



EFL university students' use of AI-assisted tools for academic reading comprehension

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ABSTRACT

This study examines EFL students' use of AI-based tools in their academic reading comprehension under the lens of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. More specifically, it explores university students' purposes and frequent use of AI digital tools in their academic reading comprehension, aligned with their perceived affordances and constraints. The study employed a mixed-methods design, collecting quantitative data via a questionnaire from 100 EFL university students and qualitative reflections via learning journals with 10 students and interviews with them. The findings suggest that the students integrated AI-assisted tools into different academic reading stages actively and strategically. They universally harnessed AI-assisted tools to activate background knowledge, improve academic lexicons and explain complicated grammatical structures, and especially generate further academic reading practices. The correlation analysis reveals significantly positive relationships between students' actual use of AI-driven tools and four main UTAUT factors, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Nonetheless, concerns regarding overreliance, diminished critical thinking, and AI-generated information-related inaccuracy and inauthenticity were also reported. The study, therefore, substantially offers various implications for EFL teachers and students aiming to integrate AI-driven tools in academic reading performances.

1. INTRODUCTION

The increasing ubiquity of artificial intelligence (AI)-powered tools has pronouncedly transformed the English language learning process in higher education, particularly in academic reading comprehension practices. With the fast-track development of AI-generated tools, namely ChatGPT or Grammarly, students' academic performance has recently been positively affected (Chea & Xiao, 2024; Daweli & Mahyoub, 2024; Xu et al., 2022), thereby generating a booming demand for reshaping the learning styles embraced to productively accomplish their academic reading comprehension achievements.

For university students learning English as a Foreign Language (EFL), reading comprehension competence is considered to be a critically essential skill that can reinforce the development of effective learning strategies (Dole et al., 1991). It can, moreover, contribute to academic success and lifelong learning, especially in an online learning setting (Hidayat, 2024). Yet, Salman (2025) found that EFL students lacking opportunities to practice English outside the classroom perceive it as taxing to reinforce their academic reading comprehension. Academic reading comprehension, therefore, is largely considered as one of the most challenging skills for

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numerous EFL university students since it requires not only linguistic competences but the capacity to interpret and analyze complicated ideas and concepts written in a foreign language (Dole et al., 1991). In terms of traditional learning methods, recent research has suggested that many EFL learners have dealt with passive conventional approaches, namely lecture-based explanation and rote memorization (Salman, 2025), overall text meaning comprehension (Xu et al., 2022). Furthermore, it is also shown that there is a major limitation in the employment of advanced instructional strategies, attributing to improper professional development, time and resource constraints as well as overreliance on conventional methods and external educational demands (Rad, 2025). From the aforementioned challenges, it is essential to conduct an in-depth analysis of the potential of using AI-based tools for academic achievement, which provides both educators and learners with a more effective and flexible educational approach. Accordingly, Hidayat (2024) examined the effectiveness of AI-based personalized reading platforms in enhancing reading comprehension and found that these platforms serve as a significant role in fostering students' reading comprehension skills. Despite the emergence of AI-powered tools and numerous studies investigating their effectiveness in enhancing English language skills, few studies have probed how EFL university students employ these digital tools to assist their academic reading comprehension practices associated with the analysis of the applicability of the UTAUT model in explaining students' perceptions and adoption of such tools. This current study, hence, aims to provide deep insights into how EFL university students harness AI-driven tools for their academic reading comprehension practices. This research, consequently, is conducted to answer the two following questions:

1. *In what ways do EFL university students use AI-assisted tools to support their academic reading comprehension?*
2. *How do EFL university students perceive the pedagogical affordances and constraints of AI-assisted tools in supporting their academic reading comprehension?*

2. LITERATURE REVIEW

2.1. AI-generated tools

AI-powered tools are digital applications performing specific tasks that require human intelligence by converging machine learning algorithms and natural language processing. Kenchakkanavar (2023) pointed out that AI-generated tools play a pivotal role in this digital transformation era as they effectively assist users in collecting, handling, and analyzing a great amount of given data in a rapid and cost-efficient way. In the realm of common background, these tools, namely chatbots, grammar checkers, automated translators, adaptive reading platforms, and conversational agents bring users a sense of purpose, underpinning and engagement (Chea & Xiao, 2024; Hidayat, 2024).

2.2. Academic reading comprehension

Academic reading is generally defined as a cumbersome and intellectually demanding process involving advanced knowledge, proficient comprehension skills, and critical cognitive engagement with texts. Spack (1993) regards academic reading as an active process involving students in applying critical reading strategies so that they can comprehend, interpret text-related information, and evaluate its relevance. According to Sohail (2016), academic reading is relatively different from other forms of reading owing to its complexity and discipline-specific nature. In academic contexts, students are frequently exposed to relatively advanced reading sources, thereby making linguistic competence crucial to comprehend main ideas, philosophies, themes, and perspectives presented in the academic texts.

Academic reading comprehension is universally referred to as an active cognitive reading approach entailing a number of highly advanced competencies such as understanding, analyzing, evaluating, and synthesizing the written texts within academic contexts rather than passive reading practice. Accordingly, Dole et al. (1991) conceptualized the cognitively based view of reading comprehension as not solely about the mastery of various isolated skills, but it is an active, constructive, and interactive reading process.

