EFL Senior Students' Utilization of AI Tools in Conducting Graduation Theses: Benefits, Challenges, and Pedagogical Implications

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ABSTRACT

This study aims to explore how EFL senior students utilize generative AI tools across specific stages of their graduation thesis writing process, including literature review, paraphrasing, grammar checking, and citation management. Drawing on Activity Theory and a qualitative approach, the research involved in-depth, semi-structured interviews with ten final-year English majors at a Vietnamese public university. The findings revealed that all the students regularly turned to AI tools in different stages of their thesis projects, with ChatGPT, Grammarly, and QuillBot being the most frequently mentioned tools. These tools were found to act as supportive mediating artifacts to enhance linguistic accuracy, writing efficiency, and structural organization. However, the study also identified critical limitations, including issues of content inaccuracy, overreliance, and ethical concerns. AI tools were recognized to both enable and hinder students' academic writing proficiency and affect their thesis quality. The study offers important implications for pedagogical practices, academic integrity policies, and future research regarding the ethical incorporation of AI tools in EFL higher education settings.

Keywords: academic writing, AI in education, AI tools, EFL students, graduation thesis

Introduction

Artificial intelligence (AI) technologies are becoming increasingly popular globally within many sectors, including education. The evolution of technology, particularly generative AI, is changing how scholars and learners acquire and analyze new information, as well as create new work (Batista et al., 2024; Perkins & Roe, 2024). AI tools such as ChatGPT have been widely used in essay-writing services, automating grammar correction, summarization, and text paraphrasing (Salman et al., 2025; Shah, 2024). Although these technologies increase productivity and reduce language barriers, especially for non-native speakers, numerous educational and ethical issues related to devices and their use in academic writing still exist (Butson & Spronken-Smith, 2024).

The growth of AI in language learning not only signals a change in educational technology, but

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it also reveals deep impacts on the thinking, learning, and moral practices that are foundational to academic work (Abdelwahab, 2024; Hanafi et al., 2025). While the use of AI technologies in academic work is on the rise, concerns persist regarding their effects on academic integrity, authorship acuity, or analytical skills (Elbadawi et al., 2024; Kotsis, 2024). Recent discourse highlights both the advantages and risks associated with AI-mediated writing. On the one hand, AI tools function as linguistic scaffolds, particularly for students in English as a Foreign Language (EFL) context, helping alleviate difficulties with grammar, vocabulary, and rhetorical conventions (Nguyen, 2025; Shah, 2024). Moreover, as revealed by Desaire et al. (2023) and Fleckenstein et al. (2024), there are growing concerns about the precision of AI-generated content, AI's impact on critical thinking, and AI-assisted authorship ethics.

With regard to EFL academic writing, these issues are more pronounced. EFL students are often expected to create sophisticated academic documents in English, which poses considerable challenges in terms of language precision, logical coherence, and adherence to field-specific norms (Nguyen, 2025; Salman et al., 2025). Their written work is expected to make significant contributions to originality, rigorous intellectual debate, and the advancement of a rigorous argumentative model in written form (Nolan, 2025; Prandner et al., 2025). Recently, there has been growing optimism that AI technologies can help address some of the challenges posed by language. Nevertheless, how students adapt to using such technologies during intricate, high-pressure tasks, such as writing a graduation thesis, remains an open question.

Despite an increasing body of scholarship on AI-supported writing, existing studies primarily focus on general writing tasks (e.g., Chia et al., 2025; Salman et al., 2025), or isolated uses of specific tools (e.g., Nguyen et al., 2025; Thai et al., 2025), rather than examining how students engage with multiple AI tools across the full trajectory of thesis development. Moreover, limited attention has been paid to understanding these practices within a sociocultural framework that captures the interactions among learners, tools, and institutional norms. To address this gap, the present study investigates how EFL senior students utilize AI tools throughout different stages of their graduation thesis writing process and how they perceive the associated benefits and challenges. By focusing on a real academic task in a Vietnamese higher education context, the study provides context-specific insights into AI-mediated academic writing practices.

Guided by Activity Theory (AT), the study conceptualizes thesis writing as an activity system, with AI tools as mediating artifacts. This framework helps explain not only how AI can enhance writing performance but also how it may introduce systemic tensions and how students use AI in their academic writing tasks.

Literature Review

Theoretical framework: Activity Theory

Developed on Vygotsky's (1978) foundational sociocultural theory, AT serves as a framework for conducting research by providing a sociocultural lens for examining how different types of human activity are mediated by intentionally designed culture-specific tools within social, cultural, and institutional frameworks (Engeström, 1987). To effectively analyze these complex sociocultural interactions, the AT framework provides a structural model that considers human activity as a dynamic system. This system is driven by the continuous interplay of six interrelated elements: the subject (the student), the object (the goal or task), the tools (mediating artifacts), the rules (norms and expectations), the community (social context), and the division of labor (task and roles) (Vygotsky, 1978).

