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ChatGPT for Academics: A Gender-Based Psychological View

By

Hadyabonu Melikova¹, Asst Prof. Elif Derya Özdemir², Prof. Dr. Cemal Özdemir³

¹SDU University - Kaskelen / Kazakhstan, Master Student,

²SDU University - Kaskelen / Kazakhstan, Lecturer,

³SDU University - Kaskelen / Kazakhstan, Shinawatra University – Thailand,

ORCID NO: 0000-0002-1166-3083



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Corresponding author

Hadyabonu Melikova

Abstract

In 21st century technology is one of the most important part of our life which we use everyday in all aspects of our life. Last years the artificial intelligence tools became very popular and used by people all around the world. People use it in different aspects of their life. This research has been focused to find how girls and boys use ChatGPT and to which extend do they believe ChatGPT in terms of increasing academic productivity. The research was conducted in one of the universities of Almaty, Kazakhstan. 133 students from different faculties in age range of 18-21 participated in this study. There were 65 boys and 66 girls in the research. The Jamovi app has been used to analyze the data. Shapiro Wilk test for the normality of the data and One way Anova(Non Parametric):Kruskal Wallis test was used for the anylyzis of the data. As a result both girls and boys use ChatGPT the same, there is no between the frequency of usage. However while there is no difference in the usage of ChatGPT the research ahs shown that there is a difference in believing that ChatGPT can increase the productivity of academic work. Boys tend to rely more on ChatGPT than girls as girls are more emotional according to boys.

Keywords: AI, ChatGPT, Psychological View, Gender, Kazakhstan

1. Introduction

In the first half of 21st century, the impact of technological advances on the academic world has deepened considerably. Chat gpt-type tools developed with artificial intelligence language models and OpenAI offer important contributions to academic researchers in research writing, analysis and production processes.

These artificial intelligence tools, which support bibliographic arrangements from academic discussions to literature research in more than one field when it is necessary to produce an academic writing, have become an indispensable supporter and complete support of the academic world increasingly.Of course, this technological movement has shown differences depending on gender in psychological sociological characteristics on people. There is not enough research here..

There are significant differences in the attitudes and opinions of female and male academicians towards artificial intelligence tools

used in the chat gpt style. For example, a study conducted by Bouzar and his friends (2024) on university students found that men use chat gpt for a longer time, while women use it more and are very worried about technological over-dependence.

These individual differences actually show that the psychological aspects of the way they approach technology are different.According to the ‘Selectivity model’ of Meyers Levy (1989), male researchers choose information more superficially, while female researchers tend to process more broadly and selectively.We can explain that these female researchers should take a more careful and critical approach to the use of artificial intelligence.In addition, gender differences and cultural factors are what diversify these types of behavior. Female academics observe a lot of factors when using artificial intelligence tools.While they are more interested in originality and moral rules, male academics use these artificial intelligence tools to increase efficiency and strengthen their self-control powers.



It is aimed to study the academic use of artificial intelligence across gender-factor psychological differences. The attitudes of male and female teaching staff during the use of artificial intelligence, their cautious attitudes and cycles of using it, their expectations from artificial intelligence, their cognitive and emotional reactions will ensure that this review has a different dimension.

The article aims to create a cross-disciplinary perspective based on gender, technical and social relations, individual psychology, and then the differentiation of the digital world. It is aimed to reveal how artificial intelligence tools are used in the academic world, how personal differences affect this situation, and how gender difference shapes this situation.

Research Questions:

Is there a difference in the frequent usage of ChatGPT between male and female students for academic purposes?

Do both male and female students think that ChatGPT increases the academic productivity?

Hypothesis:

1. Null hypothesis: Both girls and boys use ChatGPT equally for Academic purposes
Alternative hypothesis: Both girls and boys don't use ChatGPT equally for Academic purposes
2. Null hypothesis: There is no difference in how much girls and boys believe that ChatGPT increases the productivity of academic work.
Alternative hypothesis: There is a difference in how much girls and boys believe that ChatGPT increases the productivity of academic work.