This study, consequently, investigated academic reading comprehension process is substantially facilitated by AI-powered tools, marked by the applicability of the UTAUT framework in illuminating HUFLIS students' behavioral intentions and adoption of using such tools in their academic reading comprehension performances.

2.3. Unified theory of acceptance and use of technology (UTAUT) as the theoretical framework

Venkatesh and his colleagues (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT). It is a comprehensive and unified model which gives a thorough explanation of human adoption of new technological systems. It is generally believed that the acceptance and application of technological platforms is a proceeding process involving different contexts, users' experience and perceptions rather than a

single contemporary one. In this model, there are four main determinants, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Moreover, the UTAUT framework also associates four other moderating variables, including gender, age, experience, and voluntariness of use as well, which play an essential role in reinforcing the relationships between the core constructs and users' behavioral intention and use behavior (Venkatesh et al., 2003). The UTAUT theoretical framework is considered to be a largely useful and empirical model in offering insights into EFL students' acceptance and actual employment of AI-powered tools to reinforce their academic reading comprehension practice.

2.4. Previous studies on AI-assisted tools for academic reading comprehension

A considerable amount of research has recently examining the effectiveness of harnessing AI-based tools in EFL students' academic reading comprehension process. As shown in Rad's (2025) mixed-method research, higher reading comprehension, self-regulation, and engagement were mainly attained. Moreover, studies by Salman (2025) and Assiddiq and Sasmayunita (2025) proved that personalized and compelling learning experiences were positively enhanced thanks to these digital tools. Furthermore, Daweli and Mahyoub (2024) also explored that AI-enabled reading platforms are supportive, effective, and personalized tools in enhancing not only students' reading comprehension skills and lexical resources, but other skills as well. Besides, Chea and Xiao (2024) further claimed that the incorporation of AI-assisted tools clearly supports students' academic reading comprehension acquisition, topic understanding, course-related task completion, and active class discussions; yet attributing to overreliance on AI resources.

In Vietnam, several studies have been carried out to investigate the use of AI-based tools in improving students' academic reading comprehension. Dinh et al.'s (2024) research showed the tremendous usefulness of Chatbots in EFL students' acquisition of English language skills, especially in reading comprehension, critical thinking, and creativity. Additionally, Pham and Dang (2025) reported that students highly appreciated the effectiveness of AI-powered tools for language macro skills such as reading as well as grammar and vocabulary. Yen (2024) suggested that ChatGPT, considered by teachers as a valuable and available source of language learning and teaching methods, causes mounting concern regarding accurate educational reading materials.

Overall, the previous research has shown that the integration of AI-assisted tools plays an instrumental role in improving students' academic reading comprehension, particularly within the Vietnamese educational context.

2.5. Research gap

Overall, the existing studies have highlighted the potential use of AI-assisted tools in enhancing students' academic reading comprehension, yet several significant gaps remain. For one thing, there is limited attention in investigating how EFL university students employ AI-based tools for their academic reading comprehension. Besides, prior documents primarily focused either on experimental interventions or students' perceptions, resulting in a lack of mixed-methods research that integrates both quantitative and qualitative approaches. Furthermore, few studies examined EFL university students' employment of AI-powered tools for academic reading comprehension through the lens of the UTAUT model, despite the prevalent application of this theoretical model in educational research. This present paper, consequently, is conducted to address the mentioned gaps, which focuses on how EFL university students use AI-powered tools to support their academic reading comprehension and further explores their perceptions of the pedagogical affordances and constraints of such tools within the UTAUT framework.

3. RESEARCH METHODOLOGY

3.1. Research design

A mixed-method research design, integrating both quantitative and qualitative approaches collectively, was employed in this current study to strengthen data triangulation (Creswell & Creswell, 2018), and enhance the validity and reliability of the findings. Initially, the quantitative component, which employed a questionnaire, was carried out to offer empirical data gathering with 100 EFL university students' viewpoints on using AI-powered tools in their academic reading comprehension performances aligned with the UTAUT theoretical framework. Subsequently, a sub-sample of 10 students were invited for two weeks of journal writing and a semi-structured interview to collect students' perceptions and behavioral intentions of harnessing AI-driven tools in their academic reading comprehension practice.

3.2. Participants

The study involved 100 students from Hue University of Foreign Languages and International Studies (HUFLIS), Vietnam. Participants were selected through a screening question to ensure that they were enrolled in academic reading courses and had experience using AI-powered tools for reading comprehension. Participation was voluntary, and the sample represented diverse backgrounds in terms of age, gender,

English proficiency, and preferred AI applications.

Regarding the participant demographics, a total of 100 EFL university students from HUFLIS participated in this research, ranging in the 19-22 age bracket. As has been shown in the demographic description, most of participants were 20 years old (56%), followed by 19-year-old students (23%) while 3% of the participants were aged 22. In terms of gender distribution, female students were the dominant respondents, accounting for 86%, while their counterparts made up the remaining 14%, as can be observed in table 1.

Table 1. Distribution of demographic profile of respondents (N = 100)

Variable	Category	Percent
Age	19	23.0
	20	56.0
	21	18.0
	22	3.0
Gender	Male	14.0
	Female	86.0

3.3. Instruments

The questionnaire was designed with reference to the key UTAUT constructs. It consisted of three sections: (1) demographic information and AI-assisted reading experiences; (2) students' use of AI-driven tools for academic reading, including patterns of AI-based tool use, preferred tools, frequency, purposes of use, and behavioral intention; and (3) perceptions of AI-assisted reading based on the four UTAUT constructs: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions.

