular, global financial crises, such as the crisis.

LITERATURE REVIEW

The term "Mortgage" is of Greek origin. It was first used in a legal sense at the beginning of the 6th century BC by Solomon. A mortgage, or, literally, a stand, was a pillar that was installed on the debtor's boundary line with an inscription that this property serves as security for claims for a certain amount.[1]

A mortgage loan is one of the forms of activity of financial institutions, which provides for the issuance of a long-term loan secured by real estate (The Mortgage Lending Scheme is given in Appendix 1). The very concept of a mortgage denotes a public pledge that guarantees the return of funds to the creditor.[2]

[1] Shchennikova L.V. Veshchnie prava v grajdanskom prave Rossii. – M., 1996. – S.64
[2] Gryaznova A.G. Otsenka nedvijimosti: ucheb. posobie. – M.: Finansi i statistika, 2014. – 496 s.

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There are many definitions of "mortgage loan". Below is a table that looks at several definitions developed by different researchers.

Table 1

Definitions of the term "mortgage loan"[3]

Source	Definition
Financial and Credit Encyclopedic Dictionary	a method of attracting financial resources in the form of loans secured by real estate [4]
Balabanov I.T.	Pledge of real estate to secure a creditor's monetary claim [5]
Lagutin V.D.	A mortgage loan is a special form of credit that is based on the provision of a loan secured by real estate.[6]
Bazilevich V.D., Pogoreltseva N.B.	Relationships regarding the profitable movement of value in the area of real estate financing, provided as a long-term loan secured by land, other real estate or property rights, with the pledger retaining the right of ownership and use thereof, based on the basic principles of lending.[7]
Razumova I.A.	A loan, an obligation, the repayment of which is secured by a pledge of real estate (mortgage).[8]

Despite the fact that definitions of securitization of bank mortgage loans are expressed in foreign language literature (mainly English and Russian) differently (in exchange for different translation approaches), they are very close in content to each other. As an example, we can cite the term mortgage-backed securities (MBS) in English with an indication of various features of the corresponding translation into Russian. To date, the problem of asset securitization, including mortgages, has been most fully studied in the works of such economists as H. Baer, E. Davidson, E. Sanders, F. Fabozzi, T. Copeland, T. Koller, S. Gatti, A. Jobst, V.R. Jean Job, H. Lakhbir and others.

Asset backed securities are translated differently in many publications. For example, in Russian literature, translations such as "securities issued with collateral", "securities issued with collateral in the form of financial assets", "securities issued during securitization" may be used.[9]

Currently, the process of securitization is considered in a broad and narrow sense.[10] In a broad sense, securitization is understood as the replacement of classical bank lending with financing based on the issue of securities. Securitization in a narrow sense, or asset securitization, is the process of transforming illiquid assets into liquid securities. The desire to increase the

[3] The table was developed by the author.

[4] Istochnik: http://economics.niv.ru/doc/dictionary/financial-credit/articles/463/ipotechnyj-kredit.htm

[5] Banki i bankovskoe delo/ pod red. Balabanova. – SPb., 2005. – S.175

[6] Lagutin V. D. Kreditovanie: teoriya i praktika / V.D. Lagutin. – K.: Znanie, 2007. – S.215

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[8] Razumova I. A. Ipotechnoe kreditovanie: Uchebnoe posobie / I. A. Razumova. – SPb.: Piter, 2006. – 208 s.

[9] Endryu Devidson, Entoni Sanders, Len-Ling Volf, Anne Ching. Sekyuritizatsiya ipoteki: mirovoy opit, strukturirovanie i analiz/Per. s angl. O.V.Smorodinova pri uchastii V.Kachura.-M.: Vershina, 2007.-592 s.;

[10] Xans Piter Ber. Sekyuritizatsiya aktivov: sekyuritizatsiya finansovix aktivov – innovatsionnaya texnika finansirovaniya bankov/Per. s nemetskogo Yu.M.Alekseeva, O.M.Ivanova. -M.: Volters Kluner, 2006.-624 s.

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liquidity of assets leads to an increased role of securities in financial markets. Thus, securitization in a narrow sense is part of securitization in a broad sense (global securitization).

Securitizations are described in different ways in different articles and literature. American academics argue that financial assets (such as mortgages, leases, and auto loan obligations) are the "raw material" for securitization. Some of these assets remain only as a transaction between two startups during their lifetime. Other types of assets are pooled together, consisting of many similar obligations that pass through several legal structures and can be sold to hundreds or thousands of investors in a pirated form.

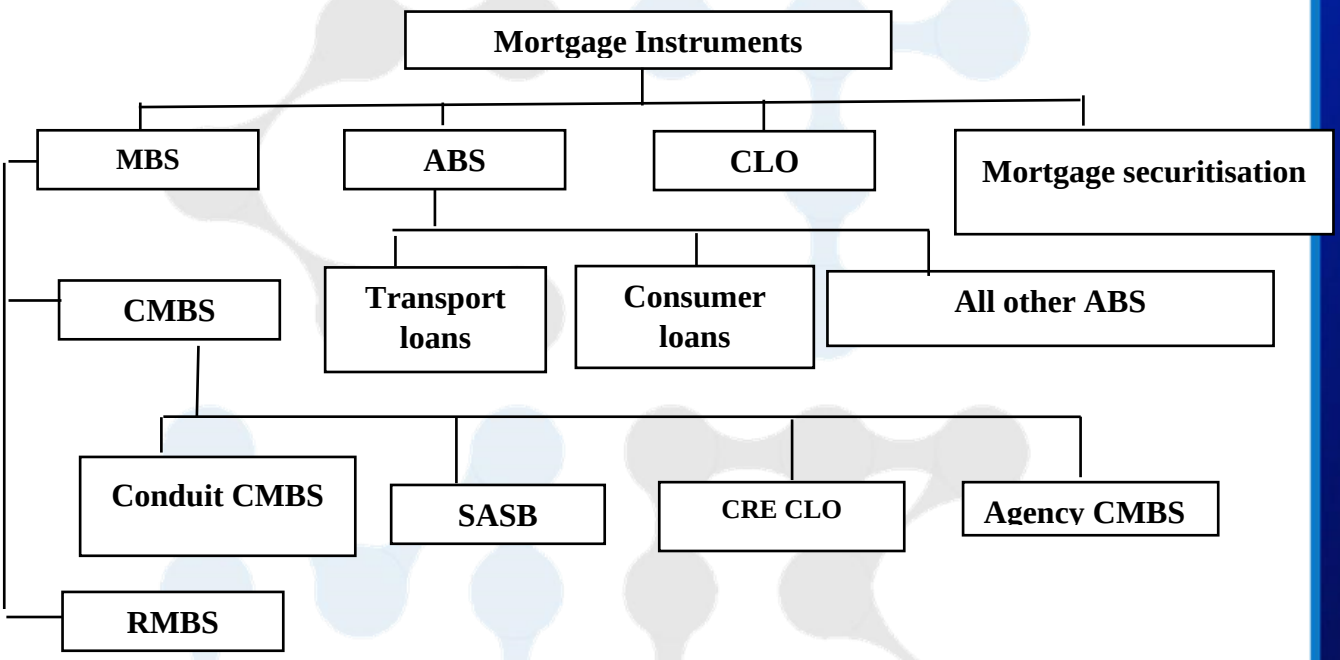

Fig. 1. Comprehensive classification of US securitization market instruments[11]

Securitization is the process of forming collections of financial obligations (pool) and providing them with forms that allow them to freely handle financial assets among the majority of investors. Securitization allows you to turn the initial set of obligations into a purchased (commercial) object. Fig. 1 shows that the main part of mortgage securities was the classic type of two-tier model of securitized mortgage assets - MBS. The share of secured mortgage obligations of CMOs in the market is significant, but is less than one third of the volume of MBS. The share of other types of mortgage securities do not exceed 10% of the total market volume.

Commercial papers are better insured against the risk of early repayment and offer two levels of protection:

- at the loan level and
- at the structural level.

The first level uses:

- a ban on early repayment (lockout prepayment),
- an agreement on the condition of liquidation of the debt (defeasance).[12]

[11] Developed by author on the basis of A. Litvintsev American securitization markets in 2018 / Encyclopedia of Russian securitization - 2019

[12] In which the borrower provides sufficient funds to create a portfolio of Treasury securities whose cash flow is identical to the cash flow of the loan in the absence of early repayment.

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- these are prepayment penalty points,[13]

- this is a yield maintenance charge or a make-whole charge[14],

There are currently four directions in the CMBS segment:

– Conduit - CMBS[15]
– SASB, (Single Asset/Single Borrower CMBS)[16]
– CRE CLO (Commercial Real Estate Collaterized Loan Obligation)[17]
– Agency CMBS[18]

RESULTS

In Uzbekistan, there are a number of legislative and by-laws that directly and indirectly regulate the relationships of business entities in the process of mortgage lending. The main ones are:

1. Civil Code of the Republic of Uzbekistan;
2. Laws "On Pledge",
3. "On Property",
4. "On Mortgage",

A program is adopted annually to approve the volumes of construction of apartment buildings for mortgage lending in the republic. At the same time, tax legislation provides a number of tax benefits in order to ensure the effective functioning of the mortgage financing system and stimulate subjects of mortgage relations.

Based on the above regulations, in our studies of the features and distinctive features of the mortgage lending system in Uzbekistan, we defined its main elements and their interrelation; analyzed the characteristic features and current state of the national mortgage lending market; substantiated the main approaches to the transformation of the domestic mortgage lending model, taking into account international experience and the conditions of Uzbekistan.

The development of the mortgage-backed securities market in Uzbekistan in recent years has become an important element of economic policy aimed at stimulating housing construction, increasing the affordability of housing and improving the country's financial stability. An analysis of the impact of this market on the economy of Uzbekistan has shown both positive and potentially negative results.

