

Factors Influencing University Students' Decision to Use ChatGPT for Learning: Evidence from Hanoi, Vietnam

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URL: <https://doi.org/10.5296/jsss.v13i2.23904>**Abstract**

This study investigates the factors influencing university students' decision to use ChatGPT for learning in Hanoi, Vietnam. Drawing on the Technology Acceptance Model, the Unified Theory of Acceptance and Use of Technology, and recent research on generative AI in higher education, the study examines five antecedent groups: student-related factors, ChatGPT characteristics, social influence, technological context, and institutional support. A cross-sectional survey of 289 university students was analysed using SPSS 22, including descriptive statistics, reliability testing, exploratory factor analysis, Pearson correlation, and multiple linear regression. The measurement scales demonstrate satisfactory reliability, with Cronbach's alpha values ranging from 0.834 to 0.861. Exploratory factor analysis supports a five-factor structure explaining 68.998% of the total variance. The regression model is statistically significant and explains 68.5% of the variance in students' decisions to use ChatGPT. Student-related factors are the strongest predictor, followed by institutional support, ChatGPT characteristics, and social influence. Although the technological context is positively correlated with the dependent variable, it does not retain a significant unique effect in the regression model. The findings indicate that students' adoption of ChatGPT is driven less by the general diffusion of AI technology and more by perceived personal usefulness, institutional guidance, and tool-level value. The study offers practical implications for universities, lecturers, AI developers, and policymakers seeking to promote responsible and effective use of generative AI in higher education.

Keywords: ChatGPT, generative artificial intelligence, technology acceptance, university students, higher education, Hanoi

1. Introduction

Generative artificial intelligence (AI) is reshaping how students search for information, draft academic texts, solve problems, and interact with knowledge. Among current AI applications, ChatGPT has become one of the most visible conversational tools because it can generate explanations, examples, summaries, translations, and writing suggestions in natural language. In higher education, this technology creates opportunities for personalised learning, rapid feedback, and academic support beyond the classroom. At the same time, it raises important concerns about information accuracy, privacy, overdependence, plagiarism, academic integrity, and the need for responsible human oversight (Baig & Yadegaridehkordi, 2024; Halaweh, 2023; Kasneci et al., 2023; Mahapatra, 2024)..

The rapid diffusion of ChatGPT has prompted extensive research on how learners accept, evaluate, and use generative AI tools. Studies have applied the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Planned Behavior (TPB), diffusion-of-innovation theory, task-technology fit, and trust-based models. Across these perspectives, perceived usefulness, ease of use, performance expectancy, social influence, facilitating conditions, trust, and perceived risk repeatedly

emerge as important adoption drivers (Al-kfairy, 2024; Menon & Shilpa, 2023; Shahzad et al., 2024; Strzelecki, 2024). However, their relative importance varies across national settings, disciplines, levels of digital readiness, and the degree of institutional guidance.

Vietnam provides a relevant context because universities are increasingly incorporating digital technologies into teaching, learning, and assessment. Students in large urban centres such as Hanoi are widely exposed to online learning platforms, social media, and AI-enabled tools, yet access alone may not determine whether they use ChatGPT for learning. Adoption may also depend on perceived usefulness, ease of use, response quality, response speed, peer influence, and support from lecturers or institutions, whereas cost, privacy concerns, academic-integrity uncertainty, and unreliable outputs may constrain use. Maheshwari (2024) provides important evidence on students' intention to adopt ChatGPT in the Vietnamese higher-education context, but further research is needed to compare multiple categories of antecedents within a single model.

Despite growing international attention to ChatGPT adoption, empirical evidence from Vietnamese university students remains limited. Existing local studies are often descriptive or conceptual, while fewer studies compare individual, tool-level, social, technological, and institutional antecedents within a single quantitative model. This study, therefore, investigates the determinants of university students' decision to use ChatGPT for learning in Hanoi, focusing on five groups of predictors, including student-related factors, ChatGPT characteristics, social influence, technological context, and institutional support.

This paper makes three contributions. First, it develops an integrated empirical model that combines individual, tool-level, social, technological, and institutional factors. Second, it provides survey evidence from 289 university students in Hanoi and distinguishes simple bivariate associations from unique regression effects. Third, it offers practical guidance for responsible AI integration in higher education, particularly for universities seeking to promote AI literacy while protecting academic integrity and student autonomy.

