



Adopting ChatGPT for Academic Assistance among University Students: A Pilot Study

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ABSTRACT

The integration of artificial intelligence tools in higher education has gained significant attention, particularly in supporting students' academic activities. This pilot study examines the factors influencing the adoption of ChatGPT as an academic assistance tool among university students. Guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) model, the study focuses on four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. A quantitative research design was employed using a structured survey instrument to collect data from 100 undergraduate students from various faculties at Universiti Teknikal Malaysia Melaka. Participants were selected using a simple random sampling method to ensure that every participant had an equal chance of being selected. The findings aim to identify the significant determinants that influence students' behavioral intention to adopt ChatGPT in their learning processes. The results indicate that the Cronbach's alpha values for most of the constructs are above 0.8 and 0.9, which indicate high to very high internal consistency reliability. As a pilot study, the results provide preliminary empirical evidence on technology acceptance in the context of AI-powered learning tools and offer insights for educators, institutions, and policymakers seeking to integrate artificial intelligence technologies effectively into higher education environments.

Keyword: Behavioral Intention, ChatGPT, Higher Education, Technology Adoption, UTAUT Model.

INTRODUCTION

Over the past two decades, teaching and learning method have been dynamically transformed by the emerging technology. The millennium transition in early 2000s marked a turning point of the evolvement era of education where individuals increasingly known as digital generation as they grew up alongside technology and effortlessly adopt digital tools into their daily lives (Haleem, 2022). This evolution has spurred institutions to innovate the traditional pedagogical approaches and adopt flexibility in technology-based approaches to learning. Stecula & Wolniak (2022) argue that early developments in learning technology, including e-learning platforms, Web 2.0 and online collaboration platforms have opened up a variety of new opportunities for students. These opportunities include the ability to access information more easily, interact actively with peers and participate proactively in the learning process. In addition, these developments have also allowed learning to become more interactive and collaborative, in line with the support provided by Li (2025). This innovation is also in line with

the idea of connectivism which emphasizes the importance of students building learning networks, navigating diverse information sources and taking greater responsibility for their own learning (Mayer, 2025).

Recent study done by Adewale et al., (2024) have also proven that today's students increasingly expect learning settings that are technology-rich, interactive and capable of sustaining ongoing engagement. Therefore, technology is no longer just a support tool but has become an important part of shaping the way students learn and interact in academic contexts. In line with the evolution of educational technology, Kasneci et al. (2023) and Adamakis & Rachiotis (2025) have found that recent breakthroughs in the field of artificial intelligence (AI), notably generative technology, have started a new phase in the transformation of learning in higher education institutions. In contrast to prior technologies that focused more on information access and communication, new AI systems such as ChatGPT offer a higher level of personalization and interactivity through their capacity to communicate in the form of natural dialogue. ChatGPT may assist students learn in various ways, like breaking down complex topics, helping them solve issues, creating essays and coming up with techniques to study for tests. This feature makes ChatGPT a powerful learning tool, especially for students who have to multi assignments or homework.

In the context of higher education, easy and efficient accessible academic support plays a significant role in boosting student learning effectiveness. However, constraints such as limited lecturer consultation opportunities, difficulty understanding complex course content and insufficient feedback often hinder learning progress. In this situation, ChatGPT is able to fill these gaps by providing immediate assistance that can be tailored to the student's level of understanding and learning speed (Schmidt et al., 2025). The use of this technology not only has the potential to improve academic understanding but also supports self-directed learning, increases confidence and encourages active engagement in learning tasks.

Despite the increasing use of ChatGPT among university students, empirical studies done by Jin et al., (2025) evaluated the elements influencing the adoption and concluded the application of this technology are still limited. Most existing studies focus on aspects of general perception, user attitudes or ethical issues, while studies that specifically assess the determinants that influence students' decisions to integrate ChatGPT into their academic routines have received little attention. Therefore, the use of sound theoretical models is needed to understand the mechanisms influencing the acceptance of this generative technology in the context of higher education.