One of the significant results of the development of the mortgage-backed securities market in Uzbekistan is the growth in housing affordability for the population. In recent years, there has been a steady increase in the volume of mortgage lending, which has become possible due to an increase in the volume of mortgage-backed securities issuance and improvement of the mechanisms for their circulation in the financial market. This, in turn, has increased the availability

[13] A pre-determined penalty that a borrower wishing to refinance his debt must pay to the lender

[14]This makes it unprofitable for the borrower to refinance in order to obtain lower mortgage rates..

15 These are multi-borrower transactions. Frank J. Fabozzi Bond Market: Analysis and Strategies

16 The mortgage is a single loan on a hotel, office building or mall, or a portfolio of similar loans from the same borrower.

[17] These are transactions that have a CLO structure (Russian: UZO, Collateralized loan obligations). There are fewer loans in such structures, about 30, and these are usually shorter loans taken to stabilize and renovate real estate.

[18] These are multifamily housing securitization transactions guaranteed by mortgage agencies.

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of housing for a wide range of the population, especially in large cities and centers of economic activity.

The development of the mortgage-backed securities market has contributed to attracting significant investment in the construction industry of Uzbekistan. MBS as investment instruments are becoming attractive to both local and international investors. Attracting private and institutional investors to the real estate and construction sector contributes not only to the growth of housing construction, but also to the creation of new jobs, which, in turn, has a positive effect on the economic growth of the country. The mortgage-backed securities market has played an important role in strengthening the financial system of Uzbekistan. Securitization of mortgage loans allows banks and financial institutions to improve liquidity and reduce the risks associated with asset concentration. This improves the financial stability of banks, stimulates lending and increases the volume of economic activity in the country.

Although the development of the mortgage market has contributed to the growth of housing affordability, it is also associated with an increase in the debt burden on the population. In the context of high interest rates and instability in the global markets for economic goods, some segments of the population may have difficulty servicing mortgage loans, which leads to an increase in overdue debt. In the event of a deterioration in the economic situation, this may affect the financial well-being of the population and lead to social instability.

Despite positive trends, the development of the mortgage-backed securities market in Uzbekistan is accompanied by a number of regulatory problems. At the moment, the country does not have a full-fledged and balanced regulatory system that could ensure the stability of this market in the long term. Risks associated with possible overheating of the mortgage market, rising housing costs and deterioration in the quality of mortgage loans may lead to financial crises similar to those that occurred in other countries in 2007-2008.

The mortgage-backed securities market in Uzbekistan is also subject to the influence of external economic factors. Changes in world prices for oil and natural resources, fluctuations in world interest rates, as well as economic instability in neighboring countries can affect the housing market and the stability of mortgage lending. In the context of global economic turbulence, these factors can create additional stress on the country's financial system and lead to financial difficulties for banks and borrowers.

To what extent does the mortgage market of Uzbekistan meet the requirements of the state's macroeconomic, including mortgage, policy?

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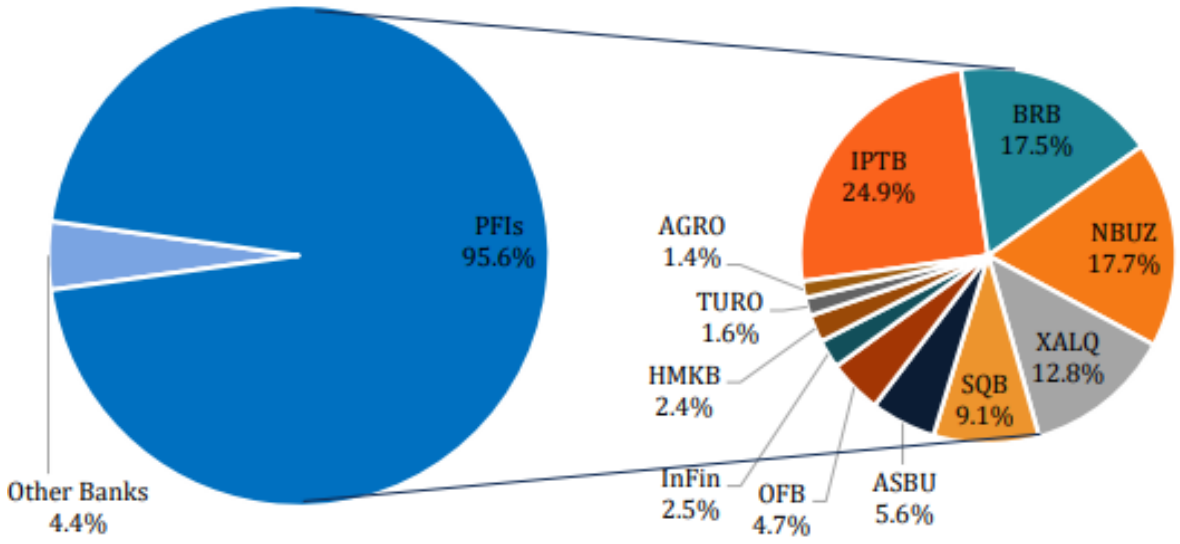

Fig. 1. Participants in the mortgage loan market

Fig. 1. shows that the bulk (95.6 percent) of mortgage loans are provided by local banks such as SQB (9.6%), IPTB (24.9%), NBU BRB (more than 17%) XALQ bank (12.8), which once again demonstrates the active participation of banks with a state share in the state social program to provide the population with housing.

The development of the mortgage securities market in Uzbekistan has significant potential for improving the availability of housing, attracting investment in the construction sector and strengthening the country's financial system. However, to minimize risks and ensure long-term stability of this market, it is necessary to pay attention to improving regulatory mechanisms, improving the financial literacy of the population and diversifying funding sources.

CONCLUSIONS

The main findings and results of the study are as follows:

- mortgage markets in world practice may differ in patterns and degrees, as well as other characteristics;

- since the secondary markets for securitization and mortgage loans differ in nature, ultimately leads to the same result;

- the market for existing mortgage-backed securities and related mortgage securities and securitization in the world can be conditionally divided into a single-level and two-stage model, a mixed model. In the two-stage model, both forms are used, securitization is carried out by state or non-state special operators (agencies or companies);

- the use of both models equally without fully taking into account the influence of existing fundamental factors in the country increases the likelihood of global crises;

- In Uzbekistan: a mortgage market has been formed, which, as in foreign countries, is mainly associated with the economy and state social, macroeconomic, including mortgage (housing) policy; an incomplete single-level (continental) model is in effect; the instrumental

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structure of the mortgage market consists of the methods of the first form of mortgage relations and instruments; the institutional structure of the mortgage securities market has not yet been formed; the volume and growth dynamics of mortgage financing in Uzbekistan do not yet fully meet the requirements of the socio-economic policy of the state; the macroeconomic policy of the state has a strong influence on the development of the national mortgage market.

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ИНТЕРАКТИВНЫЕ МЕТОДЫ ОБУЧЕНИЯ МАТЕМАТИКЕ

Толиев Ибрагим, Бобоев Биродар, Азамов Мухаммадали, Мурадов Джурабек *– преподаватели Академического лицея Самаркандского государственного архитектурно-строительного университета*

Аннотация: в данной статье представлен обзор интерактивных методов обучения математике, направленных на повышение вовлеченности и мотивации учащихся. Рассматриваются различные подходы, включая использование игровых технологий, онлайн-платформ, визуализаций и групповых проектов. Статья анализирует преимущества интерактивного обучения по сравнению с традиционными методами и предлагает рекомендации по эффективному внедрению этих методов в образовательный процесс.

Ключевые слова: математика, обучение, образование, технологии в образовании, игровое обучение, онлайн-платформы, визуализация, активное обучение, вовлеченность, математическое мышление, логика, решение задач, цифровые ресурсы, мультимедиа.

ВВЕДЕНИЕ

Математика, фундамент естественных наук, инженерии, технологий и многих других дисциплин, играет ключевую роль в развитии общества и формировании критического мышления. Однако, несмотря на ее важность, математическое образование часто сталкивается с вызовами, включая недостаточную вовлеченность учащихся, низкую мотивацию и, как следствие, снижение интереса к предмету. Традиционные методы обучения, ориентированные на пассивное восприятие информации, часто не способны раскрыть весь потенциал учащихся и создать позитивный опыт изучения математики. В поисках более эффективных и привлекательных подходов к обучению, педагоги все чаще обращаются к интерактивным методам, которые ставят ученика в центр учебного процесса, стимулируют его активность и способствуют более глубокому пониманию предмета. Перед тем как углубиться в изучение интерактивных методов, важно рассмотреть недостатки и ограничения традиционного подхода к преподаванию математики. Традиционное математическое образование, как правило, характеризуется следующими особенностями.

Ученики воспринимают информацию пассивно, в основном слушая объяснения учителя и выполняя однотипные упражнения. Это часто приводит к низкой вовлеченности и отсутствию мотивации к изучению математики. Такой подход мало способствует активному участию, критическому мышлению и развитию навыков самостоятельного обучения. Основное внимание уделяется механическому воспроизведению формул и алгоритмов, а не глубокому пониманию концепций и их применению в реальных ситуациях. Это может привести к тому, что учащиеся учат математику поверхностно, без глубокого понимания. Приоритет отдается формальному знанию, которое часто не способствует развитию практических навыков. Учитель выступает в роли главного источника знаний и контролирует учебный процесс, в то время как ученики играют подчиненную роль. Этот подход часто не способствует развитию самостоятельности, инициативы и критического мышления у учащихся. Отсутствует пространство для индивидуального подхода к обучению.

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Интерактивное обучение – это образовательный подход, который акцентирует активное участие учащихся в учебном процессе. Оно базируется на нескольких ключевых принципах:

•*Активное участие:* Ученики не являются пассивными получателями информации, а активно участвуют в учебном процессе, решая задачи, выполняя проекты, участвуя в дискуссиях и экспериментах. Активное участие стимулирует вовлеченность и интерес к предмету.

