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A DESCRIPTIVE ANALYSIS OF UNDERGRADUATE STUDENTS' CONTINUANCE INTENTION TOWARD CHATGPT USE IN MALAYSIAN HIGHER EDUCATION

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ABSTRACT

The increasing adoption of generative artificial intelligence tools such as ChatGPT has transformed learning practices in higher education, raising questions about students' intentions to continue using these technologies beyond initial adoption. This study examines undergraduate students' continuance intention toward the use of ChatGPT in Malaysian higher education, guided by the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). A quantitative survey was administered to undergraduate students who had prior experience using ChatGPT for academic purposes. Data were analysed using descriptive statistics, including mean scores and standard deviations, to examine students' perceptions of key UTAUT2 constructs. The findings indicate generally positive perceptions of ChatGPT, particularly in relation to performance expectancy, effort expectancy, and facilitating conditions, suggesting favourable conditions for continued intention to use the tool in academic contexts. However, variations were observed across constructs, highlighting differing levels of perceived usefulness, enjoyment, and habitual use among students. As the analysis is descriptive in nature, no causal relationships or predictive effects are inferred. This study contributes to the literature by providing contextual, theory-informed insights into students' continuance intention toward generative AI tools within Malaysian higher education. The findings offer baseline evidence that can inform educators and institutions in understanding students' perceptions of ChatGPT use, while also laying the groundwork for future studies employing inferential or longitudinal approaches to examine continuance behaviour more comprehensively.

Keywords: Continuance Intention, ChatGPT, UTAUT2, Generative Artificial Intelligence, Higher Education

INTRODUCTION

The rapid advancement of artificial intelligence (AI) has significantly transformed various sectors, including education. Among emerging AI-driven tools, ChatGPT, a generative AI model developed by OpenAI, has gained widespread adoption among students for academic and research purposes (Dwivedi et al., 2023). The tool provides an interactive platform for information retrieval, content generation, and personalised learning support, which may enhance students' engagement and productivity. As the use of ChatGPT becomes increasingly common in higher education, understanding how students perceive its role in supporting academic activities has become an important area of inquiry.

Existing research on AI adoption in education has predominantly focused on initial acceptance rather than longer-term usage or post-adoption intentions (Zou & Huang, 2023). While prior studies have examined user perceptions and short-term benefits of AI-driven tools (Labadze et al., 2023), limited attention has been given to how behavioural and technological factors are perceived in relation to sustained engagement with generative AI applications such as ChatGPT. This gap is notable, as continued engagement with educational technologies has been associated with improvements in learning efficiency, critical thinking, and self-directed learning practices (Marquardson, 2024; Yamin & Ishak, 2015).

Despite the growing traction of ChatGPT among students, empirical evidence examining its use within the Malaysian higher education context remains limited. Prior studies suggest that perceptions related to usefulness, ease of use, and social encouragement from peers and instructors are commonly associated with continued technology use (Almogren et al., 2024). However, how these perceptions are reflected among Malaysian undergraduate students in relation to ChatGPT use has not been sufficiently documented. This lack of contextual evidence presents challenges for institutions seeking to make informed decisions about the integration of generative AI tools into teaching and learning practices.

Accordingly, this study aims to examine undergraduate students' continuance intention toward ChatGPT use in Malaysian higher education using the Unified Theory of Acceptance and Use of Technology (UTAUT) as a guiding framework. The study focuses on students' perceptions of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, and habit in relation to their intention to continue using ChatGPT. In addition, selected demographic characteristics, including age, university affiliation, and field of study, are considered descriptively to provide contextual insights. By adopting a descriptive quantitative approach, this study contributes baseline, theory-informed evidence to the literature on AI adoption in education and offers practical insights for higher education institutions seeking to better understand students' engagement with generative AI tools.

LITERATURE REVIEW

The integration of artificial intelligence (AI) into higher education has expanded rapidly, driven by the potential of digital technologies to enhance learning, teaching, and academic support processes. AI-based tools have been reported to support personalised learning, automate administrative tasks, and facilitate research-related activities, thereby improving overall educational efficiency (Al-kfairy, 2024). As the use of AI becomes more prevalent in academic environments, attention has increasingly shifted from initial adoption toward understanding how users perceive and engage with these technologies over time. Sustained engagement with AI tools is particularly important in higher education, where continued use determines their long-term educational value.

