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FACTORS INFLUENCING THE DECISION TO USE ARTIFICIAL INTELLIGENCE TECHNOLOGY (CHATGPT - AI) IN LEARNING AT COLLEGES AND UNIVERSITIES IN VINH LONG PROVINCE

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ABSTRACT

This study investigates the factors influencing students' decisions to adopt ChatGPT – AI technology in Vinh Long province amid the growing role of AI in education. Data were collected from 250 college and university students using a structured survey and convenience sampling method. The research employs quantitative methods, utilizing Cronbach's Alpha reliability testing, exploratory factor analysis (EFA), and linear regression analysis. The results highlight four key factors significantly impacting students' adoption decisions. Perceived Ease of Use (PEOU) emerged as the most influential factor (β = 0.303), followed by Performance Expectancy (PE) (β = 0.214), Technological Innovativeness (TI) (β = 0.154), and Social Influence (SI) (β = 0.140). This study's main contribution is its focus on a distinct yet under-researched demographic – students in Vinh Long province. It offers new insights into their perceptions and intentions toward AI adoption in learning. The research also extends the existing literature by applying the Unified Theory of Acceptance and Use of Technology (UTAUT) model in an educational AI context. Practically, the findings provide recommendations for academic institutions, policymakers, and technology developers to improve AI-integrated learning tools that align with student needs. However, limitations exist, including a relatively small sample size and a focus on one geographic area, which may restrict the generalizability. Additionally, reliance on self-reported data could introduce response biases. Future studies should expand sample size, incorporate diverse demographic groups, and apply mixed-method approaches to gain deeper insights into AI adoption trends in education.

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1. Introduction

With the rapid advancement of Artificial Intelligence (AI), this technology has become a key driver in promoting Digital Government, Digital Economy, and Digital Society in Vietnam. Alongside AI, other emerging technologies such as Blockchain, Big Data, and the Internet of Things (IoT) are gaining increasing attention for their potential contributions to technological and economic growth. AI's impact is evident globally across multiple sectors, including healthcare, manufacturing, and particularly education, where it has significantly transformed traditional teaching and learning practices (Ministry of Science and Technology, 2024). Education is a dynamic field that continuously evolves with technological advancements. The Fourth Industrial Revolution has intensified these changes, introducing new tools and strategies that enhance learning experiences. Among these innovations, ChatGPT has emerged as a prominent AI application with potential benefits for education. Its features, such as idea generation, grammar correction, and instant feedback,k have improved learning processes (Abdullayeva and Musayeva, 2023; Fuchs, 2023). Despite these advantages, ChatGPT has raised concerns about academic integrity, particularly in writing-based assessments (Perkins, 2023; Sullivan et al., 2023). Moreover, excessive reliance on this tool may hinder students' critical thinking and problem-solving skills (Kasneci et al., 2023). Although AI's integration into education has gained global attention, there is limited research examining its adoption in specific regions with less technological infrastructure, such as Vinh Long province. Vinh Long, located in Vietnam's Mekong Delta region, faces challenges in economic development and digital transformation compared to major cities. While AI adoption in education has been widely explored in developed regions, research in smaller provinces like Vinh Long remains scarce. This highlights a significant gap in the literature that this study aims to address. This research investigates the factors influencing students' decisions to use ChatGPT in colleges and universities in Vinh Long. By applying the UTAUT2 model, the study examines seven key factors: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Habit (H), and Technology Innovativeness (TI). The research identifies PEOU, PE, TI, and SI as the most influential factors in determining students' intentions to use ChatGPT, providing valuable insights for educational institutions and policymakers. The study makes several contributions. Academically, it extends the application of the UTAUT2 model in the context of AI adoption in education, particularly in regions with limited technological advancement. Practically, the research offers actionable recommendations for educational institutions, technology developers, and policymakers to improve AI integration in learning environments. By addressing regional differences and student needs, this study aims to support the effective use of AI tools like ChatGPT, ultimately enhancing educational outcomes in Vinh Long province. The study is structured into five main sections: (1) Introduction, which presents the research background, the significance of ChatGPT in education, and the research objectives; (2) Theoretical Framework and Research Model, which provides an overview of theories related to technology acceptance and proposes a research model with corresponding hypotheses; (3) Research Methodology, which describes the data collection process, sampling methods, and analytical techniques employed; (4) Results and Discussion, which outlines key findings, evaluates the measurement model, and tests the proposed hypotheses; and (5) Conclusion and Managerial Implications,

which summarizes the key findings, offers recommendations for educational institutions and technology developers, and suggests future research directions.