In this regard, this study uses the Unified Theory of Acceptance and Use of Technology (UTAUT) as a theoretical framework to assess the factors that influence the acceptance of ChatGPT as a learning support tool among university students (Venkatesh et al., 2003). This model emphasizes four main constructs including performance expectancy, effort expectancy, social influence and facilitating conditions which have the potential to influence the intention and behavior of using technology. Therefore, this study intends to explore the extent to which these characteristics influence the acceptability and use of ChatGPT among university students for academic reasons. The conclusions of this study are to contribute to a deeper knowledge of the integration of generative AI in higher education and offer the institutions to build plans for employing technology more effectively and responsibly.

LITERATURE REVIEW

UTAUT in Higher Education

Drawing from a comprehensive literature review on technology adoption in educational settings, this study investigates the factors influencing the adoption of ChatGPT as a learning support tool among university students using the Unified Theory of Acceptance and Use of Technology (UTAUT) model developed by Venkatesh et al., (2003). The UTAUT model consists of four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. In this study, these constructs are treated as independent variables (IVs) that are hypothesized to influence the dependent variable (DV), namely the adoption of ChatGPT. The model has been widely applied in studies examining the adoption of digital technologies in higher education due to its strong explanatory power in predicting users' behavioral intentions and technology usage. As artificial intelligence tools become increasingly integrated into academic environments, the UTAUT framework provides a relevant theoretical basis for understanding students' acceptance of tools such as ChatGPT. The relationships among these variables are illustrated in Figure 1.