Behavioral Intention (BI) was included as a theoretically grounded construct of UTAUT, reflecting students' intention to continue using AI-assisted tools (Venkatesh et al., 2003). BI was measured using two items: (1) intention to recommend AI-assisted tools to peers and (2) intention to incorporate such tools into future academic reading. Both items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Perceived Constraints (PCON) was included as an additional construct to capture students' concerns about AI-assisted academic reading.

The questionnaire included both five-point Likert-scale items and open-ended questions. Prior to the main data collection, the questionnaire was reviewed by experienced lecturers and researchers to enhance its content validity. The pilot questionnaire, subsequently, was conducted on 10 EFL students to assess the validity and appropriateness of the items, using SPSS to evaluate Cronbach's alpha value. A Cronbach's alpha value is generally considered to indicate satisfactory internal consistency, indicative of reliable scales if its value is above 0.70. The pilot data yielded overall coefficients ranging from 0.767 to 0.808, indicating satisfactory reliability.

In addition, participants completed weekly learning journals over two weeks, documenting their reading activities, AI tool usage, perceived benefits and challenges, and reflections on their reading development. To gain deeper insights into students' experiences, semi-structured interviews were conducted with 10 English-major students. The interviews, conducted in Vietnamese and audio-recorded for transcription and translation, explored participants' perceptions of AI-powered tools in supporting academic reading comprehension and served to validate and enrich the questionnaire and journal data. The journal entries and interview transcripts were translated from Vietnamese into English, followed by a sample coding between the researchers to verify the reliability and validity of the qualitative data.

3.4. Data analysis

Quantitative data from the questionnaires were screened and organized using Microsoft Excel and subsequently analyzed with SPSS. Descriptive statistics, including means, percentages, and standard deviations, were calculated to examine students' perceptions of AI-assisted tools for academic reading comprehension. Qualitative data from learning journals and semi-structured interviews were analyzed thematically, guided by the key constructs of the UTAUT framework, to identify students' perceived affordances and constraints of AI-assisted academic reading, as well as their intention to use AI-powered tools for future academic reading comprehension. More specifically, the subthemes included: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC), Behavioral Intention (BI), together with the additional construct of Perceived Constraints (PCON).

For BI, a composite score was calculated by averaging the two BI items, with higher scores indicating stronger behavioral intention to use AI-assisted tools for future academic reading. The composite BI score was subsequently included in the Pearson correlation analysis to examine its relationship with actual AI-assisted tool use (USE) and the other study constructs.

The analysis starts with translating the journal entries and interview transcripts in Vietnamese into English. After that, a sample coding between the researchers was carried out to ensure reliability. The consensus was achieved after discussion with reference to the key constructs of the UTAUT framework. Then the analysis for the main study was done.

The integration of quantitative and qualitative findings enabled a comprehensive understanding of students' use and acceptance of AI-powered tools. To ensure research quality, all instruments were pilot-tested for clarity and validity before the main study, while the reliability of the questionnaire was assessed using Cronbach's alpha. Data triangulation across questionnaires, journals, and interviews further strengthened the study's validity, reliability, and trustworthiness.

4. FINDINGS

4.1. Students' use of AI-powered tools in academic reading comprehension

4.1.1. Frequency of AI-assisted tools use

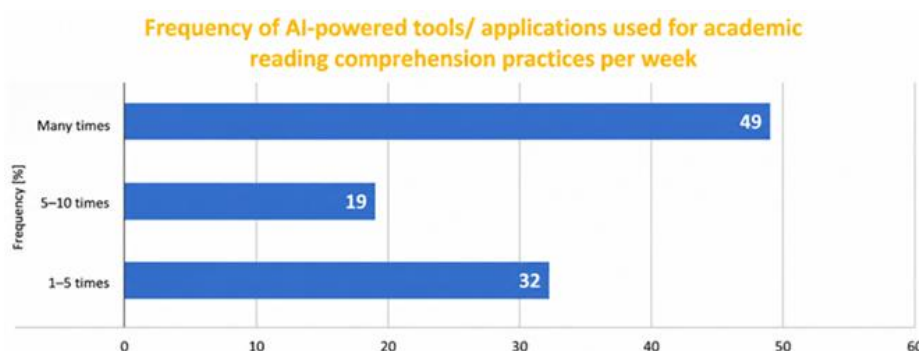


Figure 1. Frequency of students' use of AI-powered tools in academic reading.

As shown in figure 1, almost half of the participants (49%) reported using AI-driven tools for academic reading comprehension more than 10 times a week. While 19% of the respondents used such tools 5-10 times, 32% of them harnessed these digital tools 1-5 times per week. These research findings suggest that AI-based tools have been increasingly ubiquitous in supporting students' academic reading comprehension practices, and reflect a growing reliance on AI-powered tools in their learning approaches.

