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FACTORS AFFECTING THE USE OF CHATGPT IN ACADEMIC WRITING PERCEIVED BY ENGLISH-MAJORED STUDENTS

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Abstract: The application of artificial intelligence (AI) in the educational field, particularly the use of ChatGPT for academic purposes, has been gaining widespread attention. This study investigates the factors affecting the acceptance of ChatGPT for academic writing among English-majored students, using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework proposed by Venkatesh et al. (2003). Employing a quantitative approach, the research collected data via a paper-based survey. Then, multiple linear regression analysis was used to examine the relationships between four independent variables - performance expectancy, effort expectancy, social influence, and facilitating conditions - and students' acceptance of ChatGPT. The results indicate that all four elements significantly influence students' use of ChatGPT for academic writing activities, with performance expectancy emerging as the most influential predictor. These findings suggest that students adopt ChatGPT not only because they perceive it as useful for enhancing academic performance but also due to its ease of use, peer influence, and the availability of supporting resources. Given these insights, universities should consider developing AI literacy initiatives and incorporating ethical guidelines into academic curricula to foster responsible and informed usage of ChatGPT in academic writing.

Keywords: ChatGPT acceptance, academic writing, university students, UTAUT model

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CÁC YẾU TỐ ẢNH HƯỞNG ĐẾN VIỆC SINH VIÊN NGÀNH NGÔN NGỮ ANH SỬ DỤNG CHATGPT CHO CÁC BÀI VIẾT HỌC THUẬT

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Tóm tắt: Việc ứng dụng trí tuệ nhân tạo (AI) trong giáo dục, đặc biệt là ChatGPT cho mục đích học thuật, đang thu hút đông đảo sự quan tâm. Nghiên cứu này tập trung tìm hiểu các yếu tố ảnh hưởng đến mức độ sẵn sàng của sinh viên ngành Ngôn ngữ Anh khi sử dụng ChatGPT để hoàn thành bài viết học thuật. Dựa trên mô hình UTAUT (Venkatesh cùng cộng sự, 2003), nghiên cứu sử dụng phương pháp định lượng với dữ liệu được thu thập từ khảo sát trên giấy. Phân tích hồi quy tuyến tính bội cũng được thực hiện để kiểm tra mối quan hệ của bốn yếu tố (kỳ vọng về hiệu quả, kỳ vọng về nỗ lực, ảnh hưởng xã hội và điều kiện hỗ trợ) lên mức độ sẵn sàng sử dụng ChatGPT. Kết quả cho thấy cả bốn yếu tố trên đều có ảnh hưởng tích cực và đáng kể đến việc sinh viên sử dụng ChatGPT, trong đó, "kỳ vọng về hiệu quả" là yếu tố có ảnh hưởng lớn nhất. Điều này cho thấy sinh viên lựa chọn sử dụng ChatGPT chủ yếu vì lợi ích học thuật mà công cụ này mang lại. Từ kết quả thu được, nghiên cứu này đề xuất các trường đại học nên tích hợp đào tạo kỹ năng sử dụng AI và hướng dẫn liêm chính học thuật vào chương trình giảng dạy nhằm hỗ trợ sinh viên tận dụng hiệu quả ChatGPT trong học tập, đồng thời nâng cao nhận thức về liêm chính học thuật trong quá trình sử dụng công cụ này.

Từ khoá: ChatGPT, viết học thuật, sinh viên đại học, mô hình UTAUT

1. Introduction

Artificial intelligence (AI) has attempted to revolutionize various domains, including education, by enabling machines to simulate human cognitive functions like reasoning and adapting to new information. Among AI applications, chatbots have gained significant attention, with ChatGPT emerging as a notable example that generates human-like responses through natural language processing. Since its introduction in 2022, ChatGPT has seen a surge in use, offering promising applications in education, particularly in enhancing teaching and learning (Hong, 2023).

For English learners, ChatGPT is regarded as an effective resource for improving language skills, namely listening, speaking, reading, and writing, by offering instant feedback and customized learning experiences (Xiao & Zhi, 2023). Writing, in particular, is considered the most challenging skill due to its demands on vocabulary, grammar, and organization (Tangpermpoon, 2008). Research suggests that English-major students, especially in Vietnam, encounter difficulties in academic writing, such as structuring essays, maintaining coherence, and using appropriate vocabulary (Tran & Nguyen, 2020). However, ChatGPT is believed to help students overcome these challenges by providing immediate corrections and writing suggestions (Bok & Cho, 2023).

