

The New Writing Partner? EFL Students' Real-Time Use of GenAI Tools in Academic Composing

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Abstract

While existing research has largely focused on students' perceptions of GenAI tools, there remains limited empirical evidence of how EFL university students engage with these tools during real-time writing processes, particularly within Asian higher education contexts. Addressing this gap, the present study investigates how Vietnamese EFL university students use GenAI tools when completing academic essay tasks and examines the functions these tools serve across different stages of writing. Drawing on 39 screen-recorded writing sessions from students enrolled in academic English courses, the study adopts a qualitative, process-oriented approach to analyse GenAI use during composition. The analysis showed that students used GenAI across three interrelated domains of writing: content construction, where GenAI supported idea generation, summarisation, and content development; language mediation, where it assisted with vocabulary, translation, paraphrasing, and proofreading; and process regulation, where it provided feedback, explanations, and guidance during drafting and revision. The findings further revealed several pedagogical and ethical issues, including uneven evaluative engagement with GenAI output, blurred authorship boundaries, and ethical ambiguity when GenAI was used to generate or shape writing content and structure. While some students engaged with GenAI reflectively, others incorporated generated, translated, or paraphrased content with limited visible transformation, raising questions about authorial control, acceptable assistance, and students' engagement with core writing processes.

Keywords: Generative AI, EFL learners, academic integrity, Vietnam, writing

1. Introduction

The emergence of generative artificial intelligence (GenAI) tools such as ChatGPT has intensified debates across higher education, particularly regarding their influence on academic writing. Within days of its release, ChatGPT attracted more than one million users (Teubner et al., 2023), signalling both the accessibility of these systems and the immediacy with which students began integrating them into their academic routines. Recent research shows that students now turn to GenAI not only for language correction but also for idea generation, content development, information synthesis, and feedback, practices that collectively reshape how writing is conceptualised and carried out in universities (Cummings et al., 2024; Xiao et al., 2026). For students working in linguistically demanding environments, especially those in English-as-a-Foreign-Language (EFL) settings, such affordances may offer timely scaffolding that supports both comprehension and production (see a systematic review, Teng, 2024).

At the same time, growing dependence on GenAI has raised concerns about academic integrity, reduced cognitive engagement, and the potential marginalisation of student agency in writing processes (Brickhill et al., 2025; Hyland, 2026; Zhai et al., 2024). Specifically, scholars warn that relying on GenAI for paraphrases, summaries, or sentence expansions can diminish creativity by bypassing the iterative drafting processes essential for knowledge construction and critical reflection (Cong-Lem & Thuy-Dung, 2026; Ramoni et al., 2024; Subaveerapandiyan et al., 2025). Furthermore, students utilising GenAI for multimodal composing may engage in pattern-based elaboration rather than original synthesis, potentially weakening the development of a distinct authorial voice (Liu et al., 2024). Compounding these cognitive and creative risks, educators also express serious concerns about work authenticity, cautioning that students may submit unverified, hallucinated, or fully AI-generated text without comprehension, thereby turning a potentially productive mediational tool into a shortcut that bypasses core learning activities (Liu et al., 2024; Mohammadkarimi, 2023; Pratiwi et al., 2025; Rowland, 2023; Seo, 2024). Ultimately, scholars are left to navigate a critical pedagogical paradox: while GenAI has the potential to scaffold writing development, it risks circumventing the learning process and undermining the very skills students are expected to master (Pratiwi et al., 2025).

Despite expanding interest, empirical understanding of how students actually use GenAI tools during the writing process remains limited. Much of the existing literature relies on surveys or interviews, which offer insight into perceptions and ethical concerns but rarely capture real-time writing behaviour (Almanea, 2024; Ofem et al., 2025). Few studies trace GenAI use across multiple stages of writing, from brainstorming and drafting to revising and editing, and even fewer do so in naturalistic, classroom-based contexts. As a result, little is known about the functional roles GenAI plays in shaping students' moment-to-moment writing decisions.

The present study addresses these gaps by examining how university students in Vietnam, an underrepresented EFL context, engage with GenAI tools during academic essay writing. Drawing on 39 screen-recorded writing sessions collected in English for Academic Purposes (EAP) classes, the study provides direct behavioural evidence of students' GenAI use across the entire writing arc. This process-oriented approach moves

beyond self-reported perceptions and captures how students integrate GenAI into their real-time decision-making, linguistic problem-solving, and text construction. The study offers a nuanced understanding of how GenAI tools mediate authentic writing practices in a rapidly digitising EFL environment. Through direct observation of students' composing processes, the research contributes evidence on the opportunities and risks that GenAI introduces into academic writing, insights that are increasingly vital for pedagogy, assessment, and policy development in higher education.

2. Literature Review

2.1 AI Tools in Academic Writing: Expanding Functional and Pedagogical Support

GenAI tools are reshaping how university students approach academic writing. Powered by large language models (LLMs), tools such as ChatGPT, Wordtune, and QuillBot are increasingly used to scaffold composing processes through idea generation, language enhancement, and structural refinement (El-Garawany, 2024; D. Zhao, 2025). Rather than acting merely as digital dictionaries or grammar checkers, these tools function as interactive writing partners that offer real-time support for planning, organising, and revising texts, affordances that are especially valuable for EFL learners, who often face linguistic and cognitive constraints during composition (Liu et al., 2024; Wang, 2025).

Research has shown that GenAI writing tools can offload lower-order demands such as word retrieval, error correction, and syntactic structuring, enabling learners to focus more on global concerns like argumentation and coherence (Dong, 2023; Gayed et al., 2022). Their integration is not only technological but also pedagogical: they align with principles of strategy-based, feedback-rich writing instruction (Strobl et al., 2019) and may help address practical constraints in many EFL contexts, such as large class sizes and limited teacher feedback (Han & Li, 2024). This evolving writing ecology has prompted calls for a reconceptualisation of digital literacy. Kalantzis and Cope (2025) argue that AI literacy, including prompt design, critical filtering of GenAI output, and ethical judgment, is now a foundational component of contemporary writing education.