4.1.2. Preferred AI-powered tools

Table 2. AI-assisted tools/ applications used by EFL students for academic reading comprehension

Tool(s)	Frequency	Percent
Gemini	4	4.0
ChatGPT	32	32.0
Grammarly	1	1.0
Quillbot	1	1.0
Gemini + ChatGPT	29	29.0
Gemini + ChatGPT + Grammarly	11	11.0
Gemini + ChatGPT + Quillbot	1	1.0
ChatGPT + Quillbot + Youpass	1	1.0
ChatGPT + Grammarly + Quillbot	2	2.0
ChatGPT + Perplexity	2	2.0
ChatGPT + Grammarly	13	13.0
Gemini + ChatGPT + Grammarly + Quillbot	1	1.0
ChatGPT + Quillbot	1	1.0
Gemini + ChatGPT + Raz-Kids	1	1.0
Total	100	100.0

Table 2 showed that a number of students reported to use various AI-powered tools, namely ChatGPT, Gemini, Quillbot, Grammarly to assist their academic reading comprehension performance. Among those, ChatGPT was the most dominant with 32% of participants reported elusive employment of this tool. The number of students, noticeably, harnessing ChatGPT is totally 94 out of 100, including a combination with others. This striking data demonstrates a prevalent adoption of such AI-based tools in students' academic performance may be attributed to its accessibility, user-friendly interface, and versatility in assisting various academic reading

comprehension practices, including explaining unfamiliar lexicons, clarifying complex grammatical structures, summarizing lengthy texts, and the like. Consequently, the finding is consistent with recent studies suggesting that ChatGPT is identified as one the most commonly used AI-based tools for academic achievement owing to its effectiveness in enhancing academic reading comprehension and boosting learning autonomy as well. Albeit their pronounced benefits, there are concerns related to inaccuracy, fabrication, and academic overreliance without critical evaluation while employing such tools (Chea & Xiao, 2024; Yen, 2024).

In the second place, ChatGPT and Gemini were recorded to be largely common in use (29%), followed by the combination of ChatGPT and Grammarly (13%). It is remarkable that students have a natural inclination in combining multiple AI-powered tools for their academic practices as 62% of the participants reported. This result shows that students prefer making use of various AI-driven tools, largely with the blend of ChatGPT, which is a great approach to optimize their academic reading performances and enhance their learning experience. Using multiple AI-assisted tools, students can leverage their distinct strengths, such as text analysis, summarization, and information verification. A clear example is that many participants reported employing ChatGPT for general explanations of academic texts while relying on Quillbot to paraphrase complex sentences, thereby improving textual clarity and reading comprehension. The research findings are corroborated by qualitative data obtained from students' learning journals. One student reflected his combination of ChatGPT and Quillbot to *"read the text in the coursebook, Pathways 4. While ChatGPT assisted me with the explanation of difficult words and sentences, Quillbot was particularly useful for converting complicated sentences into more understandable ones. I frequently used both tools because they were accessible and convenient to use"* (Student 2, Journal).

In addition, some respondents also preferred other AI-based platforms, namely Perplexity, Youpass, and Raz-Kids. These results indicate that students have a propensity for combining multiple AI-based tools to enhance their learning experience and improve academic reading comprehension learning outcomes.

4.1.3. Purposes of using AI-assisted tools for academic reading comprehension

Table 3. Students' use of AI-assisted tools for academic reading

	M	SD
I use AI-powered tools/applications to understand unfamiliar vocabulary in my academic reading.	4.26	.917
I use AI-powered tools/applications to clarify complex sentences in academic reading.	4.33	.888
I use AI-powered tools/applications to summarize academic texts.	4.05	.869
I use AI-powered tools/applications to identify main ideas of academic reading texts.	3.81	.992
I use AI-powered tools/applications independently outside class to support my academic reading comprehension tasks.	4.04	.920

A glance at the table reveals that mean scores range between 3.81 and 4.33 (SD = 0.87 - 0.99), indicating a relatively high level in the use of AI-powered tools. These figures indicate that students frequently use such tools to support different aspects of academic reading comprehension, including understanding unfamiliar words, clarifying complex sentences, summarizing academic texts, identifying main ideas, and independent learning outside the classroom.

The quantitative findings are triangulated with qualitative data obtained from students' learning journals and interviews, providing insight into students' use of AI-powered tools for academic reading comprehension. In their reflective journal entries on the employment of AI-based tools in learning their academic reading coursebook - Pathway 4 Reading, Writing, and Critical Thinking- the participants described these tools as widely reliable digital assistants for grasping new vocabulary concepts and challenging grammatical structures, summarizing academic texts, and identifying main ideas.

In one learning journal entry, one student acknowledged ChatGPT's support in their reading comprehension activity of a text titled "The Robot Revolution Has Arrived" in the textbook. She reported: *"I used ChatGPT to assist me with the text "The Robot Revolution Has Arrived" (page 6-11) in the Pathways coursebook. As this topic was relatively alien to me, I felt overwhelmed and confused when it came to the huge load of new words in this text. Then, I underlined the unfamiliar words and asked ChatGPT for help"* (Student 1, Journal).

Regarding the text summarization and main idea identification, one student reported her use of Gemini to explore the same reading text in Pathways 4 coursebook "The Robot Revolution Has Arrived" by David Berreby. The student reported: *"I used Gemini to summarize the main ideas of the given text. It highlights how robots are no longer a futuristic and fictional concept, yet they have become an integral part in the labour market."* (Student 5, Journal).