Despite benefits, ChatGPT presents limitations, including the risk of generating inaccurate information, concerns about plagiarism, and potential negative impacts on students'

ability to think critically and develop creative ideas (Wu et al., 2023). While research on ChatGPT has largely focused on its applications in technical and scientific fields (Raman et al., 2023), studies examining ChatGPT's role in academic writing, particularly among English-major students in Vietnam, remain limited. To address this gap, this study attempts to examine the primary drivers and obstacles that influence students' readiness to incorporate ChatGPT into their writing practices. Ultimately, the results will contribute to discussions on AI integration in English education by offering strategies for the ethical and effective application of ChatGPT in academic writing in higher education.

2. Literature Review

2.1. Chat GPT

ChatGPT, created by OpenAI, is an AI-driven chatbot built on the Generative Pretrained Transformer (GPT) model. Utilizing extensive textual data, it produces responses that resemble human communication and is available in both free and paid versions (Aydın & Karaarslan, 2022). First introduced in November 2022 with GPT-3.5, ChatGPT improved response accuracy using human feedback (Wu et al., 2023). In 2023, OpenAI launched GPT-4, which featured enhanced reasoning abilities, greater factual accuracy, and support for multimodal input, allowing the processing of both text and images (Jiao et al., 2023). This upgrade enabled the model to assist users with more complex tasks, such as summarizing academic texts and interpreting visuals. However, limitations in handling audio and video remained, leading to the GPT-4o's release in May 2024 with the integration of real-time audio, video, and image processing (Islam & Moushi, 2024). GPT-4o is also known for faster response times and improved interaction accuracy (Wei, 2024), positioning it as a versatile tool for diverse applications, including education.

In tertiary education, ChatGPT plays a significant role in supporting both learners and educators. Specifically, ChatGPT has been found to assist instructors in creating lesson plans and generating educational content while aiding students with personalized learning, practicing exercises, and real-time academic support (Tlili et al., 2023; Adel et al., 2024). Despite these benefits, concerns exist regarding misinformation, as ChatGPT occasionally generates unverifiable sources and inaccurate citations (Day, 2023). Moreover, ChatGPT's ease of use raises ethical questions regarding academic integrity, as some students may misuse it for plagiarism (Michel-Villarreal et al., 2023).

Regarding academic writing, ChatGPT mitigates difficulties, such as language use, coherence, and idea generation, by offering grammar support, suggesting vocabulary, and generating structured content (Barrot, 2023; Su et al., 2023). Additionally, ChatGPT enhances research processes by assisting in literature reviews and data interpretation (Mondal & Mondal, 2023). However, reliance on ChatGPT could weaken students' ability to think critically and creatively, as they may become too dependent on the content generated by AI (Rahman & Watanobe, 2023). Furthermore, ChatGPT's tendency to produce false references and misleading information remains a key limitation, raising concerns about academic credibility and fairness in assessments (Alkaissi & McFarlane, 2023).

2.2. Academic Writing

According to Oshima and Hogue (2007), academic writing is a formal and structured writing used in educational and professional contexts, distinct from creative or personal writing. It follows a clear structure - introduction, body, and conclusion - ensuring coherence through

logical transitions (Medvid & Podolkova, 2019). Key characteristics of academic writing include formality, clarity, and precision, requiring writers to use appropriate tone and vocabulary while avoiding slang and colloquialisms (Sword, 2009; Irvin, 2010). Additionally, academic writing often involves complex ideas and sophisticated grammar (Klimova, 2012). This study adopts the above definitions to examine the role of AI tools like ChatGPT in supporting academic writing tasks such as essays, research papers, and reports.

2.3. Factors Affecting ChatGPT Adoption in Academic Writing

The acceptance of ChatGPT in academic writing is influenced by multiple factors. Frameworks to examine these factors are primarily derived from the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Davis, 1989; Venkatesh et al., 2003). In this research, the UTAUT model is employed to evaluate the impact of ChatGPT on students' writing practices with four key aspects:

2.3.1. Performance Expectancy

Performance expectancy (PE) refers to the degree to which students believe that using ChatGPT will improve their academic performance (Venkatesh et al., 2003). In this study, PE includes students' perceptions of ChatGPT's ability to enhance various aspects of their writing process, such as: generating ideas, organizing essay structures, developing vocabulary, and improving the overall quality of their written work. When students perceive ChatGPT as an effective tool that can support and elevate their academic writing, they are more likely to adopt it.

Hypothesis 1 (H1): Students' actual behavior of using ChatGPT for academic writing is positively impacted by performance expectancy.

2.3.2. Effort Expectancy

Effort expectancy (EE) pertains to how students evaluate the ease of using ChatGPT (Venkatesh et al., 2003). In the context of this study, EE involves students' perceptions of how easy it is to operate and integrate ChatGPT into their writing practices. For example, if students find the tool user-friendly and efficient, they are more inclined to incorporate it into their academic work.

Hypothesis 2 (H2): Students' actual behavior of using ChatGPT for academic writing is positively impacted by effort expectancy.