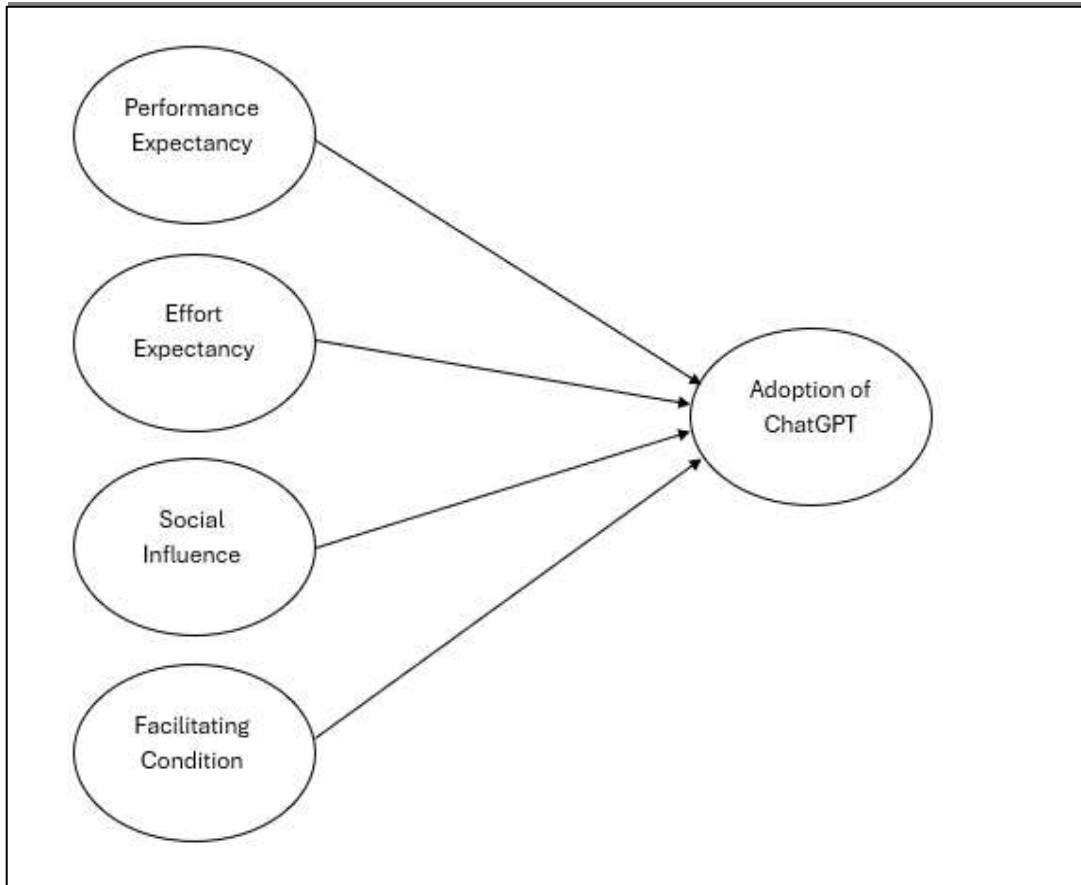


Figure 1. Conceptual Framework

Performance Expectancy

Performance expectancy refers to the extent to which individuals believe that using a particular technology will enhance their performance (Elshaer et al., 2024). In the context of higher education, students are more likely to adopt ChatGPT when they perceive that the tool can improve their academic productivity and learning outcomes. Research indicates that students often use ChatGPT to obtain explanations, generate ideas, and receive feedback on academic tasks, which may contribute to improved understanding and efficiency in completing coursework (Wang et al., 2024). Empirical studies conducted across different higher education systems have consistently identified performance expectancy as a key predictor of students' intention to adopt AI-based learning tools (Budhathoki et al., 2024; Abdallah et al., 2025). When students perceive that ChatGPT can support learning processes such as information searching, content drafting, and concept clarification, their likelihood of using the tool increases (Kaya & Adıgüzel, 2025). Despite variations across disciplines and learning contexts, the literature generally supports a positive relationship between perceived usefulness and technology adoption in educational environments (Elshaer et al., 2024). The hypothesis is as follows:

H1: Performance expectancy has a significant and positive effect on adoption of ChatGPT.

Effort Expectancy

Effort expectancy refers to the degree of ease associated with using a particular technology (Menon & Shilpa, 2023). Technologies that are perceived as simple and user-friendly are more likely to be accepted by users. ChatGPT's conversational interface allows students to interact with the system using natural language, reducing the complexity typically associated with learning new digital tools (Aslam & Nisar, 2023). Previous studies have shown that when students perceive AI tools as easy to use, their intention to adopt such technologies for academic purposes increases (Almogren et al., 2024). Instructional support, including tutorials, examples, and guidance on effective prompting techniques, can further enhance students' perceptions of ease of use and encourage integration into academic tasks (Al-Kfairy, 2024). However, some studies suggest that when students already perceive a technology as extremely easy to use, the statistical influence of effort expectancy may become less pronounced, although it still contributes to positive adoption attitudes (Menon & Shilpa, 2023). Overall, existing

literature indicates that ease of use remains an important factor influencing students' acceptance of AI-supported learning tools. Therefore, the following hypothesis is proposed:

H2: Effort expectancy has a significant and positive effect on adoption of ChatGPT.

Social Influence

Social influence refers to the extent to which individuals perceive that important others believe they should use a particular technology (Faraon et al., 2025). In higher education, students' technology adoption decisions are often influenced by lecturers, peers, and institutional culture. When instructors encourage the responsible use of AI tools or incorporate them into learning activities, students are more likely to view the technology as legitimate and useful for academic purposes (Barakat et al., 2025; Namatovu & Kyambade, 2025). Peer influence also plays a role in shaping technology adoption. Students frequently exchange information about effective prompts, strategies, and academic uses of ChatGPT within their learning communities, which can reinforce positive perceptions of the tool (Biloš & Budimir, 2024; Shahzad et al., 2024). Conversely, unclear institutional policies or discouraging attitudes toward AI usage may reduce students' willingness to adopt such technologies (Stone, 2024; Jiang et al., 2025). Overall, the literature suggests that positive encouragement from instructors, peers, and academic institutions can significantly influence students' willingness to adopt ChatGPT as a learning tool. Therefore, the following hypothesis is proposed:

H3: Social influence has a significant and positive effect on adoption of ChatGPT.