2. Literature Review and Hypothesis Development

2.1 ChatGPT and Technology Acceptance in Higher Education

ChatGPT belongs to the family of large language model applications capable of generating text-based responses to user prompts. In education, it can help students clarify concepts, generate examples, brainstorm ideas, revise writing, translate texts, and prepare learning materials. Kasneci et al. (2023) and Halaweh (2023) argue that these benefits are accompanied by risks, including inaccurate responses, biased outputs, data privacy concerns, and misuse in assessment. Therefore, the educational value of ChatGPT depends not only on access to the tool but also on how students understand, evaluate, and apply AI-generated content.

TAM argues that perceived usefulness and perceived ease of use shape users' attitudes and behavioural intention toward technology (Davis, 1989). UTAUT expands this logic by emphasising performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). These theories are highly relevant to ChatGPT because

students' adoption decisions involve judgments about whether the tool helps learning, whether it is easy to operate, whether peers and lecturers support its use, and whether adequate institutional conditions exist. Recent studies on ChatGPT adoption in higher education confirm the relevance of these constructs (Strzelecki, 2023; Al-Mamary et al., 2024; Sallam et al., 2024).

In the context of generative AI, adoption also depends on trust, perceived risk, task-technology fit, and ethical awareness. Trust is important because students cannot always verify whether AI-generated information is accurate. Task-technology fit matters because ChatGPT may be useful for summarising, translating, and brainstorming, but less suitable for tasks requiring original analysis, disciplinary judgement, or interpretation of empirical evidence. Ethical awareness is also central because irresponsible use can result in plagiarism, shallow learning, and dependence on machine-generated outputs. Accordingly, this study adopts a multi-dimensional model rather than relying on a single acceptance theory.

2.2 Student-Related Factors

Student-related factors capture students' perceptions, motivations, needs, and concerns when using ChatGPT for learning. In this study, the construct includes perceived usefulness, perceived ease of use, perceived cost, privacy concerns, learning needs, curiosity, and interest in new technology. These sub-factors combine core TAM assumptions with AI-specific considerations in academic learning contexts.

Students are more likely to use ChatGPT when they believe that the tool helps them complete academic tasks more efficiently, understand difficult concepts, or improve assignment quality. Ease of use reduces cognitive effort and encourages experimentation. However, adoption is not purely positive, as perceived cost and privacy concerns may reduce willingness to use the tool, especially when students are uncertain about data storage, account registration, or paid versions. Curiosity and interest in new technology may also encourage early adoption among digitally oriented students. Therefore, this study proposes the hypothesis:

H1. Student-related factors positively influence students' decisions to use ChatGPT for learning.

2.3 ChatGPT Characteristics

ChatGPT characteristics refer to the perceived technical and functional qualities of the tool. In this study, these characteristics include information quality, breadth of available data, interactivity, and response speed. Tool-level attributes are important because students evaluate ChatGPT as a learning assistant based on whether it provides relevant, understandable, and timely responses.

Information quality is especially important in academic contexts. If ChatGPT provides inaccurate, vague, or outdated content, students may lose trust or need additional time to verify responses. Conversely, high-quality explanations and rapid feedback can increase perceived learning value. Interactivity also matters because students can refine prompts, ask follow-up questions, and receive personalised responses. These features differentiate

ChatGPT from static search engines or traditional learning materials. Therefore, this study proposes the hypothesis:

H2. ChatGPT's characteristics positively influence students' decisions to use ChatGPT for learning.

2.4 Social Influence

Social influence reflects the role of friends, peer groups, trends, and social media in shaping students' adoption decisions. University students often learn about new tools through classmates, online communities, lecturers, and informal sharing. When ChatGPT use becomes common in study groups, students may perceive it as a normal or even necessary learning resource.

This mechanism is consistent with the social influence component of UTAUT and the subjective norm component of TPB. Social influence can reduce uncertainty about new technologies by providing examples of effective use. It may also create normative pressure that students who see peers using ChatGPT for assignments or research may feel encouraged to try it themselves. However, social diffusion alone does not guarantee responsible use; peer-based adoption should be accompanied by guidance on verification, citation, and ethical boundaries. Therefore, this study proposes the hypothesis:

H3. Social influence positively influences students' decisions to use ChatGPT for learning.

2.5 Technological Context

Technological context refers to the broader environment in which AI tools develop and become available. This study, it includes technological development, availability, speed of development, and continuous improvement. The diffusion of AI tools can increase awareness and perceived relevance, particularly when students observe rapid innovation in digital platforms.

