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Understanding University Students' AI Usage Decisions in Vietnam

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ABSTRACT

This study examines the factors associated with university students' decisions to use artificial intelligence (AI) in Ho Chi Minh City, Vietnam, drawing on an extended Technology Acceptance Model (TAM). Data were collected from 369 students across 40 universities, including 53 international students (14.36%), and analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4. The findings support all seven hypothesized direct relationships. Facilitating conditions are positively associated with perceived ease of use and perceived usefulness, while perceived ease of use is positively related to perceived usefulness and intention to use. Perceived usefulness shows the strongest direct association with behavioral intention (β = 0.534), whereas intention to use is the strongest direct predictor of self-reported AI usage decisions (β = 0.480). Significant indirect effects further highlight the interconnected roles of technological perceptions and behavioral intention. The study contributes to technology acceptance research by examining reported AI usage decisions alongside behavioral intention within a higher education setting involving students from different national backgrounds. The findings suggest that universities, instructors, and student support services should strengthen access to AI tools, provide responsible-use guidance, and consider multilingual academic support. Because the analysis uses pooled, cross-sectional data, the findings do not establish causal relationships or international student-specific effects.

Keywords: artificial intelligence; decision to use; intention to use; perceived usefulness; perceived ease of use; facilitating conditions.

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INTRODUCTION

Artificial intelligence has rapidly transformed how individuals access information, perform tasks, and engage with digital technologies. According to Maslej et al. (2025), global investment in AI reached USD 252.3 billion in 2024, while its adoption continued to expand across industries and educational institutions. In higher education, AI increasingly supports information retrieval, academic writing, problem-solving, and personalized learning, creating new opportunities and challenges for university students. Beyond its technological capabilities, the growing integration of AI into academic activities raises important questions about the factors influencing students' acceptance and actual use of these technologies, particularly within increasingly internationalized higher education environments.

Vietnam provides a relevant context for examining these developments. The country has experienced growing investment in AI research, technological infrastructure, and digital transformation, supported by major domestic technology enterprises (Google Public Policy & Government Affairs, 2025). As one of Vietnam's leading educational and technological centers, Ho Chi Minh City offers university students considerable opportunities to access and experiment with AI applications (Hien, 2025; Chung et al., 2024). Its higher education institutions also accommodate students from different national backgrounds, making the city a relevant setting for investigating AI adoption within a diverse university environment. Nevertheless, access to technological resources does not necessarily translate into favorable perceptions, strong usage intentions, or actual AI adoption.

Previous research has extensively examined students' acceptance and use of AI in educational settings. Several studies have investigated attitudes toward ChatGPT, behavioral intention, and continuance intention in learning and research activities (Thuy et al., 2024; Quoc, 2025; Nguyen et al., 2026). Other studies have explored students' actual use of AI tools and the roles of perceived usefulness and ease of use in technology acceptance (Chung et al., 2024; Li, 2023). Similarly, Alzahrani (2023), Obenza et al. (2024), and Valle et al. (2024) examined AI acceptance, while Diep and Nguyen (2026) demonstrated the relevance of TAM–UTAUT to teachers' ChatGPT adoption. More recently, Ittefaq et al. (2025) examined generative AI adoption among international students, highlighting the importance of perceived values and attitudes. Collectively, Moustafa et al. (2026) further examined AI's role in students' innovation and entrepreneurial readiness across the UAE and Canada. Together, these studies highlight AI's educational relevance while leaving scope to investigate sequential pathways from facilitating conditions and cognitive perceptions to intention and self-reported use.

Although the TAM provides an established foundation for understanding technology acceptance, three issues warrant further examination. First, existing studies frequently emphasize behavioral intention, whereas the mechanisms linking students' cognitive evaluations to reported AI usage decisions require additional empirical attention. Second, facilitating conditions may influence adoption not only directly but also through interconnected perceptions of ease of use and usefulness. Third, evidence from higher education environments involving both domestic and international students remains valuable for understanding AI adoption in increasingly diverse educational contexts. To address these issues, this study integrates TAM with facilitating conditions from UTAUT2 to examine the sequential relationships among facilitating conditions, perceived ease of use, perceived usefulness, intention to use, and the decision to use AI. Using survey data from 369 university students in Ho Chi Minh City, including 53 international students (14.36%), the study clarifies direct and indirect adoption pathways and offers implications for institutional technology support and AI-enabled learning. The findings reflect the pooled student sample rather than international student-specific effects.