By utilizing this perspective, the researcher can look beyond the mere functional use of AI tools

and analyze the complex frictions, dilemmas, and adjustments that may arise when students integrate such technologies into their academic research. In other words, the study can move beyond a purely functional perspective of AI use to examine how students negotiate affordances, constraints, and emerging contradictions in AI-mediated academic writing.

AI-Assisted academic writing

The growing use of AI tools in academic writing has attracted significant scholarly attention, particularly in EFL settings where language barriers are considerable. Specifically, popular tools such as ChatGPT, Grammarly, and QuillBot have been reported to assist with grammar-related issues, paraphrasing, vocabulary suggestions, and citation management (Hanafi et al., 2025; Shah, 2024; Tran et al., 2025). Most empirical studies assume that students use AI tools as linguistic scaffolding, focusing primarily on assisting the surface level of writing rather than generating ideas (Nguyen, 2025; Salman et al., 2025).

A central advantage of AI-assisted writing lies in its function as a cognitive and linguistic support system. Research indicates that AI-integrated platforms effectively serve as linguistic scaffolding at lower levels while reducing cognitive load, allowing learners to focus on higher-order tasks such as idea development and synthesis (Alalaq, 2024; Prandner et al., 2025). Besides, Chia et al. (2025) and Batista et al. (2024) observed that English-majored students frequently rely on AI-enabled tools to overcome language barriers, reporting highly positive perceptions of AI's capacity to enhance writing fluency. The ChatGPT AI tool was also found to help boost students' scores in their academic writing classes (Truong & Tran, 2024).

Beyond linguistic support, AI tools also provide affective scaffolding, particularly for EFL learners who may feel insecure about academic writing. Particularly, AI's ability to provide instantaneous feedback increases learners' control over their learning processes, thereby decreasing anxiety related to poor performance and improving confidence in writing scholarly texts in English (Nguyen, 2025; Salman et al., 2025). Furthermore, Nolan (2025) explored the affective dimensions of AI applications and found that AI serves as a crucial form of emotional scaffolding that effectively alleviates writing anxiety. Collectively, these findings support the multiple ways by which AI can be seen as a learning tool that improves both performance and learner experience.

Despite these benefits, the literature identifies several critical limitations associated with AI-assisted academic writing. First, a recurring concern is the accuracy and reliability of AI-generated content. AI systems are prone to frequently producing inconsistent, misleading, and occasionally entirely invented content, a tendency termed AI hallucination, which undermines their credibility in academic contexts (Elbadawi et al., 2024; Prandner et al., 2025). This phenomenon undermines the trustworthiness of AI technologies when used as writing aids.

Additionally, the increased use of AI tools has raised concerns in the literature regarding a decrease in cognitive effort. For example, Butson and Spronken-Smith (2024) and Nolan (2025) argue that students' capabilities to think critically, construct coherent arguments, and analyze rigorously could be eroded if AI is continuously relied upon. It has also been claimed that overreliance on AI poses a risk to learners' critical thinking, argumentation, and strong analytic writing skills (Butson & Spronken-Smith, 2024; Nolan, 2025). Higher education students may ultimately produce writing that is accurate in language, but may lack depth and genuinely relevant ideas.

At the same time, another issue of concern is academic integrity (Abdelwahab, 2024; Kotsis, 2024). As AI-generated paraphrases have become widely used, the distinction between genuine linguistic refinement and academic malfeasance has increasingly blurred. The absence of

institutional policies on AI use has further complicated students' already complex ethical frameworks, making the situation even more difficult.

In addition, issues concerning stylistic appropriateness also remain unresolved. Students are expected to spend a lot of time ensuring that their writing meets scholarly standards, as sentences generated by the AI are assumed to lack precise rhetoric and a rigorous tone (Desaire et al., 2023; Hanafi et al., 2025). This requires them to extensively edit AI-generated output to ensure the integrated phrases or texts align with scholarship standards.

The existing literature shows that AI has both positive and negative effects as a pedagogical tool. It improves writing and learning efficiency while also creating risks in areas such as overreliance, ethical issues, and a lack of cognitive involvement. Within an AT framework, these dynamics can be viewed as systemic tensions operating within one of the activity systems of academic writing. As mediating artifacts, AI tools redistribute cognitive labor, giving rise to tensions between the objective of original scholarly writing and the integrity regulations that govern writing. The contradictions signal the need to advance AI literacy so that learners can engage critically with AI text generators and preserve their own intellectual agency (Hanafi et al., 2025; Prandner et al., 2025).

Despite the emerging body of research, significant gaps remain. First, the current research focuses on academic writing tasks and classroom activities, leaving the role of AI in more critical, longitudinal writing activities, such as writing a graduation thesis, unexplored. Second, research on the application of a single AI tool is overwhelming, while how students integrate multiple tools across different writing processes remains underexplored. Third, although several studies have recognized AI's role as both supportive and problematic, few have attempted to address these issues through the particular lens of AT to understand the tensions in the students' academic writing activities.