A favourable technological context should theoretically support adoption because it improves access, reduces technical barriers, and signals that AI-based learning tools are becoming part of modern education. Nevertheless, general technological development may not translate into a direct, unique effect if students' decisions are shaped more strongly by personal benefits, institutional support, and the concrete features of ChatGPT. This possibility is tested empirically in the regression model. Therefore, this study proposes the hypothesis:

H4. The technological context positively influences students' decisions to use ChatGPT for learning.

2.6 Institutional Support

Institutional support refers to the role of universities, lecturers, curricula, guidance documents, and monitoring mechanisms in shaping students' use of ChatGPT. In higher education, students may hesitate to use generative AI if they are unsure whether it is permitted, how it should be cited, or what counts as acceptable assistance. Institutional clarity can therefore reduce uncertainty and encourage responsible use.

Universities can influence adoption through AI literacy training, lecturer guidance, curriculum integration, assessment redesign, and transparent rules. Institutional support is not limited to encouraging use; it also includes setting boundaries, warning students about misinformation, and developing procedures to prevent academic misconduct. In this sense, institutional support may be one of the most important conditions for transforming ChatGPT from a casual tool into a responsible learning resource. Therefore, this study proposes the hypothesis:

H5. Institutional support positively influences students' decisions to use ChatGPT for learning.

Figure 1 shows the proposed research model, where “decision to use ChatGPT for learning” is the dependent variable.

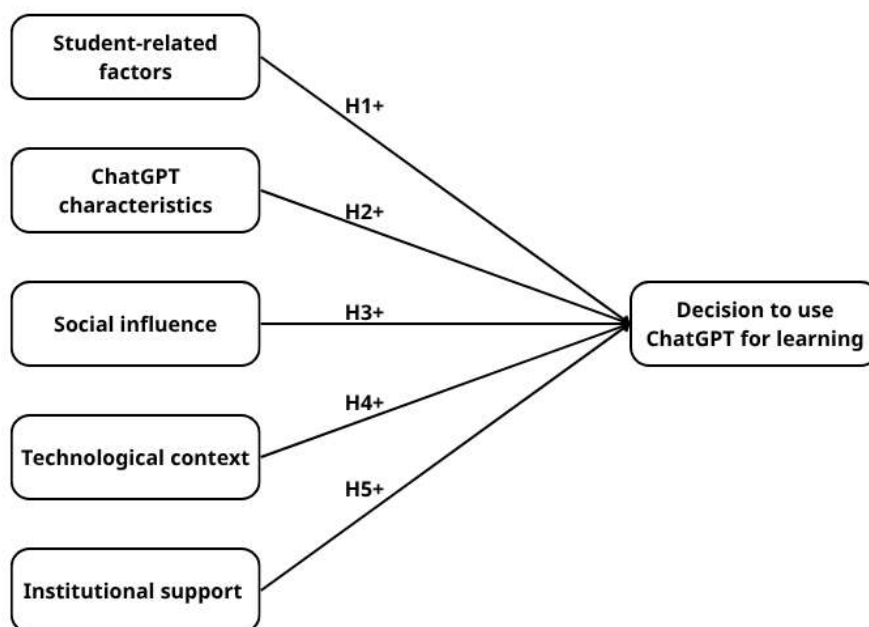


Figure 1. Proposed research model. Source: Authors'

3. Research Methods

3.1 Research Design and Sample

The study adopted a quantitative cross-sectional survey design. The target population consisted of university students in Hanoi who were aware of ChatGPT and could evaluate its use for learning. A structured questionnaire was used to collect self-reported data on demographic characteristics, awareness sources, learning uses, perceptions of ChatGPT, and the proposed constructs. After data screening, 289 valid responses were retained for analysis. Because the design is cross-sectional, the findings should be interpreted as explanatory associations rather than evidence of causal relationships.

In Table 1, the sample was relatively balanced by gender, with 142 male respondents (49.1%)

and 147 female respondents (50.9%). Third-year students accounted for the largest group (33.6%), followed by first-year and fourth-year students (18.7% each), second-year students (16.3%), and students above year four (12.8%). Social media was the most common source through which students knew about ChatGPT (49.5%), followed by friends (31.8%) and lecturers (18.7%).