LITERATURE REVIEW

The Technology Acceptance Model, developed by Davis (1989), provides the theoretical foundation for explaining individuals' acceptance and use of technology. TAM identifies perceived ease of use and perceived usefulness as key cognitive determinants of behavioral intention and subsequent technology use. To account for the resources and support required for AI adoption, this study incorporates facilitating conditions from the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). Facilitating conditions reflect students' perceptions of technological resources, relevant knowledge, system compatibility, and available assistance (Venkatesh et al., 2012). This integration is particularly relevant to higher education, where access to AI tools and institutional support may shape students' technology-related perceptions. Recent research has also demonstrated the relevance of TAM and UTAUT to ChatGPT adoption in educational settings (Diep and Nguyen, 2026).

Within this framework, intention to use represents students' willingness to adopt AI, whereas decision to use reflects their self-reported application of AI in academic and everyday activities. Consistent with technology acceptance theory, behavioral intention is expected to predict technology use (Davis, 1989; Ajzen, 1991; Venkatesh et al., 2002; Giao, 2025). However, self-reported use should be distinguished from objectively recorded behavior. Accordingly, this study examines how facilitating conditions and cognitive evaluations contribute to intention and reported AI use through direct and sequential relationships. The framework is applied to a university student sample that includes international students, without assuming that the proposed relationships differ across nationality groups.

Effects of Facilitating Conditions on Perceived Ease of Use and Perceived Usefulness

Facilitating conditions refer to individuals' perceptions of the technological resources, knowledge, and support available for using a particular technology (Venkatesh et al., 2012). In higher education, these conditions include access to appropriate devices, reliable Internet connectivity, digital competencies, and technical assistance. Such resources can reduce operational barriers and enable students to interact with AI applications more confidently and efficiently. Previous research suggests that adequate technological support and relevant skills contribute to more favorable perceptions of technology's ease of use (Ebadi & Raygan, 2023; Teo, 2010). Accordingly, students who perceive stronger facilitating conditions are expected to consider AI technologies easier to learn, operate, and integrate into their academic activities.

Beyond reducing perceived effort, facilitating conditions may also enhance students' evaluations of AI's practical usefulness. Access to technological infrastructure, relevant guidance, and problem-solving support enables users to explore and apply technology functions more effectively (Dhendup, 2024; Nathania et al., 2021). For university students, these conditions may facilitate the use of AI for information retrieval, academic tasks, and learning-related problem-solving, thereby strengthening perceptions of its utility. This reasoning is relevant to both domestic and international students, although the extent of available support may vary across individuals and institutions. Based on these arguments, the following hypotheses are proposed:

H1a: Facilitating conditions have a positive effect on perceived ease of use.

H1b: Facilitating conditions have a positive effect on perceived usefulness.

The Impact of Perceived Ease of Use on Perceived Usefulness and Intention to Use

Perceived ease of use refers to the extent to which individuals believe that using a technological system requires minimal effort (Davis, 1989). Within higher education, this perception reflects students' evaluations of how easily they can learn, operate, and interact with AI applications. According to TAM, technologies perceived as easier to use are more likely to be considered useful because reduced operational effort enables users to focus on achieving desired outcomes (Davis, 1989; Teo, 2010). Previous studies have demonstrated that perceived ease of use contributes positively to students' evaluations of AI technologies and ChatGPT (Li, 2023; Nguyen et al., 2026). Accordingly, when students find AI applications

accessible and manageable, they are more likely to recognize their usefulness for academic activities, including information retrieval, problem-solving, and learning support.

Perceived ease of use may also directly strengthen students' intention to use AI. Technologies requiring limited technical effort can reduce adoption barriers, increase users' confidence, and encourage continued engagement (Venkatesh, 2000). Recent studies have emphasized the relevance of ease of use to students' willingness to adopt AI-based learning tools (Amoush & Mizher, 2026; Ittefaq et al., 2025). This relationship is particularly relevant in higher education environments involving students with diverse educational backgrounds and technological experiences. When AI applications are perceived as straightforward and easy to integrate into learning activities, students may develop stronger intentions to use them. Based on these arguments, the following hypotheses are proposed:

H2a: Perceived ease of use has a positive effect on perceived usefulness.

H2b: Perceived ease of use has a positive effect on intention to use.

The Impact of Perceived Usefulness on Intention to Use and Decision to Use

Perceived usefulness refers to the extent to which individuals believe that using a particular technology enhances their performance (Davis, 1989). In higher education, this perception reflects students' evaluations of AI's ability to improve learning efficiency, facilitate information retrieval, and support academic tasks. Previous studies have demonstrated that perceived usefulness plays an important role in shaping students' intentions to adopt AI-based technologies. For example, Amoush and Mizher (2026) highlighted the positive relationship between ChatGPT's perceived usefulness and students' intention to use it for academic writing. Similarly, Li (2023) and Ittefaq et al. (2025) emphasized the relevance of perceived benefits to AI adoption in educational settings. Accordingly, students who recognize AI as a valuable learning resource are expected to develop stronger intentions to use it in their academic activities.