To fill these gaps, the current research examines how EFL senior students engage with AI tools at various stages of their graduation theses, focusing on the benefits and challenges students experience. Centering on a real academic task in a Vietnamese EFL setting and from the perspective of AT, the study contributes to the literature by (1) constructing a process-oriented understanding of AI use throughout thesis stages, (2) analyzing students' purposeful engagement with multiple AI tools, and (3) providing an elaborated theoretical framework to analyze the tension between technological affordances and academic expectations.

Research Questions

Accordingly, this research was guided by the following questions:

1. How do EFL senior students use AI tools to support various stages of their graduation thesis process?
2. What are EFL senior students' perceptions of the benefits and challenges of using AI tools during their thesis writing?

By addressing these questions, the study aims to go beyond describing patterns of AI use to give insights into students' negotiation of the affordances and limitations of AI within their academic writing activity systems. Such insights are expected to contribute to the practical implications of AI tool use in academic writing, with attention to teaching and learning frameworks, institutional guidelines, and future inquiries into pedagogical practices involving AI.

Methods

Pedagogical Setting & Participants

The study was carried out at a public university in Vietnam. This research site was purposefully selected for its relevance; students enrolled in the Bachelor of English Language are required to produce an undergraduate thesis written in English, which demands high-level writing, extensive scholarly research, and a proficient command of English as a foreign language.

The participant pool included ten senior students who conducted their graduation theses the previous academic year. Purposive sampling was used to identify participants who engaged with AI tools during the writing phase of their thesis composition. Specifically, participants were selected based on two inclusion criteria: (1) completion of a graduation thesis in English, and (2) prior experience using at least one AI tool (e.g., ChatGPT, Grammarly, QuillBot) during the writing process. This ensured that all participants could provide relevant and experience-based insights aligned with the research objectives.

The sample size of 10 participants aligns with qualitative research designs focused on depth, especially in studies using semi-structured interviews and thematic analysis. Based on qualitative research guidelines (Creswell, 2014), this sample size was adequate for achieving thematic saturation, the point at which no new or relevant themes can be identified in additional data. The sample reflected diversity across gender, academic achievement, and the topics of the theses, enriching AI-related insights. Anonymization was achieved by assigning discrete alphanumeric identifiers, such as P1 and P2, to each participant, thereby protecting confidentiality during analysis.

Design of the Study

This research used a qualitative methodology to understand the engagement of final-year students from EFL programs with AI tools in the writing of graduation theses and to gauge their evaluation of the associated benefits and challenges. Such an approach was chosen in consideration of the study's purpose, which was to understand the nuances and contextually situated meanings that compose participants' lived experiences and sense-making processes (Creswell, 2014). This allowed the investigator to obtain rich, interpretive narratives that capture in-depth experiences far beyond measurable indicators of tool usage, revealing how students navigate the balance between the technology's advantages and academic traditions.

Situated within the AT framework, the study focused on the socially and culturally mediated nature of the thesis-writing process. Specifically, AT shaped both the research design and the analysis of the study by framing thesis writing as an activity system consisting of subject (student), tools (AI technologies), object (thesis completion), rules (academic integrity norms), community (university context), and division of labor (roles of student, supervisor, and AI). This framework guided the analysis of the role of AI tools as mediating artifacts and of the various forms of contradiction within the elements of the activity system.

Data collection

Data were gathered through semi-structured interviews, a technique that affords the requisite standardization to ensure comparability while simultaneously allowing participants to articulate layers of meaning that standardized queries might overlook. For this purpose, an interview guide was designed based on open-ended questions covering two broad aspects: (1) Ways in which participants integrated AI tools during various stages of thesis writing, and (2) their perceptions of the advantages, challenges, and ethical implications related to AI technology usage.

Each participant was interviewed in about 20 to 30 minutes, either face-to-face or online, based on their preference and available schedule. Vietnamese was the language of choice for the interviews to address participants' comfort, which ensured that their responses could be captured at deeper levels. All interviews were recorded with participants' permission. For analysis, the audio files were transcribed, translated to English, and reviewed by an expert to ensure contextual fidelity and accuracy of the participants' meanings.

Data analysis

The qualitative data were interpreted and analyzed using Braun and Clarke's (2006) six-phase thematic analysis. This flexible approach was used to explore participants' AI writing experiences since it can capture important patterns within rich descriptive data. The initial coding step highlighted meaningful content with descriptive codes that described AI usage, benefits, and limitations. These codes were then organized into core concepts that showed similar themes, including AI tools' support, accuracy concerns, and academic integrity. The themes underwent rigorous refinement checks, evaluated against diversity, coherence, and decisiveness, before defining borders and naming them accurately, capturing participants' realities from their voices with AI. To enhance credibility, member checking was conducted by sharing preliminary findings with participants for feedback. Minor adjustments were made based on their clarifications.