Table 1. Sample characteristics

Variable	Category	Frequency	Percentage
Gender	Male	142	49.1
Gender	Female	147	50.9
Academic year	Year 1	54	18.7
Academic year	Year 2	47	16.3
Academic year	Year 3	97	33.6
Academic year	Year 4	54	18.7
Academic year	Above year 4	37	12.8
Awareness source	Friends	92	31.8
Awareness source	Lecturers	54	18.7
Awareness source	Social media	143	49.5
Main perceived learning support	Quick information search	199	68.9
Main perceived learning support	Explaining difficult concepts	43	14.9
Main perceived learning support	Essay writing/ document summarization	47	16.3
Main usage purpose	Learning support	125	43.3
Main usage purpose	Research/ reference search	99	34.3
Main usage purpose	Work-related information search	65	22.5
Use frequency	Always use	67	23.2
Use frequency	Use when urgent	63	21.8
Use frequency	Moderate use	159	55.0

Source: Authors' survey results (N = 289).

3.2 Measurement

The questionnaire used five-point Likert-type items ranging from strong disagreement to strong agreement. The dependent variable was students' decision to use ChatGPT for learning (DCL). The independent variables were student-related factors (SRF), ChatGPT characteristics (CC), social influence (SI), technological context (TC), and institutional support (IS).

Student-related factors included perceived usefulness, perceived ease of use, cost perception, privacy concerns, learning needs, curiosity, and interest in technology. ChatGPT characteristics included information quality, data breadth, interactivity, and response speed. Social influence included friends, trends, and social media. The technological context included technological development, availability, speed of development, and improvement. Institutional support included lecturers, curriculum, guidance documents, and monitoring of use.

3.3 Data Analysis

Data were analysed using SPSS 22. Descriptive statistics were first used to summarise respondent characteristics and use patterns. Cronbach's alpha and corrected item-total

correlations were then examined to assess internal consistency. Exploratory factor analysis (EFA) using principal component analysis with Varimax rotation was conducted to evaluate the measurement structure. Pearson correlation analysis was used to examine bivariate relationships, and multiple linear regression was applied to estimate the unique effect of each predictor on students' decision to use ChatGPT while controlling for the remaining predictors.

The following regression equation was estimated: $DCL = \beta_0 + \beta_1.SRF + \beta_2.CC + \beta_3.SI + \beta_4.TC + \beta_5.IS + \varepsilon$. Multicollinearity was assessed using tolerance and variance inflation factor (VIF) values. The normality of residuals was checked using the histogram of standardised residuals, and the Durbin-Watson statistic was reported as an additional diagnostic for residual independence.

4. Results

4.1 Reliability and Exploratory Factor Analysis

The reliability results indicate that the measurement scales have satisfactory internal consistency. Cronbach's alpha values range from 0.834 to 0.861, exceeding the commonly accepted threshold of 0.70. Corrected item-total correlations are also above the minimum acceptable level, indicating that the observed items contribute adequately to their respective constructs.

The EFA results further support the factorability of the data. The Kaiser-Meyer-Olkin value is 0.917, indicating excellent sampling adequacy, and Bartlett's test of sphericity is statistically significant ($\chi^2 = 3436.934$, $df = 210$, $p < 0.001$). Five components with eigenvalues greater than one are extracted, explaining 68.998% of the total variance. The rotated matrix generally confirms the expected five-factor structure. However, item TC1 shows a weak cross-loading pattern, so it should be interpreted cautiously and refined in future studies.

Table 2. Reliability and EFA summary

Construct / test	Result	Interpretation
Student-related factors (SRF)	Cronbach's alpha = 0.853	Satisfactory reliability
ChatGPT characteristics (CC)	Cronbach's alpha = 0.847	Satisfactory reliability
Social influence (SI)	Cronbach's alpha = 0.861	Satisfactory reliability
Technological context (TC)	Cronbach's alpha = 0.849	Satisfactory reliability
Institutional support (IS)	Cronbach's alpha = 0.834	Satisfactory reliability
KMO	0.917	Excellent sampling adequacy
Bartlett's test	$\chi^2 = 3436.934$; $df = 210$; $p < 0.001$	Correlation matrix suitable for factor analysis
Extracted factors	5 components	Consistent with proposed model
Cumulative variance explained	68.998%	Adequate explanatory power for EFA

Source: Authors' SPSS 22 analysis.