Beyond behavioral intention, perceived usefulness may directly influence students' decisions to use AI. When technological benefits are sufficiently evident, individuals may incorporate a system into their activities without relying exclusively on previously formed intentions. Prior research has identified a positive relationship between perceived usefulness and technology use, including students' engagement with digital learning platforms (Dimo et al., 2024; Tao, 2009; Perdigoto & Picoto, 2012). In the context of AI-enabled learning, students who perceive AI as useful for completing academic tasks, generating ideas, and improving productivity may be more likely to report using these tools. Thus, perceived usefulness is expected to influence both students' intention to use AI and their self-reported usage decisions. Based on these arguments, the following hypotheses are proposed:

H3a: Perceived usefulness has a positive effect on intention to use.

H3b: Perceived usefulness has a positive effect on decision to use.

The Impact of Intention to Use on Decision to Use

Behavioral intention is a central predictor of technology use in both the TAM and the Theory of Planned Behavior (TPB). According to Davis (1989) and Ajzen (1991), individuals who develop stronger intentions toward a particular behavior are generally more likely to perform it. In technology adoption contexts, intention reflects users' willingness and commitment to engage with a system, whereas usage decisions represent the subsequent application of that technology. Previous studies have supported the relationship between behavioral intention and technology use across different technological settings (Perdigoto & Picoto, 2012; Giao, 2025).

In higher education, students who intend to use AI for learning, information retrieval, and academic problem-solving may be more likely to incorporate these applications into their activities. However, intention and use remain conceptually distinct: a favorable intention does not necessarily result in adoption when students encounter practical or institutional barriers. Accordingly, this study examines whether

students' intention to use AI is positively associated with their self-reported decisions to use these technologies. The following hypothesis is proposed:

H4: Intention to use has a positive effect on the decision to use.

Based on the above arguments and hypotheses, the proposed research model was developed to illustrate the relationships among facilitating conditions, perceived ease of use, perceived usefulness, intention to use, and students' decision to use artificial intelligence:

Direct relationships: H1a, H1b, H2a, H2b, H3a, H3b, H4

Indirect relationship: H5: H2a and H3b; H6: H2a and H3a; H7: H1a and H2a; H8: H1b and H3b; H9: H1b and H3a; H10: H1a and H2b; H11: H1a, H2a, H3a and H4; H12: H2a, H3a and H4; H13: H1a, H2a and H3a; H14: H1a, H2a and H3b; H15: H1b, H3a and H4; H16: H1a, H2b and H4; H17: H2b and H4; H18: H3a and H4.

RESEARCH METHOD

Measurement Scales

The measurement instrument was developed using established scales from previous studies and adapted to the context of AI adoption in higher education. The research model comprises five constructs measured by 18 observed variables: facilitating conditions (FC), perceived ease of use (PEOU), perceived usefulness (PU), intention to use (IU), and decision to use (DU). All items were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). While IU captures students' behavioral intentions, DU reflects their self-reported AI usage decisions rather than objectively observed behavior. The measurement items, corresponding codes, and original sources are presented in Table 1.

Table 1
Measurement Scales

Construct	Code	Original Scale Item	Source
Facilitating Conditions (FC)	FC1	I have resources necessary to use AI enabled tools	Jain et al. (2022)
	FC2	I have the knowledge necessary to use AI enabled tool	
	FC3	AI enabled tools are compatible with other technologies I use	
	FC4	I can get help from others when I have difficulties using AI enabled tools	
Perceived Ease of Use (PEOU)	PEOU1	It is easy for me to learn to use AI-based systems	Li (2023)
	PEOU2	Overall, I think that AI-based systems are easy to use	
	PEOU3	It is easy for me to become proficient in using AI-based systems.	
	PEOU4	My interaction with AI-based systems is easy for me to understand.	
Perceived Usefulness (PU)	PU1	Using AI technology enables me to accomplish tasks more quickly	Chai et al. (2020)
	PU2	Using AI technology enhances my effectiveness	
	PU3	Using AI technology improves my performance	
	PU4	Using AI technology increases my productivity	

Construct	Code	Original Scale Item	Source
Intention to Use (IU)	IU1	I intend to use AI in the future	Cao et al. (2021)
	IU2	I will always try to use AI in my workplace	
	IU3	I plan to use AI frequently	
Decision to Use (DU)	DU1	I use Generative AI tools frequently	Quayson et al. (2026)
	DU2	I spend a lot of time using Generative AI tools.	
	DU3	I exerted myself to use Generative AI tools	

Source: Authors' compilation

Data Collection and Sample Characteristics

This study employed a quantitative, cross-sectional survey design to investigate the factors influencing university students' decisions to use artificial intelligence in Ho Chi Minh City, Vietnam. The target population comprised university students with prior experience using AI tools. A non-probability convenience sampling approach was adopted across 40 universities in Ho Chi Minh City, with questionnaires distributed through direct contact and online channels, including Google Forms, Zalo, Facebook, and student groups.