Generative AI represents a recent and influential development within the broader AI landscape. Tools such as ChatGPT have introduced new possibilities for interactive learning by enabling content generation, real-time feedback, and personalised academic assistance. However, the effective use of generative AI in education depends not only on technical capability but also on students' perceptions of its usefulness, ease of use, and the surrounding social and institutional environment. Prior research suggests that users' acceptance and continued engagement with educational technologies are commonly associated with perceived usefulness, effort expectancy, and social influence (Venkatesh et al., 2012), indicating the relevance of established technology acceptance frameworks for examining generative AI use.

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) provides a comprehensive theoretical lens for understanding users' perceptions of technology use beyond initial adoption. By extending the original UTAUT model to include constructs such as hedonic motivation and habit, UTAUT2 captures both utilitarian and experiential aspects of technology engagement (Venkatesh et al., 2012). These constructs are particularly relevant in voluntary usage contexts such as students' engagement with AI-based tools, where enjoyment, routine formation, and perceived support may shape intentions toward continued use. As such, UTAUT2 is well suited for examining students' continuance intention toward generative AI applications like ChatGPT.

Empirical studies applying the UTAUT2 framework in higher education contexts have reported that performance expectancy and facilitating conditions are commonly associated with students' and educators' intentions to adopt AI tools (Nawaz et al., 2024; Xu et al., 2024; Sergeeva et al., 2025). These findings suggest that perceptions of academic usefulness and institutional support remain central to technology acceptance in educational settings. At the same time, other studies have highlighted the role of effort expectancy in shaping students' engagement with AI tools, with evidence indicating that perceived ease of use may encourage knowledge-sharing behaviours that support continued engagement (Arbulú Ballesteros et al., 2024). Together, these findings illustrate how multiple UTAUT2 constructs interact to shape students' perceptions of AI usage, although the strength and relevance of these relationships may vary across contexts.

Within the domain of generative AI, ChatGPT has attracted growing research attention due to its widespread student use for writing support, problem solving, and academic exploration. Studies examining students' acceptance of ChatGPT have identified perceived usefulness, ease of use, and attitudes as important perceptual factors associated with its adoption (Lawaju et al., 2024). However, concerns related to academic integrity, including issues of plagiarism, authenticity of student work, and data privacy, have also been raised in the literature (Huang, 2023). These concerns highlight potential tensions between the perceived benefits of generative AI tools and the ethical challenges surrounding their use in educational contexts.

Research conducted within the Malaysian higher education context reflects similar patterns observed in international studies, while also emphasising the importance of institutional policies and ethical guidelines to support responsible AI use. Prior studies have highlighted both opportunities and challenges associated with the integration of ChatGPT into tertiary education in Malaysia, underscoring the need for contextualised understanding of students' perceptions and experiences (Selvanathan & Narayanan, 2024). Rather than representing an isolated case, the Malaysian context provides an extension of existing research by offering insight into how generative AI is perceived within a diverse and evolving higher education system.

Overall, previous studies confirm that AI and generative AI tools such as ChatGPT have high potential for enhancing higher education. However, students' continuance intention toward their use is shaped by a combination of functional, experiential, and contextual factors. The UTAUT2 framework offers a structured approach for examining these perceptions. Moreover, empirical evidence on students' continuance intention toward ChatGPT, particularly in the Malaysian higher education context, is still limited.

METHODOLOGY

Research Design

This study adopts a quantitative, descriptive research design to examine undergraduate students' perceptions and continuance intention toward ChatGPT use in Malaysian higher education. The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) serve as the guiding theoretical framework, incorporating key constructs including performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, and behavioural intention (Venkatesh et al., 2012). These constructs are used to structure the measurement of students' perceptions rather than to test predictive or causal relationships.

A structured survey approach was employed to collect data. The questionnaire was designed to capture students' perceptions of ChatGPT's usefulness, ease of use, and intention to continue using the tool for academic purposes. Survey items were adapted from prior UTAUT2-based studies to ensure conceptual consistency with established technology acceptance research (Venkatesh et al., 2012). Data were analysed using the Statistical Package for the Social Sciences (SPSS), with emphasis placed on descriptive statistical analysis in line with the study objectives.