Facilitating Conditions

Facilitating conditions refer to the degree to which individuals believe that the necessary resources and support are available to use a technology effectively (Faraon et al., 2025). In the context of higher education, facilitating conditions include access to digital devices, stable internet connectivity, technical support, and institutional guidance regarding the appropriate use of AI tools. Research has shown that when students perceive sufficient technical and institutional support, they are more likely to adopt digital learning technologies (Simatupang et al., 2025). Clear guidelines on ethical AI usage, along with institutional initiatives such as workshops or training sessions, can further encourage students to integrate tools like ChatGPT into their learning activities (Aruleba et al., 2023; Woo et al., 2024; Archambault et al., 2025). However, in environments where students already have adequate technological resources and digital literacy, facilitating conditions may exert a weaker influence on adoption decisions (Strzelecki, 2023; Foroughi et al., 2024). Nevertheless, supportive technological and institutional infrastructures remain important factors that enable effective technology usage in higher education. Therefore, the following hypothesis is proposed:

H4: Facilitating condition has a significant and positive effect on adoption of ChatGPT.

METHODOLOGY

This study employed a quantitative research design using a structured survey to investigate the factors influencing the adoption of ChatGPT as a learning support tool among university students. The Unified Theory of Acceptance and Use of Technology (UTAUT) model served as the theoretical framework, focusing on constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Quantitative methods were chosen for their effectiveness in objectively measuring relationships between variables and providing empirical support for theory-driven research in educational technology (Barroga & Matanguihan, 2022). The sample comprised 100 undergraduate students from various faculties at Universiti Teknikal Malaysia Melaka. A sample of 100 participants is sufficiently large to identify potential issues in the questionnaire, such as ambiguous wording, unclear instructions, or technical problems. It also allows the researcher to conduct preliminary statistical analyses, including reliability testing (e.g., Cronbach's alpha) and initial descriptive statistics, which help determine whether the measurement items are consistent and appropriate for the main study. In fact, a study done by Whitehead et al., (2016) indicates that the minimum sample size for a pilot test of a large-scale survey is 40. However, Hair et al., (2018) state that the majority of research scenarios call for at least 50 samples and, in most cases, 100 samples (Memon et al., 2020). Hence, 100 samples are sufficient enough for pilot study.

Furthermore, participants were selected using simple random sampling from the list of students who had prior experience or exposure to ChatGPT for academic or learning purposes. Simple random sampling was chosen to ensure that every eligible student had an equal chance of being selected. This method helps to reduce selection bias and enhances the representativeness of the sample (Hasim et al., 2022). By randomly selecting participants from the identified population of ChatGPT users, the researcher ensures that the findings can be generalized more confidently to the broader group of students with prior experience using ChatGPT for academic or learning purposes. Data were collected using a structured questionnaire adapted from established UTAUT measurement scales. Consequently, multiple regression analysis was employed in this study to examine the relationships between the independent variables (Hasim et al., 2019). Regression analysis is particularly suitable because it allows researchers to determine the strength, direction, and significance of the effects of multiple predictors on a single outcome simultaneously. In the context of UTAUT, adoption behavior is influenced by several interrelated factors, and regression enables the identification of which constructs have the strongest predictive power while controlling for the influence of the others. Finally, all items were measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The questionnaire items were adapted from Dwivedi et al., (2023) and modified to fit the context of AI-based learning tools, while preserving consistency with the original UTAUT constructs, as demonstrated in Table 1.