A total of 430 responses were collected. During data screening, 25 responses were excluded because the respondents reported no prior AI use, thereby failing to meet the eligibility criterion. Another 36 responses were excluded based on the study's data-screening criterion for invariant response patterns, defined as selecting the same Likert-scale value across all measurement items. Consequently, 369 valid responses were retained for analysis, representing 85.81% of the collected responses.

The final sample included 53 international students (14.36%), identified through nationality or international student status information collected in the survey. These students were enrolled at universities in Ho Chi Minh City and originated from various countries, including Laos, Cambodia, South Korea, Japan, China, India, the United Kingdom, Australia, and Brazil. The remaining 316 respondents accounted for 85.64% of the sample. Although the sample included students from diverse national backgrounds, the PLS-SEM analysis was conducted using the pooled sample; therefore, the findings should not be interpreted as international student-specific effects.

Data Analysis Methods

This study employed a quantitative, cross-sectional research design. The research model, hypotheses, and measurement scales were developed through a review of relevant theories and previous empirical studies. Primary data were obtained from a structured questionnaire administered to university students in Ho Chi Minh City, Vietnam. Following data screening and coding, 369 valid responses were retained for analysis.

The data were analyzed using PLS-SEM with SmartPLS 4. The analysis proceeded in two stages. First, the measurement model was assessed for internal consistency reliability, convergent validity, and discriminant validity using Cronbach's alpha (CA), composite reliability (CR), average variance extracted (AVE), indicator loadings, and discriminant validity criteria. Second, the structural model was evaluated through path coefficients, coefficients of determination (R^2), predictive assessment, and model-fit indicators. The statistical significance of the hypothesized direct and indirect effects was assessed using a bootstrapping procedure with 5,000 subsamples. Because the data were cross-sectional and self-reported, the estimated relationships were interpreted as statistical associations rather than definitive causal effects.

RESULTS

Assessment of measurement scale reliability. The data presented in Table 2 show that all measurement scales in the model ensure internal consistency reliability. The Cronbach's Alpha coefficients range from 0.719 to 0.832 and all exceed the required threshold of 0.7. Perceived Usefulness (PU) has the highest value of 0.832, while Intention to Use (IU) has the lowest value of 0.719. At the same time, the composite reliability values of the constructs range from 0.827 to 0.888. All values exceed the threshold of 0.7 and are considered good because they are above 0.8. Perceived Usefulness (PU) continues to have the highest CR value of 0.888, whereas Facilitating Conditions (FC) has the lowest value of 0.827. Overall, the observed variables within each construct demonstrate good consistency. Therefore, all measurement scales meet the reliability requirements for further assessment of convergent and discriminant validity.

Table 2

Measurement Model Assessment: Reliability, Convergent Validity, and Collinearity Statistics

Construct	Observed Variables	CA	CR	AVE	FC	PEOU	PU	IU	DU	VIF	R^2
FC	FC1	0.723	0.827	0.545	0.731					1.333	
	FC2				0.754					1.339	
	FC3				0.754					1.395	
	FC4				0.714					1.370	
PEOU	PEOU1	0.807	0.873	0.633		0.828				1.749	0.285
	PEOU2					0.763				1.546	
	PEOU3					0.824				1.832	
	PEOU4					0.767				1.588	
PU	PU1	0.832	0.888	0.665			0.821			1.813	0.366
	PU2						0.811			1.770	
	PU3						0.819			1.839	
	PU4						0.810			1.787	
IU	IU1	0.719	0.842	0.640				0.796		1.358	0.462
	IU2							0.781		1.421	
	IU3							0.822		1.472	
DU	DU1	0.735	0.850	0.655					0.839	1.557	0.448
	DU2								0.860	1.712	
	DU3								0.722	1.318	

Source: Authors' compilation

Assessment of the convergent validity of the measurement scales. The results presented in Table 2 show that the AVE values of the measurement scales range from 0.545 to 0.665 and all exceed the threshold of 0.5. Specifically, Perceived Usefulness (PU) has the highest AVE value at 0.665, followed by Decision to Use (DU) at 0.655, Intention to Use (IU) at 0.640, Perceived Ease of Use (PEOU) at 0.633, and Facilitating Conditions (FC) at 0.545. According to Hair et al. (2021), a measurement scale is considered to achieve convergent validity when its AVE value is greater than 0.5, meaning that the observed variables explain more than 50% of the variance in the corresponding latent construct. Therefore, all measurement

scales in the model meet the requirements for convergent validity and can continue to be used in the subsequent assessment steps.

