

EMPLOYEES' KNOWLEDGE OF CHATGPT AND MOTIVATIONAL FACTORS

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ABSTRACT

This study investigates the relationship between employees' knowledge of ChatGPT and their motivational factors, such as achievement, recognition, and growth potential. In the context of rapid AI adoption, particularly in South Korea, a survey was conducted to measure employees' technological and empirical knowledge of ChatGPT alongside their motivational factors. Using descriptive statistical analysis, the findings reveal that technological knowledge is more closely related to higher motivational factors than empirical knowledge. Employees more familiar with ChatGPT's function and operation perceive higher achievement, recognition, and growth potential. The study also found that frequent use of ChatGPT positively influences employees' motivation. Ultimately, the study suggests that fostering employees' understanding of Technological Knowledge of AI can enhance their job motivation, contributing to improved job performance and organizational productivity.

INTRODUCTION

In the rapidly evolving corporate management environment driven by artificial intelligence, there is increasing interest in issues related to productivity enhancement. In the past, employees spent significant amounts of time in the workplace to achieve job performance, but now similar results can be achieved in relatively less time through Generative AI like ChatGPT. Likewise, there is a study indicating that the introduction of AI positively impacts corporate productivity (Wijayati et al., 2022 & Noy & Zhang, 2023). Therefore, companies strive to enhance overall productivity by actively adopting AI technologies and by improving employees' understanding of AI. However, as the introduction of AI transforms work processes and raises expectations, it may lead to a decrease in employee job satisfaction. Previous studies have shown a positive correlation between job satisfaction and job performance (Hoboui et al., 2017; Katebi et al., 2021), suggesting that, in the long term, such changes might reduce organizational productivity. Therefore, rather than solely focusing on the impact of AI adoption on corporate performance, it is crucial to study how AI affects employee job satisfaction. This approach can pave the way for an era of AI coexistence where both companies and their employees can achieve mutual satisfaction. Therefore, this study aims to investigate and analyze employees' knowledge of ChatGPT, the most commonly used generative AI model in the current work environment, and their motivational factors. Ultimately, the insights from this study will provide a research case for the effective interaction between artificial intelligence and human resource management by examining the relationship between the independent variable, employees' knowledge of ChatGPT, and the dependent variables, motivation factors. Job satisfaction may change with different factors which may include the nature of the organization and individuals. Thus, the literature and theories on factors influencing job satisfaction are many. The motivational factors are perceived as one of the other factors that determine job satisfaction, including the motivational factors, which are

perceived as needs that enhance the rate of satisfaction of a job in an individual. In this research, an attempt to quantify such motivational factors will involve researching issues like achievement, recognition and growth potential. The study provides the basic premise of these variables through the study of knowledge of ChatGPT and motivational variables. The primary research question guiding this study is: How does knowledge of AI affect employees' motivation factors? This research aims to contribute to future research on the correlation between the use of ChatGPT and job satisfaction by investigating and answering the above questions.

Literature Review

Other researches have revealed that the implementation of technologies like IT and ICT enhance business performance which includes productivity or job performance (Draka et al., 2006; Bloom et al., 2012). Castellacci and Viñas-Bardolet (2019) state that employees who actively use the Internet as a major tool to perform their responsibilities will receive a higher average wage level and better employment opportunities than their colleagues do (Castellacci and Viñas-Bardolet, 2019). Equally, based on the utility of generative AI, it is anticipated that the implementation of GAI in businesses will play a major role in enhancing efficiency at the workplace. Indicatively, ChatGPT enables users to create spreadsheets with minimal effort, since they can input the desired values of variables or generate software code and, therefore, saves time on labor. The efficiency of labor in comparison with time is boosted by the usefulness of GAI, and the resultant productivity of the corporations. This, therefore, implies that workers who can use technology can be more likely to be rewarded better on their contribution and performance at work. The extent of knowledge of GAI will likely impact motivation of employees to work in the job. Employees with greater knowledge about the new technology will be less intimidated and will be better placed to deal with the changes that are brought about when the technology is brought in.