AT was particularly relevant to the analysis because it helped shape the interpretation of themes within the activity system. The themes were analyzed with a focus on how AI tools mediated students' actions, transformed the division of cognitive labor, and created contradictions, particularly between the aim of original academic work and the governing institutional rules on academic integrity. This AT-guided analysis also enabled the researcher to make deeper-level categorizations of the themes.

Results/Findings

How EFL senior students use AI tools to support various stages of their graduation thesis process

Table 1 below shows how often students used AI tools while writing their theses. Seven of the ten participants reported using AI tools frequently, while the other three reported using them only occasionally. None of them reported rarely or never using these tools, confirming that all participants met the selection criteria and had prior experience with AI-supported writing. The dominance of frequent users (70%) indicates the widespread integration of AI tools into students' academic writing practices.

Table 1

The frequency of students' AI tool utilization throughout the students' thesis writing process

Usage Frequency	Number of Students	Percentage (%)
Frequent	7	70
Occasional	3	30
Rare/None	0	0

As can be seen from Table 2, the interview data showed that all participants used AI tools during their thesis writing, demonstrating the extent to which AI has been integrated into senior EFL students' academic tasks. Among those tools, ChatGPT, Grammarly, and Quillbot were identified as the most popular ones. Among them, ChatGPT was nearly universally cited by all

the participants, as reported by all of them. Following ChatGPT were both QuillBot and Grammarly, which were claimed to support various aspects of academic writing and thus were heavily relied upon. There was also mention of other, less commonly cited tools, such as Turnitin, Poe, or other AI-detection tools. Although most students reported using multiple AI tools simultaneously, only a few relied on a single tool, typically ChatGPT or Grammarly. This pattern suggests that the students combined different tools to address specific writing needs, reflecting a strategic use of AI as complementary mediating resources rather than a single dominant solution.

Table 2

Specific AI tools the students used in their thesis writing

AI Tool	Number of Mentions
ChatGPT	10
Grammarly	9
QuillBot	8
Poe	2
Turnitin	2
AI Checking Tools	1

Table 3 shows that AI tool usage varies across the stages of students' thesis writing processes. Among them was the grammar-checking stage, which saw the most use, with 80% of participants (8 out of 10) leveraging AI technologies for their grammar improvement needs. Following that, the literature review and citation formatting steps ranked second, with 70% of the students reporting using AI assistance during these processes.

Table 3

Thesis writing stages involving the use of AI tools

Thesis Stage	Number of Students Using AI	Percentage (%)
Grammar checking	8	80
Literature review	7	70
Citation formatting	7	70
Paraphrasing	6	60
Source searching	6	60
Methodology writing	4	40
Conclusion writing	4	40
Topic selection	2	20
Outlining	2	20
Brainstorming	2	20

The use of AI tools decreased in later stages of the process, such as paraphrasing and source searching, with 60% of students using them in these activities. In comparison, only 40% of students used AI for assistance with methodology and conclusion writing, a noticeably lower figure than for the other two tasks. Strikingly, the lowest AI utilization was observed in segments with high cognitive demand, such as topic selection, outlining, and brainstorming. In these areas, only 20% of the participants reported using AI assistance. These observations indicate that the students in this study mainly used AI tools for language-related and procedural tasks such as language refinement, editing, and formatting. However, they still maintain great autonomy in intellectually demanding stages that require conceptual development and critical

thinking. From an AT perspective, this indicates that AI primarily served as a mediating artifact, supporting lower-level processes without fully replacing students' roles in meaning-making and knowledge construction.

The interview data reinforced the students' prior reliance on AI tools to complete tasks. Most participants explained that AI was particularly helpful in the literature review, but offered varying reasons for this. For example, P3 elaborated,

> "*They were most useful in the literature review, where I had to rephrase previous studies' findings in my own words while maintaining academic accuracy*."

In the same manner, P10 commented, "*The literature review section, AI helped summarize and improve coherence*," while P1 noted more broadly that AI was "most helpful in the literature review."

Besides the literature review, a good number of participants also reported using AI tools for writing methodologies as well as for managing citations. In this regard, P2 said,

> "*AI tools helped me the most with developing the research methodology, literature review, and citing sources*."

This was similarly noted by P5, who claimed, "*They helped most with the methodology and citation sections*," a view also shared by P8. P6 provided more detail than others and offered a broader perspective, describing how AI aided them across multiple sections of the "*literature review, methodology, results, and conclusion*."

Despite being highlighted less often, other sections still remain. For example, P4 noted AI's usefulness for the "*discussion section and citation*," while P7 valued AI's help in the "*introduction, literature review, and the conclusion*." On the other hand, P9 stressed AI's more technical functions in supporting them with "*paraphrasing, grammar checking, and data analysis*."

As a whole, the findings indicate that AI tools were **most frequently used for** tasks involving summarization, rephrasing for clarity and coherence enhancement, and citation management, all of which should be done at a formal level to meet set academic standards. In contrast, the more conceptual and interpretative phases of thesis writing appeared to depend less on AI, suggesting students' desire to retain authorship over content that requires deep, critical thinking. This suggests a division of cognitive labor between students and AI tools.