Assessment of the discriminant validity of the measurement scales. The results presented show that the square roots of the AVE values on the main diagonal range from 0.738 to 0.815 and are all greater than the corresponding off-diagonal correlation coefficients. Fornell and Larcker (1981) stated that this condition indicates that the constructs in the model achieve discriminant validity. At the same time, the results presented show that the HTMT values range from 0.494 to 0.880 and are all below the threshold of 0.90 proposed by Hair et al. (2017). The highest HTMT value is 0.880 between Intention to Use (IU) and Decision to Use (DU), while the lowest value is 0.494 between Facilitating Conditions (FC) and Decision to Use (DU). Therefore, the results from both the Fornell–Larcker criterion and the HTMT ratio confirm that the constructs in the model are clearly distinct and meet the requirements for discriminant validity. Based on the above analyses, the authors confirm that the measurement scales in the model achieve reliability, convergent validity, and discriminant validity.

Structural model assessment. The results presented in Table 2 show that the VIF values of the observed variables range from 1.318 to 1.839 and are all below the threshold of 5. Among them, PU3 has the highest VIF value of 1.839, while DU3 has the lowest value of 1.318. Hair et al. (2017) stated that multicollinearity may occur when the VIF value exceeds 5. Therefore, these results indicate that the observed variables in the model do not encounter multicollinearity problems and meet the requirements for proceeding with the subsequent analysis steps. Model fit was evaluated based on the R^2 values presented in Table 2. The R^2 coefficient indicates the model's in-sample explanatory power (Hair et al., 2021; Henseler et al., 2009). The results show that the R^2 values range from 0.285 to 0.462. Specifically, Perceived Ease of Use (PEOU) has an R^2 value of 0.285, indicating weak explanatory power, whereas Perceived Usefulness (PU), Decision to Use (DU), and Intention to Use (IU) have R^2 values of 0.366, 0.448, and 0.462, respectively, indicating moderate explanatory power according to Chin (1998). Thus, the model demonstrates weak to moderate explanatory power for the endogenous variables, with Intention to Use (IU) having the highest level of explanatory power.

Table 3 shows that the Q^2 values of all endogenous variables are greater than 0, ranging from 0.121 to 0.276. Perceived Ease of Use (PEOU) has the highest Q^2 value at 0.276, followed by Perceived Usefulness (PU) at 0.218, Intention to Use (IU) at 0.202, and Decision to Use (DU) at 0.121. According to Tenenhaus et al. (2005) and Henseler et al. (2009), when Q^2 is greater than 0, the model is considered to have predictive relevance for the endogenous variables. These results indicate that the research model has appropriate predictive relevance for the endogenous variables included in the model. Since all Q^2 values are positive, it can be concluded that the model demonstrates predictive relevance and is suitable for further analysis of the relationships in the structural model. Table 3 shows that the SRMR value of the saturated model is 0.068, while that of the estimated model is 0.071. Both values are below the threshold of 0.08 recommended by Hu and Bentler (1999), indicating that the model fits the research data well. Therefore, it can be concluded that the research model achieves an acceptable overall fit, with only minor discrepancies between the observed and estimated correlation matrices. This indicates that the model is suitable for further interpretation of the analysis results and hypothesis testing. Regarding the f^2 effect size, an f^2 value greater than 0.35 indicates a large effect, $0.15 \leq f^2 < 0.35$ indicates a medium effect, $0.02 \leq f^2 < 0.15$ indicates a small effect and $f^2 < 0.02$ indicates a negligible effect (Henseler et al., 2009; Cohen, 2013). Based on these criteria, the results presented in Table 3 show that two relationships have large effect sizes: Facilitating Conditions (FC) on Perceived Ease of Use (PEOU) with $f^2 = 0.398$ and Perceived Usefulness (PU) on Intention to Use (IU) with $f^2 = 0.359$. Two relationships have medium effect sizes: Perceived Ease of Use (PEOU) on Perceived Usefulness (PU) with $f^2 = 0.217$ and Intention to Use (IU) on Decision to Use (DU) with $f^2 = 0.238$. The remaining relationships have f^2 values ranging from 0.058 to 0.067, indicating small effects.