2.2 Cognitive, Creative, and Ethical Concerns in GenAI-Assisted Writing

Despite these affordances, GenAI introduces notable risks. Scholars have raised concerns about reduced cognitive engagement and diminished creativity, particularly when students rely heavily on GenAI-generated paraphrases, summaries, or sentence expansions in ways that bypass the iterative drafting processes essential for knowledge construction and critical reflection (Ramoni et al., 2024; Subaveerapandiyan et al., 2025). Liu et al. (2024) further show that students using GenAI for multimodal composing may engage in pattern-based elaboration rather than original synthesis, potentially weakening the development of authorial voice.

Educators have also expressed concerns about the authenticity and integrity of student work. Studies report that some learners use GenAI to generate entire paragraphs or rewrite content without adequate comprehension (Mohammadkarimi, 2023), blurring the boundaries between acceptable support and inappropriate substitution (Rowland, 2023). As generative tools become more sophisticated, distinguishing student-driven writing from machine-driven production becomes increasingly challenging.

Another emerging concern is information accuracy. Seo (2024) highlights the phenomenon of GenAI hallucination, where models produce plausible yet fabricated content. This places new evaluative burdens on students, who must verify sources and assess the credibility of generated text. Ethical GenAI use therefore requires explicit instruction in checking factual accuracy, maintaining originality, and applying citation norms appropriately (Bieliauskaitė, 2021).

2.3 A Conceptual Framework of GenAI-Mediated L2 Writing

To understand students' GenAI-supported academic writing practices, the present study draws on a conceptual framework synthesised from previous literature on L2 academic writing competence, AI literacy, self-regulated learning, and academic integrity. Rather than serving as a rigid coding scheme, this framework provides sensitising concepts for interpreting how students used GenAI to support, regulate, or substitute aspects of the L2 writing process (see Figure 1).

At the centre of this framework is L2 academic writing competence, understood as students' ability to construct coherent, meaningful, and rhetorically appropriate academic texts in English. This competence includes not only grammatical accuracy and lexical range, but also discourse organisation, argument development, source engagement, and authorial voice (Xie & Lei, 2022; Yoon & Tabari, 2023). In the present study, L2 academic writing competence provides the core lens through which GenAI use is interpreted. GenAI may support students' writing development by scaffolding linguistic expression, idea development, and revision. However, when used uncritically, it may also reduce students' opportunities to engage in the cognitive, rhetorical, and linguistic work through which such competence is developed. Around this central construct, AI literacy, self-regulated learning, and academic integrity offer complementary lenses for understanding students' engagement with GenAI.

AI literacy, as articulated by Kalantzis and Cope (2025), encompasses far more than technical proficiency. It involves evaluative judgment, ethical awareness, and the ability to craft effective prompts and interpret GenAI outputs critically. From this perspective, learners are not passive recipients of machine suggestions but active decision-makers who assess the relevance, quality, and appropriateness of GenAI-generated support. This emphasis on learner agency resonates with the broader orientation of Digital Applied Linguistics (DAL), where technology use is understood not simply as interaction with digital tools but as participation in human-mediated, socially organised knowledge practices (Teng & Shen, 2026). In the GenAI era, therefore, AI literacy can be seen as part of learners' capacity to engage critically and collaboratively in digital language practices, where knowledge is continuously constructed, circulated, and refined through shared purposes, participatory engagement, and collaborative intellectual work.

If AI literacy explains the critical capacities students need to engage with GenAI, self-regulated learning theory helps explain how these capacities are enacted during the writing process. This view intersects meaningfully with self-regulated learning theory (Zimmerman, 2000), in which writing is understood as a goal-directed process involving strategic planning, ongoing monitoring, and adaptive revision. GenAI use can be seen as a regulatory behaviour, sometimes compensatory (to overcome linguistic limitations),

sometimes strategic (to optimise workflow), and sometimes expedient (Teng, 2025). The quality of such regulation, however, depends on students' metacognitive awareness and their ability to evaluate GenAI suggestions without becoming dependent on them.

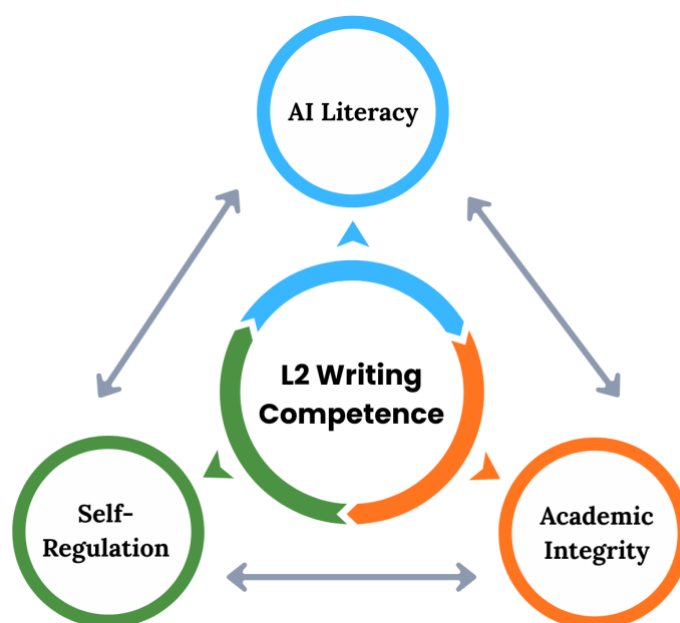


Figure 1. A Conceptual Framework for Understanding GenAI-Mediated L2 Academic Writing Development

Academic integrity constitutes the third dimension of the framework. In contexts where institutional policies on GenAI remain unclear or unevenly implemented, students are often required to make their own judgments about what forms of assistance are appropriate. This points to the need for a contextualised understanding of academic integrity, one that acknowledges the ethical uncertainty students may experience as they navigate emerging technologies, peer norms, and assessment demands (Bieliauskaitė, 2021; Rowland, 2023). This dimension underscores that GenAI-supported writing practices are shaped not only by individual choices but also by institutional and socio-cultural constraints.