2.3.3. Social Influence

According to Venkatesh et al. (2003), social influence (SI) is the term used to describe how peer judgments, teacher supervision, and institutional rules shape students' attitudes regarding ChatGPT. If ChatGPT is widely encouraged in educational settings, students are more likely to adopt it for academic writing purposes.

Hypothesis 3 (H3): Students' actual behavior of using ChatGPT for academic writing is positively impacted by social influence.

2.3.4. Facilitating Conditions

AI literacy, institutional backing, and dependable internet connectivity are examples of facilitating conditions (FC). In this study, FC encompasses factors such as: access to a stable internet connection, compatible digital devices, sufficient AI literacy, and guidance from instructors or institutions. These elements determine how easily students can incorporate ChatGPT into their academic routines. In other words, when adequate support and

infrastructure are in place, students are more likely to adopt the tool confidently and effectively.

Hypothesis 4 (H4): Students' actual behavior of using ChatGPT for academic writing is positively impacted by facilitating conditions.

By examining these determinants, this study seeks to uncover the motivations and obstacles affecting ChatGPT adoption, ultimately guiding strategies for its ethical and effective integration in academic settings.

2.4. Review of Related Studies

In recent years, studies on ChatGPT adoption in higher education have drawn on established technology acceptance models such as TAM, UTAUT, and UTAUT2. These studies, conducted in countries such as Saudi Arabia, Nepal, the UK, Malaysia, and Poland, commonly identify performance expectancy as the most consistent predictor of both intention and actual use (Budhathoki et al., 2024; Parveen et al., 2024; Alshammari & Alshammari, 2024; Strzelecki, 2024). Meanwhile, the influence of effort expectancy, social influence, and facilitating conditions appears to vary depending on educational and cultural contexts. For example, while Budhathoki et al. (2024) found all four UTAUT factors to significantly affect usage, Strzelecki (2024) reported only moderate effects for social influence and facilitating conditions.

Some researchers have expanded the UTAUT framework by incorporating constructs such as hedonic motivation, habit, and perceived playfulness, offering a more nuanced understanding of behavioral intention (Strzelecki, 2024; Foroughi et al., 2024).

Methodologically, quantitative designs predominate, with Likert-scale questionnaires analyzed using Structural Equation Modeling (SEM). However, qualitative work is emerging as well. For instance, Menon and Shilpa (2023) used interviews to explore students' experiences with ChatGPT, reporting positive perceptions of usefulness and ease of use, alongside peer and instructor encouragement. Interestingly, facilitating conditions appeared to have limited impact on actual usage, potentially due to students' pre-existing digital fluency.

In contrast to these international studies, research in Vietnam on this topic remains limited. For instance, Pham and Mai (2024) studied ChatGPT adoption among English-major students but focused on language learning, not academic writing, and used the TAM framework. Likewise, Maheshwari (2024) examined ChatGPT use in higher education broadly, without targeting English majors or writing tasks. These gaps underscore the need for more focused research in this area.

3. Theoretical Framework

The understanding of technology adoption has evolved significantly over time. One of the earliest models, the Technology Acceptance Model (TAM) by Davis (1989), emphasized perceived usefulness and ease of use as key factors. However, the model's simplicity limited its ability to capture social and contextual influences (Bagozzi, 2007). Meanwhile, the Unified Theory of Acceptance and Use of Technology (UTAUT) model, developed by Venkatesh and colleagues (2003), addresses these limitations by integrating eight major models, offering a more comprehensive view. This framework includes both personal and contextual factors, identifying four core constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions, which provide a multidimensional understanding of technology adoption.

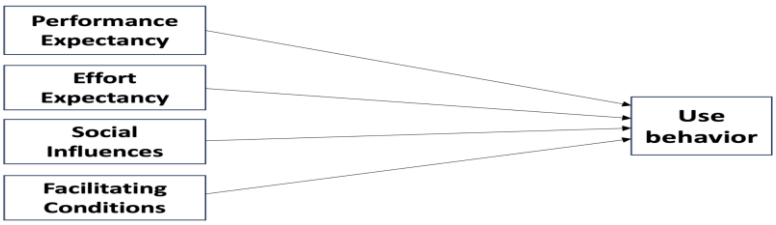
As shown in Figure 1, this study adopts a simplified version of the UTAUT model to investigate the factors influencing students' actual use of ChatGPT in academic writing, shifting the focus from intention to real behavior, as ChatGPT has now entered mainstream usage. While

the original UTAUT includes four moderating variables (gender, age, experience, and voluntariness of use), this research excludes them. The reasons include the study's focus on identifying core factors rather than demographic differences, the relative homogeneity of the sample (English-major university students), and the voluntary nature of ChatGPT usage in this context. By excluding moderators, the study maintains a focused framework suited to its objectives and participants.

Thus, this research focuses on exploring the direct effects of the four main constructs on students' actual engagement with ChatGPT in academic writing tasks.