•*Сотрудничество и взаимодействие:* Ученики работают вместе, обмениваются идеями, помогают друг другу и учатся друг у друга. Сотрудничество развивает коммуникативные навыки, навыки командной работы и способствует формированию чувства общности.

•*Проблемно-ориентированный подход:* Обучение начинается с постановки проблемы или вопроса, который требует решения. Ученики работают над поиском решения, что развивает их аналитическое и критическое мышление.

•*Индивидуализация:* Учебный процесс адаптируется к индивидуальным темпам обучения, потребностям и интересам учащихся. Это позволяет каждому ученику раскрыть свой потенциал и добиться успеха.

•*Обратная связь:* Учитель предоставляет ученикам регулярную обратную связь, которая помогает им отслеживать свой прогресс, выявлять ошибки и корректировать свое обучение.

• *Рефлексия:* Ученики анализируют свой учебный опыт, размышляют над своими достижениями и трудностями, что способствует самосознанию и саморегуляции обучения [1,14].

Эти интерактивные методы не исключают, а дополняют традиционные подходы к обучению математике. Их эффективное применение требует тщательного планирования, подготовки и адаптации к конкретным условиям обучения и потребностям учащихся. Выбор метода должен зависеть от целей обучения, уровня подготовки учащихся, доступных ресурсов и предпочтений учителя. Современные технологии играют ключевую роль в преобразовании математического образования, предоставляя педагогам новые инструменты для создания интерактивной и увлекательной учебной среды. Технологии могут как усиливать традиционные методы, так и открывать новые возможности для обучения.

ОСНОВНАЯ ЧАСТЬ

Разные методы и технологии подходят для разных возрастных групп. В начальной школе предпочтение следует отдавать игровому обучению, наглядным материалам и практическим заданиям. В средней школе можно использовать проблемно-ориентированное обучение, групповую работу и виртуальные симуляции. В старших классах можно применять исследовательские проекты, специализированное программное обеспечение и инструменты для анализа больших данных. Учитель должен учитывать уровень подготовки учащихся при выборе методов и заданий. Задания должны быть достаточно сложными, чтобы стимулировать учеников, но не слишком сложными, чтобы не вызывать разочарования. Индивидуализация обучения помогает учесть различия в уровне подготовки учащихся. Выбор методов должен зависеть от целей обучения, будь то

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изучение конкретных концепций, развитие навыков решения задач или формирование исследовательских компетенций. Цели обучения определяют методы обучения.

Игровое обучение:

Математические игры и викторины: Использование игр, таких как "Математическое лото", "Числовые пазлы" и "Геометрические головоломки", для обучения сложению, вычитанию, умножению, делению и другим математическим операциям. Викторины можно использовать для повторения изученного материала в игровой форме.

*Пример: "Математическое лото": У каждого ученика есть карточка с числами или математическими выражениями. Учитель называет число или выражение, и ученики, у которых есть соответствующие значения, отмечают их на своих карточках.

Настольные игры с математическим уклоном: Разработка и использование настольных игр, которые требуют применения математических знаний и навыков, например, "Монополия" с математическими модификациями.

*Пример: Модификация "Монополии": Поля игры содержат математические задания, которые ученики должны решить, чтобы продвигаться вперед.

Онлайн-игры: Использование онлайн-игр и приложений, которые предлагают интерактивные математические задачи и упражнения, часто с элементами геймификации.

*Пример: Использование приложений вроде Khan Academy Kids или Prodigy, которые предлагают интерактивные уроки и игры с математическим содержанием [2,34].

ОБСУЖДЕНИЕ

Вопрос об эффективности интерактивных методов обучения математике является центральным в этой дискуссии. В то время как многие педагоги и исследователи признают потенциал интерактивных подходов, важно критически оценить доказательства их эффективности, основываясь на эмпирических исследованиях. Мета-анализы, объединяющие результаты многочисленных исследований, показывают, что интерактивные методы обучения, как правило, приводят к более высоким академическим результатам, чем традиционные подходы. Однако, эффект может варьироваться в зависимости от конкретных методов, контекста обучения и характеристик учащихся. Систематические обзоры литературы выявляют факторы, влияющие на эффективность интерактивных методов, такие как уровень вовлеченности учащихся, качество обратной связи, уровень сложности заданий и наличие поддержки со стороны учителя. Результаты этих исследований подчеркивают, что интерактивные методы сами по себе не гарантируют успеха, а требуют тщательного планирования, адаптации и профессионального подхода. Однако, важно отметить, что не все ученики одинаково реагируют на интерактивные методы, и некоторым ученикам может быть более комфортно в традиционной учебной среде. Индивидуальный подход к обучению и разнообразие методов являются ключевыми факторами успеха. Критики исследований эффективности интерактивных методов обучения математике указывают на ряд проблем, таких как сложность контроля всех переменных, различия в методологии исследований и субъективность оценки.

В целом, исследования показывают, что интерактивные методы обучения математике имеют большой потенциал для повышения эффективности образования. Однако, важно понимать, что эти методы сами по себе не являются панацеей, а требуют тщательного планирования, адаптации и постоянного мониторинга со стороны учителей и

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исследователей. Несмотря на потенциал интерактивных методов для преобразования математического образования, важно критически оценить их доступность и справедливость. Вопрос о том, кто выигрывает, а кто остается позади при внедрении интерактивных методов, является важным аспектом этой дискуссии. Соблюдение этических принципов в использовании технологий в интерактивном обучении является важным условием для создания справедливой, ответственной и гуманной образовательной среды. Учителя, исследователи, разработчики и политики должны сотрудничать для решения этических вопросов и обеспечения того, чтобы технологии использовались в интересах всех учащихся. Политика играет важную роль в поддержке инноваций и обеспечении равенства в математическом образовании. Правительственные программы, образовательные стандарты, финансовые ресурсы и другие политические решения могут оказывать значительное влияние на внедрение и эффективность интерактивных методов обучения.

В ходе нашего всестороннего исследования интерактивных методов обучения математике мы рассмотрели их теоретические основы, практическое применение, методические разработки, критические аспекты и будущие перспективы. Мы убедились в том, что интерактивные методы не просто модный тренд, а мощный инструмент для преобразования математического образования, способный сделать его более вовлекающим, эффективным, доступным и справедливым. Исследования показывают, что интерактивные методы, при правильном применении, могут значительно повысить академические результаты учащихся, их мотивацию и вовлеченность в изучение математики. Однако, важно помнить, что эффективность этих методов зависит от множества факторов, включая тщательное планирование, адаптацию к потребностям учащихся и профессионализм учителей. Интерактивное обучение не ограничивается использованием технологий. Оно включает в себя широкий спектр методов, таких как игры, проблемно-ориентированное обучение, проектная деятельность, визуализация, работа в группах и др. Важно использовать различные методы в комплексе, адаптируя их к конкретным учебным целям и контексту. Важным условием для успешного внедрения интерактивных методов является обеспечение равного доступа к образовательным ресурсам и технологиям для всех учащихся, независимо от их социального положения, географического местоположения или особых образовательных потребностей.

МЕТОДОЛОГИЯ

Интерактивные методы продолжают развиваться, опираясь на достижения в области искусственного интеллекта, больших данных, виртуальной и дополненной реальности и других технологий. Будущее математического образования во многом будет зависеть от того, как мы сможем использовать эти инновации для создания более эффективного, доступного и мотивирующего обучения для всех. Использование технологий в образовании поднимает ряд этических вопросов, которые требуют внимательного рассмотрения, включая защиту данных, обеспечение конфиденциальности, соблюдение авторских прав и предотвращение злоупотреблений. Прежде чем перейти к конкретным методическим разработкам, важно рассмотреть общие рекомендации, которые помогут учителям успешно внедрить интерактивные методы обучения математике.

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1.Начните с малого: Не пытайтесь внедрить все интерактивные методы сразу. Начните с одного или двух методов, которые вам кажутся наиболее интересными и подходящими для ваших учеников. Постепенно расширяйте свой арсенал методов.

2.Тщательно планируйте: Перед каждым уроком тщательно планируйте, как использовать интерактивные методы. Определите цели обучения, выберите подходящие методы и инструменты, подготовьте необходимые ресурсы и продумайте, как оценить результаты обучения.

3.Адаптируйте методы: Адаптируйте интерактивные методы к возрасту, уровню подготовки, интересам и потребностям ваших учеников. Учитывайте их индивидуальные особенности и предлагайте разные виды деятельности.

4.Создайте позитивную учебную среду: Создайте в классе позитивную и поддерживающую атмосферу, в которой ученики чувствуют себя комфортно, безопасно и готовы к активному участию.

5.Поощряйте активное участие: Стимулируйте активное участие учащихся в учебном процессе, задавайте вопросы, поощряйте дискуссии и создавайте условия для сотрудничества [5,129].

Интерактивные методы обучения математике представляют собой мощный инструмент для преобразования образовательного процесса, позволяя сделать его более вовлекающим, эффективным и справедливым. Однако, успех их внедрения зависит от совместных усилий всех заинтересованных сторон: политиков, образовательных учреждений, учителей, родителей и научного сообщества. Мы надеемся, что данная статья внесла свой вклад в понимание потенциала интерактивных методов обучения математике и вдохновила вас на поиск новых путей совершенствования математического образования. Помните, что интерактивное обучение – это не просто о технологиях, а о создании более гуманной, вовлекающей и справедливой образовательной среды, в которой каждый ученик может раскрыть свой математический потенциал и полюбить этот важный и увлекательный предмет. Путь к будущему математического образования лежит через постоянное развитие, инновации и стремление к совершенству. Использование технологий в образовании поднимает ряд этических вопросов, которые требуют внимательного рассмотрения, включая защиту данных, обеспечение конфиденциальности, соблюдение авторских прав и предотвращение злоупотреблений. Правительства должны поддерживать инновации в образовании, обеспечивать финансирование образовательных технологий, разрабатывать образовательные стандарты, поддерживать профессиональное развитие учителей и обеспечивать равный доступ к образовательным ресурсам для всех учащихся. Школы должны создавать условия для внедрения интерактивных методов, обеспечивать учителей необходимыми ресурсами и поддержкой, организовывать профессиональное обучение и создавать позитивную учебную среду.