In summary, this framework understands GenAI-supported L2 academic writing as a practice centred on the development and enactment of L2 academic writing competence. AI literacy, self-regulated learning, and academic integrity provide complementary lenses for understanding how students evaluate GenAI outputs, regulate their use of GenAI across the writing process, and negotiate the ethical boundaries of acceptable assistance. Together, these dimensions help explain whether GenAI functions as a meaningful scaffold for students' academic writing development or reduces their engagement with the linguistic, rhetorical, and cognitive work required to become competent L2 academic writers.

2.4 Gaps in the Literature and Study Rationale

Although GenAI tools are now embedded in writing instruction, much of the existing research focuses on learner perceptions or on evaluating final written products, with limited insight into how students actually use GenAI during writing (Malik et al., 2023; Utami et al., 2023). Self-report data and controlled experiments provide valuable perspectives but

cannot reveal the moment-to-moment decisions and strategies that shape tool-mediated composing.

There remains a substantive gap in tracing GenAI engagement across multiple stages of writing, from prewriting to drafting and revising, particularly in authentic, high-stakes academic contexts. Recent studies have begun to examine GenAI's influence on revision practices (Warschauer et al., 2023; X. Zhao, 2023) and multimodal composition (Liu et al., 2024), but few have used screen recordings to capture authentic, unscripted interactions with GenAI tools.

The present study addresses these gaps by analysing 39 screen-recorded writing sessions produced by Vietnamese EFL university students. This approach offers fine-grained behavioural evidence of GenAI use during authentic writing tasks, enabling close examination of how students integrate GenAI into their composing processes. The Vietnamese context, marked by centralised curricula, exam-oriented instruction (Duong et al., 2025; Truong et al., 2026), and uneven access to GenAI-related training (Cong-Lem et al., 2025; Nguyen et al., 2025), provides a particularly revealing setting, one that mirrors conditions in many other EFL and Global South higher education systems.

By combining a novel methodological approach with a rarely studied context and an integrated conceptual framework, the study seeks to deepen current understanding of how GenAI shapes academic writing practices and to inform pedagogical and ethical responses to emerging challenges with two following research questions:

RQ1: What functions do GenAI tools serve across different stages of the writing process of Vietnamese EFL learners?

RQ2: What pedagogical and ethical issues emerge from students' GenAI-supported writing behaviours?

This study is significant in three main ways. First, it contributes methodological value by moving beyond self-reported accounts of GenAI use and examining students' observable writing behaviours through screen-recorded composing sessions. This allows a more process-sensitive understanding of how GenAI enters students' academic writing as they plan, draft, revise, and manage language-related challenges. Second, by focusing on Vietnamese EFL learners, the study adds evidence from an underrepresented Asian higher education context where students' engagement with GenAI is shaped by linguistic demands, assessment expectations, and emerging institutional guidance. Third, the study offers pedagogical relevance for EFL writing instruction by clarifying the kinds of support students may seek from GenAI and by foregrounding the need for writing pedagogy that develops students' critical AI literacy, self-regulated tool use, and ethical awareness. In doing so, the study provides timely insights for teachers, curriculum designers, and institutions seeking to respond constructively to GenAI's growing presence in academic writing.

3. Methodology

3.1 Research Design

This study adopted a qualitative, process-oriented research design to examine how EFL university students engage with GenAI tools during academic essay writing. The design is

grounded in the view that writing is a dynamic, multidimensional activity shaped by moment-to-moment decision-making rather than a static product. Screen-recorded writing sessions were therefore used as the primary data source to capture real-time composing behaviours, including when and how students accessed GenAI tools, the types of prompts they produced, and the extent to which GenAI-generated text shaped subsequent drafting and revision.

3.2 Participants and Context

The study was conducted at a public university in Vietnam, where English is taught as a compulsory subject across most undergraduate programmes. Participants were students enrolled in English for Academic Purposes (EAP) courses, an environment that requires academic writing in English but remains firmly situated within an EFL context. The courses focus on essay organisation, source integration, and academic vocabulary, but at the time of data collection offered no formal instruction on the use of GenAI tools.

A total of 39 Vietnamese students who spoke Vietnamese as their first language volunteered to participate in the study. They had been placed in intermediate-to-advanced English courses according to the university's internal placement criteria, and their participation in the research did not affect their course grades or academic standing.

3.3 Data Collection

Participants were recruited through a voluntary invitation issued at the end of the semester and were asked to submit full screen recordings of their academic essay-writing process. The writing task was a take-home academic essay aligned with the course syllabus, which allowed students to work under familiar conditions and use the digital tools they would normally employ when writing independently. To support consistency across submissions, students were provided with standardised instructions for recording their full screen activity, including browser use, GenAI interactions, and the writing environment, using any screen-recording software of their choice.

Recordings were screened for completeness and technical quality. Submissions that omitted portions of the writing process, contained significant audio–visual disruptions, or failed to capture GenAI interactions when used were excluded from the dataset. A total of 39 qualified screen-recording videos met the inclusion criteria and were retained for analysis. Table 1 presents the distribution of participants across four course levels, along with essay topics and the number of eligible submissions.

A schematic diagram illustrating the research design, including participant recruitment, writing task requirements, data submission workflow, and analytic procedures, is provided in Figure 2 to offer a visual overview of the study's methodological structure.