Participants in this study were asked to self-evaluate their dependence on AI tools across the various stages of thesis writing. From their reflections, as summarized in Table 4 below, there is a spectrum of attitudes towards AI utilization. In particular, four students (40%) reported a tendency toward overreliance, noting that frequent use of AI diminished their motivation to engage in independent thinking (P2, P3, P9, P10). On the other hand, four students (40%) exhibited a more balanced and controlled approach to using AI to support their thesis writing, treating it as an auxiliary rather than a substitute (P1, P4, P7, P8). These students used AI only to check grammar, advise on vocabulary, and enhance overall clarity, while exercising their academic judgment in critical thinking independently. The remaining two participants (20%) displayed a mixed-opinion awareness, acknowledging both the advantages and disadvantages of employing this AI tool and underscoring moderate use of AI technology. This distribution reflects varying degrees of reliance on AI within the activity system, highlighting differences in how students regulate their interaction with mediating tools.

Table 4

Levels of students' dependence on AI tools

Student Group	Number	Percentage (%)
Overreliance on AI	4	40%
Supportive use with control	4	40%
Mixed awareness – supportive but cautious	2	20%

EFL Senior students' perceptions of the effectiveness and challenges of using AI tools during their graduation thesis process

On identifying the level to which the students thought AI tools were helpful for their academic writing tasks, the study realized that most students believed that AI tools were very helpful during their thesis writing process. In particular, 60% rated them as "quite helpful," while the remaining 40% said they were "very helpful." Remarkably, no one gave a low or neutral rating. This indicates a consistently positive perception of AI tools as supportive resources in academic writing.

Table 5

Students' perception of the benefits of AI tools for their thesis writing process

Rating (1-5)	Number of participants	Percentage (%)
5- Very helpful	4	40%
4- Quite helpful	6	60%
3- Neutral	0	0%
2- Slightly helpful	0	0%
1- Not helpful at all	0	0%

The interview responses in Table 6 showed that students regarded AI applications as very useful during all stages of the thesis writing process. The interview responses revealed three main themes: academic writing enhancement, writing efficiency, and support across thesis stages.

Table 6

Thematic analysis of students' perceived benefits of AI tools during the thesis writing process

Themes	Codes
Academic writing enhancement	- Enhanced grammar, vocabulary, and academic tone - Support in learning and revising academic writing style - Development of clearer expression and paraphrasing skills
Writing efficiency	- Faster writing and time-saving editing features - Ease of accessing references and structuring content - Increased productivity despite the need for critical filtering
AI support across thesis stages	- Assistance with literature review, methodology, and citation - Help with quick access to reliable references - Support in generating initial ideas and organizing content - Use of AI across multiple thesis sections and chapters

Improving academic writing quality

The students stressed that AI tools positively affected almost all aspects of advanced academic writing, including grammar, vocabulary, tone, and paraphrasing. While working on documents, they claimed to receive correction suggestions through AI engines that help make sure their writing was clear or more appropriately academic, well ahead. As P1 noted, "*AI tools helped me save time, write faster, improve grammar, and sentence quality*." This type of feedback allowed students to polish their submissions quickly and receive instant adjustments.

Along with grammar correction, AI tools were also noted to help with specificity and formal tone, supporting students in explaining difficult concepts in a simple manner while still sounding scholarly. P3 stated that AI helped "*rephrase findings accurately*," while P7 highlighted improvements in sentence clarity, noting that "The paraphrasing tool helped me to change lengthy sentences into shorter and easier-to-understand versions" (P7). These findings show that AI tools primarily supported surface-level linguistic refinement, functioning as tools that enhance textual quality rather than generating original academic content.

Writing efficiency

AI technologies have significantly impacted an individual's writing efficiency, as evidenced by students' experiences of increased writing speed and ease through AI tools' automation of tasks such as grammar checking, sentence rewriting, spell checking, and similar operations. One participant (P2) observed,

> "*AI tools helped me complete my writing much faster by automatically correcting my grammar and suggesting better sentence structures*."

Another noted improvement in content organization and citation management, as they commented, "*AI tools helped me organize my content and manage citations easily*" (P5). Despite criticism of the AI tool's suggestions, participants still acknowledged improvements in productivity for their academic tasks, as P6 remarked,

> "*Though I had to weed through the ideas of the AI, it made me so much more productive by speeding up the writing process*."

This suggests that AI tools reduced procedural workload, allowing students to focus more on managing and refining their writing.

AI assistance throughout the stages of thesis development

The participants reported positive experiences with AI tools across multiple stages of thesis composition, including the literature review and methodology chapters, as well as citation management. The respondents described the tools as effective in locating authoritative sources, synthesizing content, and structuring references in accordance with citation standards. P6 summarized this utility by stating that "*AI tools helped most with the methodology, citations, and literature review sections*".