2. Theoretical basis and research model

2.1. Theoretical basis

Overview of Chat Generative Pre-training Transformer Artificial Intelligence (Chat GPT – AI)

The development of artificial intelligence (AI) has witnessed a significant breakthrough with the advent of ChatGPT – Chatbot dubbed the world's smartest AI (Ministry of Science and Technology, 2024). ChatGPT was launched by OpenAI on November 30, 2022, and has become popular globally. This AI model excels in natural language processing (NLP) and has been developed to be highly proficient in this field (Hien, 2020). The rapid development of artificial intelligence, along with groundbreaking products such as ChatGPT, has sparked global AI competitions and advancements. In recent years, researchers have continued to explore the potential applications of AI (Brunette *et al.*, 2000) providing a comprehensive review of AI, discussing its evolution and current state. GPT Chat has been integrated into various platforms and praised for its high-quality response capabilities, the emergence of GPT Chat has revolutionized the way we interact with technology and has opened up new possibilities for AI applications. (Tuoi Tre Online, 2023). In short, the advent of GPT Chat has marked a significant step forward in the field of artificial intelligence.

Compared to the past, instead of being a danger, GPT Chat is increasingly seen as a way to enhance human experience and support daily tasks as the Industrial Revolution 4.0 is creating a combination of digitalization with traditional industrial processes. The main purpose of AI technology is to support humans (Anderson and Rainie, 2018). ChatGPT is considered a public tool developed by OpenAI (Lund and Wang, 2023) with the ability to generate text similar to human language and the ability to participate in multiple conversations at the same time, ChatGPT is a flexible tool that can support open education by providing support, guidance and personalized feedback to self-learning learners, thereby increasing motivation and interaction. (Biswas and Som, 2023).

In addition, many schools around the world have used ChatGPT to improve the learning experience of students and students. Applications of ChatGPT in education include supporting teaching and learning, especially in answering questions for students, enhancing interaction between lecturers and students, and providing students with learning content that suits their needs (Truong et al., 2023). Specifically, some applications have been built such as Stanford University (USA): which used ChatGPT to create a virtual assistant for teachers. This virtual assistant is capable of helping teachers create lectures, tests, and evaluate students' learning outcomes (Lee, 2022).

Oxford University (UK) used ChatGPT to build a Chatbot to help students register for courses, search for information about courses, and support students in learning-related issues (Wei, 2023). Carnegie Mellon University: used AI Chatbot in programming course to support students when asking questions about theory and exercises. This Chatbot is built on the GPT-2 platform (Monahan, 2023). MIT University said that it has developed an AI Chatbot based on GPT to support students in learning Python programming. This Chatbot can answer questions about syntax, functions, and common errors in Python, and provide code examples to solve problems (Winn, 2023).

Theory of Reasoned Action Model (TRA)

The theory of Reasoned Action (TRA) suggests that a subject's behavioral intention

is driven by a subject's attitude toward that behavior and the influence of subjective norms surrounding that behavior (Fishbein & Ajzen, 1975). In this theory, attitudes and subjective norms are considered important factors in determining behavioral intentions.

The theoretical model of Theory of Reasoned Action (TRA) includes the following components: (1) Behavior, observable behaviors of individuals (Fishbein and Ajzen, 1975) and are determined by behavioral intentions; (2) Behavioral intention, a measure of the subject's subjective intention to perform a particular behavior and can be considered a special variation of beliefs (Fishbein & Ajzen, 1975). Behavioral intention is influenced by individual attitudes and subjective norms about the behavior.

Attitudes refer to an individual's personal beliefs about a particular action or behavior (Attitude Toward Behavior). It reflects a subject's positive or negative opinion toward performing a behavior and can be measured by combining the perceived believability and the evaluation of that believability. If the behavior is beneficial to the individual, the individual may have the intention to engage in that behavior. (Fishbein & Ajzen, 1975). Subjective norms are defined as an individual's perception of the importance of opinions from referents in performing or not performing a behavior (Fishbein & Ajzen, 1975). Subjective norms are typically assessed through individuals' relationships with customers and are confirmed through beliefs about performance norms and personal motivation to comply with those expectations (Fishbein & Ajzen, 1975).

