RESEARCH ARTICLE

Students' Perceptions of ChatGPT in Higher Education: A Quantitative Study on Usability and Expectations

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Abstract

This study investigated the use of ChatGPT in higher education. The objectives were to examine students' experiences with ChatGPT, assess students' personal evaluations of the system and its responses, and explore how students' reflections influenced their expectations regarding ChatGPT's capabilities. A quantitative research design was employed. Data were collected using a researcher-developed questionnaire administered through Google Forms. The population consisted of 64 students from the Department of Information Technology at Nakhon Phanom University, from which 55 students were selected as the sample. The sample included 27 male and 28 female students aged between 16 and 25 years. The significance level was set at $p = 0.05$ with a 95% confidence interval. The findings showed that most students (82%) had positive experiences using ChatGPT as a learning support tool, particularly for information retrieval and understanding complex content. Regarding personal evaluation, 78% of the students rated ChatGPT as highly effective and responsive, although 25% expressed concerns about the accuracy of some information. Compared with their expectations before using the tool, 65% of the students reported that ChatGPT exceeded their expectations, particularly in terms of versatility and adaptability to different learning contexts. These findings suggest important implications for the development of policies and practices related to the use of ChatGPT in higher education. The study highlights the need to promote effective and critical use of ChatGPT while strengthening students' analytical thinking skills and lifelong learning abilities in conjunction with AI technology.

1. Introduction

Since 2022, the chatbot developed by OpenAI, called "ChatGPT," has represented a class of artificial intelligence systems designed to generate content, data, or responses that closely mimic human output. Within five days of its release, ChatGPT attracted more than one million users worldwide (Chuenphitthayavu, 2023). These systems leverage machine learning methods, particularly deep learning, to comprehend and mimic patterns within data, enabling them to autonomously generate novel content (Saxena and Cao, 2021).

The incorporation of advanced technologies such as ChatGPT is significantly transforming higher education, with a growing number of students utilizing ChatGPT for their assignments. However, this trend raises important considerations regarding the appropriate use of these technologies (Gulatee and Combes, 2018a,b). Higher education institutions must take steps to provide clear guidelines and comprehensive training to ensure that students employ ChatGPT responsibly and effectively. As mentioned, higher education students should use ChatGPT to enhance critical thinking skills rather than as a mere tool for completing assignments.

By addressing these challenges, educational institutions can significantly enhance learning experiences, streamline administrative tasks, and foster innovation across various academic domains through the use of

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these innovative technologies. This integration not only improves the efficiency and effectiveness of educational processes but also equips students and faculty with the skills and knowledge necessary to thrive in a technologically advanced future, thereby positioning Thailand's higher education system at the forefront of global academic progress.

Studying this topic is essential to gain a comprehensive understanding of how students interact with and perceive ChatGPT in an academic setting. By exploring students' experiences with utilizing ChatGPT, practical benefits and challenges can be identified, thereby providing valuable insights into its impact on learning processes (Song and Song, 2023; Oates and Johnson, 2025). Examining students' personal evaluations of the system and its responsiveness can shed light on the effectiveness and reliability of ChatGPT as an educational tool. Additionally, exploring students' reflections on their initial expectations of ChatGPT's capabilities can help identify the gap between anticipated and actual performance and support future practices for AI integration in education.

As generative AI tools such as ChatGPT become increasingly used in higher education, understanding students' experiences with this technology is critical. These tools offer personalized support, real-time feedback, and assistance with complex academic content. Therefore, studying students' experiences with ChatGPT is essential for ensuring its responsible and equitable use. Gaining insights into how AI can be effectively integrated into teaching and learning processes is important for enhancing student learning outcomes in higher education.

2. Objectives

1. To explore students' experiences with utilizing ChatGPT. For this objective, items were designed to capture students' frequency of use, the types of academic tasks for which ChatGPT was used, and their perceived ease of interaction with the system.

2. To examine students' personal evaluations of the ChatGPT system and its responsiveness. This objective assessed students' satisfaction, perceived usefulness, responsiveness, and perceived accuracy of ChatGPT's responses.