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TILSHUNOSLIKDA O‘ZLASHGAN SO‘ZLAR ETIMOLOGIYASINING O‘RGANILISHI

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Annotatsiya: Ushbu maqola tilshunoslikda o‘zlashgan so‘zlar etimologiyasini o‘rganishga bag‘ishlangan. O‘zlashgan so‘zlar har bir tilning lug‘at boyligini shakllantirishda muhim rol o‘ynaydi. Maqolada o‘zlashgan so‘zlarning kelib chiqishi, ularning dastlabki manbalari va til tizimida qanday moslashuvi tahlil qilinadi. Bu jarayon til tarixini o‘rganishda, madaniy ta’sirlarni aniqlashda va leksik birliklarning semantik o‘zgarishlarini tushunishda muhim ahamiyat kasb etadi. Tadqiqot davomida turli tillardan olingan so‘zlarning etimologik tahlili misollar asosida yoritiladi. Natijada maqola o‘zlashgan so‘zlar orqali tillararo aloqalar va ularning rivojlanish jarayonlarini yoritishga xizmat qiladi.

Kalit so‘zlar: O‘zlashgan so‘zlar, etimologiya, tilshunoslik, lug‘at boyligi, madaniy ta’sir, til tarixiy taraqqiyoti, semantik o‘zgarishlar, tillararo aloqa.

Kirish: Har qanday tilning lug‘at tarkibi uzluksiz o‘zgarishda va yangilanishda bo‘ladi. Tilning lug‘at tarkibini har xil davrlar bo‘yicha taqqoslash o‘sha xalqning rivojlanish xarakterini tasavvur qilish imkoniyatini beradi.

Hozirgi davr tilshunosligida tilning ijtimoiy tabiatini tashkil qiluvchi tizim uning rivojlanishini ta’minlaydigan asosiy omildir. Dunyoda yoki ma’lum ijtimoiy guruhda sodir bo‘layotgan o‘zgarishlarning lug‘at tarkibida aks etishi tilning jamiyat hayoti bilan aloqasi tufayli sodir bo‘ladi.

Asosiy qism: Bu borada tilshunos olim V.V.Vlasicheva tilning o‘zgarib borishi til faktlarining vazifalarini qayta taqsimlash, yangi qoidalarni shakllantirish, aniqlash yoki ilgari mavjudlarini chiqarib tashlash yo‘li bilan boshqa ko‘rinishga kelishini aytib o‘tgan. Tildagi har qanday yangi yuzaga kelgan hodisa jamiyat tomonidan qabul qilingan zaruriyat tufayli vujudga keladi. Jamiyat to‘la yakkalangan holda boshqa madaniyat bilan o‘zaro bog‘lanishsiz va tajriba almashmasdan mavjud bo‘la olmaydi. Shu nuqtai nazardan til aloqalari tildagi o‘zgarishlarning muhim ahamiyatli manbasi, birinchi navbatda eng o‘tkazuvchan hamda leksik qatlamda tez o‘zgaradigan hisoblanadi.

Shu kundagi global jarayonlar nuqtai nazaridan til aloqalarini o‘rganish etno-madaniy ziddiyatlarni kamaytirish hamda milliy tenglikni saqlash uchun, ayniqsa, muhim bo‘lib qolayapti.

Tillarning bir-biriga ta’siri g‘oyasi antik davrdayoq paydo bo‘lgan, ammo til aloqalari to XIX asrgacha tadqiqot predmeti sifatida qabul qilinmagan. Kontakt lingvistika alohida tilshunoslik yo‘nalishi sifatida 1953 yilda, o‘sha paytgacha to‘plangan ma’lumotlarni hamda nazariy axborotlarni tizimlashtirishga urinishni ifodalagan U.Vaynrayx va E.Xaugen larning ishlari paydo bo‘lganidan keyin shakllandi. Ilmiy paradigmaning antropologik paradigmaga almashishi munosabati bilan XX asrning 70-yillariga kelib kontakt lingvistika rivojlanishningnavbatdagi bosqichi boshlandi. Shu o‘rinda aytish mumkinki, til aloqalarini kulturologik ma’lumotlarsiz o‘rganib bo‘lmaydi, chunki boshqa til elementlarini o‘zlashtirish faqat til sohiblarining kommunikatsiyasi doirasidagina sodir bo‘ladi.[11]

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So‘z o‘zlashtirishda til egalarining muloqoti muhim ahamiyatga ega. Ancha yillardan beri mazkur masala yuzasidan o‘tkazilgan salmoqli tadqiqotlarga qaramay, ushbu sohada izlanishlar yetarli darajada amalga oshirilmagan. Shu o‘rinda aytish joiz-ki, so‘z o‘zlashtirish ikki tomonlama amalga oshiriluvchi jarayon hisoblanadi. Bu jarayonning biri til egalarining muloqoti, ichki va tashqi omillar bo‘lsa, ikkinchisi so‘zlar tilga o‘zlashtirilib o‘sha tilning lug‘at boyligini oshiradi va o‘zlashgan so‘z o‘zi uchun tilning yangi fonetik, leksik va grammatik, hatto semantik meyorlariga moslashadi. O‘zlashgan so‘zlarning assimilyatsiyasi, ichki va tashqi ta’sir etuvchi omillar, qolaversa bevosita va bilvosita til aloqalari masalalarining o‘ziga xos tomonlarini tadqiq qilish muammoning dolzarb ekanligidan dalolat beradi.

So‘z o‘zlashtirish jarayoni bir tomonlama yo‘nalishda shakllanmaydi. Shu o‘rinda aytish mumkin-ki, o‘zlashtirilgan so‘zlar muammosi o‘z aksini fanlararo yondashuvlar va alohida yo‘nalishlar doiralarida topadi.

Darhaqiqat, so‘z o‘zlashtirish masalasi ko‘p sonli fanlar chorrahasida tadqiq qilingan. Uning fanlararo tadqiqi masalasida V.V.Vlasicheva o‘z qarashlarini ilgari surib, sotsiolingvistikada o‘zlashtirish jarayoniga samarali ta’sir ko‘rsatuvchi ekstralingvistik omillar yuzasidan YE.D.Polivanov, V.Y. Rozensveyg, U. Vaynrayx, E. Xaugen, G. Fritz, N. Fallou,

N. Dittmar, psixolingvistikada bilingvizm va interferensiya muammolari bo‘yicha L.V. Shcherba, A.A. Leontev, V.P. Belyanin, R.M. Frumkina, YE. M.Vereshchagin, YE.K.Chernichkina, S.Romaine, J.Walters, S.Baker va boshqa olimlar tomonidan atroflicha tadqiqot olib borganliklarini e’tirof etadi. Shuningdek, o‘zlashmalarni o‘rganishga stilistika (D.E. Rozental, Y.T. Listrova-Pravda, K.V. Zapadnaya, M. Haspelmath, U.Tadmor va b.), leksikologiya (L.P. Krisin, L.G. Samotik, Y.S. Sorokin, B.P. Berkov, V.V.Kabakchi, A.YE. Suprun, V.G. Kostomarov, YE.M. Vereshagin, N.V.Gabdreyeva,

G. Cannon. J. Grzega va b.), tarjimashunoslik (A.A. Reformatskiy, A.V.Fedorov, G.V. Chernov, S. Vlaxov, N.S.Silkina, M.Frankenberg-Garcia va b.) sohalarida bir necha tadqiqotlar olib borilgan, deydi.

Til aloqalari umumlingvistik muammolardan biri hisoblanib, uning tadqiq qilinishi tillarning o‘zaro aloqalarini aniqlash uchun muhim ahamiyatga egadir. Yagona davlat chegarasi doirasida yashovchi hamda bitta ijtimoiy-siyosiy tuzumga kiruvchi yoki bevosita hududiy yaqinlikka ega bo‘lgan til egalarining aloqalari tilshunoslar tomonidan o‘rganilgan bo‘lsada, lekin xududlari uzoq masofa bilan ajratilgan hamda har xil ijtimoiy-siyosiy tuzumlarga kiradigan xalqlarning til aloqalariga o‘zbek, rus va chet el tilshunosligida yetarli darajada e’tibor berilmaganligi masalaning dolzarbligini belgilaydi.

Ma’lumki, Yevropa mamlakatlarining til aloqalari nisbatan yaxshi o‘rganilgan. Masalan, Angliyaning G‘arbiy Yevropa mamlakatlari bilan til aloqalari bir qator tilshunoslarning tadqiqot obekti bo‘lgan.

Ayni paytda G‘arbiy Yevropa mamlakatlari (ingliz, nemis, fransuz tillari va b.) va Yaqin Sharq mamlakatlarining (arab, fors, turk tillari va b.) til aloqalari masalasi, xususan, ingliz-sharq tillari aloqalari hali yetarli darajada yoritilmagan va mazkur masala o‘z yechimini kutmoqda.

Ingliz tilidagi sharq tillaridan kelib chiqqan so‘zlar to‘g‘risida ayrim mulohazalar ba’zi bir chet ellik tadqiqotchilarning ishlarida uchrab turadi. Biroq, deyarli barcha izlanuvchilar ingliz tilida eng ko‘p qo‘llaniladigan sharq tillaridan kirgan so‘zlarni sanab o‘tish bilan cheklanib qoladilar, xolos.