Knowledge

The advancement of artificial intelligence brings unprecedented changes to companies. These changes significantly impact on corporate culture, work processes, and employee capabilities. As the use of technology based on knowledge increases, knowledge is increasingly recognized as an essential element in organizations. The dictionary definition of knowledge refers to understanding and information about a subject gained through experience or study. However, various studies on knowledge have been conducted for a long time, and there are various classifications of knowledge (Gilbert, 1949; Boshoff, 2014; Edmondson et al., 2003). To utilize technology more efficiently, it is necessary to acquire or develop this knowledge (Lapré et al., 2000; Maliphol, 2019). This study classifies knowledge into Technological Knowledge and Empirical Knowledge

Technological Knowledge

Yu and Golden (2019) define technological knowledge as an insight and acclimatization to the functions and the working principles of the existing technologies (Yu and Golden, 2019). It is possible to categorize the functions and the operating principles of technology as well by the nature of factual, propositional, and declarative knowledge which indicates that technological knowledge incorporates the qualities of the features of Know-That (Boshoff, 2014; Gilbert, 1949). Unlike the knowledge contained in manuals, this kind of knowledge is easily represented and transmitted through systems such as the Internet meaning that Technological Knowledge can be also defined as

Codified Knowledge (Edmondson et al., 2003). In this definition, the research in this paper views technological knowledge as the power to employ technology based on the knowledge of the facts and concepts of the technology. In order to apply AI such as ChatGPT better in a corporate setting, organizations must first have a clear vision of the way AI works and what it cannot do (Raj et al., 2023). In case workers are fully aware of these functions and restrictions and implement AI, they will have an opportunity to improve their abilities and skills and work much faster by excluding unproductive and redundant work (Xu et al., 2023). It is also a convenient factor that is able to influence the quality of work and well-being of the employees positively (Broecke, 2023). In this way, when employees are well aware of how to use and work with generative AI such as ChatGPT, they will be better able to employ AI tools in a more efficient and strategic way to their work.

Empirical Knowledge

Borkman (1976) defined empirical knowledge as knowledge acquired through personal experience rather than from others or through observation (Borkman, 1976). Workers can acquire empirical knowledge, such as how to effectively use AI in their tasks and how to quickly access the information they need through AI, by using and experiencing ChatGPT over time. The nature of this knowledge is not a concept that can be documented and transmitted but rather knowledge acquired through long-term experience and observation, bearing characteristics similar to Tacit Knowledge and Know-How (Edmondson et al., 2003; Gilbert, 1949). Empirical knowledge can influence human-AI interaction. In studies on the complementarity between AI's main technology, Machine Learning (ML), and human interaction, it has been argued that the knowledge accumulated by individuals through prior learning can mitigate biases caused by the imperfections of ML, thus complementing AI and impacting productivity (Choudhury et al., 2020). Furthermore, if such empirical knowledge is shared within the organization, it can form bonds among employees, facilitate social communication, and ultimately improve collaboration, coordination, and organizational performance (Obrenovic et al., 2020). These results can naturally be connected to motivational factors for employees. Specifically, the conceptual framework used to measure employees' knowledge of ChatGPT is summarized in table 1.

Motivation Factors

Companies, among other companies, need to make the best out of the resources they have in order to realize their visions. Organizations should therefore encourage its human resources so that they can maximize their capabilities. A satisfying environment must be offered to motivate the members, and should be closely linked to job satisfaction. Different researchers have assessed the factors that drive job satisfaction but no decisive conclusion has been reached because such factors might be different depending on a number of factors including the content of the job and job conditions (Aziri, 2011). Instead of a conceptual one, a job is a complicated combination of different factors, such as achievement, responsibility and rewards, and work relations between the colleagues. As such, in order to test the factors that drive job satisfaction, it is imperative to state and analyze each element that drives the job. The factors, which positively contribute to job satisfaction, are summarized in Table 2 as they were investigated by different scholars.

Factors focused on personal characteristics and the nature of the job itself, such as achievement, recognition, and growth, have been commonly referenced by multiple scholars (Herzberg, 1964; Locke, 1990; Myers, 1964). Whether ChatGPT is perceived as a tool that makes one's job easier and more convenient depends on the nature of the job itself and personal characteristics. Accordingly,

this study analyzed motivational factors by focusing on intrinsic elements such as achievement, recognition, and growth, rather than external factors of the job like compensation, relationships with colleagues, and safe working conditions.