3. To explore how students' reflections affect their expectations of ChatGPT's capabilities. For this objective, items measured students' expectations and their current views after using ChatGPT. Students reflected on how their perceptions of ChatGPT's capabilities evolved over time.

3. Conceptual Frameworks

This study investigated user satisfaction with the application of ChatGPT for educational purposes. While ChatGPT has found widespread use across various sectors, this research specifically examined its utility in educational contexts through a review of recent empirical studies on student satisfaction with AI-assisted learning tools and empirical data analysis. A quantitative approach was employed through feedback surveys to collect the data.

The findings elucidate users' perceptions regarding the effectiveness and usability of ChatGPT in educational settings. The implications drawn from these results highlight potential areas for improvement and future research directions within this field. Overall, this research aims to provide valuable insights into user satisfaction with ChatGPT's educational applications, contributing to the ongoing discourse on leveraging advanced language technologies to enhance learning experiences. The research framework can be summarized as shown in Fig. 1.

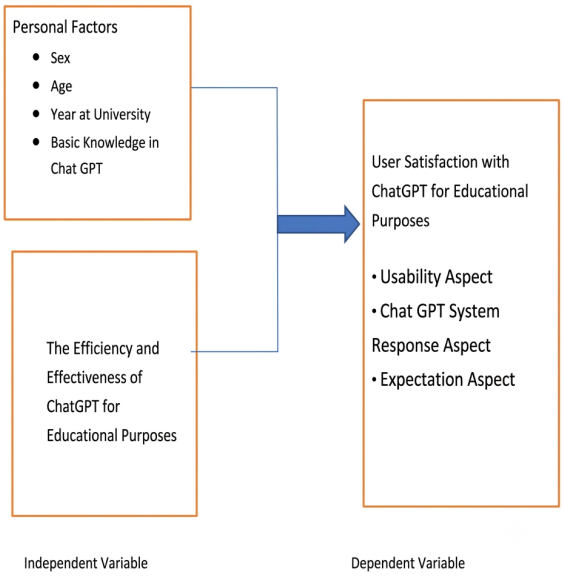


Figure 1. Research Framework.

4. Research Methodology

4.1 Population and Participants

The study aimed to examine a total population of 64 individuals, with a maximum acceptable margin of error (p-value) of 0.05 and a 95% confidence level. This confidence level was significantly higher than the acceptable margin of error, indicating robustness in the analysis and interpretation of the research findings. The proportion of the characteristics of interest in the population was set at 0.5, indicating random sampling in this in-

stance due to a lack of additional data specifying the proportion of the characteristics of interest.

In this study, convenience sampling was employed to select participants who were readily accessible and willing to participate at the time of data collection. However, this approach also presents certain limitations that must be acknowledged. Since participants were selected based on their availability, the findings may reflect the experiences of a specific subgroup rather than the broader student body. Students who chose to participate may have had stronger opinions or more frequent experiences with ChatGPT compared to those who did not participate, potentially introducing bias into the results.

The population in this study consisted of students enrolled in the Information Technology program at the Faculty of Management and Information Innovation Technology, Nakhon Phanom University, during Semester 2/2023. The total number of students was 64, and a sample of 55 students was selected through convenience sampling techniques. There were 28 females and 27 males, ranging in age from 16 to 25 years. All participants were undergraduate students.

The questionnaire was designed to elicit participants' perspectives on the efficiency and effectiveness of ChatGPT for educational applications. The themes investigated through the questionnaire included:

- Participants' individual experiences with utilizing ChatGPT.
- Participants' personal evaluations of the ChatGPT system and its responsiveness.
- Participants' personal reflections on their expectations of ChatGPT's capabilities.

4.2 Research Instruments

To investigate the research questions, a survey was developed using Google Forms for data collection purposes. The survey questionnaire was validated. As suggested by Nunnally and Bernstein (1994), factor loadings exceeding the 0.4 threshold indicate construct validity, reflecting the degree to which observed variables accurately represent the underlying constructs they are intended to measure. Concurrently, reliability, assessed through Cronbach's alpha coefficient, should exceed 0.7 across all dimensions, as recommended by Hair et al. (2014), ensuring consistency and stability in the instrument's measurement outcomes.