Particularly, AI-powered tools are considered to be accessible linguistic assistants in addressing students'

challenges in the demands of academic reading. One student reported his frequent employment of AI-driven tools for multiple academic reading purposes. He stated that he usually used AI-based tools to understand “*new vocabulary and difficult grammatical structures in university-level academic reading texts.*” (Student 1, Interview). Besides, interpreting textual contents and identifying main ideas in academic reading texts are among the considerable benefits offered by AI-powered tools. One student described her experience, stating that “*It is a frequent occurrence for me to not only analyze new words and phrases but I also examine the core content of academic texts, and extract key information with the help of AI-based tools*” (Student 6, Interview). These responses highlight the students’ inclinations to exploit the multiple functions of AI-based tools in assisting their linguistic and cognitive development.

4.1.4. Behavioral intention to use AI-assisted tools for academic reading comprehension

Table 4. Students’ behavioral intention to use AI-assisted tools for academic reading comprehension

	M	SD
I will recommend AI-powered tools/applications to my friends to support academic reading comprehension.	3.73	1.109
AI-powered tools/ applications will be part of my future academic reading.	4.01	.948

According to table 4, the mean scores range between 3.73 and 4.01 (SD = 0.95 - 1.11), suggesting a relatively high level of students’ behavioral intention to harness AI-based tools for future academic reading. Such figures show that students have a largely strong inclination in using these tools for academic reading comprehension (M = 4.01, SD = 0.95), while their intention to recommend such digital assistants to their friends or peers to support academic reading also remains relatively high (M = 3.73, SD = 1.11).

The quantitative findings are further strengthened by the qualitative data obtained from interview data, providing valuable insights into students’ behavioral intentions regarding the use of AI-assisted tools for academic reading comprehension. Several participants expressed their willingness to recommend AI-powered tools to their friends to support academic reading. As one student explained she could “*share tips on how to use AI-powered tools effectively with more precise prompts*” (Student 10, Interview).

In tandem with this, many interviewees regarded AI as a “*virtual teacher*” to facilitate their academic reading comprehension. One participant emphasized the importance of combining AI-based tools with traditional study methods to ensure he could continue to develop his critical thinking skills yet save a considerable amount of time and effort” (Student 1, Interview). Besides, other students held a positive outlook toward the future use of AI-assisted tools for academic reading practice, increasingly perceiving AI literacy “*for keeping pace with the technological advancement in the 4.0 era*” (Student 3, Interview). These responses, therefore, indicate that students intend to use and recommend such tools to others to assist their academic reading comprehension in the years to come, while adopting more regulated and strategic approaches to their use.

4.1.5. The correlation between the use of AI-powered tools and academic reading comprehension practices

A Pearson correlation was conducted to elucidate the relationship between the use of AI-driven tools (USE) and the study constructs in terms of students’ academic reading comprehension performances. The correlation findings can be interpreted in light of the UTAUT framework, which comprises four major constructs, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Behavioral Intention (BI) and Perceived Constraints (PCON), were integrated to examine students’ intention to harness AI-assisted tools in the future, and to investigate the perceived concerns associated with the use of AI-assisted tools for supporting academic reading comprehension, respectively.

Table 5. Pearson Correlation Analysis between the use of AI-assisted tools and academic reading comprehension Practice

	USE	BI	PE	EE	SI	FC	PCON
USE	1.000						
BI	.655***	1.000					
PE	.505***	.599***	1.000				
EE	.595***	.560***	.689***	1.000			
SI	.278**	.408***	.351***	.367***	1.000		
FC	.468***	.518***	.511***	.514***	.349***	1.000	
PCON	.001	.044	.035	.094	-.007	.055	1.000

*Note. N = 100. $p < .05$. $p < .01$. $p < .001$.

Table 5 shows positive correlations between AI-powered tools use (USE) and Behavioral Intention (BI) ($r = .655$, $p < .001$), indicating that students, actively and frequently engaging with AI-powered tools in their

academic reading practices, positively associated with behavioral intention to use them in years to come. This finding is consistent with the role of BI in the UTAUT framework, although the correlational design of the present study does not establish predictive or causal relationships. Additionally, significant correlations were found between USE and other constructs, including Performance Expectancy (PE) ($r = .505$, $p < .001$), Effort Expectancy (EE) ($r = .595$, $p < .001$), and Facilitating Conditions (FC) ($r = .468$, $p < .001$). These research results indicate higher levels of perceived usefulness, ease of use, and facilitating conditions were significantly correlated with higher reported use of AI-driven tools. Moreover, the research result reveals a moderate correlation between USE and FC ($r = .468$, $p < .001$), showing that participants who have available access to technological resources, such as stable Internet connections and available digital devices, to name just a few can harness AI-powered tools in their academic reading practices.

Qualitative evidence from interview data further reinforced the research findings, highlighting a positive relationship between students' perceived ease of use and their engagement in AI-powered tools. Many students acknowledged the accessibility and availability of such tools as they are free of charge and an uncomplicated registration process using "a personal Gmail account" (Student 3, Interview). Besides, these AI-based tools offer a wide range of input modes, namely image uploading, document sharing, and voice commands, productively improving students' academic reading learning experience. As one student stated, the process of using AI-powered tools in academic reading comprehension is straightforward as "I just simply took a photo of a reading text and uploaded it, after which AI-driven tools could give me instant responses to my requests." (Student 5, Interview).