Achievement

Achievement refers to the feeling experienced when one challenges a specific goal and accomplishes it. For example, achievement includes successes such as completing a difficult task on time, solving job-related problems, or seeing positive results from one's work. One of the key findings from studies on information technology and corporate performance is that IT reduces coordination and information access costs within companies while enhancing employee autonomy, enabling them to solve problems and complete tasks without relying on others (Viète & Erdsiek, 2020; Castellacci & Viñas-Bardolet, 2019). Given that job autonomy is a crucial factor in determining self-motivation and work morale, it can positively influence employee performance in the workplace (Deci & Ryan, 2023). Jyung et al. (2020) analyzed factors affecting problem-solving skills in technologically advanced countries like South Korea and Japan, and they argued that the use of ICT technology at home helps enhance problem-solving abilities. Considering these results, given that generative AI like ChatGPT is widely used in the information technology field, it can increase faster and easier access to information. This could ultimately enhance problem-solving abilities in the workplace and potentially increase employees' achievement.

Recognition

According to Vera & Boateng (2015), recognition is the timely, informal, or formal acknowledgment of an individual or team's behavior, effort, or business results that support the organization's goals and values. This includes elements such as monetary rewards, praise, and feedback (Vera & Boateng, 2015). Recognition in the form of monetary rewards, praise, and feedback is meant to reward employee performance with the implication that management is encouraging behavior that has improved business outcomes.

Possibility of Growth

The possibility of growth refers to the possibility of personal development and opportunities for promotion within the workplace. This includes professional growth, increased opportunities to learn new skills, training in new technologies, and acquiring new professional knowledge. For example, when new technologies are introduced, companies often conduct various training sessions and educational programs to effectively implement these technologies. According to Xu et al. (2023), opportunities for employees to acquire knowledge and skills related to artificial intelligence can enhance their Informal Learning in the Workplace (ILW), which can impact their Workplace Well-Being (WWB) and ultimately influence job performance (Xu et al., 2023). As various generative AI technologies like ChatGPT, Gemini, and Bing are rapidly integrated into corporate environments, many companies are providing training and seminars on AI technology to their employees. This offers employees the opportunity to gain knowledge of new technologies and apply them to their work, thereby increasing their potential for growth in their careers.

Methodology

This paper will also quantify and examine the degree of knowledge of ChatGPT among employees as well as motivation factors, and hopefully allow virtual coexistence between AI and human resources in the future. In this regard, an online survey was undertaken through the use of Google Forms between April 15 and 22, 2024, to the South Korean office workers in the IT, manufacturing,

environmental services and construction industries. This survey was conducted in the format of a survey on Google Forms, which contained the text explaining the purpose and content of the study, and was set up in such a way that the respondent can only provide one answer to the questions of the survey, which are composed of three different types: Degree of Agreement, Rank Order, and Choose from a List of Options (Descombe, 2017). The questionnaire included a total of 13 questions, 9 of which concerned motivational factors, and 4 questions concerned the knowledge of ChatGPT that the employees had. In particular, of the nine questions, three of them were devoted to the achievement, recognition, and growth potential. The 9 questions on job satisfaction were all on a 5-point scale (1=disagree to 5= agree). Among the other four questions, two were dealing with technological knowledge and the other two, with empirical knowledge. The questions on technological knowledge were also based on a 5-point scale, whereas the questions on the empirical knowledge were formulated using Rank Order and Choose from list options (see Appendix A). A total of 27 answers was received during the survey period. There were however 2 respondents who gave incomplete responses and were not included in the analysis and a final sample of 25 responses was used to analytically examine the data. The collected data was summarized and interpreted using descriptive statistical analysis to organize it. Mean, variance and standard deviation were estimated in case of the 5-point scale items. In the case of the items in the empirical knowledge (EK), EK2 was a multiple-choice question, and to ease the calculation on a 5-point scale the scores were assigned by each 10 available choices as follows: 0-1 choices: 1 point, 2-3 choices: 2 points, 4-5 choices: 3 points, 6-7 choices: 4 points, 8-10 choices: 5 points. Also, the means of all variables were obtained to study the correlation of knowledge and motivational variables. This paper added the averages of the respective questions of each factor and then divided them by the questions that were used to come up with the average of each factor. An example of the calculation of respondents who have average score of 4 or above of each factor were put under the high knowledge or high motivational factors. On the other hand, those whose average score was lower than 4 were included in the low-knowledge group or low-motivational factors group of ChatGPT. Lastly, the associations among EK and TK and motivational variables were compared through the comparison of the averages and the percentages of the groups.