4.2 Correlation Analysis

Pearson correlation analysis shows that all five independent variables are positively and significantly associated with students' decision to use ChatGPT. The strongest bivariate association is observed for student-related factors ($r = 0.746$, $p < 0.001$), followed by

institutional support ($r = 0.691$, $p < 0.001$), ChatGPT characteristics ($r = 0.638$, $p < 0.001$), social influence ($r = 0.571$, $p < 0.001$), and technological context ($r = 0.548$, $p < 0.001$). These results suggest that students who perceive stronger personal benefits, better institutional support, and more favourable tool characteristics are more likely to report stronger decisions to use ChatGPT for learning.

Nevertheless, correlation analysis should not be interpreted as evidence of unique effects. Each correlation examines a predictor separately, whereas the regression model estimates the effect of each predictor after accounting for the remaining variables. This distinction is important because some variables may overlap conceptually and empirically.

Table 3. Pearson correlations with students' decision to use ChatGPT

Predictor	Pearson r with DCL	p-value	Bivariate rank
Student-related factors (SRF)	0.746	<0.001	1
Institutional support (IS)	0.691	<0.001	2
ChatGPT characteristics (CC)	0.638	<0.001	3
Social influence (SI)	0.571	<0.001	4
Technological context (TC)	0.548	<0.001	5

Note: All correlations are significant at the 0.01 level. Source: Authors' SPSS 22 analysis.

4.3 Regression Analysis

As shown in Table 4, the multiple regression model is statistically significant and has strong explanatory power. The model reports $R = 0.831$, $R^2 = 0.690$, and adjusted $R^2 = 0.685$, indicating that the five predictors explain 68.5% of the variance in students' decision to use ChatGPT. The ANOVA result is significant ($F = 126.168$, $p < 0.001$), confirming that the model as a whole is suitable for explaining the dependent variable. The Durbin-Watson statistic is 1.541, which does not suggest a severe autocorrelation problem in this cross-sectional dataset.

The coefficient estimates show that student-related factors have the strongest positive unique effect on the decision to use ChatGPT ($\beta = 0.419$, $p < 0.001$). Institutional support is the second strongest predictor ($\beta = 0.321$, $p < 0.001$), followed by ChatGPT characteristics ($\beta = 0.180$, $p < 0.001$) and social influence ($\beta = 0.098$, $p = 0.026$). The technological context has a negative but statistically insignificant coefficient ($\beta = -0.027$, $p = 0.560$). Thus, although the technological context is positively correlated with the dependent variable at the bivariate level, it does not retain a significant unique effect after the other predictors are controlled.

In Table 5, all VIF values range from 1.755 to 2.072, which is below the commonly used threshold of 5. Therefore, multicollinearity does not appear to threaten the stability of the regression estimates. Based on the unstandardised coefficients, the estimated model is: $DCL = 0.198 + 0.446SRF + 0.175CC + 0.084SI - 0.024TC + 0.300IS + \varepsilon$. Based on the standardised coefficients, the influence ranking is: student-related factors, institutional support, ChatGPT characteristics, social influence, and technological context.

Table 4. Regression model summary and ANOVA results

Indicator	Value	Interpretation
R	0.831	Strong model correlation
R ²	0.690	Model explains 69.0% of variance
Adjusted R ²	0.685	Model explains 68.5% after adjustment
Std. error of estimate	0.37746	Prediction error
Durbin-Watson	1.541	No severe autocorrelation concern
F-statistic	126.168	Overall model significance
Model p-value	<0.001	Regression model is statistically significant

Source: Authors' SPSS 22 analysis.

Table 5. Regression coefficients

Predictor	B	Std. Error	Beta	t	p-value	Tolerance	VIF	Conclusion
Constant	0.198	0.163	-	1.215	0.225	-	-	-
Student-related factors (SRF)	0.446	0.051	0.419	8.802	<0.001	0.483	2.072	Significant
ChatGPT characteristics (CC)	0.175	0.043	0.180	4.074	<0.001	0.559	1.790	Significant
Social influence (SI)	0.084	0.037	0.098	2.233	0.026	0.570	1.755	Significant
Technological context (TC)	-0.024	0.042	-0.027	-0.584	0.560	0.521	1.920	Not significant
Institutional support (IS)	0.300	0.042	0.321	7.102	<0.001	0.536	1.867	Significant

Note: Dependent variable: DCL, $p = 0.000$ is reported as $p < 0.001$. Source: Authors' SPSS 22 analysis.