Figure 1

Proposed Research Model



4. Methodology

This study adopts a quantitative approach to examine factors influencing the acceptance of ChatGPT for academic writing among English-majored students at the University of Languages and International Studies (ULIS-VNU), focusing on first- and third-year students from the Faculty of English Language and Culture (FELC). A paper-based questionnaire was used as the main data collection tool, constructed based on the Unified Theory of Acceptance and Use of Technology (UTAUT) and adapted from recent studies (Budhathoki et al., 2024; Gulati et al., 2024). The questionnaire comprises two parts: demographic information and 28 close-ended items related to four constructs - Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions - measured on a five-point Likert scale. Using convenience sampling, the study targeted a sample size of 310 students, calculated with a 95% confidence level and 5% margin of error. In fact, this study received 297 valid responses - approximately 87.1% of the intended sample size. Then, data were analyzed by SPSS version 26, including Cronbach's alpha for reliability, exploratory factor analysis for construct validity, and multiple linear regression to explore the relationships between the four predictors and students' acceptance of ChatGPT.

5. Results

5.1. Quality of the Scale

5.1.1. Reliability of the Scale (Cronbach's Alpha Coefficients)

Before proceeding with further analysis, including exploratory factor analysis, correlation, and regression, it is essential to assess the scale's reliability and validity. As shown in Table 1, Cronbach's alpha coefficients of most constructs range from 0.70 to 0.80, indicating a good level of reliability (Peterson, 1994). Specifically, PE, SI, and SA demonstrate high reliability, with Cronbach's alpha values of 0.879, 0.886, and 0.888, respectively. The corrected item-total correlations of all indicators exceed 0.30, confirming that all items meet the required standards (Nunnally, 1978).

In terms of Cronbach's alpha coefficients, if an item is deleted, almost every indicator has a coefficient lower than the overall construct's coefficient, indicating their necessity. As a result, the test can be stated to be reliable, thereby qualifying for further analysis.

Table 1

Test of Reliability

No	Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Performance Expectancy (PE) – 0.879			
1	PE1	0.693	0.858
2	PE2	0.683	0.859
3	PE3	0.709	0.855
4	PE4	0.688	0.859
5	PE5	0.734	0.850
6	PE6	0.638	0.870
2. Effort Expectancy (EE) – 0.771			
7	EE1	0.478	0.747
8	EE2	0.588	0.720
9	EE3	0.492	0.744
10	EE4	0.465	0.756
11	EE5	0.548	0.728
12	EE6	0.577	0.728
3. Social Influences (SI) – 0.886			
13	SI1	0.435	0.798
14	SI2	0.573	0.766
15	SI3	0.634	0.752
16	SI4	0.666	0.745
17	SI5	0.596	0.760
18	SI6	0.452	0.794
4. Facilitating Conditions (FC) – 0.716			
19	FC1	0.460	0.682
20	FC2	0.562	0.619
21	FC3	0.449	0.700
22	FC4	0.572	0.612
5. Students' Acceptance (SA) – 0.888			
23	SA1	0.719	0.868

24	SA2	0.691	0.872
25	SA3	0.684	0.872
26	SA4	0.718	0.868
27	SA5	0.736	0.864
28	SA6	0.706	0.869

5.1.2. Validity of the Scale (Exploratory Factor Analysis)

Following the verification of scale reliability through Cronbach's alpha analysis, a total of 28 items - 22 representing independent variables and 6 related to the dependent variable - were selected for factor exploration using Exploratory Factor Analysis (EFA). The factor extraction process was conducted using the principal component analysis technique. The statistics in Table 2 indicate that the scale demonstrates adequate internal consistency. The results of the validity assessment show that the KMO coefficient is 0.876, and the Sig. value of Bartlett's Test is $p < .001$, indicating that the dataset is suitable for factor analysis (Hair et al., 1998).

As shown in Table 2, the Eigenvalues of all four extracted factors are greater than 1, confirming their significance in explaining variance. The cumulative percentage of explained variance is 57.77%, meaning these four factors account for 57.77% of the total variance (Anderson & Gerbing, 1988). Besides, the rotated component matrix results indicate that the independent variables were categorized into four distinct factors. Factor 1 includes six PE items, Factor 2 comprises six SI items, Factor 3 consists of six EE items, and Factor 4 includes four FC items. Some minor cross-loadings were observed, but the factor structure remained aligned with theoretical expectations.