Data Collection and Sampling

The target population comprised undergraduate students enrolled in public and private universities in Malaysia. A convenience sampling technique was employed to facilitate access to a diverse group of respondents across multiple academic disciplines. This approach is commonly used in educational research when broad participation is required and when probability sampling is constrained by access and resource limitations (Etikan et al., 2016).

Data were collected using an online questionnaire distributed via Google Forms, which offers accessibility, ease of distribution, and secure data handling (Mohd Arifin, 2018). Participation was voluntary, and respondents were informed of the study's objectives before providing consent. Demographic information, including age, university affiliation, and field of study, was collected to provide contextual insights into the respondent profile.

The convenience sampling may limit the representativeness of the sample and introduce potential selection bias. Thus, the findings of this study are interpreted as contextual and exploratory, reflecting the perceptions of the participating students rather than the broader population of Malaysian undergraduates.

Instrument Development

The survey instrument was developed based on the UTAUT2 framework, with measurement items adapted from established studies to ensure theoretical alignment and construct validity (Venkatesh et al., 2012).

The questionnaire included items measuring performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, and behavioural intention. Each construct was operationalised using multiple items to capture students' perceptions of ChatGPT use in academic contexts.

The price value construct was excluded from this study, as ChatGPT is accessible to students without direct financial cost, rendering price considerations less relevant to their usage decisions. The full list of constructs, explanations, and sample survey items is presented in Table 1.

A formal pilot test was not conducted prior to full deployment of the survey. This limitation is acknowledged, and the instrument's reliance on previously validated UTAUT2 items helps mitigate potential measurement issues.

All survey items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The use of a structured questionnaire ensured systematic data collection and consistency in capturing students' perceptions and experiences with ChatGPT in higher education (Alghazo et al., 2025; Mohd A'seri et al., 2024).

Data Analysis

Data analysis was conducted using SPSS to summarise and interpret the collected responses. Descriptive statistical techniques, including mean scores, standard deviations, and frequency distributions, were used to provide an overview of students' perceptions across the UTAUT2 constructs (Mohd A'seri et al., 2024). These measures enabled the identification of general patterns and trends in students' experiences with ChatGPT use in higher education.

Inferential statistical methods, such as regression analysis or structural equation modelling (SEM), were not employed in this study. This decision was made because the primary objective of the research is to describe and explore students' perceptions and continuance intention, rather than to test hypotheses or establish causal relationships between variables. Hence, this study provides baseline empirical evidence on undergraduate students' perceptions of ChatGPT use in Malaysian higher education. The findings offer contextual insights that can inform future studies employing inferential or longitudinal designs to examine causal relationships and behavioural outcomes more comprehensively (Ali et al., 2019).

Table 1

UTAUT2 Constructs Explanation and Sample Questions

Construct	Explanation	Sample Questions
Performance Expectancy	The extent to which individuals believe that using a technology will enhance their performance and efficiency in completing tasks.	<ol style="list-style-type: none">1. Using ChatGPT helps me understand complex concepts.2. ChatGPT allows me to access course materials and resources more easily.3. ChatGPT helps me complete assignments faster compared to not using it.4. ChatGPT increases my productivity in learning.
Effort Expectancy	The degree of ease associated with the use of a technology, reflecting how	<ol style="list-style-type: none">1. Learning to use ChatGPT does not require much training.