2. CONCEPTUAL FRAMEWORK

2.1. Artificial Intelligence and the use of chat gpt in Academia

Technological tools based on artificial intelligence are advancing rapidly in academic environments. ChatGPT is one of the artificial intelligence tools that academics use in this case to make writing production critical and in many other cases. Such artificial intelligence products have the potential to enhance academic productivity as well as to transform intellectual processes. (Dwivedi, 2023)

There have been different acceptance of the use of artificial intelligence in the academic community. Subsequently, this has caused various controversies. Research shows that such artificial intelligence tools facilitate the process of creating research proposals for access to information and writing, but at the same time they can also lay the groundwork for problems such as plagiarism, originality and academic integrity. (Zhai, 2022). It plays a supporting role in supporting the written expression skills of academics with differences in language use in using artificial intelligence.

Here, using and accepting technology provides an important theoretical basis for explaining academics' tendencies to use tools such as Chat GPT. The technology acceptance model presented by

Davis (1989) focuses on two main factors that determine individuals' intentions to use a technology: perceived utility and perceived ease of use. In this context, the acceptance of Chat GPT in the academic world is shaped around these two factors. (Venkatesh and Davis, 2000)

The use of artificial intelligence in the academic community is not just a technical situation, in fact, it is understood that it is a very different process when viewed from an educational, psychological and socio-cultural point of view. During this time period, personal differences, especially differences based on women and men, different perceptions of technological developments on both sides, have important effects on these artificial intelligence tools.

2.2. Gender and Technology Interaction

The part of communication with technology is closely related to the concept of gender from a distance. However, there is a relationship in a social and cultural sense. Gender-based differences in attitudes and attitudes towards technological developments are becoming more pronounced in academic settings, especially digitally. The findings that men have a greater sense of self-efficacy in the use of technology, while women subject technology to more emotional evaluation, are noteworthy in this context. (Ong and Lai, 2006)

In order to learn about Kazakh Turkish, it is necessary to have some knowledge about the Kazakh name, Kazakh history, Kazakhstan's past and present. The exact date and manner of the word Qazaq, which is the name of the Kazakh Turks who took their name from the Kazakh nation and have owned the lands of the Republic of Kazakhstan for many years, has been studied by many scientists (Özdemir, 2018).

The roles of men and women directly show how individuals view and perceive technology. Socially, relational and sensitive roles that give special "care" to women are known as controlling, innovative and rational roles that make it easier to adopt technology, while the pragmatic dimension of the relationship established with technology is put on the back burner. (Faulkner, 2001). In the academic community, female academics have more areas of use for technical developments, but they have a number of concerns and concerns when using it. In the opposite sex, these developments and influence it is seen that he shows a more relaxed and more worry-free attitude in front of him. Thus, it is explained how gender discrimination shows a difference in the face of technological developments.

Gender based technology theories emphasize that technical developments, technology is not a socially neutral tool, but rather an environment that reproduces or questions sexist structures. Judy Wajcman (2004) states that the relationship that technology establishes with gender is connected not only with the use of technology, but also with its design and ideological framework. In this case, artificial intelligence tools are part of a calibrated social structure.

However, it can be argued that the differences between male and female academics in the use of Chat GPT are not only due to

individual preferences, but also due to structural gender relations. This point of perspective, which recognizes that technological tools are not neutral, makes it possible to conduct a more in-depth analysis of gender-based digital inequalities. (Wajcman, 1991; Adam, 1998).

The use of artificial intelligence tools in the academic community is not in the sense of personal benefit, but sometimes a reflection of strong gender-related relationships and perceptions. However, the position of artificial intelligence tools in terms of gender discrimination should be evaluated from a social and spiritual point of view.

2.3. Gender-Based Differences with Psychological Approach

The distinction between men and women is a variable that gives the most priority to the spiritual relationship that people have established with technology. It also brings with it different psychological factors for men and women to perceive technical innovations, use them and evaluate them. Such differences of approach manifest themselves in very different situations. In particular, phenomena such as self-efficacy, technological anxiety, motivation and learned carelessness help us to understand the psychological process of changes depending on gender.

Bandura's (1986) Social Cognitive Theory argues that an individual's behavior is shaped by mutual interaction with both environmental and personal factors. In this case, it is directly effective with the person's confidence and usage certificate in handling artificial intelligence tools. Research shows that the self-efficacy levels of male individuals towards technology are higher and this situation is also reflected in the usage cycle. (Torkzadeh and Van Dyke, 2001). On the other hand, the fact that this ratio is less in women shows a more timid structure in experimenting and developing technical developments.