Table 3
Structural Model Assessment: Direct and Indirect Effects

Causal relationship	Hypothesis	Path Coefficients (β)	T Statistics (|O/STDEV|)	f^2	P Values	Result
Results of direct relationship testing						
FC → PEOU	H1a	0.533	9.950	0.398	0.000	Accepted
FC → PU	H1b	0.244	3.918	0.067	0.000	Accepted
PEOU → PU	H2a	0.438	7.435	0.217	0.000	Accepted
PEOU → IU	H2b	0.214	3.881	0.058	0.000	Accepted
PU → IU	H3a	0.534	8.794	0.359	0.000	Accepted
PU → DU	H3b	0.248	3.721	0.064	0.000	Accepted
IU → DU	H4	0.480	7.471	0.238	0.000	Accepted
Results of Indirect Effect Testing						
PEOU → PU → DU	H5	0.109	3.590		0.000	Accepted
PEOU → PU → IU	H6	0.234	6.989		0.000	Accepted
FC → PEOU → PU	H7	0.234	5.261		0.000	Accepted
FC → PU → DU	H8	0.061	2.503		0.012	Accepted
FC → PU → IU	H9	0.131	3.197		0.001	Accepted
FC → PEOU → IU	H10	0.114	3.361		0.001	Accepted
FC → PEOU → PU → IU → DU	H11	0.060	4.000		0.000	Accepted
PEOU → PU → IU → DU	H12	0.112	4.873		0.000	Accepted
FC → PEOU → PU → IU	H13	0.125	4.982		0.000	Accepted
FC → PEOU → PU → DU	H14	0.058	3.165		0.002	Accepted
FC → PU → IU → DU	H15	0.063	3.025		0.003	Accepted
FC → PEOU → IU → DU	H16	0.055	2.977		0.003	Accepted
PEOU → IU → DU	H17	0.103	3.330		0.001	Accepted
PU → IU → DU	H18	0.256	5.811		0.000	Accepted

Q^2predict: $Q^2_{PEOU} = 0.276$; $Q^2_{PU} = 0.218$; $Q^2_{IU} = 0.202$; $Q^2_{DU} = 0.121$.

SRMR: Saturated model: 0.068; Estimated model: 0.071.