Theory of Planned Behavior (TPB)

Theory of Planned Behavior – TPB was developed by Ajzen in 1985 from the Theory of Reasoned Action – TRA built by Ajzen and Fishbein. TRA is considered a pioneering foundation in social psychology theory. TRA focuses on behavioral intention and the factors that directly affect this intention are the perception of the action and social norms related to the performance of the behavior. Two main factors in this model affect behavioral intention: attitude and perception of social pressure. However, Ajzen (1991) showed that there are still limitations to TRA theory. TRA assumes that when each person has a behavioral intention, they will be able to perform that behavior. However, in the current situation, the freedom to perform the behavior can be limited by many external factors.

Ajzen added a new element to the TPB theory, which is Perceived Behavioral Control, to overcome this limitation. This element was added to the TPB based on the development of two existing elements in the TRA. Perceived behavioral control reflects each subject's ability to perform the behavior they intend to perform. The TPB was developed based on the available element from the TRA theory. Each subject's attitude towards each certain behavior is considered based on the belief that it will bring benefits when performing that "behavior". The results it brings can be evaluated positively or negatively.

Perceived social pressure: This element is social, including expectations from people around or expectations from the community, causing pressure and affecting the intention of the person performing the behavior. Perceived social pressure is the extent to which the person feels support or pressure from people around them in performing a specific behavior.

Perceived Behavioral Control: This is the perception of the availability of resources and opportunities to perform a particular behavior. When the person performing the behavior perceives that they have more resources and opportunities, and feels that they face fewer obstacles, their perception of control over the behavior will be higher. Resources and

opportunities can include financial, human, and physical.

Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

UTAUT2 is proposed as a useful model for understanding general consumer technology use that inherits UTAUT and adds three factors: Price Value, Hedonic Motivation, and Habit. In this model, individuals are characterized by Habits influencing Behavioral Intentions. Venkatesh et al. (2012) view Habits as perceptual constructs that reflect the outcomes of previous experiences. UTAUT2 models how Habits, directly and indirectly, influence Usage Behavior through Behavioral Intentions. The proposed additions to UTAUT2, according to Venkatesh et al. (2012), reflect major revisions to the factors explaining behavioral intentions and technology use.

2.2. Research Model

Over the years, there have been many studies examining the factors affecting users' acceptance and use of information technology. Davis (1993) based on the TAM technology acceptance model argued that there are two factors affecting technology acceptance and use behavior, which are Perceived Usefulness and Perceived Ease of Use. Venkatesh et al. (2003) proposed the UTAUT model, which includes Perceived Usefulness, Perceived Ease of Use, Social Influence and Facilitating Conditions. Meanwhile, Zhang Weiwei, Dang, H. L (2020) added a new factor, Technology Innovativeness (TI). Based on the synthesis of analytical models, the author believes that there are 7 factors affecting students' behavior in using AI technology, including (1) Perceived Usefulness (PU), (2) Perceived Ease of Use (PEOU), (3) Performance Expectancy (PE), (4) Effort Expectancy (EE), (5) Social Influence (SI), (6) Habit (H) and (7) Technology Innovativeness (TI). According to Davis et al. (1989), Perceived Usefulness and Perceived Ease of Use have been found to have a significant influence on Intention and usage behavior. Reports in studies by Adams, Nelson, and Todd (1992), Agarwal and Karahanna (2000), Davis et al. (1989), Doll, Hendrickson, and Deng (1998), Segars and Grover (1993) have established that Perceived Usefulness and Perceived Ease of Use are key factors in the structure of individual acceptance. However, these two factors may not accurately represent the acceptance of Internet Banking users (Hsu & Lu, 2004). To test the above arguments, the author proposes the following hypothesis:

Studies by Davis et al. (1989), Adams, Nelson, and Todd (1992), and Agarwal and Karahanna (2000) emphasize that perceived usefulness significantly impacts technology acceptance and usage behavior. In the context of ChatGPT, students may perceive it as a tool that enhances learning efficiency and academic performance. Thus, we propose:

Hypothesis H1: Perceived Usefulness (PU) has a positive impact on the Decision to Use ChatGPT – AI.

According to Davis et al. (1989), the ease of using technology directly affects an individual's intention to adopt it. Observations show that students value tools requiring minimal effort to learn and use. Therefore:

Hypothesis H2: Perceived Ease of Use (PEOU) has a positive impact on Decision to Use ChatGPT – AI.

Performance Expectancy (PE) is the degree to which an individual believes that using the system will help them achieve gains in job performance. (Venkatesh et al., 2003). Thus, students' Performance Expectancy (PE) towards using ChatGPT – AI is the degree to which students believe that using it will help them achieve higher learning outcomes. Therefore, the author proposes the hypothesis:

Hypothesis H3: Performance Expectancy (PE) has a positive effect on Decision to Use ChatGPT – AI.