On the contrary, the fairly weak correlation between USE and SI ($r = .278$, $p < .01$) denotes that external factors including lecturers and academic reading requirements exert a trivial impact on students' adoption of AI-assisted tools for academic reading performances. The qualitative data from interviews, nonetheless, reveals that social factors such as peers and social platforms, may significantly shape students' involvement in such AI-based tools to a certain extent. The majority of interviewees stated that their decisions to employ AI-assisted tools for academic reading comprehension were attributed to their "peers and social media".

This marked discrepancy emphasizes the complementary nature of combining quantitative and qualitative approaches in gaining profound insights into the students' engagement of AI-powered tools in their academic reading comprehension. Furthermore, the insignificant relationship between USE and PCON ($r = .001$, $p > .05$) indicates that no statistically significant association was found between perceived constraints and reported use of AI-powered reading assistants.

4.1.6. Students' use of AI-assisted tools across different stages of academic reading comprehension

The qualitative findings from learning journals and interviews show that students harnessed AI-based tools strategically to support their academic reading comprehension. They actively employed such tools across the pre-reading, while-reading, and post-reading stages and applied them to various academic reading tasks rather than occurring in an unplanned manner.



Figure 2. Illustration of a students' use of Gemini for initiating new concepts related to the text.

As can be seen from figure 2, based on the student's request, Gemini can generate predictions about the given title "Anthropocene", explain some key terms related to the text, and reflect her curiosity about three drastic changes humans have made over 100 years.

In the pre-reading stage, another student reported to actively engage with her self-regulated learning approach by using ChatGPT's checking function to understand unfamiliar words and phrases underlined and check her translation. She reported: "Before diving into the reading text, I listed new words and had ChatGPT explain their meaning in advance. Then, I translated this text and asked the tool to check my work" (Student 1, Journal).

In the while-reading stage, AI-powered tools are mainly used to address common reading comprehension

difficulties, as students frequently rely on these tools to assist both lexical and sentence-level understanding. One student described while he was reading the text, he had used ChatGPT “to explain new words such as urban farming, green roof and community garden and simplify difficult sentences” (Student 2, Journal). Furthermore, when engaging in an academic text, many students reported their employment of AI-driven tools to “explain difficult academic words” (Student 8, Student 9, Student 10, Interview), which reduces a great amount of time and brings them a sense of stresslessness when handling academic reading tasks.

In the post-reading stage, on the other hand, many students get AI-based tools to evaluate their academic reading performances and further consolidate their insight into specific reading topics. Some students reported the use of AI-based platforms aiming to verify their answers to reading tasks. One student reflected her self-regulated learning approach by using ChatGPT only when she finished her reading practices. She reported: “In this academic reading process, I utilized ChatGPT after completing the reading activities because I would like to maximize my cognitive skills to do reading tasks and identify questionable parts. After that, I had this tool to clarify any unresolved issues.” (Student 4, Journal). Another student claimed that he had used ChatGPT to check his answers and explain underlined new words and struggling grammatical structures “after attempting to accomplish the reading tasks” (Student 8, Journal).

4.2. Students' perceptions of AI-assisted tools used in their academic reading comprehension

4.2.1. Perceived pedagogical affordances of AI-powered tools

Table 6. Perceived Affordance of AI-Assisted Tools in Academic Reading Comprehension

	M	SD
Using AI-powered tools/applications helps me improve my reading comprehension.	4.02	.752
Using AI-powered tools/applications increases my confidence in academic reading.	3.89	.963
Using AI-powered tools/applications helps me read academic texts more efficiently.	4.25	.744
Using AI-powered tools/applications support my critical understanding of academic reading texts.	3.58	.976
AI-powered tools/applications are easy to use when doing academic reading comprehension tasks.	4.12	.832
AI-powered tools/applications explanations are easy to understand when doing academic reading comprehension tasks.	3.98	.829
Learning to use AI-powered tools/applications to support academic reading comprehension is easy.	4.03	.731

As presented in table 6, students commonly perceived AI-powered tools as effective in supporting their academic reading comprehension, with mean scores ranging from 3.98 to 4.25 (SD = .744 - .832). The research findings highlight the perceived usefulness of AI-based tools in enhancing text comprehension, reading efficiency, and overall reading competence.

In tandem with this, qualitative data further strengthen the research results when students integrate these tools in their academic reading performances. AI-powered tools, described as reliable digital assistants, generally have positive impacts on their academic learning process, especially in their lexical acquisition. One student said: “AI-driven tools positively influenced my academic reading comprehension. For instance, whenever encountering challenging words or phrases, I could use ChatGPT, or Gemini to not only broaden my knowledge including synonyms, antonyms, and example sentences but also acknowledge vocabulary memory strategy to build up my vocabulary acquisition.” (Student 2, Interview). Another student also held a positive view about the use of AI-powered tools, she reported, “AI-based tools helped me identify keywords and complicated academic words at the C1 and C2 levels that I had never encountered before. As a result, I could improve my vocabulary more easily and effectively.” (Student 6, Journal).