Beyond their assistance in polishing specific segments, AI applications were frequently credited with facilitating the initial generation of concepts and the coherent arrangement of material, even at the drafting phase. P9 said, "*AI tools helped me to generate starting ideas and organize my content logically*." Cumulatively, learners reported deriving consistent help from the technology across the complete thesis trajectory, an assessment underscored by another participant, "*AI helped me with different sections of the thesis, starting from generating ideas up to refining my conclusion*" (P10). These findings indicate that AI tools were integrated throughout the writing process, although their role varied depending on task complexity.

Overall, the preceding observations reveal a broadly favorable student reception, centered on the tools' capacity to elevate the quality of academic prose, expedite the writing process, and deliver targeted assistance across a sequence of document sections. Among the immediately observable advantages were the automatic correction of grammatical errors, the enhancement of vocabulary choices, the possibility of paraphrasing sentences, and the assistance with structuring arguments, all of which together fostered more efficient use of writing time. Concurrently, learners acknowledged the necessity of critically appraising the outputs produced by the technology. These findings generally confirm that AI has assumed a recognized and effective role as a supplementary resource in the successful navigation of the thesis-writing process.

While participants acknowledged that AI applications facilitated various aspects of thesis composition, they concurrently identified a number of constraints that attenuated the overall efficacy of the technologies, as illustrated in Table 7 below.

Table 7

Students' perspectives on the challenges of AI tools during the thesis writing process

Themes	Codes
Limitations in accuracy and language use	- Inaccurate or misleading outputs - Vocabulary misuse or lack of contextual fit - Generalized or vague content lacking academic precision
Reduced academic engagement and thinking	- Overreliance on AI reducing independent thought - Passive use of AI without revision or questioning - Skipping critical stages such as outlining or analysis due to instant AI suggestions
Ethical concerns and integrity risks	- High risk of plagiarism from unedited AI content - Difficulty in maintaining originality and authorship - Pressure to constantly paraphrase or rewrite to meet academic standards

A frequently encountered issue pertained to fluctuations in the reliability and accuracy of AI-generated content. In working with literature that demanded a modicum of exactitude, P1 remarked, "*ChatGPT sometimes provided incorrect information or misread the prompts*." This highlighted the model's limitations with tasks that hinge on precision and its vulnerabilities when confronted with intricate or nuanced prompts. Other participants reported similar issues in which the outputs did not match their expectations, highlighting a fundamental flaw in AI: reliability. In this instance, P2 recounted, "*Some information I found was disorganized, vague, or even incorrect*," illustrating their doubts towards trusting AI as a source of reliable information. Another issue related to language use was the inappropriate lexical choice and poor contextual understanding. As explained by P3, "*Though the words were close in meaning, they didn't always fit the context suitably*," showcasing AI's limitations in generating discipline-sensitive text tailored towards appropriate language and tone use. Furthermore, students noted the generic, overly vague nature of the text generated by AI. P7 criticized this tendency, saying that "*AI content was too general, unclear, and brief*." Another student commented:

> "*I think they often provide inaccurate or superficial answers*" (P6).

Collectively, these observations show a prevailing view that, although AI technologies aid with simple language assignments or proofreading tasks, the content they produce is insufficient for advanced academic writing that requires greater depth and specificity.

Additionally, a significant issue is the overreliance on AI technology to fulfill academic tasks,

which can then lead to the erosion of active engagement, creativity, and independent learning. Some respondents reported that AI offered shortcuts around essential processes, as noted by P2,

> "*When we get too much help, it's easy to become too dependent and less inclined to learn and discover on our own*."

This dependency made some students more likely to use AI tools without any deeper consideration. P6 pointed out,

> "*AI enhances academic writing skills to a limited degree, but also leads to enhanced dependency and passivity*."

As a result, students became increasingly likely to omit basic organizational tasks such as outlining or performing analysis beforehand. P10 illustrated the issue further when they stated, "*When I do not know what to write, I typically ask AI before thinking*," revealing how suggestion-driven workflows could quickly replace initial cognitive effort. There were some students, such as P3, who attempted a more conscious approach, stating that,

> "*The key is how I use them to reference, revise, and learn from suggestions rather than copying them blindly*."

These findings suggest that excessive reliance on AI may shift cognitive responsibility away from the learner, potentially reducing active engagement in the writing process.

Third, ethical concerns were frequently mentioned. Participants highlighted difficulties related to plagiarism and maintaining originality. For instance, P5 noted the need to paraphrase extensively to avoid detection: "*To avoid plagiarism or AI detection, I had to paraphrase a lot*". Other students also raised concerns about the reliability of AI-generated content and the challenge of ensuring academic integrity, as reflected by P9 as follows:

> "*Some common issues I faced were inaccurate translations, difficulty in avoiding plagiarism, and vague or misleading information*."

Not only were the students trying to avoid plagiarism, but they were also concerned about the ethical responsibility to continually refine AI output to meet academic standards. As P6 put it, they had to "*filter and adapt the content to match university requirements*," which reflects the psychological strain of trying to ensure academic integrity while using AI tools. From an AT perspective, these challenges reflect tensions between the object of producing original academic work and the rules governing academic integrity.