Table 2

Results of Exploratory Factor Analysis for Independent Variables

Items	**Components**			
	1	**2**	**3**	**4**
PE6	0.797			
PE3	0.776			
PE2	0.771			
PE5	0.753			
PE1	0.752			
PE4	0.707			
EE1	0.549		0.358	
EE2	0.507		0.458	
SI3		0.800		
SI2		0.792		
SI4		0.785		

SI5		0.626		
SI1		0.517		
SI6		0.443	0.362	
EE4			0.756	
EE3			0.694	
EE5			0.694	
EE6			0.483	
FC1				0.788
FC4				0.696
FC2				0.652
FC3				0.572
Eigenvalues	7.000	2.381	1.804	1.524
Cumulative (%)	31.818	42.643	50.844	57.773
Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.876	
Bartlett's Test of Sphericity	Approx. Chi-Square		2791.830	
	Df		231	
	Sig.		<.001	

Table 3 presents the exploratory factor analysis results for the dependent variable, students' acceptance of ChatGPT for academic writing tasks. The analysis yielded a KMO coefficient of 0.875, with Bartlett's Test showing statistical significance ($p < .001$), showing that factor analysis is appropriate (Hair et al., 1998). Besides, a single factor was extracted, with an Eigenvalue of 3.887 and a cumulative variance of 64.78%, confirming that all six items contribute meaningfully to measuring students' acceptance. These findings validate the measurement scales, allowing for further analysis.

Table 3

Results of Exploratory Factor Analysis for the Dependent Variable

Items	**Components**	
SA5	0.820	
SA1	0.819	
SA4	0.808	
SA6	0.799	
SA2	0.799	
SA3	0.784	
Eigenvalues	3.887	
Cumulative (%)	64.784	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.875	
Bartlett's Test of Sphericity	Approx. Chi-Square	994.418
	Df	15
	Sig.	<.001

5.2. Correlation

The correlation analysis was performed to assess the associations between both independent and dependent variables. As presented in Table 4, all independent variables exhibit significant correlations with the dependent variable, as the Sig. values are all smaller than 0.01. Specifically, performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) all have positive correlations with students' acceptance (SA) of ChatGPT for academic writing tasks.

Among these relationships, PE has the strongest correlation with SA ($r = 0.717$, $p < 0.01$), indicating that students who perceive ChatGPT as useful are more likely to accept it. The relationships between EE and SA ($r = 0.543$), SI and SA ($r = 0.508$), and FC and SA ($r = 0.507$) were also all strong, though not as strong as that of PE. This suggests that when students perceive ChatGPT as easy to use, receive encouragement from others, and feel that the necessary resources and support are available, their likelihood of accepting ChatGPT increases.

In addition to the correlation between independent and dependent variables, correlations also exist among independent variables. Specifically, the correlations among the four independent variables ranged from $r = 0.360$ to 0.486, indicating moderate relationships between them (Field, 2009). This supports the idea that while the constructs are conceptually related, they are still distinct dimensions within the UTAUT model. However, correlation does not identify the independent effects of a factor after considering the effects of other factors that might explain the dependent variable. Thus, we employ multiple linear regression to identify these independent effects across the four constructs. We describe this process and the results in the next section.

Table 4

Pearson Correlations Between Key Variables

	SA	**PE**	**EE**	**SI**	**FC**
Students' Acceptance (SA)	1	0.717**	0.543**	0.508**	0.507**
Performance Expectancy (PE)	0.717**	1	0.486**	0.407**	0.366**
Effort Expectancy (EE)	0.543**	0.486**	1	0.439**	0.464**
Social Influences (SI)	0.508**	0.407**	0.439**	1	0.360**
Facilitating Conditions (FC)	0.507**	0.366**	0.464**	0.360**	1

**. Correlation is significant at the 0.01 level (2-tailed).

5.3. Multiple Linear Regression

Table 5 describes the results of multiple linear regression among one dependent variable, which is students' acceptance (SA) of ChatGPT for academic writing tasks, and four independent variables, including performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). Multiple regression was chosen for data analysis due to the multidimensional nature of the relationships in this model. As shown in Table 5, the test's Sig. is less than 0.001, and the Sig. of all independent variables is less than 0.05, indicating that the regression findings are significant and thus credible. The R square value is 0.62, indicating that all of the investigated components, including SI, PE, EE, and FC, can explain 62% of the student's acceptance of ChatGPT for academic writing activities, while the remaining 38% is related to factors not included in the regression model.

Table 5

The Models' Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics
		B Std. Error Beta	B Std. Error Beta	B Std. Error Beta	t	Sig.	Tolerance
1	(Constant)	-.203	.192		-1.055	.292	
	PE	.521	.043	.513	12.005	< 0.001	.703
	EE	.136	.049	.125	2.764	0.006	.632
	SI	.176	.042	.173	4.152	< 0.001	.739
	FC	.226	.047	.199	4.778	< 0.001	.739
a. Dependent variable: SA							
Adjusted R Square = .620				F (ANOVA) = 121.510			Sig. = <.001

6. Discussion

The results confirm that all four constructs - performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) - positively and significantly impact students' adoption of ChatGPT. These findings support hypotheses H1 to H4 and suggest that students are more likely to accept ChatGPT when they find it useful, easy to use, supported by others, and when they have enough resources to use it effectively.