These parameters collectively contribute to the assurance of the questionnaire's efficacy and credibility in empirical research endeavors, as demonstrated in Table 1.

Table 1. Reported factor loadings for all variables range from approximately 0.686 to 0.902, which suggests that the questionnaire items have good construct validity. This means each item reliably measures the concept it is intended to represent.

Variables	Factor Loadings	Cronbach's Alpha
BNK = "Basic knowledge"	0.752-0.880	0.854
EFF = "Efficiency"	0.686-0.815	0.855
USG = "Usage"	0.735-0.839	0.860
SYR = "System responsiveness"	0.841-0.902	0.849
EXP = "Expectation"	0.824-0.867	0.800

5. Data Analysis

The data were analyzed using quantitative research methods. A statistical software program was used to analyze the data, including frequency (N), sum ($\sum X$), percentage (%), and mean ($\bar{x}$).

6. Findings

The participants in this study consisted of 55 students majoring in Information Technology at a public university in northeastern Thailand. The demographic characteristics of the participants are presented in Table 1. All participants were between 18 and 22 years of age (100%) and were enrolled in bachelor's degree programs (100%). The sample consisted of 51% females and 49% males.

6.1 Fundamental Knowledge of ChatGPT

Fig. 2 presents the foundational knowledge of ChatGPT as reported by the students, categorized under the headings of Foundational Understanding, Comprehension of Operational Mechanisms, Proficiency in Utilization, and Ability to Retrieve Solutions.

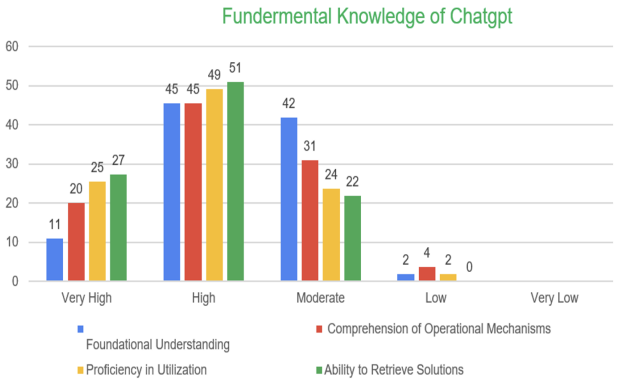


Figure 2. Fundamental Knowledge of ChatGPT.

The survey conducted among ChatGPT users revealed that most respondents possessed a fundamental

understanding of the platform, constituting over 98% (comprising High 45%, Very High 11%, and Moderate 42%). Conversely, only a small fraction, totaling 2%, reported having low knowledge of ChatGPT, indicating minimal familiarity with the platform.

Regarding the comprehension of ChatGPT's operational mechanisms and functionality, a substantial proportion of students, constituting 65% of the sample, demonstrated a profound understanding of this aspect. A considerable number of respondents reported possessing a high to very high level of comprehension concerning how ChatGPT functions. This finding implies that students have effectively grasped the capabilities and practical utility offered by ChatGPT.

In terms of the ability to obtain appropriate responses from ChatGPT, only 4% of students responded with "low" in this category. This indicates that most students have some level of understanding of how to obtain the information they need from ChatGPT, suggesting that users can retrieve solutions effectively. This finding reflects users' growing familiarity with the effective use of ChatGPT commands (Oates and Johnson, 2025).

Additionally, the majority of students (74%) reported that they were highly proficient in using ChatGPT. This finding is similar to those reported by Zou and Huang (2023) and Oates and Johnson (2025), who found that students' perceptions regarding the ease of using ChatGPT were shaped by their prior experiences with the system, suggesting that familiarity and repeated use contributed to the perceived user-friendliness of the technology.

The data indicated that a substantial majority, constituting 78% of the total student sample, expressed confidence in their ability to obtain solutions through the utilization of ChatGPT. The results also showed that no notifications were received indicating an inability to retrieve desired information from ChatGPT.