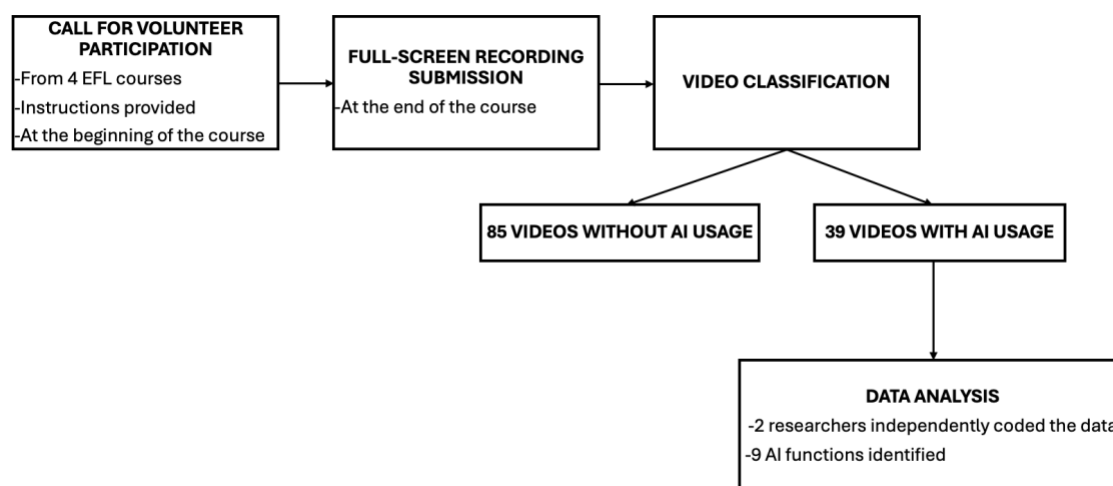


Figure 2. Schematic Diagram of the Research Design

3.4 Data Analysis

All videos were anonymised, labelled by course and participant code (e.g., BAE2_1, ESP1_3), and analysed using qualitative content analysis. The primary researcher conducted the initial coding of all screen-recorded videos, taking detailed notes on visible GenAI tool use (e.g., ChatGPT, Grammarly, QuillBot) and the apparent function each tool served in the writing process, such as summarising, translating, generating examples, providing feedback, or proofreading. Coding followed a hybrid inductive–deductive approach. Initial codes were informed by previous studies (e.g., Warschauer et al., 2023), while additional codes were developed inductively as new patterns of GenAI use emerged from the data. To enhance analytic trustworthiness, a second researcher served as an auditor and critical peer reviewer, examining coded samples, reviewing emerging themes, and discussing interpretive decisions with the primary researcher. Discrepancies or uncertainties were resolved through iterative discussion and refinement of the coding framework.

3.5 Ethical Considerations

At the time of data collection, the researchers' institution did not have a formal ethics review board. Nevertheless, all study procedures were designed and implemented in accordance with widely accepted ethical standards for research involving human participants. Prior to data collection, students were informed in writing and orally about the nature and purpose of the study, including the use of screen-recorded writing sessions for research purposes. Participation was voluntary, and students were assured that their decision to participate or decline would have no impact on their course grades or academic standing. They were also informed that they could withdraw at any point without explanation or consequence. All data were anonymised during transcription and analysis, with identifying information removed to protect participants' privacy. Table 1 presents detailed information about the participant groups and assignment questions.

4. Findings

4.1 RQ1: What Functions Do GenAI Tools Serve in Students' Writing Processes?

Across the 39 screen-recorded sessions, students engaged with GenAI in ways that shaped the conceptual substance of their writing, the linguistic realisation of their ideas, and the procedural and metacognitive work of composing. At the initial coding stage, nine primary functions of GenAI tool use were identified: (1) idea generation, (2) vocabulary support, (3) translation, (4) paraphrasing, (5) summarisation, (6) content generation, (7) feedback provision, (8) tutoring/explanation, and (9) proofreading (see Table 2). These function-level codes were then organised into three broader analytic domains reported in this section: content construction, language mediation, and process regulation. Specifically, idea generation, summarisation, and content generation were grouped under content construction; vocabulary support, translation, paraphrasing, and proofreading were grouped under language mediation; and feedback provision and tutoring/explanation were grouped under process regulation. Screenshots and transcripts were used to support interpretation and validate categorisation. Together, these three interrelated domains formed a dynamic ecosystem of GenAI use, in which students navigated the affordances and constraints of AI-supported writing in uneven and sometimes contradictory ways.

Table 1. Information of Participant Groups

Participant Group	English course	Year	Majors	No. of qualified respondents	Assignment Questions
Group 1	BAE2	Freshmen	Business Administration	2/5	Choose one of the questions and write an essay to share your opinion. 1/ Are video games considered as art? 2/ Is sculpture considered as art?
Group 2	BAE3	Sophomores	Business Administration	1/4	Choose one of the questions and write an essay to share your opinion. 1/ Do you think gunpowder is the most important invention of the world. 2/ Technology has developed rapidly in the last century? Do you think its development is slowing now?
Group 3	BAE4	Sophomores	Business Administration	22/45	Write a summary and lesson(s) you learned from the documentary film Money Monster
Group 4	ESP1	Juniors	Business Administration + Finance	14/70	Write a summary and lesson(s) you learned from the documentary film INSIDE JOB

4.1.1 AI as a resource for content construction and transformation

A prominent pattern involved students mobilising GenAI to assist with the conceptual labour of writing. Within this domain, GenAI was mainly used for idea generation, summarisation, and content generation, particularly when learners faced uncertainty about how to initiate, structure, or develop their essays. Students routinely requested topic contextualisation, argument scaffolds, and structural outlines, using GenAI-generated responses as springboards for drafting. For example, BAE2_1 queried ChatGPT for arguments supporting the classification of video games as art and subsequently aligned the first draft with the GenAI-generated structure. Similarly, BAE4_20 solicited thematic information about Money Monster to anchor the introductory framing of the essay.