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Xulosa: Sharqiy xalqlar tillaridan o‘zlashgan so‘zlar masalasida ko‘proq e’tibor “arabizmlar”ga qaratilgan. Jumladan, tadqiqotchi V.Teylorning 1933 yilda Qohirada chop etilgan “Ingliz tilida arabcha so‘zlar” nomli ilmiy ishida ingliz tilidagi arab tilidan o‘zlashgan so‘zlarning ro‘yxati tuzilib, so‘zlarning birinchi qaydi keltirilgan, shuningdek arabcha so‘zlarning qo‘llanilish sohalari bo‘yicha ularning tasnifi berilgan. Biroq, V.Teylor o‘z ishida arabizmlarning tilga o‘zlashish yo‘llari va ularning ingliz tili zaminida o‘zlashtirilishi haqidagi masalaga to‘xtalmagan.

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RHETORICAL DEVICES IN RIDDLES: UNVEILING THE ART OF LINGUISTIC PLAY

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Abstract: Riddles, as a form of linguistic and cognitive play, frequently employ rhetorical devices to engage, mislead, and amuse audiences. This article investigates how devices such as metaphor, alliteration, parallelism, and antithesis contribute to the structure and interpretive complexity of riddles across cultures. By analyzing a range of riddles from different linguistic traditions, the study highlights how rhetorical techniques enhance memorability, create ambiguity, and foster deeper cognitive engagement. The research underscores the role of riddles as tools for linguistic dexterity and cultural expression, revealing their function as both entertainment and vehicles for preserving rhetorical artistry. The findings suggest that understanding the rhetorical underpinnings of riddles can provide valuable insights into the intersections between language, thought, and tradition.

Key Words: Riddles, rhetorical devices, metaphor, alliteration, ambiguity, linguistic play, cultural expression, cognitive engagement.

Introduction: Riddles are an enduring form of linguistic and cultural expression, blending language, logic, and creativity to challenge the mind and entertain the listener. At their core, riddles thrive on ambiguity and surprise, often requiring the audience to navigate multiple layers of meaning to uncover the solution. This playful complexity is largely driven by the strategic use of rhetorical devices, which add depth, enhance memorability, and elevate the aesthetic appeal of riddles. From metaphor and simile to alliteration and parallelism, these devices shape the way riddles are constructed and understood, transforming simple word puzzles into intricate works of verbal art.

Main Part

The application of rhetorical techniques in riddles is not merely ornamental but serves a fundamental purpose in shaping the interpretive process. By engaging with familiar patterns of speech and manipulating them to create unexpected twists, riddles reveal the dynamic relationship between language and cognition. Across cultures and linguistic traditions, riddles reflect the rhetorical richness of their communities, preserving elements of oral heritage while fostering linguistic dexterity. This article aims to explore the diverse rhetorical devices embedded within riddles, illustrating how they function as powerful tools for linguistic engagement, cultural transmission, and intellectual stimulation.

Riddles are a fascinating form of linguistic expression that employs various rhetorical devices to create intrigue, humor, and complexity. By analyzing these devices, we can better understand how riddles engage their audiences, challenge their intellect, and provoke thought. One of the fundamental rhetorical devices used in riddles is 'metaphor'. Metaphors allow riddles to convey meanings that go beyond the literal interpretations of the words used. For instance, a riddle that states, "I am not alive, but I grow; I don't have lungs, but I need air. What am I?" is typically

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answered with "fire." Here, fire is compared to a living entity, even though it is not alive, which creates a layer of complexity that requires the solver to think abstractly.

'Simile' is another rhetorical device that often appears in riddles, using "like" or "as" to compare two unlike things. For example, a riddle might state, "I move like a snail but fly like the wind. What am I?" The use of a simile here encourages solvers to consider dual characteristics of slowness and speed, prompting them to think creatively about the answer, which in this case might be "a cloud."

'Personification' also plays a significant role in riddles. By assigning human traits to non-human objects or concepts, riddles can create vivid imagery and deepen the intrigue. A riddle such as "The more you take, the more I leave behind. What am I?" leads to the answer "footsteps," personifying footsteps as entities that "leave" a trace.

'Alliteration' and 'assonance' enhance the auditory quality of riddles, making them more engaging and memorable. For instance, a riddle like "What has keys but can’t open locks?" employs alliteration through the repetition of the 'k' sound, enhancing its rhythmic quality, which makes it catchy and easier to recall. Similarly, assonance can create a musical quality within the riddle, contributing to its overall aesthetic appeal.

'Hyperbole' can add humor to riddles, exaggerating certain qualities to provoke thought and amusement. For example, a riddle might ask, "What can fill a room but takes up no space?" The answer, "light," employs hyperbole since light can metaphorically "fill" a room with brightness, emphasizing its intangible nature and leading the solver to consider abstract qualities.

'Paradox' is another significant rhetorical device often used in riddles. It involves statements that seem contradictory but may hold deeper truths, compelling the solver to rethink their assumptions. For instance, consider the riddle, "I can be your best friend and your worst enemy. What am I?" The answer, "time," encapsulates the paradoxical relationship people have with time, invoking thoughts on how time can bring joy or sorrow.

Riddles also benefit from the use of 'ambiguity', a hallmark of effective riddle construction. Ambiguity allows for multiple interpretations, challenging the solver’s reasoning and lateral thinking skills. A classic example is: "What has to be broken before you can use it?" The ambiguous answer, "an egg," plays on the common everyday experience and encourages solvers to think beyond the obvious. In addition to rhetorical devices, contextual layers within riddles contribute to their richness. Allusions to cultural references or common sayings can enhance the rhetorical impact, connecting the audience's existing knowledge to the riddle's crafted challenge. For example, a riddle may reference common proverbs or familiar cultural narratives, creating a bridge between the tautology of the riddle and the solver's prior knowledge and experiences.

Through the strategic use of these rhetorical devices, riddles compel solvers to engage with language in a multifaceted manner. The interplay of figurative language, sound patterns, and

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nuanced meanings enriches the riddle's experience, making the process of solving them not only a test of knowledge but an exercise in creativity, critical thinking, and linguistic appreciation. Riddles serve as more than mere puzzles; they reflect the complexity and beauty of language itself, inviting solvers to delve deeper into the art of expression.

In conclusion, riddles exemplify the rich interplay between language and rhetoric, showcasing how various rhetorical devices enhance their complexity and engagement. Through the use of metaphors, similes, personification, alliteration, hyperbole, paradox, and ambiguity, riddles challenge solvers to think critically and creatively. These devices transform riddles from simple questions into intricate puzzles that require deeper interpretation and understanding, reflecting the multifaceted nature of language itself. Additionally, the incorporation of cultural allusions and common sayings enriches the solver's experience, creating a dialogue between the riddle and the solver's prior knowledge. Ultimately, riddles serve not only as entertaining challenges but also as a celebration of linguistic artistry, encouraging exploration and appreciation of the nuances of language. By examining the rhetorical underpinnings of riddles, we gain insights into their enduring appeal and their role in fostering critical thinking, creativity, and communication skills in both casual and educational contexts.

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DETERMINATION OF PHYSICAL-MECHANICAL PROPERTIES OF NEWLY PRODUCED TOWEL FABRICS AND THEIR COMPARATIVE ANALYSIS

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Anonation: *These created patterns are distinguished by their non-repeatability. Summing up the national ornaments and colors used from these compositions, the existing created compositions can be recommended for use in the design of feathered toweling fabrics, taking into account the production possibilities of the feathered toweling fabrics.*

Key words: *physico-mechanical, tanda, argoq, shearing, towel, surface density, wafer, fabric, surface density.*

Anonatsiya: *Yaratilgan ushbu na'munalar o'zining takrorlanmasligi bilan ajralib turadi. Ushbu kompozitsiyalardan foydalanilgan milliy ornamentlar hamda ishlatilgan ranglarda xulosa qilib aytganda, mavjud yaratilgan kompozitsiyalarni tukli sochiqbop to'qimalarning ishlab chiqarish imkoniyatlarini hisobga olgan holda tukli sochiqbop to'qimalarga dizayn berishda foydalanish uchun tavsiya etish mumkin.*

Kalit so'zlar: *fizik-mexanik, tanda, arqoq, o'rilish, sochiqbop, yuza zichlik, vafel, to'qima, yuza zichlik.*

Аннотация: *Данные созданные узоры отличаются своей неповторяемостью. Обобщая национальные орнаменты и использованную цветовую гамму этих композиций, существующие созданные композиции можно рекомендовать к использованию в дизайне пернатых махровых полотен с учетом производственных возможностей пернатых махровых тканей.*

Ключевые слова: *физико-механические, танда, аргок, сдвиг, полотенце, поверхностная плотность, пластина, ткань, поверхностная плотность.*

A new fabric was produced as an experiment on the existing modern equipment at the enterprise "Namangan fluffy towels" LLC, Namangan region . Physico-mechanical properties of produced sample tissues were determined. The physical-mechanical properties of these samples were studied in the "CENTEXUZ" educational and testing laboratory equipped with modern, high-precision equipment available at the Tashkent Institute of Textiles and Light Industry and the testing laboratories of the "Uzbek-Turkish Test Center" JV. These indicators are presented in table 1.

Table 1.

Physical-mechanical properties of tissues

No	Indicators name	Waffle mowed tissue of example, of experience analytical results .
1	Surface density, g / m^2	270
2	10 cm in threads number of :	

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	Body according to Vodka according to	220 220
3	Interruption power, N Body according to Vodka according to	 660 299
4	Penetration after washing, % Body according to Vodka according to	 -4,5 -7,5
5	Capillarity, mm (for 30 min)	30
6	Air conductivity,	50,87

From the analysis of the table, we can see that the obtained fabric is made of cotton thread with 27x2 tex on the body and 39 tex on the warp. Surface density is 270 g/m^2, tensile strength is 660 N on the body, 299 N on the back. After washing, penetration by weight – 4,5%, by alcohol - is equal to 7,5%. Capillarity (for 30 min) 30 mm. Air permeability – 50,87%.