4.4 Hypothesis Testing

The regression results support four of the five hypotheses. H1 is supported because student-related factors have a positive and significant effect on students' decision to use ChatGPT. H2 is supported because ChatGPT characteristics also have a positive and significant effect. H3 is supported because social influence has a weaker but still significant positive effect. H4 is rejected because the technological context is not statistically significant in the multivariate model. H5 is supported because institutional support has a strong and significant positive effect.

Table 6. Hypothesis testing summary

Hypothesis	Standardized beta	p-value	Decision
H1: Student-related factors → decision to use ChatGPT	0.419	<0.001	Supported
H2: ChatGPT characteristics → decision to use ChatGPT	0.180	<0.001	Supported
H3: Social influence → decision to use ChatGPT	0.098	0.026	Supported
H4: Technological context → decision to use ChatGPT	-0.027	0.560	Rejected
H5: Institutional support → decision to use ChatGPT	0.321	<0.001	Supported

Source: Authors' SPSS 22 analysis.

5. Discussion

The findings provide a nuanced explanation of why university students in Hanoi decide to use

ChatGPT for learning. Student-related factors are the strongest predictor, indicating that adoption is primarily driven by students' own perceptions of usefulness, ease of use, learning needs, curiosity, and perceived personal value. This is consistent with TAM and with recent ChatGPT adoption studies showing that students are more willing to use AI tools when they believe such tools improve academic productivity and learning performance. In practical terms, students appear to adopt ChatGPT because it helps them search for information quickly, understand difficult concepts, and support tasks such as writing or summarising documents.

Institutional support is the second strongest predictor, which is an important finding for higher education management. It suggests that students do not use ChatGPT only as an individual or informal digital habit; they are also influenced by lecturers, curriculum design, guidance materials, and monitoring mechanisms. This result supports the facilitating-conditions perspective in UTAUT and indicates that university policies can strongly shape responsible adoption. When lecturers explain acceptable uses, demonstrate prompt strategies, and design assessments requiring critical reflection, students may use ChatGPT more effectively and ethically. Conversely, ambiguous institutional rules may lead to confusion, hidden use, or misuse.

ChatGPT characteristics also have a positive and significant effect, confirming that tool-level quality matters. Students are more likely to use ChatGPT when they perceive its responses as fast, interactive, sufficiently informative, and useful for academic tasks. However, this effect is weaker than student-related and institutional factors. One interpretation is that students may already recognise the technical strengths of ChatGPT, but their decision to use it depends more on whether they personally need it and whether universities provide acceptable learning conditions for its use.

Social influence has a positive but relatively modest effect. Friends, social media, and trends appear to help spread awareness and encourage initial experimentation, but peer effects are not the dominant predictor once personal and institutional factors are considered. This finding is important because ChatGPT adoption can spread quickly through informal channels, yet sustainable and responsible use requires more than popularity. Social diffusion should therefore be complemented by structured AI literacy training.

The non-significant effect of technological context is theoretically meaningful. Although technological context is positively correlated with the decision to use ChatGPT, it becomes insignificant in the regression model. This suggests that general technological development, availability, and continuous improvement create background conditions for adoption, but they do not directly determine students' decisions when more immediate factors are considered. Students may be aware that technology is developing rapidly, but their actual decision to use ChatGPT is more closely linked to perceived personal benefit, institutional legitimacy, and specific tool quality.

6. Theoretical and Practical Implications

This study contributes to the literature on AI adoption in higher education in three ways. First,

it confirms the relevance of technology acceptance theories in explaining ChatGPT use among students, especially the roles of perceived usefulness, ease of use, social influence, and facilitating conditions. Second, it shows that institutional support has a particularly strong role in the Vietnamese higher education context, suggesting that adoption should be understood as both an individual decision and an institutionally shaped behaviour. Third, it demonstrates that a favourable technological environment does not automatically translate into a direct adoption effect; general technological progress needs to be converted into specific learning value and institutional guidance before it can influence students' behaviour.

For universities, the most important implication is the need to develop clear and balanced guidance for ChatGPT use. Institutions should not simply prohibit or promote the tool. Instead, they should define acceptable uses, explain academic integrity rules, teach prompt literacy, and require students to verify AI-generated content. Lecturers should redesign assignments to emphasise critical thinking, source evaluation, reflection, and personal contribution rather than tasks that can be completed by copying AI-generated responses.