GenAI also mediated students' engagement with information-rich or cognitively demanding source materials. Documentary-based assignments prompted learners to input film titles into GenAI tools to obtain condensed summaries, thematic breakdowns, or organising frames. ESP1_14 asked Gemini to divide *Inside Job* into "five main parts," while ESP1_1 relied on NoteGPT to generate a concept map of key ideas. These uses enabled students to establish a macro-structure for their essays with relative ease. However, their uptake varied markedly: some students transformed the generated content through reorganisation, selective adaptation, or further elaboration, whereas others, such as ESP1_12, incorporated GenAI-generated sentences with minimal alteration, effectively outsourcing parts of the interpretive process.

Content generation was also evident when students asked GenAI to produce examples, explanations, introductory material, or supporting points that could be inserted into their drafts. In these cases, GenAI functioned not merely as a source of inspiration but as a direct contributor to the substance and structure of the text. While such uses helped students access conceptual resources and sustain writing momentum, they also raised pedagogical concerns. When GenAI-generated ideas were critically evaluated, adapted, and integrated into students' own arguments, the tool appeared to function as a scaffold for content development. When generated content was adopted with little transformation, however, GenAI risked reducing students' engagement with the analytical and meaning-making work central to academic writing.

4.1.2 AI as a mediator of language use and expression

A second prominent domain of GenAI use concerned linguistic mediation. Within this domain, students used GenAI primarily for vocabulary support, translation, paraphrasing, and proofreading, drawing on these tools to address gaps in lexical knowledge, grammatical accuracy, expression, and bilingual composing. These practices show that GenAI operated as a flexible linguistic scaffold, enabling students to move between Vietnamese and English, refine sentence-level expression, and improve the perceived fluency of their academic texts.

Students frequently used GenAI for lexical queries, which varied from simple synonym searches to more elaborate requests involving usage examples, collocations, and pronunciation support. BAE2_1 exemplified this more exploratory pattern, iteratively refining vocabulary choices and checking how particular words could be used in context. Others, such as BAE3_1, treated GenAI as a quicker lexical substitution tool, seeking straightforward synonyms to improve stylistic variation. These contrasting patterns suggest that vocabulary support could function either as a site of language learning or as a more

surface-level strategy for textual improvement.

Translation emerged as a central strategy through which students moved between Vietnamese and English during academic writing. Students translated vocabulary items, sentences, and, in a few cases, entire paragraphs. While some, such as BAE2_1, compared multiple translation outputs to achieve greater semantic precision, others used translation in ways that raised concerns about authorship and engagement. For example, BAE4_16 translated an online paragraph and inserted the output directly into the essay, illustrating how translation can be appropriated not only to support expression but also to circumvent parts of the composing process.

Students also used GenAI tools for paraphrasing, particularly to reformulate sentences they had already drafted and to refine the clarity, fluency, and academic appropriateness of their English expression. In some instances, paraphrasing tools appeared to support students' efforts to clarify meaning and adjust expression. In others, however, paraphrasing functioned more mechanically, allowing students to reword borrowed or AI-generated text without substantive engagement with the underlying ideas. This pattern highlights the dual role of paraphrasing as both a potential language-learning resource and a possible mechanism for distancing students from deeper textual decision-making.

Proofreading and sentence-level editing were another important linguistic function of GenAI use. Near submission, many students submitted whole drafts to GenAI tools for grammatical and stylistic refinement. ESP1_9 incorporated nearly all of Gemini's suggested edits, whereas BAE4_11 selectively adopted changes, maintaining greater authorial control. These contrasting cases reveal divergent levels of trust, discernment, and linguistic awareness in students' use of AI-generated corrections.

Collectively, these practices demonstrate how GenAI mediated the linguistic complexity of EFL academic writing by supporting vocabulary development, bilingual expression, reformulation, and textual polishing. At the same time, the ease and immediacy of such support sometimes obscured persistent gaps in students' language proficiency and reduced opportunities for deeper linguistic noticing. Thus, GenAI's value as a language mediator depends not only on the quality of its suggestions, but also on whether students engage with those suggestions critically, selectively, and reflectively.

Table 2. Functions of GenAI Use in Participants' Academic Writing

Analytic domain	Function	Definition
Content construction	Idea generation	Students used GenAI to generate initial ideas, arguments, examples, or perspectives for developing their essays.
	Summarisation	Students used GenAI to condense source materials, documentary content, or topic information into shorter summaries or thematic points.
	Content generation	Students used GenAI to produce substantive textual content, such as explanations, supporting points, introductory material, or draftable sentences.
Language mediation	Vocabulary support	Students used GenAI to search for word meanings, synonyms, collocations, usage examples, pronunciation, or more appropriate lexical choices.
	Translation	Students used GenAI to translate words, phrases, sentences, or longer passages between Vietnamese and English.

Process regulation	Paraphrasing	Students used GenAI or AI-supported tools to reformulate existing sentences or passages while preserving the intended meaning.
	Proofreading	Students used GenAI to check or improve grammar, spelling, punctuation, sentence structure, style, or overall linguistic accuracy.
	Feedback provision	Students used GenAI to obtain comments or evaluations on clarity, coherence, organisation, argument development, or overall text quality.
	Tutoring/explanation	Students used GenAI to seek explanations about language use, writing quality, coherence, grammar, or revision choices, often through dialogic interaction.

4.1.3 AI as a tool for regulating and managing the writing process

GenAI also served important procedural and metacognitive functions, particularly through feedback provision and tutoring/explanation. In this domain, students used GenAI not only to improve specific textual features, but also to manage uncertainty, monitor progress, and make decisions during drafting and revision. These process-oriented uses often intersected with content and language work, forming the connective tissue of students' composing practices.