The basis of textile products is its properties, which serve as the main structure in the use and study of the product. When testing a textile product, it determines the experimental quantity or quality of the object. By testing the fabric, it is possible to conduct research on them, control the property of the fabric, in short, control the quality of the fabric (Table 2).

Table 2.

Comparison table of physical-mechanical properties of existing and new wafer textures

No	Indicator name	Waffle texture available sample of experience analytical results .	New Waffle fabric sample of experience analytical results .	The difference
1	Surface density , g/m^2	206	270	64
2	10 cm in threads number of : Body according to Vodka according to	 200 200	 220 220	 20 20
3	Interruption power , N Body according to Vodka according to	 480 290	 660 300	 180 10
4	From washing after penetration , % Body according to Vodka according to	 0 2	 4,5 7,5	 4,5 5,5
5	Capillarity , mm (30 min for)	12	30	18
6	Air conductivity ,	78	50	-28

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GOST 11027-2014 for all types of terry fabrics, as mentioned above requirements) are controlled through The fact that each created product meets the requirements of GOST determines the quality indicator of this fabric.

A comparison of our manufactured and existing wafer molds according to GOST requirements is presented in Table 3.

Comparison table of existing and newly created wafer textures with GOST requirements

Table 3

No	Indicator name	Available Waffle tissue example	New Waffle fabric example	GOST indicators
1	Surface density , g/m^2	206	270	Up to -5%, excess is allowed
2	10 cm in threads number of : Body according to Vodka according to	 200 200	 220 220	 ±3% ±4%
3	Interruption power , N Body according to Vodka according to	 480 290	 660 300	 350 210
4	Capillarity , mm (30 min for)	12	30	10
5	Air conductivity ,	78	50	80

A towel is a tissue that has the property of liquid absorption. Towels are mainly waffle and ring-spun. In order to absorb moisture well, towels are woven from low-stretch threads. Designed for drying or wiping liquid. It should be resistant to friction, have good wear properties, be braided on the basis of different cuts, and have a high level of appearance.

Received results based on conclusion to be done if:

According to the results of the experiment, the surface density of the fabric (400”with the help of "GX-equipment") is 270 g/m^2 ;

Air permeability (using AR-360 QM equipment) – 50.87 $cm^3/cm^2 \cdot sec$;

The breaking strength of the fabric (Statimat) was found to be equal to -660N in the trunk, and 300N in the back .

The created special fabric is produced from 100% cotton yarns and meets the required amount in terms of strength, water permeability, air permeability, and breaking strength .

conclusion:

1. In order to create new types of terry-like pile fabrics, new types of pile fabrics were created by increasing the pile strength without changing the density of the ground, pile and weft.

2. The assortment has been expanded by using complex weaves to create artistic decorations in the fabric using feather and waffle weaves.

3. These created samples are distinguished by their uniqueness. In conclusion, considering the national ornaments used in these compositions and the colors used, the existing created

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compositions can be recommended for use in designing fluffy towel-like fabrics, taking into account the production capabilities of fluffy towel-like fabrics.

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DETERMINATION OF THE STRUCTURE PHASE OF A NEW COMPOSITE TARGET T READING

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Abstract: In this article, the arrangement of yarns in tarpaulin fabric of a new composition was studied according to the theory of Professor Novikov.

Key words: tarpaulin, fabric, cotton, phase, yarn, mowing, wave, tex, twine

Аннотация: В данной статье изучено расположение нитей в брезентовой ткани нового состава по теории профессора Новикова.

Ключевые слова: брезент, ткань, хлопок, фаза, пряжа, переплетение, волна, текс, основа.

Annotatsiya: Ushbu maqola professor Novikov nazariyasiga ko'ra, yangi kompozitsiyadagi brezent matoda iplarning joylashishi o'rganildi.

Kalit so'zlar: brezent, gazlama, paxta, faza, ip, o'rim, to'lqin, teks, ip.

In order to obtain tarpaulin fabric of a new natural composition, the linear density of our threads on the body is equal to Tt=46x2 tex and Ta=39x2 tex on the warp. The width of our fabric is 160 cm and the density of the warp is 110 threads/dm. The position of the warp and weft threads in the fabric determines the phase of the thread structure. According to Professor Novikov's theory, the phases of tissue structure are between I-IX.

The wave height of the fibers in the fabric is called the bending wave height.

Bending wave height is defined as the vertical distance from the center of the thread of the uppermost thread to the center of the thread of the lowest thread. In the first phase of the fabric structure, the warp threads lie in one plane without bending, that is, the height of their bending wave is zero: $h_T = 0$. The vertical distance between the upper and lower rope threads is equal to the sum of the diameters of the body and the rope threads.

In the ninth phase of the fabric structure, on the contrary, the warp yarns lie in one plane without bending, that is, the height of their bending wave is zero: $h_A = 0$, while the warp yarns are bent to the maximum extent around the warp yarns and are located in two planes.

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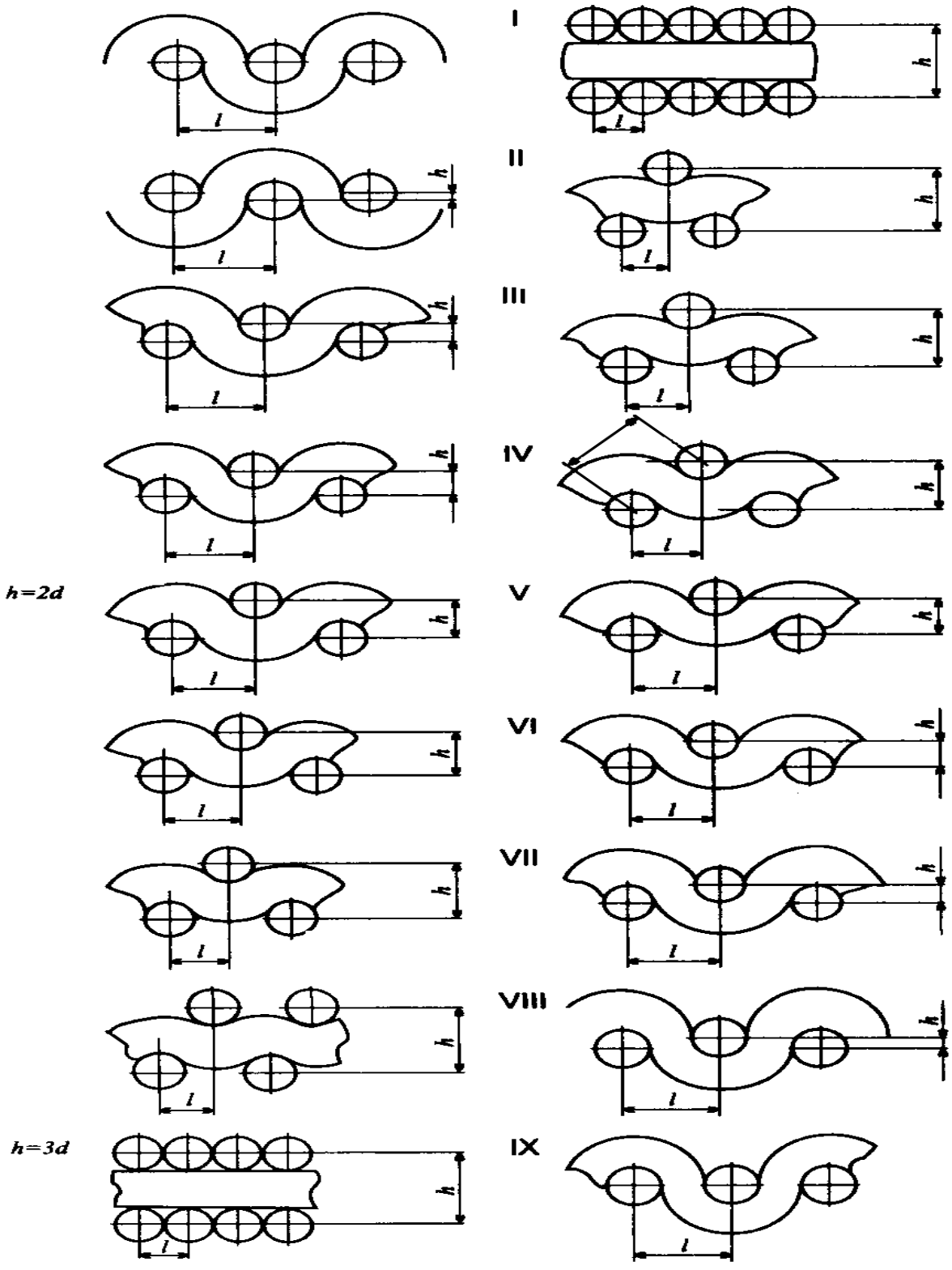

Figure 1. Tissue structure phases .

The vertical distance between the threads of the top and bottom is equal to the sum of the diameters of the threads of the top and bottom, that is, $h_{um} = d_T + d_A$.

In all other phases of the tissue structure, the warp and weft threads are slightly bent. But in all cases, regardless of the type and phase of the fabric, the sum of the bending wave heights of

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the warp and weft yarns remains constant and is equal to the sum of the diameters of the warp and weft yarns, i.e.: $h_T + h_A = d_T + d_A = \text{const}$.

In practice, the formation of the first and ninth phases of the fabric is very complex, but theoretically such a structure is believed to exist.

The phase of tissue structure is affected by the bending stiffness of warp and weft yarns. Taking into account the uniformity of the threads, the coefficient of the structural phase of the fabric is determined using the following formula:

$$K_{\phi} = \frac{h_T}{h_{Ay}} = \frac{0{,}702}{0{,}095} = 7{,}39\,, \quad (1)$$

Here h_T, h_A are the height of the bending waves of the warp and weft yarns, respectively, in mm.