	simple and straightforward it is to operate.	<ol style="list-style-type: none">2. Using ChatGPT requires low mental effort from me.3. Interacting with ChatGPT is clear and understandable.4. ChatGPT is easy for me to use.
Social Influence	The extent to which an individual's decision to use a technology is influenced by important people around them, such as peers, instructors, or colleagues.	<ol style="list-style-type: none">1. People around me think I should use ChatGPT.2. Instructors positively influence me to use ChatGPT.3. Encouragement from classmates influenced me to use ChatGPT.
Facilitating Conditions	The perceived availability of resources, knowledge, and support that enable effective use of a technology).	<ol style="list-style-type: none">1. I have the resources needed to use ChatGPT effectively.2. I have the knowledge necessary to use ChatGPT in my studies.3. ChatGPT fits well with other technology I use for learning.4. Training aids are available to help learn ChatGPT.
Hedonic Motivation	The degree of enjoyment or pleasure derived from using a technology, which can enhance user engagement and adoption.	<ol style="list-style-type: none">1. Using ChatGPT is fun and enjoyable.2. Using ChatGPT has been a new and interesting experience for me.3. ChatGPT provides a fun way to learn.4. Interacting with ChatGPT is entertaining.
Habit	The extent to which people tend to use a technology automatically due to repeated exposure and prior experience.	<ol style="list-style-type: none">1. I regularly use ChatGPT for my studies.2. I am deeply involved in using ChatGPT to support my studies.3. Using ChatGPT has become habitual for me.
Behavioural Intention	The extent to which individuals intend to continue using a technology based on their perceptions of its usefulness and ease of use.	<ol style="list-style-type: none">1. I intend to use ChatGPT more for my research and studies.2. I will rely on ChatGPT for problem solving in the future.3. I plan to use ChatGPT for skill building and development.

FINDINGS

This section presents the descriptive statistical analysis of the study, focusing on the key constructs that influence the continuous use of ChatGPT among undergraduate students in Malaysia. A total of 482 valid responses were recorded and used in the analysis. Each question corresponding to a construct was combined to obtain an average score for that construct before conducting the descriptive analysis. The descriptive statistics, including mean and standard deviation, provide insights into students' perceptions of ChatGPT. Figure 1 presents the results of the descriptive analysis.

Table 2

Result of Descriptive Statistical Analysis

Construct	N	Minimum	Maximum	Mean	Std. Deviation
Performance Expectancy	482	1.00	5.00	4.1774	0.70998
Effort Expectancy	482	1.25	5.00	4.0057	0.71102
Social Influence	482	1.00	5.00	3.8126	0.81148
Facilitating Conditions	482	1.25	5.00	3.9808	0.73594
Hedonic Motivation	482	1.00	5.00	4.1457	0.77624
Habit	482	1.00	5.00	3.9129	0.91897
Behavioural Intention	482	1.00	5.00	3.6798	0.92528
Valid N (listwise)	482				

Performance Expectancy

Performance Expectancy recorded the highest mean value ($M = 4.1774$, $SD = 0.70998$), indicating that students generally perceive ChatGPT as a beneficial tool for enhancing their academic performance. Prior research suggests that students' willingness to adopt AI-based educational tools for long-term use is significantly influenced by their perceived usefulness. A study on AI adoption in higher education found that students who view AI tools as beneficial for academic tasks are more likely to continue using them (Sova et al., 2024). Similarly, the high mean score in this construct aligns with findings that students value ChatGPT for its ability to enhance comprehension of complex concepts, improve assignment efficiency, and boost overall academic productivity (Rabiev et al., 2025).

Effort Expectancy

Effort Expectancy had a mean score of 4.0057 ($SD = 0.71102$), suggesting that students find ChatGPT easy to use with minimal effort. Previous studies utilizing the UTAUT2 model suggest that ease of use, captured as Effort Expectancy, plays a crucial role in students' adoption of new technologies. A study on blended learning adoption found that students' perception of ease of use positively influenced their behavioural intentions toward educational technology (Rudhumbu, 2022). Similarly, the relatively high mean score in this category aligns with findings that an intuitive and responsive AI interface enhances students' willingness to integrate such tools into their academic routines. Research on AI adoption in university settings highlights that Effort Expectancy significantly impacts students' willingness to engage with AI-powered educational applications, reinforcing the positive reception of ChatGPT (Acosta-Enriquez et al., 2024).

Social Influence

Social Influence recorded a mean of 3.8126 ($SD = 0.81148$), signifying that students are moderately influenced by their peers, instructors, or social circles when deciding to use ChatGPT. This finding aligns with prior research indicating that social influence plays a significant role in students' adoption of educational technologies. A study by Almarashdeh & Alzaqebah (2023) found that students are more likely to adopt technology when they perceive widespread acceptance and usage among their peers and instructors. This reinforces the notion that social endorsement within academic settings contributes to the increasing adoption of ChatGPT.