Effort Expectancy (EE) is the effort expectancy, defined as the degree of ease associated with using the system. (Venkatesh *et al.*, 2003). Thus, the Effort Expectancy (EE) of students towards using ChatGPT – AI is the extent to which students believe that using ChatGPT – AI will help them achieve high efficiency without too much effort. Therefore, the author proposes the hypothesis:

Hypothesis H4: Effort Expectancy (EE) has a positive influence on the Decision to Use ChatGPT – AI.

Social Influence (SI) is a social influence defined as the extent to which an individual believes that others believe that they should use the new system (Venkatesh et al., 2003). According to Venkatesh et al. (2003), social influence is described as subjective norms in TRA, TAM2, TPB / DTPB, and C-TAM- TPB, social factors in MPCU, and image in IDT. Thus, Social Influence (SI) of ChatGPT – AI for students is the extent to which influential people think that ChatGPT – AI should be used. Therefore, the author proposes the hypothesis:

Hypothesis H5: Social Influence (SI) has a positive impact on Decision to Use ChatGPT – AI.

Habits are an important factor in predicting technology use (Kim & Malhotra, 2005; Kim, Malhotra, & Narasimhan, 2005; Limayem, Hirt, & Cheung, 2007). Pham et al. (2020) study found that teachers' Habits have an impact on teachers' ICT use behavior in their lectures. According to Arenas, Peral, and Ramón (2015), Habits are one of the main factors that create and explain Usage Behavior directly and indirectly through Behavioral Intention. However, according to Nguyen et al. (2014), Habits have an insignificant impact on Technology Behavioral Intention. Raman and Don (2013) showed that Habits have no positive impact on Behavioral Intention or Usage Behavior. To test this relationship, the author hypothesizes:

Hypothesis H6: Habit (H) has a positive influence on Decision to Use ChatGPT – AI.

According to Agarwal and Prasad (1998), perceived innovativeness is an individual's willingness to experiment with new technology. It is used to measure an individual's willingness to experiment with new information technology.

Innovativeness represents the perception of an organization as a technology pioneer or thought leader. It acts as a motivating factor and enhances an individual's willingness to adopt technology (Parasuraman & Colby, 2001). The impact of technological innovativeness on perceived usefulness and ease of use has been widely studied. In a recent study by Buyle et al. (2018), innovativeness was found to have a significant impact. UTAUT measures many variables but ignores the study of individual characteristics, such as individual innovativeness. Therefore, enhancing individual innovativeness based on UTAUT will help explain the process of technology acceptance and use. Therefore, this study proposes the hypothesis:

Hypothesis H7: Technology Innovativeness (TI) has a positive influence on Decision to Use ChatGPT – AI.

3. Research Method

The study employed descriptive statistics to explore the characteristics of the sample. The sample consisted of 250 students from colleges and universities in Vinh Long province. The sampling method employed was stratified random sampling to ensure representation from different academic disciplines and educational levels. Data collection was conducted via an online survey using Google Forms, which ensured accessibility and convenience for participants. The survey instrument utilized multiple measurement scales adapted from previous research to ensure validity and reliability. Each scale was adjusted and translated into Vietnamese using a forward and backward translation method to ensure language accuracy. A pretest was conducted with a sample of 20 individuals to

evaluate the comprehensibility and content validity of the survey items. Several items were reworded to improve clarity and ensure cultural appropriateness for the target respondents. To examine the factors influencing the decision to use artificial intelligence technology (ChatGPT – AI) in learning, the following analyses were conducted:

Cronbach's Alpha: Used to evaluate the reliability of the measurement scale and eliminate variables or scales that do not meet reliability criteria.

Exploratory Factor Analysis (EFA): Applied to reduce a large set of observed variables into fewer significant factors while retaining the majority of the information and statistical significance of the original dataset.

Linear Regression Analysis: The following regression model was developed:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_{7+} \varepsilon$$

Y: Dependent variable (Decision to use ChatGPT AI).

β_0, β_1, β_2,..., β_7: Regression coefficients.

X_1, X_2,..., X_7: Seven independent factors influencing the decision to use ChatGPT AI.

ε (epsilon): is the term for error.