Among these, performance expectancy (PE) emerged as the most influential factor. This suggests that students were more likely to use ChatGPT when they believed it could help them generate ideas, improve grammar, or organize their writing better. The strong impact of PE aligns with prior findings in multiple contexts, including the UK, Nepal, Poland, and Saudi Arabia (Budhathoki et al., 2024; Strzelecki, 2024; Alshammari & Alshammari, 2024), reinforcing the importance of perceived usefulness in AI adoption.

Effort expectancy (EE) also had a positive effect, although its impact was weaker than PE. This means that while students care about how easy ChatGPT is to use, it is not the main reason they accept it. Still, tools that are user-friendly reduce the feeling of difficulty, and ChatGPT's easy-to-use interface likely made it more approachable, especially for students who are not very confident with technology. The moderate strength of EE echoes results from Budhathoki et al. (2024) and Foroughi et al. (2024), which suggest that simplicity encourages adoption.

Next, social influence (SI) had a moderate yet significant effect. Students were more likely to accept ChatGPT when they felt that people around them - such as teachers, friends, or the institution - supported its use. This shows that encouragement and approval from others help normalize new technologies in academic settings. In this research, peer encouragement - especially from friends and seniors - appeared to be more influential than institutional or lecturer endorsement. This may point to a need for clearer academic guidelines regarding the role of AI tools like ChatGPT in higher education.

Lastly, facilitating conditions (FC) also significantly predicted adoption, though to a lesser extent. In the survey, most students reported having access to necessary devices (smartphones, computers, etc.) and stable internet, which promoted their engagement with ChatGPT. These results mirror those from Alshammari & Alshammari (2024) and Parveen et al. (2024), but differ from studies where FC was non-significant due to widespread digital readiness (Budhathoki et al., 2024).

In summary, the findings support all four hypotheses and emphasize that students' adoption of ChatGPT is driven primarily by perceived usefulness and usability, supported by social and technical contexts. However, since the model explains 62% of the variance, further research is needed to investigate other potential influencing factors such as trust, academic integrity concerns, or writing self-efficacy.

7. Conclusion

In summary, this study investigated key factors influencing English-majored students' adoption of ChatGPT for academic writing using the UTAUT framework. Data from 297 participants revealed that all four constructs - performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) - positively and significantly influenced students' actual use of ChatGPT. Particularly, PE emerged as the strongest predictor, highlighting students' emphasis on the tool's perceived usefulness in enhancing writing efficiency and quality. The other variables also played meaningful roles, indicating the importance of ease of use, peer and instructor support, and access to necessary resources. Collectively, these factors accounted for 62% of the variance in acceptance.

The results confirm all four hypotheses and reinforce the applicability of UTAUT in a new context. Theoretically, the study extends the UTAUT model to AI tools in academic writing, especially within the Vietnamese educational setting. Practically, findings suggest that educators and institutions should promote ethical and informed use of ChatGPT by integrating AI literacy and academic integrity training into writing courses. Strategies could include reflective writing, structured debates, and clear guidelines on acceptable AI support. Rather than focusing solely on detection and punishment, such efforts can encourage responsible, self-aware use of generative AI.

Despite its contributions, the study has limitations. Specifically, it used a self-reported quantitative design, lacked qualitative insights, and focused only on current users from a single major and university. It also omitted UTAUT's moderating variables (e.g., age, experience) and did not account for non-users, limiting the generalizability of findings. For that reason, future research should adopt mixed-methods approaches to capture deeper student perspectives and ethical reasoning. Besides, expanding the sample to include various disciplines, institutions, and both users and non-users will enhance the model's relevance. Finally, incorporating additional variables - such as AI trust, digital literacy, or integrity awareness - and conducting longitudinal studies can offer richer insights into students' evolving relationships with generative AI and guide policy development for its ethical integration into higher education.

References

Adel, A., Ahsan, A., & Davison, C. (2024). ChatGPT promises and challenges in education: Computational and ethical perspectives. *Education Sciences*, *14*(8), 814.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Alkaissi, H., & McFarlane, S. I. (2023). Artificial hallucinations in ChatGPT: Implications in scientific writing. *Cureus*, *15*(2).

Alshammari, S. H., & Alshammari, M. H. (2024). Factors affecting the adoption and use of ChatGPT in higher education. *International Journal of Information and Communication Technology Education (IJICTE)*, *20*(1), 1-16.

Aydın, Ö., Karaarslan, E. (2022). OpenAI ChatGPT Generated Literature Review: Digital Twin in Healthcare. In Ö. Aydın (Ed.), *Emerging Computer Technologies 2* (pp. 22-31). İzmir Akademi Dernegi.