4.2.2. Perceived pedagogical constraints of AI-powered tools

Table 7. Perceived Constraints of AI-assisted Tools in Academic Reading Comprehension

	M	SD
Using AI-powered tools saves time but reduces my engagement in deep academic reading.	3.79	.988
I experience no significant change in my academic reading comprehension habits when using AI-powered tools/applications.	2.87	1.051
Overreliance on AI-powered tools/applications in academic reading may reduce critical thinking.	3.97	1.114
AI-generated explanations may be inaccurate in doing academic reading comprehension tasks.	3.98	.876
AI-powered tools/applications reduce engagement with academic reading texts.	3.24	1.036
AI-powered tools/applications in academic reading may cause ethical or academic integrity concerns.	3.07	1.305

As it can be seen from table 7, the students expressed great concerns about the potential merits of integrating AI-assisted tools in their academic reading comprehension practices, with mean scores ranging from 3.79 to 3.97

(SD = .988 - 1.114). The findings indicate that while AI-based tools enhance efficiency, excessive reliance on them may reduce deep reading engagement and negatively affect students' critical and cognitive thinking skills.

Qualitative findings further support this claim as students increasingly encountered the serious problems related to AI-dependency and cognitive effort reduction. She reported: *"After a prolonged period of overuse of AI-powered tools, I gradually developed a tendency to depend on these tools when it comes to doing academic reading tasks. I immediately got these tools for help whenever encountering difficulties rather than using my reflective and critical thinking skills."* (Student 1, Journal). One interviewee indicated that the overuse of AI-based tools could detrimentally affect his higher-order thinking skills, namely problem-solving skills, and critical thinking ones as she could not *"maintain a continuous train of thought"*, resulting in *"weakening the problem-solving skills"* (Student 2, Interview).

On the other hand, the mean score for concerns about ethical issues or academic integrity was moderate albeit its relatively high standard deviation, which means students hold diverse viewpoints when it comes to the potential risk associated with the use of AI-powered tools in academic reading comprehension (M = 3.07, SD = 1.305). Such variation, in turn, may reflect differences in students' perceptions regarding prior experiences with AI-based tools, and levels of AI literacy, and institutional policies regarding the use of AI-powered tools in the education domain in general and in academic reading in particular. Research findings from interviews reinforce this as the fact that lecturers who have a pronounced influence on students' mindset offer students with properly useful tips to ensure academic integrity. One student reported: *"This is because instructors often guided me on the proper use of AI-driven tools and suggested various approaches that made the commands more accurate while ensuring compliance with academic integrity standards."* (Students 4 & 6, Interview). Besides, numerous students were increasingly aware of AI literacy's importance in enhancing their academic performance and sought to improve their AI literacy through social media. One explained *"they share free courses and posts, as well as lessons on using AI and prompts for ChatGPT"* to effectively use. (Student 5, Interview).

5. DISCUSSION

The research findings provide profound insights into EFL students' use of AI-based tools in their academic reading comprehension, which can be effectively interpreted through the UTAUT theoretical model (Venkatesh et al., 2003), thereby highlighting that AI-based tools play a supportive role in students' academic reading performances. Accordingly, students can harness these tools to deal with their academic reading tasks through different reading stages, namely pre-reading, while-reading, and post-reading. Having actively integrated AI-based tools across the stage-based usage, students can monitor and adapt their learning strategies, thereby achieving better academic reading comprehension outcomes, which is consistent with self-regulated learning models (Rad, 2025). This is in line with previous research indicating that user-friendly configuration, instant responses and feedback play a useful role in impacting learners' acceptance of educational technologies albeit their perceived constraints, namely overdependence, information fabrication, reduced cognitive thinking skills, and ethical issues (Lai et al., 2024; Venkatesh et al., 2003).

The findings of this study are mostly consistent with existing research (Daweli & Mahyoub, 2024; Salman, 2025), demonstrating students' acceptance and adoption of AI-powered tools in their learning process is largely driven by perceived usefulness and ease of use. Nevertheless, this study extends previous ones by showcasing that students not only adopt AI-assisted tools but they also actively harness them in a more structured and strategic manner to enhance AI literacy and their academic reading comprehension performance in particular, indicating a high level of self-regulated learning approach.

6. CONCLUSION

This research suggests students' perception of the assisting role of AI-assisted tools in academic reading comprehension performance. The study attendees reported their active and strategic employment of such tools throughout various stages in the reading process is apparently observed through lexicon explanation, text comprehension, task completion, and reflective learning approach. The study further robustizes the applicability of the UTAUT model in illuminating students' acceptance and adoption of AI-based tools in their academic reading comprehension practices, especially, through the influence of perceived usefulness, ease of use, social influence, and facilitating conditions. In tandem with this, the research findings unveils that albeit pronounced pedagogical affordances, AI-powered tools bring numerous challenges regarding overreliance, inaccuracy and unreliability, information overload, and cognitive and analytic reduction. Although these aforementioned concerns were acknowledged by students, the correlation analysis revealed no significant association between perceived pedagogical constraints and the continuity in harnessing AI-assisted tools for their academic reading comprehension practice in the years to come. Consequently, there should be a thoughtful consideration in

integrating and regulating the use of AI-driven tools in academic reading comprehension to achieve better learning outcomes. Moreover, instead of resisting technological advancement, educational institutions should strive to strike a balance between the use of AI-assisted tools in academic reading practices and students' involvement by promoting AI literacy, critical thinking, and the responsible use of artificial intelligence.