4. Results and discussion

4.1. Information about survey subjects

The total number of survey questionnaires issued was 265, of which 15 invalid questionnaires were eliminated, leaving 250 valid questionnaires for analysis. The survey sample consisted of 250 people, of which 53.2% were male and 46.8% were female. The proportion of men and women was quite balanced, although the proportion of men was slightly higher. This shows that the research sample has a certain balance in terms of gender, helping to provide results that are not gender biased. Students from Ho Chi Minh City University of Economics - Vinh Long Branch accounted for the highest proportion (30%), followed by Cuu Long University (22.4%), Western University of Construction (19.2%), Vinh Long Technical Education School (18.8%) and the rest was Vinh Long College. The survey sample had a fairly diverse distribution of schools, but students from universities dominated.

4.2. Evaluation of measurement model

The analysis results presented in Table 1 show that all scales are reliable, with Cronbach's Alpha (CA) coefficients greater than 0.6 and item-total correlation coefficients above 0.3. Factor loadings of observed variables are greater than 0.5, so all scales are reliable (Hair et al., 2019).

Table 1. Summary of factor loadings and reliability of the scale

Model	Observed Variable	CA	Corrected Item Total Correlation	Factor Loading
Perceived Usefulness (PU)	5	0,931	0,796 – 0,845	0,845 – 0,887
Perceived Ease of Use (PEOU)	4	0,921	0,794 – 0,832	0,859 – 0,883
Performance Expectancy (PE)	4	0,885	0,697 – 0,808	0,801 – 0,889
Effort Expectancy (EE)	5	0,912	0,733 – 0,842	0,823 – 0,882
Social Influence (SI)	4	0,886	0,727 – 0,773	0,804 – 0,847
Habit (H)	4	0,874	0,627 – 0,799	0,758 – 0,876
Technology Innovativeness (TI)	4	0,892	0,740 – 0,798	0,822 – 0,868

The results of EFA of dependent variables show that KMO coefficient = 0.890 > 0.5 is suitable for factor analysis, Bartlett Test with Sig. = 0.000 < 0.05 (5% significance level), the observed variables are correlated with each other in the factor. The Eigenvalue of the first factor is 3.578 > 1, showing that the convergence of the multiplication stops at the first factor, the total variance extracted (Cumulative %) is 71.564% > 50%, showing that this factor explains 71.564% of the data variation of the 5 observed variables participating in EFA. From the KMO and Bartlett tests, EFA analysis in this study is appropriate (*see Appendix 2 online*).

The correlation Sig result between the independent variable and the dependent variable is less than 0.05 (Sig. < 0.05), so the correlation is statistically significant. The correlation coefficient of the dependent variable with each independent variable ranges from 0.018 to 0.449 (weak to strong correlation) and there is no negative coefficient. The correlation test results between the 7 independent variables PU, PEOU, PE, EE, SI, H, TI, and the dependent variable DU show that 5 variables (PU, PEOU, PE, SI, TI) have a Sig. Value less than 0.05, while 2 variables (EE and H) have a Sig. Value greater than 0.05. However, since EE and H are new factors that the author wants to measure, the author decided to retain these two variables for regression analysis.

Table 4. Correlation coefficient results

	DU	PU	PEOU	PE	EE	SI	H	TI
Use ChatGPT – AI (DU)	1							
Perceived Usefulness (PU)	0,286	1						
Perceived Ease of Use (PEOU)	0,449	0,256	1					
Performance Expectancy (PE)	0,285	0,055	0,150	1				
Effort Expectancy (EE)	0,167	0,209	0,140	0,205	1			
Social Influence (SI)	0,320	0,326	0,344	0,018	0,152	1		
Habit (H)	0,125	0,165	0,053	0,238	0,113	0,154	1	
Technology Innovativeness (TI)	0,320	0,284	0,250	0,129	0,287	0,244	0,150	1

4.3. Structural model review and discussion

The author assessed the issue of multicollinearity in the model by combining the results in Table 4 and examining the variance inflation factor (VIF) in Table 5. In this study, all VIF values were below 5 (Hair et al., 2019), indicating that there was no multicollinearity.

The R-value = 0.566 indicates that the model has a moderate degree of correlation between the independent variables and the dependent variable. R Square = 0.321 means that 32.1% of the variation in the dependent variable "DU" is explained by this model. The model has a moderate level of explanation. Adjusted R Square = 0.301 is the adjusted version of R Square, reflecting the accuracy of the model when adding independent variables. The Durbin-Watson value = 1.755 indicates that there may be some positive correlation between the residuals, but it is generally insignificant.