On the other hand, gender differences have also been traced to the level of anxiety related to technology. Technological fears are related to the anxiety disorders that a person experiences when working with technical tools, followed by inability to succeed and not knowing some clear ways of use. The most important one in the studies obtained is that women individuals have a higher level of anxiety, especially towards today's technology, which may reduce the motivation to use. (Durnell and Haag, 2002). It seems that this concern is clearly connected with gender differences, as it is related to the law.

In this case, in the case of learned carelessness, it is also very important at this point. This theory, developed by Seligman (1975), explains the passivity that develops when an individual loses his sense of control during moments of failure. The fact that women see the negatives of technical use and know it from themselves is more likely to be looked at by men. The reason for this is that the situations of complete lack of dominance in using techniques that are new in the academic field are lower.

From the point of view of personal motivation, it is related to the fact that the individual finds these tools successful and meaningful

in following and using technical developments. In this case, personal-based changes are also shaped by social expectations in the same situation. While female academics are trained to evaluate technology more from ethical, social and pedagogical concerns, male academics know that they adopt a more pragmatic and task-oriented approach (Vekiri and Chronaki, 2008).

As a result, the differences and psychological changes between men and women are quite effective in the use of artificial intelligence and the use of technological tools recently. These changes are based not only on the psychological factors of the person, but also on cultural and social norms. While encouraging the frequent use of technological tools in the academic environment, strategies should be developed in this direction and, most importantly, attention should be paid to psychological variables.

2.4. Psychological perception of CHATGPT: Trust, Control and Interpretation

Nowadays, foreign language learning is strengthening its place among the teaching activities all over the world (Özdemir, Özdemir, Choban, Uysal, 2019). The attitude formed to modern technologies is influenced not only by the peculiarities of it, but also by how a person uses it, to what extent he trusts him and to what extent he knows how to use it. Some text production tools consist of the combination of the psychological dimension consisting of the three elements listed above. In a sense, this is evaluated according to the experiences of those who use these tools.

Trust is one of the most critical determinants of the acceptance of artificial intelligence systems. The trust in artificial intelligence is related to the individual's belief in the accuracy, impartiality and predictability of the system (Madhavan and Wiegman, 2007). Of course, however, some norms may change from time to time, and although these artificial intelligence tools are mastered, from time to time the accuracy and consistency of these tools can create uncertainty. The research conducted supports the presentation on this issue, especially female users bring with them a more questioning and skeptical approach.

Gender-based differences come into play again at this point. Research shows that the level of confidence of female users towards digital systems is generally lower, and the perception of risk is higher (Gefen and Straub, 1997). In this case, female academics are failing a lot of reliability tests when using artificial intelligence tools and are more interested in the moral dimensions of technological developments.

What is the meaning of? It is a self-acceptance and cultural result of the connection that an individual establishes with technology. The individual treats a technology not only instrumentally, but also in a symbolic and ideological structure. The role of artificial intelligence in academic knowledge production is perceived by some users as a supportive assistant, while for others it is perceived as a structure that threatens creativity (Kasneci et al., 2023). At this point, it is also seen that gender is decisive. Women users are

paying more attention to this dimension more ethically, socially and pedagogically.

We can clearly see the psychological changes of the use of artificial intelligence and how people use it, within which psychological factors they relate.

2.5. Previous studies

Studies related to artificial intelligence have gained speed in the academic community, especially in the period after 2022. While most of these studies are focused on the benefits of technology for education and its moral dimensions, the effects of spiritual differences caused by the separation of men and women on this situation have been considered in depth. This study aims to fill the gap in this area.

Kasneci et al., which deals with how artificial intelligence tools are used in the academic community. (2023) showed that Chat GPT is actually interpreted differently between students and academics. In this study, academicians' thoughts about artificial intelligence, information reliability, idiosyncrasy, academic ethics issues are also intense.

Taken in the context of technology acceptance, it is seen that the gender factor is actually a decisive variable in many studies. Venkatesh and Morris (2000) showed that men attach more importance to the perceived benefit and women to the ease of use by re-using the Technology acceptance Model out of gender pain. These reviews are handled in a similar way in text-oriented tools such as artificial intelligence. The fact that male academicians only treat it based on functionality is that female academicians attach more importance to the experience of use and a sense of control.