To summarize, while AI tools were widely used and perceived as beneficial, they also introduced challenges related to accuracy, dependency, and ethics. These findings highlight AI's dual role as both a supportive mediating tool and a source of tension within the academic writing activity system.

Discussion

Utilization of AI Tools by EFL Senior Students During the Graduation Thesis Process

The role of AI technology has become a core component of the academic writing practices of EFL final-year students, especially in checking grammar, paraphrasing, conducting literature reviews, and making citations. This aligns with trends in the use of AI technology in higher learning institutions, as there is greater incorporation of AI tools into students' writing classes for remedial objectives and qualitative productivity at a higher level (Batista et al., 2024; Hanafi et al., 2025). Consistent with Nguyen's (2025) findings that EFL students largely focused on

using AI tools to enhance the language component, the present study likewise shows that AI was primarily used in stages of thesis writing associated with linguistic refinement and procedural support rather than conceptual decision-making. Students depended on AI to refine sentences, correct grammatical errors, and elevate the tone to meet academic standards. This supports claims from multiple researchers who noted reliance on AI output during less complex writing tasks is a common feature among emerging writers (Prandner et al., 2025; Salman et al., 2025). Additionally, the frequent use of AI in literature review processing aligns with earlier research that identified literature synthesis as one of the most AI-supported scholarly activities (Alalaq, 2024; Shah, 2024). Students claimed that AI helped with summarization, paraphrasing, and ordering of works, which are widely known as features of generative AI (Elbadawi et al., 2024; Hanafi et al., 2025).

However, the findings reveal that in some of the more critical tasks of the thesis writing process, such as topic selection, outline formulation, and research design, the AI application was at its lowest level. This supports Butson and Spronken-Smith's (2024) concern that although compositional aspects of writing could be outsourced to robots, intrinsic deep-thinking tasks, such as composing an argument and critical evaluation of ideas, are less likely to be possible. This contrast is analytically important because it suggests that students did not treat AI as a substitute for authorship, but rather as an assistant to the writing process, where support was seen as appropriate and manageable.

In general, the pattern of using AI tools in this study indicates that students leverage generative AI to support basic language in their thesis writing process while making efforts to retain control to preserve their academic integrity. This pattern indicates that AI functioned mainly as a mediating artifact, redistributing part of the linguistic and procedural workload, while the task of producing an original thesis remained largely on students' cognitive load.

Pros and cons of the utilization of AI tools in EFL students' thesis writing process

The students in this study perceived AI tools to be instrumental in enhancing the quality of writing, making the processes more efficient, and lessening the cognitive effort required for tasks that require close attention to language surface elements. This finding supports Chia et al.'s (2025) conclusion that AI chatbots effectively aid users in performing repetitive tasks, such as grammar correction and citation formatting. These findings also support Shah (2024) and Salman et al. (2025), who reported that with the supportive features of AI tools, there was an enhancement of academic tone, clarity, and grammar of English, especially in written work by EFL writers who were struggling with academic English as a second language because of the complexities it poses. The paraphrasing and rewriting capabilities AI demonstrated were positively commented on and are consistent with Prandner et al.'s (2025) assertion that automation enhances productivity by reducing routine writing work. Taken together, these findings suggest that AI was valued less as a source of original knowledge than as an instrument for managing the linguistic burden of thesis writing in an EFL context.

Despite these advantages, significant challenges emerged regarding the accuracy, reliability, and appropriateness of AI-generated content. Students frequently encountered vague, misleading, or factually incorrect outputs, a problem also noted in the studies by Elbadawi et al. (2024) and Desaire et al. (2023). This finding reinforces the concern about AI hallucination, the generation of plausible but false information, which undermines the credibility of AI-assisted academic writing. Moreover, the danger of overreliance on AI technology was emphasized by several respondents who admitted skipping vital phases of their thesis writing process, such as generating outlines or developing concepts independently, because AI suggestions were readily available. This reflects Nolan's (2025) concerns about the lack of slow

scholarship and deep contemplation, as students often rely on AI for content creation. Ethical concerns, such as plagiarism, authorship issues, and indeterminate boundaries regarding originality, also fall under broader themes in the literature. Kotsis (2024) and Abdelwahab (2024) also noted that the use of AI technology in academic writing poses new ethical challenges at the fine line between proper aid and academic dishonesty. Rather than representing isolated drawbacks, these concerns point to a more fundamental tension between efficiency and intellectual accountability in AI-assisted academic work.

As noted by some participants, there was a continuous burden of having to revise AI-generated text due to plagiarism. This is echoed by Hanafi et al. (2025) and Salman et al. (2025), who remarked on how much mental effort it takes to make AI outputs an academically original text. It is critical to note that there is a gap between AI's technological capabilities and institutions' preparedness for them. This issue directly relates to the lack of direction regarding ethical standards, which ultimately falls onto the students. This problem was also highlighted by Butson and Spronken-Smith (2024) and Chia et al. (2025), who noted that institutions offer students scant support while expecting them to navigate a landscape of ethical issues concerning self-governance. In this sense, the challenge is not only technological but also institutional: students may be required to negotiate the use of increasingly powerful tools within a rule system that remains underdeveloped or ambiguous.