Regarding implications for EFL students, it is indispensable for them to embrace a balanced and self-regulated learning approach to academic reading practices while using AI-assisted tools. Moreover, students should regard them as supplementary learning assistants as well as actively and strategically integrate such tools across various stages of the reading process while improving AI literacy skills. This will be a great way for them to critically evaluate AI-generated information, avoid overdependence and ensure the accuracy and reliability of the content generated.

The research findings indicate that EFL teachers should use AI-based tools as valuable yet considerable pedagogical assistants when they can provide students with practical guidance on their ethical and critical employment of these tools in academic reading comprehension. Encouraged to enhance AI literacy, EFL teachers can promote critical evaluation skills when it comes to AI-generated materials, thereby designing more effective yet appropriate lesson plans to cultivate students' attention and interest for academic reading comprehension and their higher-order thinking skills. In addition, the teachers should harness such tools to assist differentiated instructions for their students since AI-powered tools can offer personalized learning experiences and further useful reading resources for both teachers and students with a wide range of proficiency levels and academic requirements.

Despite its substantial contributions, this present study still has a few research limitations. In terms of the research scales, it was carried out with a relatively small sample size with the participation of 100 EFL university students from HUFLIS, which may not fully acknowledge diversity in students' perceptions and experiences in other educational settings. Additionally, this study primarily depended on students' perception and self-reported practices rather than objective measures of academic reading comprehension learning outcomes, thereby making it challenging to establish a direct casual relationship between AI-powered tools and students' academic reading comprehension accompaniment. Plus, it is a fact that students' experiences and perceptions may evolve over time as the rapid enhancement of technology. These research findings, consequently, should be interpreted within the current technological background. Having said that, this study provides valuable insights into the students' employment of AI-powered tools in their academic reading comprehension practices associated with the UTAUT theoretical framework, which can offer a foundation for future research in this area.

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Việc sử dụng các công cụ có sự hỗ trợ của AI trong đọc hiểu học thuật của sinh viên đại học học tiếng Anh như một ngoại ngữ
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THÔNG TIN BÀI BÁO	TÓM TẮT
Quá trình xử lý: Ngày nhận bài: 12/6/2026 Ngày nhận bản chỉnh sửa: 06/8/2026 Ngày nhận đăng: 04/9/2026 Ngày xuất bản: 20/10/2026 Từ khóa: Đọc hiểu học thuật; Công cụ có sự hỗ trợ của AI; Sinh viên đại học học tiếng Anh như một ngoại ngữ (EFL); Mô hình lý thuyết UTAUT. Tác giả liên hệ: Lê Nguyễn Tú Trinh Địa chỉ e-mail: lenguyentutrinh92@gmail.com	Nghiên cứu này khảo sát việc sinh viên đại học học tiếng Anh như một ngoại ngữ (EFL) bằng cách sử dụng các công cụ dựa trên trí tuệ nhân tạo (AI) trong đọc hiểu học thuật theo lăng kính của Mô hình Thống nhất về Chấp nhận và Sử dụng Công nghệ (UTAUT). Cụ thể, nghiên cứu tìm hiểu mục đích và tần suất sử dụng các công cụ số này của sinh viên đại học trong quá trình đọc hiểu học thuật, đồng thời phân tích những lợi ích và hạn chế mà họ nhận thức được khi sử dụng các công cụ đó. Nghiên cứu áp dụng thiết kế hỗn hợp (mixed methods), thu thập dữ liệu định lượng thông qua bảng hỏi từ 100 sinh viên đại học chuyên ngành tiếng Anh, và dữ liệu định tính thông qua nhật ký học tập của 10 sinh viên cùng các cuộc phỏng vấn với chính những sinh viên này. Kết quả cho thấy sinh viên đã tích hợp các công cụ AI vào các giai đoạn khác nhau của quá trình đọc hiểu học thuật một cách chủ động và có chiến lược. Họ sử dụng các công cụ này để kích hoạt kiến thức nền, mở rộng vốn từ vựng học thuật, giải thích các cấu trúc ngữ pháp phức tạp, và đặc biệt là tạo thêm các hoạt động luyện tập đọc học thuật. Phân tích tương quan cho thấy mối quan hệ tích cực có ý nghĩa thống kê giữa mức độ sử dụng thực tế các công cụ AI của sinh viên và bốn yếu tố chính của mô hình UTAUT, bao gồm Kỳ vọng về hiệu quả (Performance Expectancy - PE), Kỳ vọng về nỗ lực (Effort Expectancy - EE), Ảnh hưởng xã hội (Social Influence - SI) và Điều kiện hỗ trợ (Facilitating Conditions - FC). Tuy nhiên, sinh viên cũng bày tỏ những lo ngại liên quan đến sự phụ thuộc quá mức vào AI, sự suy giảm tư duy phản biện, cũng như những vấn đề về độ chính xác và tính xác thực của thông tin do AI tạo ra. Do đó, nghiên cứu đưa ra nhiều hàm ý quan trọng cho giáo viên và người học tiếng Anh trong việc tích hợp hiệu quả các công cụ AI vào hoạt động đọc hiểu học thuật.