Bagozzi, R. P. (2007). The legacy of the Technology Acceptance Model and a proposal for a paradigm shift. *Journal of the association for information systems*, *8*(4), 244-254.

Barrot, J. S. (2023). Using ChatGPT for second language writing: Pitfalls and potentials. *Assessing Writing*, *57*, 100745.

Bok, E., & Cho, Y. (2023). Examining Korean EFL college students' experiences and perceptions of using ChatGPT as a writing revision tool. *Journal of English Teaching through Movies and Media*, *24*(4), 15-27.

Budhathoki, T., Zirar, A., Njoya, E. T., & Timsina, A. (2024). ChatGPT adoption and anxiety: a cross-country analysis utilising the unified theory of acceptance and use of technology (UTAUT). *Studies in higher education*, *49*(5), 831-846.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319-340.

Day, T. (2023). A preliminary investigation of fake peer-reviewed citations and references generated by ChatGPT. *The professional geographer*, *75*(6), 1024-1027.

Foroughi, B., Senali, M. G., Iranmanesh, M., Khanfar, A., Ghobakhloo, M., Annamalai, N., & Naghmeh-Abbaspour, B. (2024). Determinants of intention to use ChatGPT for educational purposes: Findings from PLS-SEM and fsQCA. *International journal of human–computer interaction*, *40*(17), 4501-4520.

Field, A. (2009). Logistic regression. *Discovering statistics using SPSS*, *264*(1), 315.

Gulati, A., Saini, H., Singh, S., & Kumar, V. (2024). Enhancing learning potential: Investigating marketing students'behavioral intentions to adopt ChatGPT. *Marketing education review*, *34*(3), 201-234.

Hair Jr., J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis.* Englewood Cliffs, NJ Prentice-Hall

Hong, W. C. H. (2023). The impact of ChatGPT on foreign language teaching and learning: Opportunities in education and research. *Journal of educational technology and innovation*, *5*(1).

Islam, R., & Moushi, O. M. (2024). *Gpt-4o: The cutting-edge advancement in multimodal LLM.* Authorea Preprints.

Irvin, L. L. (2010). What is academic writing. *Writing spaces: Readings on writing*, *1*, 3-17.

Jiao, W., Wang, W., Huang, J. T., Wang, X., Shi, S., & Tu, Z. (2023). Is ChatGPT a good translator? Yes with GPT-4 as the engine. *arXiv preprint arXiv:2301.08745*.

Klimova, B. F. (2012). Changes in the notion of academic writing. *Procedia-social and behavioral sciences*, *47*, 311-315.

Maheshwari, G. (2024). Factors influencing students' intention to adopt and use ChatGPT in higher education: A study in the Vietnamese context. *Education and information technologies*, *29*(10), 12167-12195.

Medvid, O., & Podolkova, S. (2019). Essay as a form of academic writing. *Edukacyjna Analiza Transakcyjna*, (8), 215-225.

Menon, D., & Shilpa, K. (2023). "Chatting with ChatGPT": Analyzing the factors influencing users' intention to Use the Open AI's ChatGPT using the UTAUT model. *Heliyon*, *9*(11).

Michel-Villarreal, R., Vilalta-Perdomo, E., Salinas-Navarro, D. E., Thierry-Aguilera, R., & Gerardou, F. S. (2023). Challenges and opportunities of generative AI for higher education as explained by ChatGPT. *Education Sciences*, *13*(9), 856.

Mondal, H., & Mondal, S. (2023). ChatGPT in academic writing: Maximizing its benefits and minimizing the risks. *Indian Journal of Ophthalmology*, *71*(12), 3600-3606.

Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). McGraw-Hill.

Oshima, A., & Hogue, A. (2007). *Introduction to academic writing* (p. 3). Pearson/Longman.

Parveen, K., Phuc, T. Q. B., Alghamdi, A. A., Hajjej, F., Obidallah, W. J., Alduraywish, Y. A., & Shafiq, M. (2024). Unraveling the dynamics of chatGPT adoption and utilization through structural equation modeling. *Scientific reports*, *14*(1), 23469.

Peterson, R. A. (1994). A Meta-analysis of cronbach's coefficient alpha. *Journal of consumer research*, *21*, 381-391.

Pham, H. T. U., & Mai, T. T. (2024). Exploring the Acceptance of ChatGPT Usage Among Vietnamese English Major Students in English Language Learning: A Case Study. In *Nurturing open minds, shaping inclusive futures in language education* (pp. 171-182).

Rahman, M. M., & Watanobe, Y. (2023). ChatGPT for education and research: Opportunities, threats, and strategies. *Applied Sciences*, *13*(9), 5783.

Raman, R., Lathabhai, H., Diwakar, S., & Nedungadi, P. (2023). Early research trends on ChatGPT: insights from altmetrics and science mapping analysis. *International Journal of Emerging Technologies in Learning (IJET)*, *18*(19), 13-31.