The height of the bending wave of warp and weft yarns, taking into account the uniformity of the yarns in bending, is determined as follows:

$$h_T = \frac{P_T^3 \cdot A_A \cdot (d_T + d_A)}{P_A^3 \cdot A_T + P_T^3 \cdot A_A}, = \frac{26^3 \cdot 0{,}001404 \cdot (0{,}395 + 0{,}395)}{13^3 \cdot 0{,}001404 + 26^3 \cdot 0{,}001404} = 0{,}702$$

$$h_A = \frac{P_A^3 \cdot A_T \cdot (d_T + d_A)}{P_A^3 \cdot A_T + P_T^3 \cdot A_A}. = \frac{13^3 \cdot 0{,}001404 \cdot (0{,}395 + 0{,}395)}{26^3 \cdot 0{,}001404 + 13^3 \cdot 0{,}001404} = 0{,}088$$

Based on the value of the tissue structure phase coefficient, we determine the structure phase of the tissue according to the table below.

Since the value of the coefficient is equal to 7.39, this tissue is in the eighth structural phase.

Table 1

Fabric structure phase coefficients

Ratio coefficient h_T / h_A	Fabric structure phase								
	I	II	III	IV	V	VI	VII	VIII	IX
	0/8=0	1/7=0,143	1/3=0.333	3/5=0.6	1	5/3=1.666	3/1=3	7/1=7	8/0=∞

Without taking into account the uniformity of the warp and weft threads, the height of the bending wave of the threads is determined as follows:

$$h_T = \frac{P_T \cdot (d_T + d_A)}{P_T + P_A}, = \frac{26 \cdot (0{,}395 + 0{,}395)}{26 + 13} = 0{,}527\,,$$

$$h_A = \frac{P_A \cdot (d_T + d_A)}{P_T + P_A}, = \frac{13 \cdot (0{,}395 + 0{,}395)}{26 + 13} = 0{,}263.$$

$$K_{\phi} = \frac{h_T}{h_A} = \frac{0{,}0{,}527}{0{,}263} = 2{,}00$$

From this we can conclude that this tissue is in the 6-7 phase of construction without taking into account the uniformity of the threads . Taking into account the uniformity of the threads, the fabric is in the eighth phase structure.

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INCREASING THE EFFICIENCY OF PASSENGER TRANSPORTATION ACTIVITIES IN RAILWAY TRANSPORT

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ANNOTATION

In this article the main directions of the development of the economic foundation by the organization and determine that the railway transport system, the main taste of the perks of economic development of the railway transport system, the volume of transportation of railway transport and railway transport in good cert types of undp in the volume of transportation of the types of performance indicators and trends in railway transport cargo and cars of the volume of cert involved in the investment activities of JSC "Uzbekistan Railways" were analyzed the most important conditions for the structural reform of railway transport were indicated based on result of the analysis of the studied problem were systematized, and at the same time, the principles of strategic integration and development of the railway transport railway transport model of the system, as well as directions of economic development, which include the six stages were proposed.

KEY WORDS: clonal organization of the economic and basi the railway transport system, simulation model, car cargo, delivery, transport and logistics system, the taste of the perks of hierarchy, complex transport-transport, expedition, transit potential, the types of intermodal and multimodal transport service market, railway transport infrastructure, the main router, logistic concept, simulation model.

INTRODUCTION

The stable development of international economic relations is mainly determined by transport activities. The length of the transport route in the world 50 million. more than miles to stabilize at a level is observed. According to data from the world bank, nowadays "the international transport market is equal to 2.2 trillion marks (by gdp-6.8%)". The share of transport in gdp in most countries of the world 4 - 9 percent of the population in employment 3-7 percent[1]. On the one hand, the transport system of the national economy, the level of development of the country reflects the level of security on the second hand.

World transport systemto the effective development conducts comprehensive research on. In particular, the railway transport system, economic development approach to a complex issue, the railway transport system, providing the formation of the effective development of economic approaches on conductedthe ayogan studiesat the railway development of the transportation network of the positive effects have been noted, nevertheless, the direction of these effects and the scale was not on form complex thoughts. Proceeding that, the railway transport system of

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economic development determines that additional research should be conducted.

As one of the important sectors of the economy in the country paid special attention to the rapid development of transport and communications. In this regard, uzbekistan's strategic development at new years 2022-2026 also "the development of transport and logistics services and market infrastructure, railway infrastructure and to deliver 60 percent of the level elektrlashtirish the rapid development of the road network, transport for foreign trade in the field of "green corridors" and 15 million tons of transit cargo transit capacity to deliver and expand the volume" is defined as priorities[2]. one of the most important tasks were identified , and in reference to the president of the oliy majlis of the republic of uzbekistan “internal and external market our product delivered to cultivate the necessary costs of the transportation and logistics sector whose ulu a to start” [3] noted that. This in turn of the country's transport-transit potential and the delivery of modern technologies, effective useto and railway transport system, economic development, the improvement of the model for scientific research with the goal represents.

ANALYSIS OF LITERATURE ON THE SUBJECT

Railway transport is localized and the development of the system of theoretical and methodological principles of the research identifies a number of foreign scientists. According to this English economist anthony venablsning transport of goods and passengers to meet the transportation needs of the complex network of social production is understood to be the sum of people specialized xo'jiligi [4].

D. Bauersoksning opinion of the organization of cargo transportation and economic efficiency advantage compared to the traditional method included the issues of the organization of multimodal and intermodal transportation of cargo in the case of a particular problem I have. The same author, along with the transport networks, transport companies transport system that includes means of transport and have [5].

G from the scientists of our country‘.Samadov, Zoxidov A.A. Gulamov , and in the opinion of ravshanov M. “transport system – this load and their interaction in the process of delivery address stands passengers transport and infrastructure of the complex, that is, which are mutually associated with the transport sector, the economy of the country and the labor resources and effective management of all types of transport in order bosharish tushiniladi system” [6].

ANALYSIS AND RESULTS

The effective development of the economy of the world state in the main “blood circulation” acting transport in the complex acquires a particular significance. Effective transport system in the internal market cross optimize the movements of materials and products, in the same number of the country's economic competitiveness in foreign trade boosts allows to accelerate the process of integration into the world market. In general the country's large-scale inter-regional economic relations in the broad sense of a higher rate of development to be directly related to the effective functioning of the transport infrastructure [7].

Railway transport enterprises from the perspective of the interests of society and the network concerned with the implementation of the current interests of the proverbial column. This railway transport system is effective and the introduction of a targeted approach to the development of the entire organizational-economic system, which has many properties which cover an integral and important theoretical and methodological basis of its general shows that it is necessary to develop a model [8]. Today, the concept of activity in the proportion of all participants in the transport

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market on the basis of mutual regulation by the state of new strategy and to develop a model of railway transport is a pressing problem.

Therefore, the main business indicators of railway transport system, transport and logistics infrastructure of the stages of development learn and recommendations on the elimination of problems in the system of the main issues in development today has been one. The local load tash in uzbekistanuv volume share of 5.3%, the share of transit transportation and the size of 92.5% will come on to railway transport [9].

Transportation is provided to the main brand of the product coal, grain, oil, ore, mineral fertilizers and other large shed which is included in the liquid and increases the size of the load (1 table). The data of the table as it is seen from the outside railof the load ladi bulk to the product of the mining industry (coal, oil and oil products, ferrous and nonferrous metals, ore) comes on.

1-table

The volume of cargo transportation railway transport in some kind of[1] *thousand tons*

Indicators	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
were established by	971,0 3	3 712,7	442,9	632,6 5	5 231,0	459,2 4	5 673,8
of oil and oil products	773,9 10	10 661,4	10 961,9	769,4 6	6 156,2	951,6 5	5 372,2
black and nonferrous metals	959,5	887,2	812,7	079,3 1	1 280,9	stood at tl 113.2 1	1 054,9
chemical and mineral fertilizers	304,2 4	4 381,3	4 049,8	451,4 3	3 602,6	210,9 4	4 641,7
the cost of building	7 728,7	690,3 6	6 329,4	475,3 5	5 575,5	071,9 4	5 607,7
Cement	325,7 5	5 514,1	4 846,4	866,4 4	5 112,0	5 044,5	4 582,1
wood products	46,3	21,2	18,9	27,1	31,2	19,7	23,0
grain and grain products	266,9 1	1 269,6	662,4 1	1 737,1	645,2 1	1 898,6	2 000,4
Total	**376,2 34**	**33 137,8**	**29 124,4**	**038,6 29**	**28 634,6**	**769,6 26**	**28 955,8**

Delayed delivery of goods the content of the saved time to stop the action to be punkitlarida problems caused by this condition iron before you own the road transport tasks ensure effective execution of moving the content to faolyait necessary to increase the effectiveness ofstained shows. 2-table of general use in working, shipping, moving from the use of some type of structure provides descriptive information.

2-the table

[1] “O‘zbekiston temir yo‘llari” AJ ma'lumotlari. 2021.

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Indicators of railway transport in uzbekistan[2]

Indicators	2016	2017	2018	2019	2020	2021
Lokomotiv productivity, tv brutto thousand per day,	947	1015	1056	1110	1190	1200
wagon load the productivity of my tv netto per day and	30	30,4	30,8	to 31.1	32	32,2
train load on the plots of the average speed, km-hours	32	31	30,6	31,3	30	31
load of the train technical speed km-hour	39,3	39,7	and 40.4	40,7	41,1	41
wagon load average circulation time, daily	4,6	5,78	4.2	4,1	3,84	3,9

The volume of shipping in the last fifteen years, 27% and the number of passengers increased by 86% in this period that were used in the process of transporting the park's main stock that have been lokomotivi 18,2 percent reduction can be observed. Cargo train to the speed of the block by 9.6% and decreased since a certain level of ability in railway transport, which lead to a decrease in conductivity [10]. In the years 2016-2021 cargo train speed, the average speed is much lower than the prescribed technical on the block and if, in the opinion shows the speed of the train to scan the negative effects of the following factors:

cargo train to be late from time the established norms;

technical failures in the station;

stansiyalarda technological fulfilled with the gastric train timeeitherof rlarng the increase;

gastric term spending time in the station to the elimination of such a systemeitherrining increase;

the load p isassociated with the movement of staff oyezdlar negative effects.