Many participants relied on GenAI to navigate local rhetorical challenges, such as writing transitions, clarifying topic sentences, improving coherence, or generating concluding remarks. BAE4_3, for example, asked ChatGPT to propose a concluding sentence to “tie the ideas together,” indicating how GenAI was used to resolve structural and rhetorical issues during drafting. In such cases, GenAI helped students maintain writing momentum by offering immediate solutions to problems that might otherwise interrupt the composing process.

More holistically, students engaged GenAI as a feedback mechanism by requesting evaluations of clarity, cohesion, organisation, and argument development. When BAE3_1 submitted an introduction for critique, ChatGPT provided comments on logical flow and lexical choice. Some students responded reflectively by testing recommended revisions, asking follow-up questions, and selectively adapting the feedback. Others, however, adopted suggestions wholesale without interrogating their relevance or appropriateness. This variation suggests that feedback provision could support self-regulated writing, but only when students retained an active evaluative role in the revision process.

A smaller but pedagogically significant subset of students used GenAI in tutor-like, dialogic exchanges. In these instances, learners did not merely ask for corrections but sought explanations, asking questions such as “Why is this sentence unclear?” or “How does this affect coherence?” These exchanges, evident in extended interactions by BAE3_1, reveal emerging metacognitive engagement and suggest GenAI's potential to function as a responsive instructional partner. However, such reflective and explanation-seeking use remained less common than more direct correction- or feedback-seeking behaviours.

Through these process-regulation functions, GenAI helped students manage cognitive load, reduce uncertainty, and sustain progress across the writing task. Yet, as with content construction and language mediation, the degree of agency and critical judgment varied considerably. GenAI supported students' composing processes most productively when it prompted reflection, monitoring, and informed decision-making. Conversely, when

students treated feedback or explanations as ready-made solutions, GenAI risked weakening their participation in the evaluative and regulatory work in academic writing.

In short, these patterns portray GenAI as a multifaceted mediational resource embedded in learners' composing trajectories. Students did not use GenAI for a single, stable purpose; rather, they moved fluidly between conceptual scaffolding, linguistic support, and process regulation depending on task demands and momentary writing difficulties. This interplay illustrates both the versatility and volatility of GenAI as an academic composing companion: it can expand learners' strategic repertoires while also enabling forms of overreliance that displace essential cognitive and metacognitive work. The heterogeneity observed across students underscores a central insight from the analysis: GenAI's pedagogical value is not inherent in the technology itself but depends on how learners mobilise it, with what intentions, and under what instructional conditions. This variability foregrounds the pedagogical and ethical questions examined in RQ2.

4.2 RQ2: What Pedagogical and Ethical Issues Emerge From Students' GenAI-Supported Writing Behaviours?

Analysis of students' real-time engagement with GenAI tools revealed three interconnected issues shaping their writing practices: uneven critical AI literacy, blurring of authorship boundaries, and ethical ambiguity in a low-guidance institutional environment. These issues are analytically distinct yet empirically intertwined, providing insight into how students navigate GenAI within an EFL academic writing context.

4.2.1 Uneven evaluative engagement with GenAI output

Students varied widely in their ability to question, evaluate, and regulate GenAI output. Some students displayed emerging critical literacy by engaging in iterative, dialogic exchanges with GenAI tools. For example, BAE3_1 frequently asked GenAI to explain why particular sentences were weak or how cohesion could be improved, and then revised the draft based on a reflective understanding of the suggestions. This behaviour indicates a metacognitive use of GenAI as a learning resource rather than a correction machine.

However, many students interacted with GenAI in a more passive, acceptance-based manner. For instance, ESP1_9 submitted an entire draft to a GenAI platform for proofreading and incorporated most revisions directly into the text without further interrogation. Similar patterns emerged when students asked for vocabulary or grammar checks but did not probe the rationale behind the suggested changes.

This unevenness suggests that GenAI tools may amplify existing differences in students' linguistic awareness, metacognitive ability, and confidence in evaluating textual choices. Without explicit pedagogical scaffolding, some learners benefit from GenAI as a site of cognitive apprenticeship, while others adopt the tool's output uncritically, weakening their own decision-making in the writing process.

4.2.2 Blurring of authorship boundaries and the potential for substitution

A second issue concerns the difficulty many students faced in distinguishing between acceptable support and unwarranted substitution of core writing processes. Several recordings showed students importing GenAI-generated content directly into their essays with minimal or no modification.

A clear instance of this pattern occurred when ESP1_12 requested a summary of the

documentary *Inside Job* and inserted several sentences almost verbatim into the essay. Likewise, BAE4_16 located a Vietnamese paragraph online, asked GenAI to translate it into English, and embedded the translated paragraph directly into the assignment. These behaviours illustrate how GenAI can displace interpretive tasks such as summarising, synthesising, or restating ideas in one's own voice.

Paraphrasing tools also contributed to blurred boundaries. For example, ESP1_4 adopted paraphrased output from QuillBot with minimal modification, suggesting limited engagement with the process of refining meaning or developing stylistic control. While paraphrasing may reduce plagiarism risk or increase clarity, its uncritical use risks diminishing the cognitive operations central to L2 writing development.

Together, these cases reveal a continuum ranging from legitimate scaffolding (e.g., improving clarity or structure) to the wholesale substitution of meaning-making. Students' ability to locate themselves on this continuum was inconsistent, highlighting the need for clearer pedagogical cues about where support ends and authorship begins.

4.2.3 Ethical ambiguity in generating writing content and structure

The third issue concerns students' use of GenAI to generate or shape the content and structure of their writing, where the boundary between legitimate support and excessive assistance became less clear. In several recordings, GenAI was used not only for grammar correction, vocabulary support, or sentence-level editing, but also for content selection, idea organisation, summarisation, transitions, and conclusions. These uses were ethically ambiguous because they involved parts of academic writing closely connected to interpretation, meaning-making, and authorial control.