For students, the results suggest that ChatGPT should be used as a learning assistant rather than a substitute for independent thinking. Students should use the tool to clarify concepts, brainstorm ideas, check structure, and improve language, but they should verify factual claims, cite original sources, and avoid submitting AI-generated content as their own work. Responsible use requires both technical skill and ethical judgement.

For AI developers and educational technology firms, the findings highlight the importance of information quality, response speed, interactivity, privacy protection, and educational localisation. Developers should improve transparency about limitations, offer student-friendly guidance, and design features that encourage verification and learning rather than passive copying. Affordable access, multilingual support, and privacy assurance may also improve students' willingness to use AI tools.

For policymakers, the study suggests that national and institutional frameworks for generative AI in education are needed. Such frameworks should address academic integrity, data privacy, teacher training, AI literacy, and assessment redesign. Policies should be flexible enough to allow innovation while protecting students from misinformation, overdependence, and unethical practices.

Overall, the practical message is that effective ChatGPT integration requires a dual strategy that students need skills to use AI critically, and universities need clear rules that make responsible use visible, teachable, and assessable. Without such guidance, ChatGPT may remain an informal shortcut rather than a structured learning resource.

7. Limitations and Future Research

This study has several limitations. First, its cross-sectional design does not support strong causal inference; the findings should be interpreted as associations and predictive relationships. Second, the sample is limited to university students in Hanoi and may not represent students in other regions, institutions, disciplines, or educational levels. Third, all variables were self-reported by the same respondents in a single questionnaire administered at

one point in time. This design creates a risk of common-method bias and social-desirability bias, which may inflate or deflate observed relationships. Because common-method variance was not directly assessed in the reported analysis, it cannot be ruled out. Future studies should use procedural remedies such as temporal separation of predictor and outcome measures, psychological separation of item blocks, varied scale formats, neutral wording, confidentiality assurances, and reduced evaluation apprehension. Statistically, Harman's single-factor test may be reported as an initial diagnostic, but it should be complemented by stronger approaches such as a confirmatory single-factor comparison, a marker-variable technique, or an unmeasured latent-method-factor model (Podsakoff et al., 2003).

Fourth, the study relies on EFA and multiple regression rather than confirmatory factor analysis or structural-equation modelling, so the measurement model and indirect mechanisms were not tested. Fifth, item TC1 showed weak cross-loading, indicating that the technological-context construct requires further refinement. Future research should use larger and more diverse samples, compare universities and disciplines, and distinguish frequent from occasional users. Longitudinal designs could track changes in attitudes and behaviour as generative AI evolves, while experiments or quasi-experiments could test whether guided ChatGPT use improves learning outcomes, writing quality, critical thinking, or research skills. Future models should also examine trust, perceived risk, ethical awareness, academic integrity, and the quality of human-AI collaboration.

8. Conclusion

This study examined the factors influencing university students' decisions to use ChatGPT for learning in Hanoi, Vietnam. Based on survey data from 289 students and SPSS analysis, the study finds that the proposed model explains a substantial proportion of variance in students' decisions to use ChatGPT. Student-related factors are the strongest predictor, followed by institutional support, ChatGPT characteristics, and social influence. Technological context is positively correlated with the dependent variable, but it does not show a significant unique effect in the regression model.

The findings suggest that students' adoption of ChatGPT is not driven simply by the general rise of AI technology. Rather, adoption is shaped by perceived personal value, tool-level usefulness, peer and social influence, and especially the support provided by universities and lecturers. For higher education institutions, the key challenge is therefore not only to provide access to AI tools but also to create an environment in which students can use them critically, ethically, and productively. ChatGPT can support learning, but its educational value depends on guidance, verification, and responsible use.

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Author contributions

Dr. Huyen Thi Thanh Le designed the research model, discussion, conclusion, research

summary, and research synthesis (including sections 3, 4, 5, 6, 7, and 8). PhD Student Ninh Song Nguyen prepared the introduction and results (including sections 1 and 4). Master Student Dang Hai Le prepared was responsible for the Literature Review (including sections 2.3, 2.4 and the references) and a part of section 3. Research Methods. Student Thu Le Kim Nguyen was responsible for the Literature Review and Hypothesis Development section 2.1, 2.2, and the references. Tuyet Le Dao drew the model and was responsible for the Literature Review and Hypothesis Development section 2.5, 2.6, and the summarizing section 3. Research Methods.

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Data sharing statement

No additional data are available.

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