6.2 Efficiency of ChatGPT

The survey results in Fig. 3 underscored ChatGPT's value as a tool for students, demonstrating its substantial support in completing assignments, enhancing usability, fostering innovation, and improving both the speed and quality of academic work.

Specifically, 55% of students reported that ChatGPT effectively assisted them in completing their assignments, highlighting its practical utility in academic tasks. Furthermore, 51% of students found ChatGPT easy to use, indicating that its user-friendly interface significantly contributes to its accessibility and overall positive user experience.

The innovative features of ChatGPT were appreciated by 49% of the students, suggesting that it not only meets current academic needs but also introduces novel approaches to learning and problem-solving. Additionally, 45% of students acknowledged that ChatGPT supported the completion of their academic tasks, reaffirming its role as a reliable academic aid.

Lastly, 44% of students noted that ChatGPT both provided the necessary information and expedited their work, demonstrating its dual capability in enhancing research efficiency and productivity. These findings collectively highlighted ChatGPT's multifaceted benefits in an academic setting.

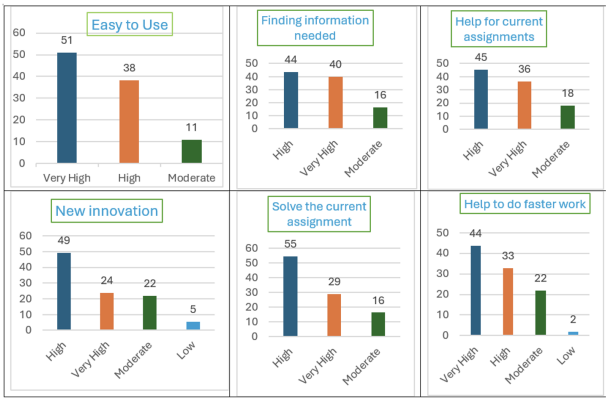


Figure 3. Efficiency of ChatGPT.

Figure 4 illustrates the satisfaction levels regarding the usability of ChatGPT. The results indicated that an overwhelming 90% of students found ChatGPT challenging to use. This difficulty may stem from the need for students to learn its functionalities independently due to a lack of foundational knowledge provided prior to using the tool.

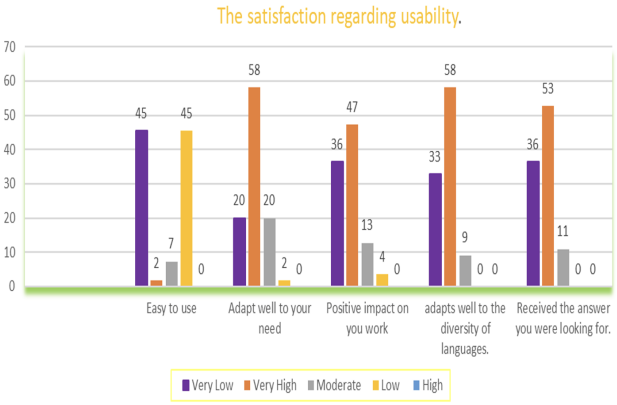


Figure 4. The satisfaction Regarding Usability.

These findings are consistent with those reported by (Gulatee et al., 2018; Gulatee and Combes, 2018b), which found that young people, often labeled as digital natives, still encounter difficulties in environments where technology permeates various aspects of daily life, including common settings such as grocery store self-service stations. This suggests a need for more structured educational support to improve technology usability and user satisfaction.

Only 58% of the participants found that ChatGPT provided satisfactory results that met their needs and supported the diversity of languages they used. Additionally, 53% reported receiving the answers they were seeking. However, less than half of the participants felt that the answers provided by ChatGPT had a positive impact on their work.

Overall, the graph suggests that while users were generally satisfied with ChatGPT's ability to accommodate language diversity and meet their needs, there are areas, such as ease of use and impact on work, where opportunities for improvement remain. Addressing these aspects may further enhance user satisfaction.

Fig. 5 underscores the importance of facilitating a comparative analysis between user expectations and actual product performance, particularly in fields such as product design and user experience research, where understanding this relationship is crucial.