Table 1: Questionnaire Items

Items	Question
Performance Expectancy (PE)	
PE1	I believe that using ChatGPT improves my productivity during study.
PE2	I believe that ChatGPT helps me complete academic tasks more quickly.
PE3	I believe that ChatGPT enhances my understanding of course materials.
PE4	I believe that ChatGPT increases my productivity in completing assignments.
PE5	I believe that using ChatGPT improves the quality of my academic work.
Effort Expectancy (EE)	
EE1	I believe that learning to use ChatGPT is easy for me.
EE2	I believe that ChatGPT is easy to use for academic purposes.
EE3	I believe that it is easy for me to become skillful at using ChatGPT.
EE4	I believe that I can quickly obtain the information I need from ChatGPT.
EE5	I believe that interacting with ChatGPT is understandable.
Social Influence (SI)	
SI1	I believe that my classmates encourage me to use ChatGPT for academic work.
SI2	I believe that my lecturers support the use of ChatGPT as a learning tool.
SI3	I believe that people who influence my academic behavior think I should use ChatGPT.
SI4	I believe that using ChatGPT is considered acceptable among my peers.
SI5	I believe that the university environment promotes the use of AI tools like ChatGPT.
Facilitating Conditions (FC)	
FC1	I believe that I have reliable internet access to use ChatGPT.

FC2	I believe that I have the knowledge necessary to use ChatGPT effectively.
FC3	I believe that technical support is available when I face difficulties using ChatGPT.
FC4	I believe that the university provides sufficient guidance regarding AI tool usage.
FC5	I believe that I can easily access ChatGPT whenever I need it for academic purposes.
Adoption of ChatGPT (AD)	
AD1	I believe that adopting ChatGPT will help me complete my assignments more quickly.
AD2	I believe that adopting ChatGPT will make my learning process more efficient.
AD3	I believe that adopting ChatGPT will positively influence my academic success.
AD4	I believe that adopting ChatGPT will strengthen my independent learning ability.
AD5	I believe that adopting ChatGPT will improve the quality of my works

RESULT

A pilot test was conducted to ensure clarity, reliability, and internal consistency of the measurement items. The collected data were analyzed using statistical software. Descriptive statistics were used to summarize demographic information and reliability analysis (Cronbach’s alpha) between the UTAUT constructs and behavioral intention to adopt ChatGPT. The reliability analysis was performed to determine the alpha coefficients for each construct and the internal consistency of each item (Cronbach, 1951). In this study, most of the alpha coefficients of the constructs ranged from 0.847 to 0.926. All the constructs achieved scores of at least 0.7, which means that Cronbach's alpha values for all constructs indicate high to very high internal consistency reliability. It ought to be indicated that an instrument's validity is closely related to its reliability, an instrument cannot be valid unless it is reliable. Furthermore, Hasim et al., (2019) asserts that a reliability of greater than 0.70 is perfectly adequate. In other words, the greater the difference between Cronbach's alpha value and 1.0, the higher the degree of reliability. Based on the Cronbach’s alpha coefficient value, the questionnaire was deemed acceptable and reliable to use, as specified by Hasim (2023), indicating that acceptable coefficient alpha values must be greater than 0.7, as illustrated in Table 2. As a pilot study, the primary objective of the analysis was to assess the feasibility of the research model and to identify preliminary trends that may inform future large-scale studies. Although the findings from a pilot study are not intended for broad generalization due to the limited sample size, they provide valuable insights that guide refinement of the instrument, improvement of the research model, and adjustment of methodological procedures before conducting a full-scale study. Therefore, the pilot study plays a crucial role in enhancing the validity, reliability, and overall robustness of the subsequent main research.

Table 2: Reliability Result

No	Construct	Number of Items	Cronbach’s Alpha
1	Performance Expectancy (PE)	5	0.926
2	Effort Expectancy (EE)	5	0.906
3	Social Influence (SI)	5	0.918
4	Facilitating Condition (FC)	5	0.879
5	Adoption of ChatGPT (AD)	5	0.847

Furthermore, the multiple regression analysis was conducted to examine the influence of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Condition (FC) on the Adoption of ChatGPT (AD) among students, as demonstrated in Table 3.