The year 2019 included in the system of transport in total investment volume of around 6% of 2.5 times over the year 2009 was reduced to the main blood vessels of the country's economy - the volume of investments in railway transport, stays involved in years 2014-2016 by 24% and increased in the years 2017-2019, while 18% is observed that decreased by (3-table).

The results of the analysis according to the year 2021 in the “Uzbekistan railways” joint-stock company investments, which are involved in the main part of the republic of uzbekistan foreign loans under the guarantee of almost 40% in the next place private funds 35% I have to take [11].

Opinion, following the i railway transport systeminvolved nvestitsiyalar of the main directions to be worthwhile:

the development of new forms of cooperation with foreign transport and logistics companies;

“Uzbekistan railways” joint-stock company selling and renting of real estate assets by attracting investment to participate in the project;

of the country, the railway network of the implementation of the objectives of development and business the power of the state to combinethe nest give afit public-private partnership mechanisms to use.

3-the table

[2] “O‘zbekiston temir yo‘llari” AJ ma'lumotlari. 2021.

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"Uzbekistan railways" joint-stock company involved in the activities of the volume of ongoing investments to[3] *million.dollars*

The project, which is at the initiative and sources of funding	**Year**					
	2016	**2017**	**2018**	**2019**	**2020**	**2021**
funds Society	379,28	386,77	251,40	252,99	212,05	205,64
dalv budget	109,88	85,11	61,64	72,92	66,28	68,04
foreign loans under the guarantee of the republic of uzbekistan	212,12	133,61	126,86	81,91	126,55	226,99
commercial bank loans	50,0	0,0	17,41	47,03	20,00	1,36
Of of direct foreign investment	0,0	12,60	29,78	61,48	53,66	51,25
O'zbekicton Recpyblikaci recovery and developmenteithert jamg'armaci funds hicobiga	79,90	116,08	40,23	86,92	36,62	22,73
Total	**831,18**	**734,17**	**527,32**	**603,25**	**515,16**	**576,00**

A wide range of quality transport and logistics services, and the range of their aspectican change from a wide range ofi, which can be the effects of competitive services and costs to display the value of the sameterm, other factors consumers to the enterprise in the field of logistics services to a specific strategy to haveaccounted for that is noted. Comparative analysis of the costs of shipping quotes in the type of Transport (table 4).

Noted that it should be, in the country today shipping activities, the share of private companies constantly increased it. Private companies moving the content performed by state of the effects of the tariff system is in the form of transportation. Accordingly, rail, road transport was the most important structural reform, it consists of the following terms [13]:

continuous activity and ensure the safety of the transportation process;

regulation by the state and the market economy, self-management mechanisms together in a way acceptable keeping.

In this connection, the implementation of the following measures , in accordance with purpose:

monopoly and competitionbararranged succumb to gradual activity;

to take into account the budget and financial resources from the budget and on the methods they use in addition to distinguish.

In the meantime, rail road transport certain types of activities, namely infrastructure, network services trunk railway power supply systems and devices, and other economic and technological reasons for lokomotiv saved their monopoly of the features of [14]. Uzbekistan for railway transport of the re-organization of the network to create the optimal initial conditions for the introduction of quality management and the market structure. Below imitatsion railway transport system was proposed model of economic development (the 1st picture).

[3] "O'zbekiston temir yo'llari" AJ ma'lumotlari. 2021.

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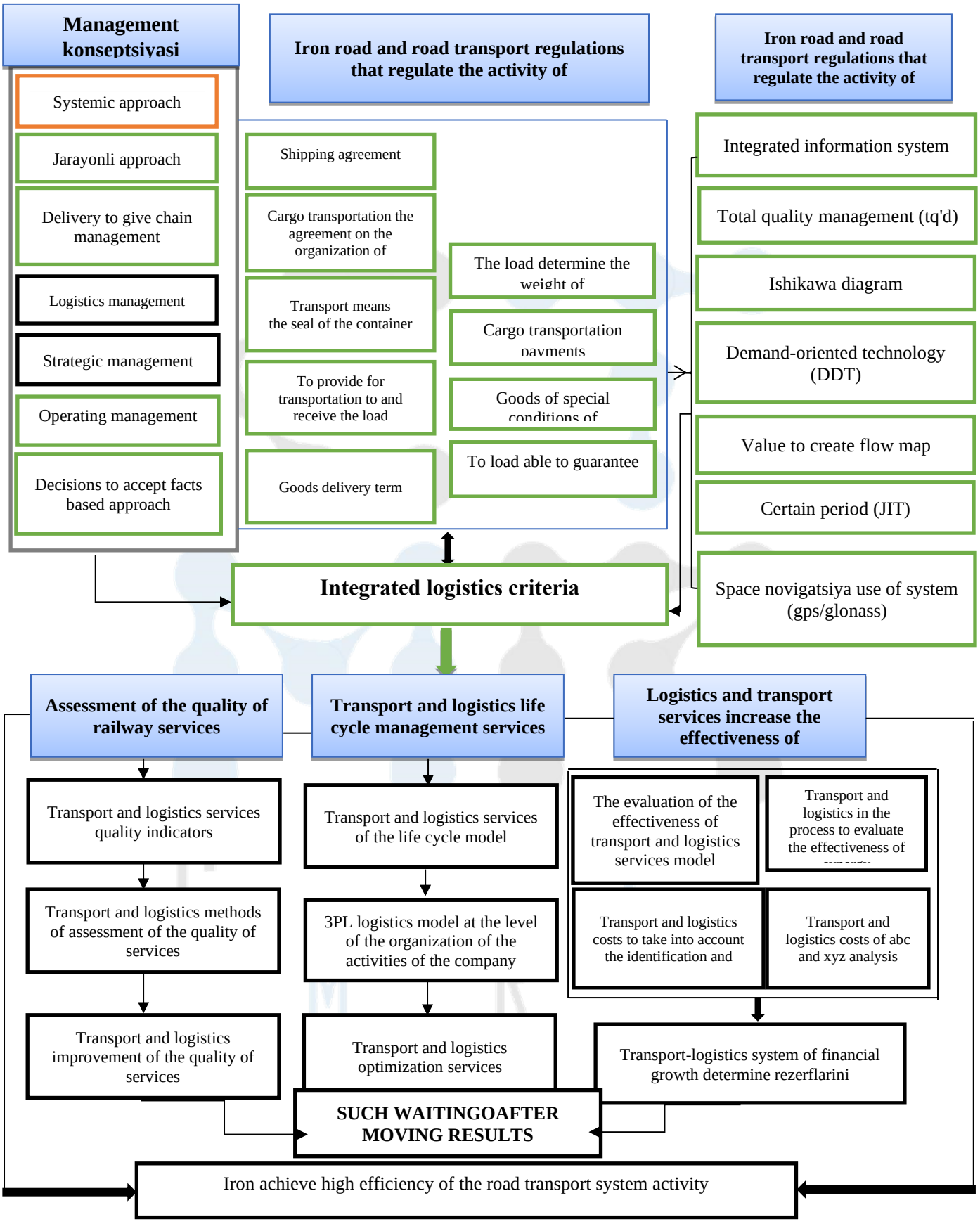

1-picture. Railway transport system development economic mechanism[4]

[4] Olib borilgan tadqiqotlar asosida muallif tomonidan tuzilgan.

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The proposed railway transport imitatsion economic development model of the six directions are included. Model based on the research development of railway transport mudatli long addressed the problem of the development strategyto be based on [15]. Complex developmentaccounted providing imitatsion model strategic to increase the competitiveness of railway transport, transport and logistics transport and transit potential and the effective use of the system, reduce costs, enhancing service levels and the development of the market factors that enables us to offer new servicesto guide you.

CONCLUSION AND SUGGESTIONS

The proposed railway transport economic development model of the state, society and aimed at ensuring a balance between the interests of railway transport, legal, administrative, financial-economic, ecological, and includes innovative ways. Complex development of railway transport in the model listed destinations insortingli autsortingli and to strengthen integration, strategic diversification, expansion of the transport system by adding to its stable and will ensure the comprehensive development world.

Also, the economic development of the railway transport system for the purpose of implementation of measures in accordance with the following:

– tchange the setting step and the principles ariflarni-stage transition to the new tariff system, fix koeffitsentlar reduce the number of railway to provide through traffic from all sides, reducing the types of funds;

– o‘z for cargo transportation by railway transport and lokomotiv wagon for the creation of private companies to haveto create conditions through the n trainat a competitive environment in the field of shippingto the formation;

– increase the efficiency and reliability of transport and logistics system, until the year 2030 electricitybills equipped with a 55 percent share of rail to delivery. To do this each year an average of 168 km railway to provide the electric energy zarur, while the volume of investments 5,34 billion. dollars should be for. Wagon up to the year 2030 and lokomotiv update for 1.2 billion. investing need to spend dollars:

– konteynersat term were transported to the transport of cargo in container traffic to reduce the spending needed to increase 10 percent to 25-30 percent of payment;

– increase the effectiveness of the transport system to the expansion of a network of multimodal transport and logistics centers in the region;

– shipping, intermodal and multimodal transportations and legal base of normative, technical and technological regulations and standards, logistics centers, transport-forwarding activity without the combination of international standards;

– the organization of integrated multimodal transportation system will be effective to ensure that information;

– the formation of a national network of logistics centers, customs, transport and logistics of the operation them at least 3PL ensure that should be at the level.

Thus,the quotes in the development of modeli is based on the strategy of scientific development of railway transport in modern conditions defines the problem to be solved. Complex developmentaccounted providing a model of strategic increase the competitiveness of railway transport, reduce costs, enhancing service levels and the development of the market factors that

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enables us to offer new servicesto guide you.

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