Facilitating Conditions

The mean score for Facilitating Conditions was 3.9808 (SD = 0.73594), indicating that students generally perceive sufficient support in using ChatGPT for their studies. This finding aligns with research by Jeilani & Abubakar (2025), which emphasizes that when universities actively provide resources, infrastructure, and training, students are more likely to perceive AI tools as beneficial and user-friendly, thereby enhancing their adoption in academic settings.

Hedonic Motivation

The analysis revealed a mean score of 4.1457 (SD = 0.77624) for Hedonic Motivation, suggesting that students find using ChatGPT enjoyable and engaging. Deng et al. (2023) demonstrated that hedonic motivation significantly influences students continued use of educational platforms, reinforcing the idea that enjoyment is a strong predictor of sustained technology use. Similarly, Heung & Chiu (2025) found that ChatGPT promotes student engagement by offering immediate feedback and an interactive learning experience, which likely contributes to its motivational appeal among users.

Habit

The Habit construct had a mean of 3.9129 (SD = 0.91897), indicating that students are developing a routine of using ChatGPT as part of their academic activities. Research has shown that habitual behaviour plays a pivotal role in the continued use of educational technologies. For example, Wang & Lin (2021) found that users with higher levels of habit are more likely to continue engaging with mobile learning applications. Similarly, this finding suggests that as students become accustomed to using ChatGPT in their academic routine, its integration becomes more automatic and sustained.

Behavioural Intention

Behavioural Intention recorded the lowest mean among the constructs (M = 3.6798, SD = 0.92528), though it still indicates a generally positive inclination toward continued use of ChatGPT. This aligns with recent findings suggesting that while students acknowledge the benefits of AI tools, concerns surrounding academic integrity and the risk of over-reliance may temper their long-term commitment to these technologies. As Karkoulian et al. (2024) noted, students and faculty express growing concern that the ease of content generation through AI can compromise academic honesty and reduce critical engagement.

The findings of this study indicate that Performance Expectancy, Effort Expectancy, and Hedonic Motivation are the strongest predictors of students continued use of ChatGPT, as evidenced by their high mean scores. This suggests that institutions should focus on emphasizing the practical benefits and ease of use of ChatGPT in academic settings. Moreover, the moderate scores in Social Influence and Facilitating Conditions imply that institutional support and peer engagement strategies can further encourage the adoption of AI tools in learning environments.

The relatively lower mean for Behavioural Intention highlights the need for addressing students' concerns regarding ChatGPT's limitations. To foster responsible and effective use of AI tools in education, institutions are encouraged to implement clear guidelines on ethical AI usage and integrate AI literacy into the curriculum. Ciampa et al. (2023) emphasize the importance of embedding AI literacy within digital literacy education to help students critically engage with AI technologies like ChatGPT and apply them ethically in academic contexts.

CONCLUSION

This study examined undergraduate students' continuance intention toward ChatGPT use in Malaysian higher education using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) as a guiding framework. By descriptively analysing students' perceptions across constructs such as performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, and behavioural intention, the study provides contextual insights into how ChatGPT is perceived as an academic support tool among Malaysian undergraduates.

The findings indicate that students reported relatively higher mean scores for performance expectancy, effort expectancy, and hedonic motivation, suggesting generally favourable perceptions regarding ChatGPT's usefulness, ease of use, and engaging characteristics in academic contexts. Facilitating conditions and habit also recorded positive mean values, reflecting students' perceptions of available support and routine use. In contrast, behavioural intention showed comparatively lower mean scores, indicating more cautious or varied intentions toward continued use. As the analysis is descriptive in nature, these observations reflect perceived patterns rather than predictive or causal relationships.

From a practical perspective, the findings highlight the importance of institutional awareness in supporting students' engagement with generative AI tools. Higher education institutions may consider providing clear guidance on appropriate AI usage, alongside initiatives that promote AI literacy and responsible engagement. Enhancing access to training resources and technical support may also help students better understand the capabilities and limitations of tools such as ChatGPT.

This study contributes baseline, theory-informed evidence on students' continuance intention toward ChatGPT within the Malaysian higher education context. Given the descriptive scope of the analysis, future research could extend this work by employing inferential or longitudinal approaches to examine relationships between UTAUT2 constructs and continuance behaviour, as well as exploring contextual factors that shape students' evolving engagement with generative AI technologies.

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