Table 3: Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.590	0.137		4.315	0.000
Performance Expectancy (PE)	0.738	0.052	0.820	14.295	0.000
Effort Expectancy (EE)	0.017	0.054	0.018	.312	0.756
Social Influence (SI)	0.089	0.039	0.107	2.278	0.025
Facilitating Condition (FC)	0.053	0.047	0.055	1.112	0.269

Dependent Variable: Adoption of ChatGPT (AD)

The results indicate that Performance Expectancy (PE) has a significant positive effect on the adoption of ChatGPT ($\beta = 0.820$, $t = 14.295$, $p < 0.001$). This shows that students are more likely to adopt ChatGPT when they believe that the technology can enhance their academic performance. Similarly, Social Influence (SI) also demonstrates a significant positive relationship with the adoption of ChatGPT ($\beta = 0.107$, $t = 2.278$, $p = 0.025$). This suggests that encouragement or influence from peers, lecturers, or others may affect students' decisions to use ChatGPT.

However, it also found that Effort Expectancy (EE) and Facilitating Condition (FC) did not significantly influence students' adoption of ChatGPT. Effort Expectancy, which reflects the perceived ease of use of the technology, was not a significant predictor ($\beta = 0.018$, $p = 0.756$). This finding suggests that students may already perceive ChatGPT as intuitively easy to use, a factor common among university students who are generally proficient with digital technologies. Consequently, the ease of using the platform does not substantially differentiate between users and non-users. Similarly, Facilitating Condition, which measures the extent to which students perceive the availability of resources and support for technology use, was also non-significant ($\beta =$

0.055 , $p = 0.269$). This may be attributed to the ubiquitous access to the internet and personal digital devices, allowing students to utilize ChatGPT independently of formal institutional support. Moreover, the practical utility of ChatGPT in academic tasks (Performance Expectancy) appears to outweigh considerations of effort or resource availability, emphasizing that perceived usefulness and social influence are more salient determinants of adoption in this context. Overall, these results align with previous research indicating that for tech-savvy student populations, the perceived ease of use and institutional facilitation may be less influential than the technology's functional benefits and peer influence in shaping adoption behavior.

CONCLUSION

In conclusion, this pilot study provides meaningful preliminary evidence on the factors influencing university students' adoption of ChatGPT as an academic support tool within the framework of the Unified Theory of Acceptance and Use of Technology (UTAUT). The measurement instrument demonstrated high to very high internal consistency reliability, with Cronbach's alpha values exceeding the recommended threshold of 0.70 for all constructs, indicating that the adapted items for performance expectancy, effort expectancy, social influence, facilitating conditions, and adoption are stable, consistent, and suitable for assessing technology acceptance in the context of AI-powered learning tools. The regression analysis revealed that Performance Expectancy (PE) was the strongest predictor of ChatGPT adoption, suggesting that students are more likely to integrate the tool into their academic routines when they perceive it as enhancing productivity, comprehension, and independent learning. Social Influence (SI) also had a significant positive effect, highlighting the role of peers and lecturers in encouraging adoption. Conversely, Effort Expectancy (EE) and Facilitating Condition (FC) were not significant predictors, indicating that the perceived ease of use and availability of supporting resources may be less critical for technology adoption among digitally proficient students. These findings reinforce the relevance of UTAUT in explaining emerging technology adoption in higher education while demonstrating that certain constructs may exert stronger influence depending on students' familiarity with technology and the inherent accessibility of AI tools like ChatGPT. Although the pilot nature of the study and the relatively small sample size limit broad generalization, the research successfully achieves its primary objective of assessing the feasibility of

the proposed model and identifying preliminary trends. The insights gained provide a valuable foundation for refining the research framework, improving measurement items where necessary, and strengthening methodological procedures prior to conducting a full-scale investigation. Overall, this study contributes to the growing body of literature on AI adoption in higher education and offers practical implications for universities, educators, and policymakers seeking to strategically and ethically integrate generative AI technologies into teaching and learning environments, particularly by emphasizing tools' perceived usefulness and leveraging social support mechanisms to enhance adoption.

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