Table 6. Results of regression coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	Statistics t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			
Independent variables						
Perceived Usefulness (PU)	0.080	0.043	0.109	1.859	0.064	1.226
Perceived Ease of Use (PEOU)	0.236	0.046	0.303	5.185	0.000	1.219
Performance Expectancy (PE)	0.171	0.045	0.214	3.801	0.000	1.125
Effort Expectancy (EE)	-0.006	0.044	-0.007	-0.125	0.900	1.151
Social Influence (SI)	0.112	0.048	0.140	2.354	0.019	1.258
Habit (H)	-0.003	0.048	-0.003	-0.056	0.956	1.110
Technology Innovativeness (TI)	0.118	0.045	0.154	2.640	0.009	1.217
(Constant)	1.455	0.237		6.149	0.000	
Model fit						
R Square						0.321
Adjusted R Square						0.301
F Statistic (Sig.)						0.000
Durbin-Watson						1.755

Hypothesis H1: Perceived Usefulness (PU) has a negligible impact on Use ChatGPT – AI (DU) (β = 0.109, P-value = 0.064 > 0.05). This result does not support the theory of technology acceptance model (TAM) and previous studies (Venkatesh et al., 2003; Davis, 1989), however, this shows that students at colleges and universities in Vinh Long province perceive that AI tools are useful or not will not have much influence on the decision to use, it can be said that students here tend to see AI as a support tool rather than the main factor influencing the decision to use to improve learning outcomes.

Hypothesis H2: Perceived Ease of Use (PEOU) has a positive and positive impact on Use ChatGPT – AI (DU) (β = 0.303, P-value = 0.000 < 0.05). This is the factor that has the strongest influence on the decision to use ChatGPT – AI artificial intelligence technology in students' learning in Vinh Long province. This result is consistent with the technology acceptance model (TAM) and previous studies (Venkatesh et al., 2003; Davis, 1989). When students perceive that the ChatGPT – AI tool is easy to use, they will feel more comfortable applying this tool to their learning process. This perception helps students save time, and reduce the effort in getting used to and using AI features, thereby increasing their ability to accept the technology. This shows that when users feel that a system or technology is easy to use, they are more likely to accept and use the technology. Ensuring that users can easily access, operate, and use technology is key to increasing acceptance. Therefore, organizations and developers need to focus on improving the ease of use of technology products, and minimizing the complexity in the operation process to optimize the user experience.

Hypothesis H3: Performance Expectancy (PE) has a positive and positive impact on the use of ChatGPT – AI (DU) (β = 0.214, P-value = 0.000 < 0.05). This is the second most influential factor in the research model. When

students perceive that using ChatGPT – AI can help them improve their learning performance and achieve better results, they will tend to be more positive about using ChatGPT – AI. ChatGPT – AI tool brings knowledge benefits, helping students achieve their learning goals more effectively. Besides usefulness or ease of use, users are also interested in the fun and enjoyment of using technology. When users feel that the process of using it brings excitement, comfort, and enjoyment, they will tend to use it more and have a more positive attitude towards that technology. This result is consistent with studies related to the extended TAM theory, where the PE factor is considered to have a strong impact on users' intention to use technology. Therefore, to motivate users to continue using the product, developers need to design more entertaining and engaging experience elements in each product.

Hypothesis H4: Effort Expectancy (EE) has a negligible impact on Use ChatGPT – AI (DU) (β = -0.007, P-value = 0.900 > 0.05). This result is inconsistent with the UTAUT theory and previous studies (Venkatesh et al., 2003). In this study, Effort Expectancy has no significant impact. This reflects that students in Vinh Long province do not care much about the ease of use or difficulty in accessing AI technology in learning, which can be explained by the fact that current technology tools have more user-friendly interfaces and features that make it easier for users to use. In addition, students today have early access and exposure to many different technologies, so they are familiar with technology platforms, so they do not encounter obstacles and do not need to make any effort or expectations during use.

Hypothesis H5: Social Influence (SI) has a positive and positive impact on the use of ChatGPT – AI (DU) (β = 0.140, P-value = 0.019 < 0.05). This is the fourth most influential factor in the model. Students in Vinh Long province often tend to be influenced by friends, lecturers, or prestigious figures in the technology field, leading to the decision to use artificial intelligence technology Chat GPT – AI in their studies. This result is consistent with the study of Venkatesh et al. (2003), showing that Social Influence plays an important role in the decision to apply new technologies to students in Vinh Long province.