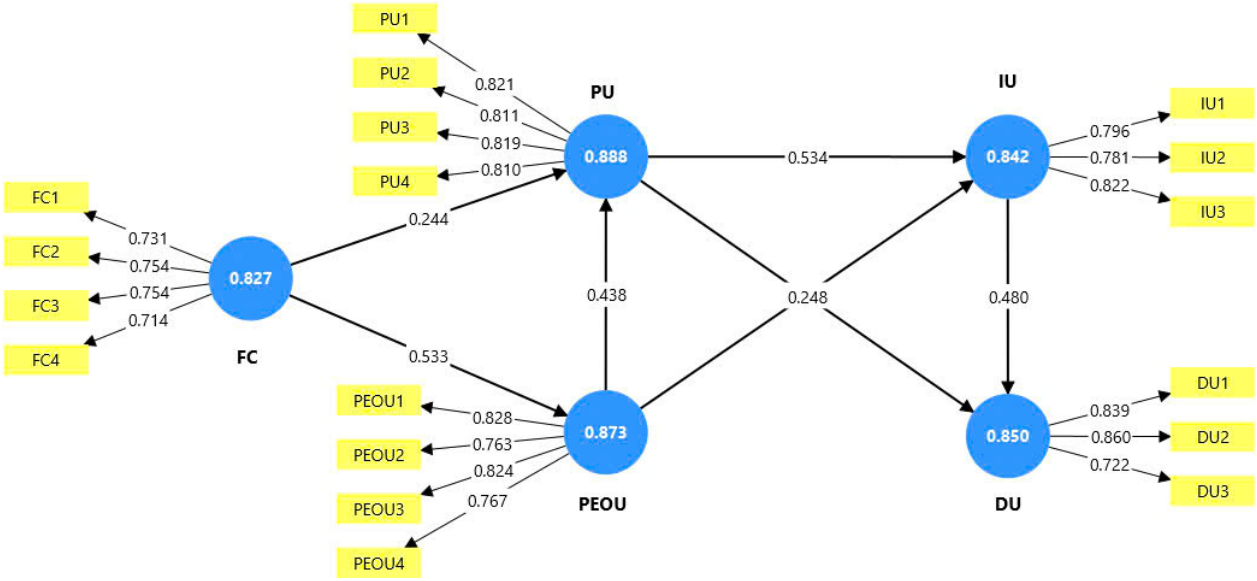
Source: Authors' compilation

Testing the research model and hypothesis. Using 5,000 bootstrap resamples (Hair et al., 2021), the results of the direct relationship testing are presented in Table 3 and Figure 1. The findings show that all hypotheses are supported, as all path coefficients are positive and statistically significant with P values < 0.05. Specifically, Facilitating Conditions (FC) have a positive effect on Perceived Ease of Use (PEOU) with β = 0.533 and on Perceived Usefulness (PU) with β = 0.244, indicating that the availability of resources, knowledge, and support not only helps university students perceive artificial intelligence as easier to use but also contributes to enhancing their perceptions of its usefulness. Perceived Ease of Use (PEOU) positively affects Perceived Usefulness (PU) with β = 0.438 and Intention to Use (IU) with β =

0.214. The effect on Perceived Usefulness (PU) is stronger, suggesting that when artificial intelligence is easier to operate, students are more likely to evaluate it as useful. Perceived Usefulness (PU) positively affects Intention to Use (IU) with β = 0.534 and Decision to Use (DU) with β = 0.248. The relationship between Perceived Usefulness (PU) and Intention to Use (IU) has the highest Beta coefficient in the model, indicating that usefulness is the most important factor in encouraging students to form an intention to use artificial intelligence. Regarding Decision to Use (DU). Intention to Use (IU) has the strongest direct effect with β = 0.480, which is greater than the effect of Perceived Usefulness (PU) with β = 0.248. Overall, the findings indicate that university students' decisions to use artificial intelligence are formed through a sequential process involving facilitating conditions, perceptions of ease of use and usefulness, intention to use, and ultimately actual use decisions.

Figure 1

PLS-SEM model estimation results



Source: Authors' compilation

The indirect effect results in Table 3 show that all indirect paths are statistically significant, with P values < 0.05. Among them, the indirect effect of Perceived Usefulness (PU) on Decision to Use (DU) through Intention to Use (IU) is the strongest, with β = 0.256 and P value = 0.000. The next two strongest indirect effects are the effect of Perceived Ease of Use (PEOU) on Intention to Use (IU) through Perceived Usefulness (PU) and the effect of Facilitating Conditions (FC) on Perceived Usefulness (PU) through Perceived Ease of Use (PEOU), both with β = 0.234 and P value = 0.000. The remaining indirect paths are also statistically significant, indicating that Perceived Ease of Use (PEOU), Perceived Usefulness (PU) and Intention to Use (IU) all play mediating roles in the model. Among these factors, Perceived Usefulness (PU) and Intention to Use (IU) play particularly prominent roles in translating facilitating conditions and perceived ease of use into actual decisions to use artificial intelligence.

DISCUSSION AND CONCLUSIONS

The findings provide empirical support for the proposed relationships among facilitating conditions, perceived ease of use, perceived usefulness, intention to use, and decision to use AI among university students in Ho Chi Minh City. All seven direct relationships were positive and statistically significant, while the indirect effects highlighted the interconnected roles of students' technological perceptions and behavioral intentions. Rather than treating AI adoption as a single evaluation, these findings

suggest that students' self-reported usage decisions are associated with both enabling conditions and perceptions of technological value.

Facilitating conditions were positively associated with perceived ease of use (β = 0.533) and perceived usefulness (β = 0.244), consistent with Thuy et al. (2024) and Alzahrani (2023). This suggests that access to technological resources, guidance, and support may help students navigate AI applications and recognize their academic benefits. Perceived ease of use was also positively associated with perceived usefulness (β = 0.438) and intention to use (β = 0.214), supporting the central logic of the Technology Acceptance Model and aligning with Li (2023) and Nguyen et al. (2026). Unlike Valle et al. (2024), the relationship between ease of use and intention remained statistically significant in the present sample. This difference may reflect contextual variations in students' experiences with AI tools, although the study did not directly test these explanations.

Perceived usefulness emerged as the strongest direct predictor of intention to use (β = 0.534) and was also positively associated with decision to use (β = 0.248). Its indirect relationship with decision to use through intention was significant (β = 0.256), indicating that perceived academic value is associated with usage decisions both directly and through behavioral intention. These findings align with Li (2023), Nguyen et al. (2026), and Valle et al. (2024). Intention to use was the strongest direct predictor of decision to use (β = 0.480), consistent with the behavioral intention perspective underlying TAM and the Theory of Planned Behavior (Davis, 1989; Ajzen, 1991). Together, the direct and indirect results support an interconnected pattern of technology acceptance, although the cross-sectional design does not establish a temporal sequence or causal mediation.