For instance, ESP1_14 asked GenAI to segment a documentary into thematic parts to structure the essay, an approach that could be interpreted either as useful scaffolding or as outsourcing part of the analytic work. Similarly, ESP1_1 relied on a GenAI-generated mind map of the film's key ideas to guide the organisation of the essay. Other students, such as BAE4_3, requested GenAI-generated concluding sentences or transitions, suggesting that GenAI was also used to shape rhetorically meaningful parts of the text.

Students using GenAI summarisation tools, such as ESP1_12, also drew on generated summaries when engaging with source content. From the screen-recorded data alone, it is difficult to determine whether such practices reflected intentional misconduct, uncertainty, or a pragmatic attempt to manage task demands. What the data show, however, is that GenAI became involved in writing decisions where academic integrity, authorship, and learning are difficult to separate. These observations point to a broader ethical challenge in GenAI-mediated L2 academic writing: students may use GenAI in ways that appear supportive at the surface level, while also reducing their engagement with the interpretive and rhetorical work through which academic writing competence is developed.

5. Discussion

5.1 Study Contributions

This study examined how Vietnamese EFL university students engaged with GenAI tools during academic writing through the analysis of 39 screen-recorded composing sessions. The findings show that GenAI was not used simply as an external aid for final editing. Rather, it became embedded in students' real-time composing practices, shaping how they

generated ideas, resolved language problems, organised content, sought feedback, and revised their texts. This process-oriented evidence extends prior research that has relied largely on self-report or final-product analysis (Malik et al., 2023; Utami et al., 2023) by making visible the moment-to-moment decisions through which GenAI entered students' writing processes.

Interpreted through the conceptual framework in this study (see Figure 1), these findings show that GenAI use was closely connected to the development and enactment of L2 academic writing competence. Students used GenAI to support several components of this competence, including lexical choice, grammatical accuracy, discourse organisation, idea development, summarisation, and revision. In some cases, GenAI appeared to function as a scaffold that helped students overcome linguistic constraints and move their writing forward. For example, students used GenAI to search for vocabulary, improve sentence clarity, organise ideas, or obtain feedback on coherence. However, the findings also show that GenAI sometimes reduced students' engagement with the cognitive, rhetorical, and linguistic work through which L2 academic writing competence is developed. This was particularly evident when students incorporated generated summaries, translated paragraphs, or paraphrased output with minimal transformation. Thus, the pedagogical significance of GenAI lies not only in whether students use it, but in how its use affects their participation in the work of composing.

A central insight from the study is that students' GenAI engagement can be understood along a continuum between scaffolding and offloading. Consistent with previous research suggesting that GenAI can reduce lower-order cognitive demands and support writing development (Dong, 2023; Gayed et al., 2022), some students used GenAI strategically by refining prompts, comparing suggestions, and selectively adapting output. These practices suggest a form of self-regulated writing in which GenAI was used to support planning, monitoring, and revision. At the same time, other students appeared to use GenAI more expediently, relying on generated or transformed text to complete parts of the task with limited visible evaluation. These patterns resonate with concerns about over-reliance on GenAI (Teng, 2025; Zhai et al., 2024), although the screen-recorded data suggest that students' reliance on GenAI was uneven, varying across tasks, writing stages, and individual composing practices.

Although the present study did not directly measure AI literacy as a competence, the screen-recorded data offered important process-level evidence of how students visibly exercised different levels of critical judgment during GenAI-supported writing. Some students engaged with GenAI dialogically by asking for explanations, questioning sentence quality, and using feedback to revise more reflectively. Others accepted AI-generated suggestions with little visible evaluation. This contrast suggests that AI literacy in GenAI-mediated writing should extend beyond technical familiarity with AI tools. It should be understood as a situated capacity to judge the relevance, accuracy, and appropriateness of AI-generated output, adapt it to one's communicative intentions, and integrate it without losing authorial control. In this respect, the study supports recent views of AI literacy as involving evaluative judgment, ethical awareness, and critical participation in digital writing practices (Kalantzis & Cope, 2025; Teng & Shen, 2026), while adding behavioural evidence of how such capacities are unevenly enacted during real-time composing.

The study further highlights the authorship and academic integrity challenges that emerge when GenAI becomes involved in content generation, translation, summarisation, and paraphrasing. Previous scholarship has raised concerns about the ethical ambiguity of GenAI use in academic writing (Bieliauskaitė, 2021; Rowland, 2023), although much of this work has drawn on policy debates, student perceptions, or retrospective accounts. The present findings add behavioural evidence by showing how authorship boundaries became blurred through small, incremental writing decisions. Practices such as using GenAI-generated summaries, translating external Vietnamese content into English, or incorporating paraphrased output from QuillBot demonstrate that GenAI can become involved not only in surface-level language correction but also in meaning-making and textual ownership. These practices do not necessarily indicate intentional misconduct. Rather, they show that academic integrity in GenAI-mediated L2 writing is often negotiated through situated decisions about how much AI-generated support is acceptable, how much transformation is required, and where student authorship remains visible.

A further pattern concerns the potential task sensitivity of GenAI use. Although task type was not systematically analysed as a separate variable, the recordings suggest that different assignments invited different forms of GenAI mediation. Documentary-based summary tasks appeared to encourage more use of summarisation, thematic segmentation, and content organisation, whereas opinion-based essays appeared to elicit more idea generation, lexical support, and argument development. This pattern aligns with research showing that GenAI-mediated writing practices vary according to task and genre demands (Liu et al., 2024; Warschauer et al., 2023). In the present study, it also suggests that assessment design may shape the kinds of GenAI assistance students seek, highlighting the need for assessment tasks to make students' interpretive, source-use, and composing processes more visible rather than evaluating only the final written product.