As discussed in previous sections, this study refined and added value to the existing body of research by providing insights not previously captured and by teaching discipline-focused AI applications. More specifically, the study contributes to the literature by showing how EFL senior students selectively integrated multiple AI tools across different stages of graduation thesis writing, rather than using AI in a uniform or indiscriminate manner. It also extends previous research by demonstrating that students' use of AI was shaped not only by functional needs but also by their ongoing negotiation of authorship, academic norms, and intellectual responsibility within a high-stakes academic task. On the one hand, AI tools are recognized as a significant mediating artifact, especially when increasing linguistic precision, automating rudimentary writing activities, and alleviating superficial cognitive demands (Prandner et al., 2025; Salman et al., 2025). On the other hand, it concurrently poses additional challenges related to content reliability, overreliance on technological support, unethical behavior, and diminished critical thinking (Elbadawi et al., 2024; Kotsis, 2024; Nolan, 2025).

Framed through AT, this investigation reveals systemic contradictions in the scholarly writing activity system. The employment of AI technology as an academic aid shifts the division of labor for control over language toward more automated processes. It creates conflict between the goal of producing original written intellectual output and compliance with policies related to originality. More specifically, tensions emerged between the subject (student) and the tool (AI) when technological convenience risked reducing independent thinking; between the object (producing a rigorous thesis) and the rules (academic integrity expectations) when AI-generated text raised concerns about originality; and within the division of labor, where part of the writing process was delegated to AI while students were still expected to retain full authorship and accountability. By foregrounding these contradictions, the study offers a more theoretically grounded understanding of AI-assisted thesis writing as a socially mediated and tension-filled activity rather than a purely technical practice.

Conclusion

This research examined the use of AI technologies by EFL final-year students in the process of writing their graduation theses, as well as their perceptions of the associated advantages and disadvantages. Framed by AT, the results show that AI tools, especially ChatGPT, Grammarly, and QuillBot, have evolved into key mediating artifacts that support linguistic and procedural aspects of thesis writing within students' activity systems.

The findings reveal that students use AI tools across multiple stages of thesis development, from grammar checking and thesis paraphrasing to thesis summarizing and citation formatting. In this activity, rather than being primary knowledge generators, AI services were used to eliminate writing-related barriers and enhance writing productivity. On the other hand, concerns for students using AI tools include issues of content accuracy, vague or misleading outputs, ethical concerns about plagiarism and authorship, and overreliance on AI tools. These concerns illustrate the tension that exists in AI academic writing between intellectual responsibility and efficiency.

This study adds to the current body of knowledge by providing an in-depth description of EFL students' selective use of AI tools across the phases of a significant academic task. Additionally, it further confirms previous studies by showing that AI use is not merely functional but also connected to students' ongoing negotiations of academic conventions, authorship, and responsibility within their writing activity systems. Through the lens of AT, AI tools both facilitate and hinder students' learning, as they tend to shift cognitive load and create a contradiction between the desire for original work and the accountability expectations of academic writing.

Overall, the findings suggest that AI can effectively support language development and increase writing productivity, but it cannot supplant students' role in producing meaningful and original scholarship. Thus, there is a need to develop AI literacy that goes beyond the mechanical use of AI tools to include the ability to critique and use AI in an ethically responsible way.

Despite the valuable findings contributed through the study, several limitations should be acknowledged. First, as only 10 senior EFL students from one university in Vietnam were included in the study sample, the educational implications or applicability of the study's outcomes may not extend beyond this sample. Second, the collected data may contain recall biases or responses affected by social expectations because they were based solely on students' self-perceptions gathered during semi-structured interviews, without referring to the thesis supervisors, academic advisors, or textual analysis of submitted theses. This may lead to doubts about how AI tools influenced the overall quality of the theses. Lastly, there was a lack of formal institutional policies governing AI technologies; thus, participants' experiences were framed as occurring in ambiguous conditions.

This study's results hold important pedagogical and policy implications. It is implied that higher education institutions should integrate AI proficiency training into academic writing classes. Students should be aware that AI literacy encompasses not only the technical skill of using a tool but also the ability to make informed decisions, understand ethical aspects, and recognize AI's limitations in assisting with advanced cognitive tasks. Students should be instructed on how to strike a balance between independent thinking and generative AI, so that it aids rather than replaces original thinking. At an institutional level, it is suggested that clearer guidelines be established for acceptable levels of AI use, authorship, and academic integrity in teaching and learning.

Future studies should broaden their focus to include larger, more varied samples across diverse

disciplines and institutions. Besides, longitudinal and multi-method strategies (e.g., textual analysis and supervisor perspectives) should be used to capture the complexities and long-term effects of AI on students' writing development and autonomy.

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