Figure 5. Level of Satisfaction with Expectation.

The results revealed that participants rated the usability of ChatGPT as very high and high (82%), indicating alignment with user expectations. This positive user experience suggests that the platform generally meets or exceeds user expectations in terms of ease of use.

Moreover, 78% of participants expressed very high and high levels of satisfaction with the functionality's capability, closely aligning with their expectations. This indicates that users perceive ChatGPT as effective and dependable in performing its intended tasks, thereby meeting their expectations regarding its performance and functionality.

Furthermore, a majority of participants (67%) perceived ChatGPT as trustworthy. Trust is a critical factor in the acceptance and adoption of technology, and this high level of trust suggests that users have confidence in ChatGPT's ability to deliver accurate and reliable responses.

Overall, the analysis indicates that ChatGPT has succeeded in meeting user expectations regarding usability, functionality, and trustworthiness.

Fig. 6 shows the results of the open-ended question responses. The findings revealed several key themes regarding students' expectations and suggestions for improving ChatGPT.

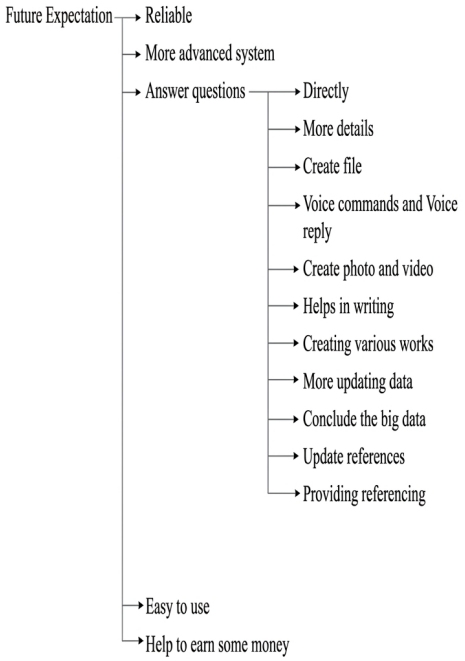


Figure 6. Future Expectations.

Firstly, reliability emerged as a recurring theme, with students expressing the need for the platform to be more dependable in its performance. This suggests that users prioritize consistency and accuracy in the responses provided by ChatGPT.

Secondly, students highlighted the importance of advancing the system, indicating a desire for additional features and functionalities that could enhance their overall experience. This reflects a desire for continuous innovation and improvement in the platform's capabilities to better meet user needs.

Furthermore, ease of use emerged as a significant concern, with students expressing a desire for ChatGPT to be more user-friendly. This underscores the importance of intuitive design and accessibility in ensuring a positive user experience.

The findings of this study align with previous research showing generally positive student perceptions of ChatGPT in education. Similar to the findings reported by (Uppal and Hajian, 2025; Song and Song, 2023), most participants valued ChatGPT's usefulness for information retrieval and understanding complex content, with 82% reporting positive experiences and 78% rating it as highly effective. Concerns regarding information accuracy, noted by 25% of students, are consistent with the findings of (Dwivedi et al., 2023), who highlighted the risks associated with AI-generated misinformation. The finding that 65% of students felt ChatGPT exceeded their expectations may be explained by users' positive perceptions of AI performance and usefulness, which have been identified as important factors influencing AI adoption (Su et al., 2025).

Additionally, students expressed an interest in fea-

tures that could potentially help them generate income, suggesting a desire for practical utility and value creation from their interactions with ChatGPT. In terms of the platform's response capabilities, students expected direct and detailed answers to their queries, indicating a preference for comprehensive and informative responses. Moreover, students suggested various additional features, such as file creation, voice commands and responses, image and video generation, assistance with writing and content creation, data updates, and referencing capabilities.

7. Results and Discussion

In conclusion, the survey conducted among ChatGPT users indicated that most respondents possessed a fundamental understanding of the platform, with over 98% demonstrating at least a moderate level of knowledge. Conversely, only a small fraction of respondents reported minimal familiarity with or low knowledge of ChatGPT.