In summary, these findings provide empirical support for the conceptual framework presented in Figure 1 by showing that GenAI-mediated L2 academic writing is shaped by the dynamic interaction among writing competence, AI literacy, self-regulation, and academic integrity. L2 academic writing competence remains the central concern because students' GenAI use ultimately matters in relation to how they develop and demonstrate control over language, discourse, source engagement, argument, and authorial voice. AI literacy shapes whether students can evaluate and adapt GenAI output critically. Self-regulated learning shapes whether GenAI is used strategically to support writing or expediently to complete tasks. Academic integrity shapes how students negotiate authorship, originality, and acceptable assistance. The study therefore contributes a process-oriented account of GenAI use in EFL academic writing, showing that GenAI can support writing development when it extends students' engagement with composing, but may constrain development when it reduces their participation in the linguistic, rhetorical, and cognitive work of writing.

5.2 Educational Implications: Toward Process-Oriented and Critical GenAI Writing Pedagogy

The findings point to the need for a more process-oriented approach to GenAI in EFL writing pedagogy. Rather than framing GenAI use primarily as a question of prohibition or

permission, writing instruction should focus on how AI enters students' composing processes and how students can remain intellectually active when using it. The central pedagogical issue, therefore, is not simply whether GenAI improves the final written product, but whether it supports students' engagement with the linguistic, rhetorical, cognitive, and metacognitive work through which L2 academic writing competence is developed. From this perspective, GenAI should be treated as a context for cultivating higher-order critical thinking, including students' capacity to evaluate AI-generated output, compare alternative textual possibilities, justify revision decisions, and maintain authorial responsibility for their writing.

First, AI literacy should be embedded within the writing process rather than taught as a separate technical skill. The observed variation in students' engagement with GenAI output suggests that technical access to AI tools does not necessarily lead to critical or productive use. Students need explicit support in interpreting, questioning, and adapting AI-generated suggestions in relation to their own communicative intentions. Teachers can design activities in which students compare multiple AI responses to the same prompt, identify inaccuracies or weak reasoning, explain why particular suggestions are accepted or rejected, and revise AI-generated text to better fit their intended meaning. Such activities can help students move from passive uptake toward more evaluative, reflective, and self-regulated engagement with GenAI.

Second, writing pedagogy should make authorship and intellectual control more explicit. The findings show that GenAI may support local aspects of writing, such as vocabulary choice, grammar correction, and sentence clarity, but it may also become involved in more substantive processes, including summarisation, translation, content organisation, transition building, and conclusion writing. These uses differ in the extent to which they require student transformation, interpretation, and accountability. Teachers therefore need to help students distinguish between using GenAI as a scaffold and allowing it to substitute for core meaning-making work. Classroom discussion of concrete scenarios, such as brainstorming with GenAI, translating external content, generating an outline, paraphrasing a paragraph, or producing a conclusion, can help students develop a more nuanced understanding of acceptable assistance and authorial responsibility.

Third, assessment design should make students' writing processes, not only their final products, visible. Since different task types may invite different forms of GenAI reliance, teachers should consider how assignment design shapes students' opportunities for critical engagement. Tasks involving source comprehension, documentary summaries, or argument development may require additional process-oriented components, such as annotated drafts, AI-use reflections, revision logs, source-use notes, or short oral explanations of writing decisions. These components do not necessarily prohibit GenAI use. Instead, they help preserve students' active participation in interpreting information, constructing meaning, and making informed rhetorical choices.

Overall, the findings suggest that EFL programs may benefit from clearer pedagogical and institutional guidance on GenAI use in academic writing. Rather than treating GenAI mainly as an academic integrity issue, such guidance should support students' gradual development as independent and responsible L2 writers in AI-mediated environments. It should help students distinguish between uses of GenAI that support language development,

idea refinement, and revision, and uses that may reduce their engagement with the cognitive, rhetorical, linguistic, and ethical work required for L2 academic writing development.

6. Conclusion

This study examined how Vietnamese EFL university students engaged with GenAI tools during academic essay writing by analysing 39 screen-recorded composing sessions. The findings show that GenAI was used across multiple stages of the writing process, including idea development, language formulation, content organisation, and revision. Students' engagement, however, was not uniform; it varied in purpose, depth, and level of authorial control. In some cases, GenAI appeared to support students' development of ideas, linguistic expression, and revision strategies, while in others it was used more directly to generate, translate, summarise, or modify content with limited visible transformation. By focusing on real-time composing behaviour, the study contributes process-level evidence of how GenAI becomes embedded in EFL students' academic writing practices, extending prior research that has relied largely on self-reported data. At the same time, the findings highlight important pedagogical and ethical challenges, particularly uneven evaluative engagement with GenAI output, blurred authorship boundaries, and questions about how students engage with source material and construct their own understanding.

Several limitations of this study should be acknowledged. First, the analysis drew on a relatively small, context-specific sample from a single institution, which may limit the transferability of the findings. Second, although screen recordings provided valuable access to students' observable writing behaviours, they could not fully capture students' internal reasoning, intentions, or decision-making processes. Third, differences in task type and course level may have shaped patterns of GenAI use; however, these factors were not systematically analysed as separate variables in the present study. Future research could extend this work by combining screen-recording data with interviews, stimulated recall, or learner reflections to better understand the reasoning behind students' actions. Comparative studies across institutional contexts, proficiency levels, and writing task types would also help clarify how different conditions shape GenAI-mediated writing practices. Such work is needed to develop a more comprehensive understanding of how GenAI is reshaping EFL academic writing and the development of L2 writing competence.

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Declaration of GenAI Use in the Writing Process

The authors used ChatGPT to improve language, clarity, and readability. The authors reviewed and edited all AI-generated content as necessary and take full responsibility for the content of the published article.

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Conflict of Interest

The authors declare that they have no competing interests.

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