Hypothesis H6: Habit (H) has no significant impact on Use ChatGPT – AI (DU) (β = -0.003, P-value = 0.956 > 0.05). The results show that Habit does not have any influence on the decision to use Chat GPT – AI artificial intelligence technology in the learning of college and university students in Vinh Long province. This may be because the AI tool has not been used regularly and continuously in the learning activities of students here, it can be said that this tool has not become an essential part of the learning process, so the Habit factor is not strong enough to influence the decision to use it of Vinh Long students.

Hypothesis H7: Technology Innovativeness (TI) has a positive and positive impact on Use ChatGPT – AI (DU) (β = 0.154, P-value = 0.009 < 0.05). This is the third most influential factor in the use of ChatGPT – AI. Students in Vinh Long province tend to easily accept new technologies when they are creative and love to explore. Technology Innovativeness enables students to recognize the potential of artificial intelligence technologies in supporting their learning process and promotes flexibility in applying this tool to their various contexts. Technology Innovativeness represents the level of creativity and innovation of users in approaching and using new technology. This result suggests that students who tend to be creative and seek new technological experiences will be more likely to accept and use technology. This factor is consistent with previous research by Zhang Weiwei, Dang, H. L (2020), where

creativity and willingness to try new things play an important role in shaping the decision to use technology. To attract this group of users, businesses can promote unique, advanced features and update technology regularly to meet users' expectations of innovation.

In summary, based on the regression analysis results, 4 factors have a significant impact on the dependent variable DU (1) PEOU – Perceived Ease of Use (β = 0.303). This is the factor that has the strongest impact on DU. (2) PE – Performance Expectancy (β = 0.214). This is the second most influential factor. (3) TI – Technological Innovativeness (β = 0.154). This is the third most influential factor and (4) SI – Social Influence (β = 0.140). This is the fourth most influential factor. Other factors such as PU – Perceived Usefulness, EE – Effort Expectancy, and H – Habit do not have a significant impact on students in Vinh Long province because the Sig. Value > 0.05.

5. Conclusion and managerial implications

5.1. Conclusion

This study identifies key factors influencing students' decisions to use ChatGPT-AI in universities and colleges in Vinh Long Province. The proposed model includes seven factors: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Habit (H), and Technological Innovativeness (TI). Quantitative research was applied to test these hypotheses. Findings reveal four significant factors positively impacting ChatGPT-AI adoption: (1) PEOU (β = 0.303), (2) PE (β = 0.214), (3) TI (β = 0.154), and (4) SI (β = 0.140). PEOU emerged as the most influential factor, underscoring the importance of intuitive, user-friendly designs with clear instructions. This finding aligns with Davis (1989) and Venkatesh et al. (2003), which highlight the significance of ease of use in technology adoption. PE highlights the need for features that enhance learning outcomes, which is consistent with Venkatesh et al. (2003). TI emphasizes students' openness to exploring new technologies, aligning with Moore and Benbasat (1991). SI reflects the influence of peers, family, and educators in promoting AI adoption, which is supported by Venkatesh et al. (2003), and Teo (2009). Conversely, PU, EE, and H did not significantly influence adoption. The non-significance of PU may be due to students' limited understanding of ChatGPT-AI's benefits, differing from Davis (1989), where PU played a crucial role in technology adoption. EE's minimal impact suggests that ChatGPT-AI is perceived as easy to use, which contrasts with prior findings that effort expectancy often plays a key role in new technology adoption. The lack of habitual influence is likely attributed to the technology's novelty in students' learning routines, differing from previous research that highlights habit as a crucial factor in continued technology use. The study's results provide practical implications for educational institutions and developers, emphasizing the need to prioritize user-friendly designs, promote AI benefits, and integrate experiential learning programs to build confidence in AI adoption. Strengthening social support in learning environments can further encourage students to integrate ChatGPT-AI into their academic routines.

5.2. Managerial implications

Perceived Ease of Use (PEOU): Technology developers should design ChatGPT-AI with an interface that is user-friendly, easy to understand, and approachable, especially for students in Vinh Long, where familiarity with technology may not be uniform. The interface should be intuitive, with minimal steps to facilitate easy access for students. Additionally, detailed guides should be provided through tutorial videos or online courses on how to use ChatGPT. These materials should be simple

and avoid excessive technical jargon, enabling students to quickly become familiar with and use the technology. Furthermore, the necessary actions for using ChatGPT should be simplified, such as allowing login via student accounts or optimizing the platform for mobile devices, which are the most commonly used by students in Vinh Long. Specifically, collaboration with NGOs or tech companies could be pursued to implement projects that provide smart devices pre-installed with ChatGPT and usage guides, prioritizing students in Vinh Long with financial difficulties. Educational institutions can also partner with telecom companies to deploy affordable or free internet packages for students, helping them easily access and use ChatGPT on mobile devices.