The inclusion of 53 international students (14.36%) provides additional contextual relevance to AI adoption in a higher education environment involving students from different national backgrounds. For international students, AI tools may offer potential support for understanding course materials, navigating language-related academic tasks, and accessing learning resources in an unfamiliar educational environment. The observed importance of facilitating conditions and perceived usefulness therefore raises questions about whether accessible guidance, multilingual support, and academically relevant AI applications could help address such needs. However, these implications remain tentative: the model was estimated using the pooled sample of 369 students, and no separate analysis established whether the relationships differ between domestic and international students. Future research should examine these possibilities directly through appropriately designed subgroup or comparative analyses.

Conclusion and Limitations

This study examined the factors associated with university students' decisions to use artificial intelligence (AI) in Ho Chi Minh City, Vietnam, using an extended Technology Acceptance Model and survey data from 369 students. The findings supported all seven hypothesized direct relationships, highlighting the importance of facilitating conditions, perceived ease of use, perceived usefulness, and behavioral intention in explaining students' self-reported AI usage decisions. Perceived usefulness was particularly important in explaining intention to use, while behavioral intention showed the strongest direct association with decision to use. The significant indirect relationships further demonstrated how technological perceptions and behavioral intentions are interconnected within the proposed model.

The study contributes to AI adoption research by integrating institutional enabling conditions with individual technology acceptance perceptions and by examining usage decisions beyond behavioral intention. Its higher education context, which included 53 international students, also provides a foundation for considering AI adoption in academically and culturally diverse learning environments. However, the pooled analysis does not establish whether international students experience different adoption mechanisms from domestic students.

Several limitations should be acknowledged. First, convenience sampling within Ho Chi Minh City limits the generalizability of the findings to other universities and educational contexts. Second, the cross-sectional design does not establish causal relationships or changes in AI adoption over time. Third, the

reliance on self-reported measures may introduce common method bias and does not provide independently observed evidence of actual AI usage. Finally, although international students were represented in the sample, their relatively small number and the absence of subgroup analyses prevent conclusions about international student-specific relationships. Future research should employ longitudinal or multi-institutional designs, incorporate behavioral usage data where feasible, and examine differences between domestic and international students. Further investigation of language-related academic needs, institutional support, and educational adjustment could provide a more nuanced understanding of AI adoption in international higher education.

IMPLICATIONS

Theoretical Implications

This study contributes to the literature on technology acceptance and AI adoption in higher education in three ways. First, it extends the application of the TAM by integrating facilitating conditions with perceived ease of use, perceived usefulness, behavioral intention, and self-reported AI usage decisions. This framework highlights the combined relevance of enabling conditions and individual perceptions in explaining students' AI adoption (Davis, 1989; Venkatesh et al., 2012).

Second, the findings demonstrate significant direct and indirect relationships among the model constructs. Perceived usefulness is associated with AI usage decisions both directly and indirectly through behavioral intention, extending the empirical application of TAM beyond intention as the sole outcome. However, the cross-sectional design does not establish a causal or temporal sequence among these relationships.

Third, the study provides contextual evidence from universities in Ho Chi Minh City, where the sample includes domestic and international students. Although the pooled analysis does not identify distinct adoption mechanisms among international students, the findings offer a foundation for future comparative research on language-related academic needs, institutional support, and educational adjustment in international higher education.

Practical Implications

The findings offer practical implications for universities, instructors, international student support services, and AI developers. First, the positive relationships between facilitating conditions and students' perceptions of AI suggest that universities should strengthen access to appropriate AI tools, provide practical training, and establish clear guidelines for responsible academic use. Institutional support should address not only technological accessibility but also data privacy, academic integrity, and students' ability to evaluate AI-generated information critically.

Second, the significant roles of perceived usefulness and behavioral intention suggest that instructors should demonstrate how AI can support specific learning activities, including information retrieval, concept clarification, academic writing, and problem-solving. Rather than encouraging unrestricted AI use, educators should integrate these tools into learning activities with explicit expectations concerning verification, attribution, and independent thinking. Such guidance may help students recognize the academic value of AI while maintaining responsibility for their work.

Third, international student support services should consider whether multilingual AI guidance, orientation workshops, and accessible learning resources could assist students navigating unfamiliar academic environments. These initiatives may be particularly relevant to students facing language-related challenges or differences in academic conventions. However, because the study did not estimate separate effects for international students, these recommendations should be understood as context-sensitive applications of the overall findings rather than interventions empirically validated for this subgroup.

Finally, AI developers should prioritize usability, academically relevant functions, transparent information practices, and affordable access. Collaboration with universities could help align AI applications with students' learning needs and institutional expectations. Collectively, these recommendations emphasize that effective AI adoption in higher education requires both useful technologies and appropriate educational support.

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