Results & Analysis

Below, Table 4 presents the descriptive statistics data based on the survey, showing the mean, variance, and standard deviation of the survey results. Overall, the responses regarding motivational factors and knowledge of ChatGPT were positive. The descriptive statistics indicated that all motivational factors, such as Achievement (AC), Recognition (RC), and Possibility of Growth (PG), had values close to 4 on each question. Among the motivational factors, the question with the highest average was PG1 (Avg = 4.44), with most participants indicating that their skills or performance had improved compared to the previous year. Conversely, the question regarding problem-solving ability within the job, AC3, had the lowest average (Avg = 3.84). In the Knowledge section, TK1 had the highest average (Avg = 3.92), while EK2 had the lowest average (Avg = 2.28)

In addition to calculating the mean values of each variable, this study compared the average values of each variable among respondents to examine the specific relationships between these variables. Respondents with values of 4 or above in EK and TK were classified as having high empirical and technological knowledge of ChatGPT, respectively, while those with values below 4 were classified as having relatively low technological and empirical knowledge of ChatGPT. For

the motivation factor, respondents with an average of 4 or above were classified as a group with relatively high motivation factors, whereas those with an average below 4 were classified as a group with relatively low motivation factors. Based on these classifications, the ratios between knowledge of ChatGPT and motivation factors were measured, and the resulting ratios are shown in tables 6-14. As shown in Table 6, this paper examined the relationship between technological knowledge and achievement. 15 respondents (62.5%) with high technological knowledge also exhibited high achievement. Similarly, 5 respondents (20.83%) with low technological knowledge demonstrated low achievement. This relationship indicates a positive correlation between technological knowledge and achievement, suggesting that individuals who have a good understanding of ChatGPT's functionalities and applications tend to achieve positive outcomes, demonstrate strong task performance within given timelines, and possess effective problem-solving abilities in their work. A total of 20 respondents (83.33%) demonstrated a proportional relationship between TK and Achievement, so "H1.1 Employees with higher TK (Technological knowledge) of ChatGPT will have higher motivational factors" is supported by the result.

Discussion

As AI technology advances rapidly, it is integrated into various aspects of business management and work processes. The idea of artificial intelligence (AI) is becoming widely understood as a productivity driver in various industrial areas, specifically the jobs that require an extremely high level of knowledge, where AI can extensively supplement the workforce (Maliphol and Walter, 2023; Pizzinelli, 2023). In the human resource management perspective, the current research explores the relationships between AI knowledge and motivation determinants of employees. Precisely, the study aims to compare the correlation between the acquaintance level of employees with ChatGPT and motivational aspects like achievement, recognition, and growth prospects. To evaluate technology and empirical knowledge of ChatGPT among workers in different industries in South Korea, a survey was conducted. It was also conducted to measure the motivational factors. The hypotheses that were tested in the research showed that motivation factors can be influenced by technological knowledge. The findings showed that employees who have more technological knowledge, which is reflected in their support of the hypotheses H1.1, H1.2, and H1.3, were more likely to have increased achievement, recognition, and growth potential. These are better motivational aspects that lead to better job satisfaction of the employees (Alshallah, 2004). Since previous studies indicate that the level of job satisfaction can positively correlate with the quality of job performance, one can assume that a better employee, who is conversant and has an in-depth knowledge about AI concepts and functioning, can also enjoy increased job satisfaction and show better performance (Hoboui et al., 2017; Katebi et al., 2021). Along with the correlation of technological knowledge and employee motivational variables, the current research has demonstrated a proportional correlation between the frequency of AI use and the motivation of employees. The greater the use of ChatGPT by employees, the more they felt their job motivation. These results indicate that the skills and competencies of employees can be increased with the prolonged use of AI tools like ChatGPT. The information suggests that the utilization of AI technology on a regular basis as opposed to its use on a broad range of activities has a more beneficial impact on employee motivation. Therefore, it could be more effective in terms of building motivation to specialize in only a few tasks using AI, instead of applying it to do a wide range of tasks. In order to explain why technological knowledge (TK) is directly connected to employee motivational factors than empirical knowledge (EK), it is necessary to