Performance Expectancy (PE): Educational institutions and technology developers should emphasize the clear benefits of ChatGPT for the learning process. For instance, ChatGPT can help students quickly search for materials, check spelling, or suggest methods to solve problems. Providing real-life examples of improved grades or academic results due to this technology would help students better understand its effectiveness. Organizing trial sessions for ChatGPT in various courses or learning activities will allow students to directly experience the enhancement in their academic performance. This helps students immediately recognize the benefits that ChatGPT can bring to their daily learning. Moreover, the development of features that cater to specific learning needs, such as assisting with homework, explaining theories, or providing feedback on assignments, should be prioritized. Schools could also establish AI-based learning support centers, where students can experience the benefits of ChatGPT in finding materials, checking assignments, or receiving academic advice. Additionally, organizing research competitions or projects applying ChatGPT to fields such as economics, healthcare, or engineering would further raise students' awareness of the practical effectiveness of this technology in both academic and real-life scenarios.

Technological Innovation (TI): Students in Vinh Long tend to be open to new technologies, so it is essential to organize events, seminars, or hands-on courses about ChatGPT to help students familiarize themselves with AI in learning. Educational institutions can create creative learning spaces where students can freely experiment with new technologies, such as in labs or research projects applying AI to learning. Organizing activities or innovation competitions with AI, where students can apply ChatGPT to real-world academic projects, will help them explore the potential of technology in the academic environment.

Social Influence (SI): Schools and instructors need to create an open and friendly learning environment, encouraging students to share their experiences of using ChatGPT in their studies. Group discussions or sharing sessions about how to use technology in learning will help motivate students. Both schools and families can encourage students to use AI technology in their studies. Support from friends and family can play a significant role in motivating students to adopt and apply new technology. Faculty members can also play an essential role in encouraging students to use ChatGPT by providing real-life examples or creating opportunities for students to practice using AI in assignments and group discussions. Schools can create AI learning clubs, encouraging students to share their experiences with ChatGPT while collaborating with the Vinh Long Provincial People's Committee to implement student support programs, contributing to the national digital transformation goals. These initiatives will not only promote the application of AI in education but also open up more significant opportunities for students in Vinh Long to access and utilize modern learning support tools.

Although Perceived Usefulness (PU), Effort Expectancy (EE), and Habit (H) do not significantly influence the intention to use ChatGPT in this study, developing practical solutions to improve these factors is still essential to build a solid foundation for future technology adoption. Regarding PU, more communication about the real benefits of ChatGPT through workshops, trial sessions, or success stories should be emphasized to help students better understand the value it adds to their learning. For EE, developers should optimize the interface and usage process, such as integrating ChatGPT into the student account system or providing simplified user guides through videos and easy-to-understand materials. Regarding H, efforts should focus on embedding ChatGPT into daily learning activities, such as using it for group projects or independent research. Schools could design AI trial programs to build long-term habits for students in applying technology effectively and naturally in their studies. These solutions will not only enhance the student's experience but also contribute to the overall digital transformation in education.

5.3. Limitations and directions for future research

While this study provides valuable insights, several limitations must be acknowledged, and corresponding suggestions for future research are proposed. First, the research was conducted exclusively on students in Vinh Long province, which may limit the generalizability of the findings to the broader higher education landscape in Vietnam. Future studies should expand the sample to encompass students from diverse regions and institutions to comprehensively compare ChatGPT perceptions and usage across various educational settings. Second, data collection was conducted through self-reported surveys, which may be subject to biases such as social desirability bias. Future research could adopt a mixed-methods approach to enhance data reliability and validity, integrating quantitative surveys with qualitative methods such as interviews or focus groups. This approach may provide deeper insights into students' experiences and perceptions regarding ChatGPT. Third, this study did not examine the long-term effects of ChatGPT usage on students' academic performance and critical thinking skills. Future research should employ longitudinal designs to evaluate the sustained impact of ChatGPT integration on educational outcomes. Such studies would provide valuable information for educators in assessing this tool's potential benefits and limitations in enhancing student development. Finally, although this study identifies key factors influencing the decision to use ChatGPT, it does not account for external determinants such as institutional support and faculty attitudes. Future research should investigate these contextual factors to develop a more comprehensive understanding of the challenges and opportunities associated with AI integration in educational environments.

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