Research conducted within the framework of feminist technology theories draws attention to the fact that technology is not a neutral field. Judy Wajcman (2004) argues that technology is not independent of gender relations; on the contrary, it is shaped by these relations. This point of perspective makes it necessary to assume that national gender codes are active both in the production and effective use of artificial intelligence technologies such as ChatGPT. This article presents a concrete contribution to feminist technology theories by showing how the use of ChatGPT interacts with gender-based psychological variables.

As a result, similar orientations are observed in the studies conducted in terms of psychological differences. Durndell and Haag (2002) stated that women's computer anxiety levels are higher compared to men, which leads to delays in the adaptation process to technology. These findings provide an important basis for understanding the emotional and cognitive attitudes that develop towards tools such as ChatGPT. In the same way, the study of Vekiri and Chronaki (2008) shows that women approach technology with a more emotional, ethical and pedagogical perspective. In this context, it is understandable that women academicians should develop a more critical, questioning and cautious attitude towards the use of ChatGPT.

3. Methodology

To perform a certain research there are several methodologies to use. Some types of the research are qualitative, quantitative and mixed approach. The distinction between the qualitative and quantitative methods is framed as "in terms of using words (qualitative) rather than numbers (quantitative), or better yet, using closed-ended questions and responses (quantitative hypotheses) or open-ended questions and responses (qualitative interview questions)" by Creswell (2018). When we use both the qualitative and quantitative research methods it will be mixed method.

For this research the quantitative method has been chosen to work on the hypothesis. By quantitative research method more students were involved in research and more time was saved both for the researchers and the students.

The research took place in one of the universities of Almaty, Kazakhstan. 133 students from different age ranges participated in this research from 18-21. The university students from first course to fourth course, from different faculties like engineering and faculty of education and humanity students.

The data has been collected through a survey in the end of the first semester from the students. The survey included different questions focusing on finding information about usage of ChatGPT and its effects in students' life from different perspectives like academic, social, psychological and so on. The questions were mainly designed in a likert scale form. The survey contained the questions like "How often do you use ChatGPT?", "I often use ChatGPT for academic tasks", "ChatGPT is useful as an additional learning tool", "I believe that the information from ChatGPT is generally accurate", "ChatGPT helps me to increase the productivity of academic work" and so on.

For the data analysis the Jamovi app has been used. For analyzing the data Shapiro Wilk test for normality of the data and one way ANOVA Kruskal Wallis test has been used.

4. Results

We have been working on two hypotheses given above. First of all to start analyzing we have to determine if the data is normally distributed or not. For this we use Shapiro Wilk test in Jamovi app. For the first hypothesis which states that both girls and boys use ChatGPT equally for Academic purposes we have checked for the normality of data and got a p value of less than 0.001 which tells us that data is not normally distributed. So according to data we use One way Anova (Non Parametric): Kruskal Wallis test. We have got from the test a p value of 0.8 which shows no statistical significance. From the outcome we cannot reject the null hypothesis which tells us that both girls and boys use ChatGPT equally for Academic purposes.

Below on figure 4.1 you can see the distribution of data for both girls and boys regarding the question of frequently use ChatGPT for academic purposes. As we can see for both gender the data is distributed equally which we have also proven by analysing statistically.

"Я часто использую ChatGPT для академических задач."3

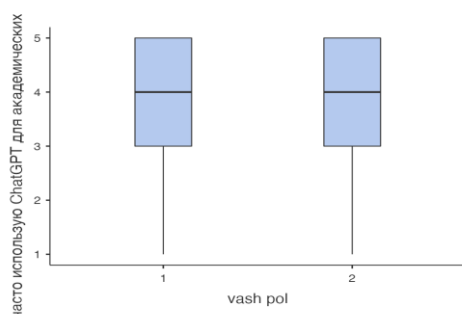


Figure 4.1

For the second hypothesis which says there is no difference in how much girls and boys believe that ChatGPT increases the productivity of academic work we firstly check the normality of the data. For the analysis of normality of data we use Shapiro Wilk test in Jamovi app. The p value from Shapiro Wilk test is less than 0.001 which tells us that the data is not normally distributed. So for analysing the data we use One way Anova(Non Parametric): Kruskal Wallis test. The result of p value is 0.01 which is statistically significant coefficient. From the obtained p value we can reject the null hypothesis and accept the alternative hypothesis.