Strzelecki, A. (2024). To use or not to use ChatGPT in higher education? A study of students' acceptance and use of technology. *Interactive learning environments*, *32*(9), 5142-5155.

Su, Y., Lin, Y., & Lai, C. (2023). Collaborating with chatGPT in argumentative writing classrooms. *Assessing Writing*, *57*, 100752.

Sword, H. (2009). Writing higher education differently: A manifesto on style. *Studies in higher education*, *34*(3), 319-336.

Tangpermpoon, T. (2008). Integrated approaches to improve students writing skills for English major students. *ABAC Journal*, *28*(2), 1-9.

Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart learning environments*, *10*(1), 15.

Tran, Q. T., & Nguyen, H. N. Q (2020). Exploring tertiary English-majored students' academic writing difficulties. *TNU Journal of science and technology*, *225*(11), 123-130.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478.

Wei, X. (2024, September). Evaluating chatGPT-4 and chatGPT-4o: performance insights from NAEP mathematics problem solving. In *Frontiers in Education* (Vol. 9, p. 1452570). Frontiers Media SA.

Wu, T., He, S., Liu, J., Sun, S., Liu, K., Han, Q. L., & Tang, Y. (2023). A brief overview of ChatGPT: The history, status quo and potential future development. *IEEE/CAA Journal of automatica sinica*, *10*(5), 1122-1136.

Xiao, Y., & Zhi, Y. (2023). An exploratory study of EFL learners' use of ChatGPT for language learning tasks: Experience and perceptions. *Languages*, *8*(3), 212.

APPENDIX

Questionnaire

A. General information

1. What is your current year of study?

First year
Second year
Third year
Fourth year

2. How often do you use ChatGPT to support academic writing?

Never
A few times
Regularly

B. Questionnaire

Please rate the following statements based on your opinion using a scale from 1 to 5:

1 – Strongly Disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 – Strongly Agree

Mark an X in the box that corresponds to your level of agreement.

1. Performance Expectancy: Expectations of ChatGpt's Effectiveness in Academic Writing

	1	2	3	4	5
1.1. I find ChatGPT useful for my academic writing.					
1.2. Using ChatGPT helps me complete academic writing tasks more quickly.					
1.3. Using ChatGPT increases my productivity in completing academic writing tasks. (Productivity refers to the amount of work completed within a given time.)					
1.4. Using ChatGPT enhances my academic writing skills.					
1.5. ChatGPT makes academic writing tasks easier for me.					
1.6. ChatGPT helps me increase the likelihood of earning higher grades on academic writing assignments.					

2. Effort Expectancy: Expectations of Effort Required to Use ChatGpt for Academic Writing

	1	2	3	4	5
2.1. I can easily learn how to use ChatGPT for academic writing support.					
2.2. I can quickly learn how to use ChatGPT for academic writing support.					
2.3. I do not face many difficulties in instructing ChatGPT to perform desired tasks.					
2.4. Using ChatGPT does not require much of my mental effort.					
2.5. I can easily find information for academic writing through ChatGPT.					
2.6. ChatGPT helps me save time during the academic writing process.					

3. Social Influence

	1	2	3	4	5
3.1. My friends encourage me to use ChatGPT for academic writing support.					
3.2. University lecturers support the use of ChatGPT in learning and research.					
3.3. My lecturers encourage me to use ChatGPT to improve academic writing skills.					

3.4. Overall, my university supports the use of ChatGPT for academic purposes.					
3.5. Seniors or experienced peers advise me to take advantage of ChatGPT for academic writing.					
3.6. Using ChatGPT helps me improve my writing and stand out among my peers.					

4. Facilitating Conditions

	1	2	3	4	5
4.1. I have access to all necessary devices and resources (e.g., computer, phone, stable internet connection, ChatGPT account) to use ChatGPT for academic writing.					
4.2. I have sufficient knowledge to use ChatGPT effectively for academic writing.					
4.3. When facing difficulties using ChatGPT, I can seek support from lecturers, friends, or online sources.					
4.4. ChatGPT is compatible with the tools (phones, laptops, tablets) and platforms (e.g., Google Docs, Grammarly, Google Translate) I use for academic writing.					

5. Students' Readiness to Use ChatGPT for Academic Writing

	1	2	3	4	5
5.1. I feel that using ChatGPT helps me write academic papers more effectively.					
5.2. I feel that ChatGPT makes academic writing easier for me.					
5.3. I feel that I am ready to use ChatGPT to support my academic writing.					
5.4. I feel excited when using ChatGPT during the academic writing process.					
5.5. I would like to continue using ChatGPT to support my academic writing in the future.					
5.6. I feel more confident when using ChatGPT for academic writing.					