Regarding the comprehension of ChatGPT's operational mechanisms, a significant proportion of students demonstrated a profound understanding, with 65% indicating a high to very high level of comprehension. These results indicate a high level of user familiarity with ChatGPT's core functionalities, consistent with previous findings reported by Zou and Huang (2023).

Moreover, the data indicated that many students were highly proficient in using ChatGPT, with 74% expressing confidence in their abilities. These findings align with previous research by Zou and Huang (2023), which suggested that students' perceptions of ChatGPT's ease of use were influenced by their prior experiences with the system, indicating that familiarity and repeated use contribute to its perceived user-friendliness.

Furthermore, the study revealed that a substantial majority of students (78%) expressed confidence in their ability to retrieve solutions through the utilization of ChatGPT. Importantly, no notifications were received indicating an inability to retrieve desired information from ChatGPT, underscoring its overall effectiveness in providing solutions. Overall, these results reflect the considerable success of ChatGPT, highlighting users' knowledge and proficiency in utilizing the platform effectively for various tasks.

Fig. 4 presents a nuanced perspective on user satisfaction with the usability of the service across different categories. While users expressed dissatisfaction with the ease of use, indicating potential navigational challenges, there was moderate acknowledgment of the service's positive impact on work, albeit with room for improvement. Conversely, users reported high satisfaction levels with the service's ability to provide desired answers, suggesting a positive experience with information retrieval. Notably, the highest satisfaction was observed in the category of language diversity adaptation, underscoring the service's effectiveness in meeting diverse user needs.

8. Conclusion

The findings suggest that a significant majority of students possess a solid understanding of ChatGPT, with over 98% demonstrating at least a moderate level of knowledge. Moreover, 65% of respondents exhibited a high to very high level of comprehension regarding the operational mechanisms of ChatGPT, indicating a thorough grasp of its capabilities and practical applications. Additionally, 74% expressed confidence in their ability to effectively utilize ChatGPT for various tasks.

These results align with existing research, emphasizing the role of familiarity and repeated use in enhancing user proficiency and perceived ease of use. Furthermore, the analysis explored user perceptions of ChatGPT's usability across various dimensions. While initial feedback revealed areas for improvement in ease of navigation, there was notable acknowledgment of its positive influence on work efficiency. Particularly high satisfaction rates in information retrieval highlighted ChatGPT's effectiveness in meeting user expectations in crucial areas.

In conclusion, these insights provide a comprehensive view of ChatGPT's acceptance and effectiveness among students. They inform ongoing efforts to optimize its usability and functionality, ensuring alignment with evolving user expectations and preferences (Wang et al., 2024). Ultimately, ChatGPT's widespread adoption underscores its transformative potential in academic settings, promising continued relevance and application across diverse educational domains (Zou and Huang, 2023).

These findings indicate that while ChatGPT can effectively support learning, its integration into educational contexts necessitates the development of AI literacy and critical evaluation skills among students. Educators should actively guide learners in the responsible and ethical use of AI to mitigate the risk of overreliance and maintain academic integrity. Furthermore, institutions should establish comprehensive policies that support the integration of AI technologies in higher education, with particular attention to accuracy, fairness, and adherence to ethical standards.

CRediT Authorship Contribution Statement

Yuwanuch Gulatee: Conceptualization, Methodology, Writing – original draft. **Api Khamproh**: Conceptualization, Methodology, Validation, Investigation, Data curation, Formal analysis. **Phumin Hongma**: Investigation, Validation, Formal analysis. **Rawiworn Hongma**: Investigation, Validation, Formal analysis. **Wantipa**

Unarat: Conceptualization, Methodology, Visualization, Writing – review & editing.

Declaration of Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of AI Use

This manuscript includes content generated or assisted by artificial intelligence (AI) tools. Specifically, ChatGPT by OpenAI, were used to support tasks such as language editing, data analysis, figure generation, literature summarization, or coding assistance. All AI-generated content was critically reviewed and verified by the authors to ensure accuracy, originality, and compliance with ethical standards.

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