compare the characteristics of the two types of knowledge. TK embodies the knowledge of technology functions and operations and can be conveyed to the employees comparatively easily and directly using manuals and lectures. High TK employees hold a clear understanding of how AI is supposed to work thus are able to feel that they are productive in using AI tools. Conversely, EK is learned by experience, like the know-how, and it has unauthorized roots e.g. trial and error, and personal experiences. To establish EK, the technology usually needs to be used over a long period of time, and employees will build their EK through the implementation of AI in practice. An example is that a user of ChatGPT can discover by experience that wording questions can affect results, and can thereafter optimise their questioning behavior on the basis of feedback. Consequently, EK will require more time to be acquired as compared to TK, which will have a relatively lower effect on motivational factors. Besides, TK allows one to personally acknowledge his or her progress, because it involves getting to know how technologies work and how they operate. On the other hand, EK is learned in a long period and individuals cannot consequently perceive learning at a particular time. That is, motivational factors may also be influenced by the difference in perception of the process of knowledge acquisition by the individuals. Those employees who study and know how to use the AI methods and functions can understand clearly that their skills in the job have improved, but it is difficult to understand that the employee has gained EK immediately. Such difference in the perception of knowledge acquisition among employees may have different effects on their motivation.

Implications and Limitations

The results of the current research can offer some practical implications to the managers who have the task of integrating artificial intelligence (AI) and evaluating its impact on employee motivation. To begin with, the research highlights the essential nature of technological knowledge as per AI in enhancing the morale of the employees. ChatGPT, Bing, and Copilot are all examples of AI applications that are finding application in the business world; however, unless there is an in-depth understanding of the functionality of the AI application or how it works, there is a risk of employees seeing unforeseen or less than ideal results. Through specific training on the technicalities of AI, such as Prompt Engineering and Customized Chatbot creation, the staff can become more skilled in the use of AI, which will provide the desired outcomes in the most effective manner. As a result, this improved AI operational competence will have a positive influence on job motivation.

Second, the analysis shows that there exists a proportional correlation between the frequency of using ChatGPT (denoted as EK1) and employee motivational factors. The long-term interaction with AI tools in the modern professional environment will allow employees to develop critical and pragmatic knowledge that will make them use ChatGPT effectively. As an example, in the manufacturing industry, prolonged use of a certain technology enables the staff to acquire advanced skills and expertise with regard to such technology. In a similar vein, the managerial support of the use of AI technology will prompt employees to interact and experience AI more frequently. This kind of facilitation of experience learning will make employees more familiar and knowledgeable in their work and improvise their motivation significantly because they will become confident in using AI successfully. On the other hand, the more applications that the employee uses, the more in some respects he can be de-motivated.

Conclusion

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This study discussed the relationship between employees' understanding of AI and their motivational factors. Based on the concepts of technological knowledge and empirical knowledge, the study analyzed the impact of these knowledge types on employees' motivation. The hypotheses were tested through a survey conducted with 24 employees, and the results supported the hypothesis that employees with higher technological knowledge tend to exhibit higher job motivation. Ultimately, these findings suggest practical ways for companies to foster efficient coexistence between AI and employees in the industrial context. This study aims to contribute effectively to providing guidelines for companies and organizations to adapt to the rapidly changing technological landscape brought about by AI adoption.

Limitations

This paper contains a number of limitations that should be considered in the future research. First of all, the sample size was quite limited as it consisted of 24 respondents who were representatives of a variety of industries in South Korea IT, manufacturing, environmental services, and construction. The findings might not perfectly represent the wider workforce because the number of the respondents was limited, which limits the ability to generalize the findings. The research of the future must strive to involve more participants in the research by using a bigger sample of subjects in more diverse industries and regions. A bigger sample would offer an increased statistical power, and will offer results that could be generalized to a wider range of organizational settings.

Secondly, a descriptive statistical analysis was used to compare and interpret the survey data in this study. Despite the global view that descriptive statistics give, this method is limited in revealing some extensive and more detailed interconnections of variables. As an example, the descriptive statistics could not accurately determine the correlation or causal relationships between the employee AI knowledge and motivational variables. In this respect, further studies need to use more sophisticated statistical methods, including factor analysis and regression model, to prove definite and unambiguous relationships between variables. The approaches would enable the researchers to examine possible mediating variables that could determine the link between AI knowledge and employee motivation. Overcoming these shortcomings, new studies can help make the current knowledge on the role of AI in improving employee motivation and performance more profound.

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