So from the results of the analyzes we can say that there is a difference in how much girls and boys believe that ChatGPT increases the productivity of academic work.

From the figure below we can see the box plot of the data according to this question. The two boxes represent boys and girls answers. The one labeled with number one is for man and with number two for woman. As we can see the level of believe in ChatGPT for boys mostly four and five however for girls its between three and five which shows us that boys tend to rely on ChatGPT more than boys.

"ChatGPT помогает мне повысить продуктивность академической раб

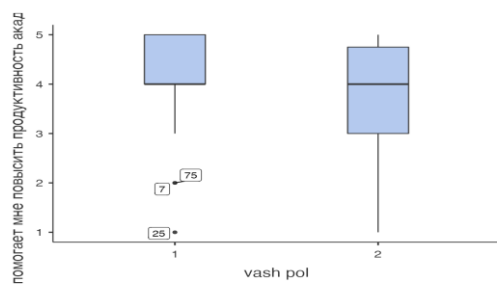


Figure 4.2

5. Discussion

From the literature we have reviewed above there were different aspects of boys and girls using Artificial Intelligence tools. There are some differences in acceptance of Artificial Intelligent tools by boys and girls followed by many reasons like psychological, social, environmental and so on. One reason can be even the interface or

the way technological tools designed, constructed that it doesn't match women's preferences sometime and it brings inequality in the usage of technology. This point of perspective, which recognizes that technological tools are not neutral, makes it possible to conduct a more in-depth analysis of gender-based digital inequalities. (Wajcman, 1991; Adam, 1998). Apart from this there are some psychological differences which result in the usage of technology, artificial intelligence as well. The findings that men have a greater sense of self-efficacy in the use of technology, while women subject technology to more emotional evaluation, are noteworthy in this context. (Ong and Lai, 2006)

"The outcomes of current research showed that anxiety in speaking Turkish is not related to students' age, gender, and duration of studying Turkish, and Turkish course grades. The only significant result was the relatively high in-class anxiety of college students (Karcı, Özdemir, Balta, 2018)."

So far we wanted to conduct a research in one of the universities of Almaty, Kazakhstan. We had two hypotheses on which we worked on. The first hypothesis which states that both girls and boys use ChatGPT equally for Academic purposes we couldn't reject it as after analyzing the results weren't statistically significant. So from here we can say that there is no difference in the usage of ChatGPT by boys and girls. The frequency of usage for both are the same.

For the second which says there is no difference in how much girls and boys believe that ChatGPT increases the productivity of academic work we could reject the null hypothesis. After the analyzing the data results were statistically significant, so we can say that there is a difference in how much girls and boys believe that ChatGPT increases the productivity of academic work. Girls tend to believe ChatGPT less than boys. Boys are more confident in usage of ChatGPT than girls. It may be because of the psychological difference between boys and girls also mentioned above in the literature review part.

6. Conclusion

The purpose of this study was to determine if there was any difference between boys and girls usage of ChatGPT and if both genders believe that ChatGPT can increase their academic productivity. First we reviewed some researches conducted before connected to our topic and we could see that there are different findings in this area. There were generally differences in acceptance, usage and believe in artificial intelligence and in technology in general between boys and girls. Different reasons can lead to this believes as psychological differences, technology not being neutral, self-efficacy in usage of technology and so on.

As a result of our research we can say that the usage of ChatGPT is the same for boys and girls but they are not in the same attitude for ChatGPT. Boys tend to believe ChatGPT more than girls. However the usage of ChatGPT is the same for them in terms of academic purposes the results were interesting. The study of Vekiri and Chronaki (2008) shows that women approach technology with a more emotional, ethical and pedagogical perspective. Durmell and Haag (2002) stated that women's computer anxiety levels are

higher compared to men, which leads to delays in the adaptation process to technology. So our results are supported by this two previous researches and this are the reasons of why woman tend to have lower believe in ChatGPT than boys.

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