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Moving Academic Writing Forward with Artificial Intelligence in English Language Teaching: A Pedagogical Model from a Systematic Literature Review

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Abstract. Academic writing is undergoing a metamorphosis due to the pervasive influence of Artificial Intelligence (AI). While AI tools such as ChatGPT offer more benefits than drawbacks in English academic writing, there is a dire need to establish a structured model for its pedagogical integration in academic writing. We address this gap by synthesizing evidence on the impacts of AI on academic writing development, as well as its associated integration best practices, and challenges, with the aim of informing a pedagogical model for its use in English academic writing classrooms. Using a Systematic Literature Review (SLR), we examined studies on academic writing and AI within English Language Teaching (ELT), published in Scopus and Web of Science (WoS) databases in the last six years (2019-2024). We followed the PRISMA framework in the identification, selection, and screening of research studies for inclusion in our analysis. A total of 20 studies were subjected to inductive thematic analysis after the abstract and full-text screening. Findings indicate that AI tools support writing quality through improved structure, syntax, language use, and cognitive engagement. They also function as agents for guided learning, personalized support, and feedback enhancement. However, challenges persist, including factual inaccuracy, over-reliance, plagiarism risks, reduced authenticity, constrained creativity, unequal access, fragmented pedagogical use, and limited AI literacy. In response, we propose a pedagogical model for integrating AI in English academic writing. The model advocates for a balanced academic writing agency through an interaction between pedagogy, critical digital literacy, and personalized learning within a situated institutional context.

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1. Introduction

The development of AI in education has ushered in a transformative era in academic writing, reshaping how learners in ELT contexts conceptualize and produce scholarly texts. Traditionally, teaching academic writing skills has relied on explicit instruction, iterative practice, and sustained feedback. However, AI tools, such as ChatGPT, have disrupted this practice. Such tools offer immediate, sophisticated support across writing stages including brainstorming, outlining, drafting, revising, and feedback (Reis et al., 2023; Wang & Ren, 2024).

They act as virtual assistants that help students generate ideas, overcome writer's block, enhance language accuracy, and even produce multimodal compositions integrating text, images, and data (Smith et al., 2025). However, while some scholars affirm the affordances of AI tools for improving writing fluency, coherence, and engagement (Maphoto et al., 2024), others caution against issues such as risks of bias, hallucination, and ethical concerns related to originality, authorship, and intellectual property (Frank et al., 2024; Singh et al., 2025). This tension reveals the necessity of examining how AI should be purposefully integrated into academic writing pedagogy to optimize benefits while safeguarding academic integrity.

Despite the increasing adoption of AI in education, there remains a dearth of evidence-based models that guide its pedagogical use in ELT. Existing research has documented how generative AI tools like ChatGPT support students in overcoming linguistic limitations, improving syntactic accuracy, and enhancing motivation (Kim et al., 2025; Butler & Jiang, 2025). However, the central gap remains concerning the lack of ELT-specific pedagogical models that can be used to guide AI integration in English academic writing instruction. Without structured pedagogical guidance, the benefits of AI can be offset by its inherent challenges which can potentially compromise critical thinking (Barrett & Pack, 2023; Ou et al., 2024). Against this backdrop, it is of critical importance that pedagogical principles for integrating AI in academic writing cultivate both writing proficiency and AI responsible use.

In this study, we respond to this critical need by systematically reviewing recent scholarships on AI and academic writing in ELT to inform the design of a robust pedagogical model. Thus, the following are the research objectives that we seek to achieve to achieve in this research: (1) explore the impacts of AI on students' English academic writing proficiency; (2) identify best practices for integrating AI tools into academic writing instruction; and (3) identify the challenges and implications of AI-assisted writing for institutional policies. The paper contributes to advancing pedagogical models on integrating AI tools into academic writing instruction while cultivating learners' critical engagement and upholding academic integrity.

2. Literature Review

2.1. Definitions of AI in Academic Writing

AI in academic writing refers to systems capable of producing original and coherent content such as texts, tables, and images. It supports the writing process by facilitating brainstorming, outlining, composing, and revising, while also offering feedback and language suggestions (Barrett & Pack, 2023; Conde et al., 2024; Reis et al., 2023). AI functions not only as content generators but also as enhancement systems, which can help correct grammar and spelling, enhance sentence structure, and deliver context-aware assistance (Barrot, 2025). For second language (L2) writers, AI serves as a crucial linguistic aid by increasing clarity, fluency, and inclusivity, thus minimizing common challenges in academic discourse (Ou et al., 2024).

Beyond linguistic correction, AI also boosts writing efficiency and quality. It improves text fluency, logic, and organization while providing rapid and personalized support (Maphoto et al., 2024; Tengler & Brandhofer, 2025). Additionally, AI supports idea generation and mitigates writer's block, thereby contributing to the creative aspects of writing (Gabriel, 2024). Across these definitions, it is evident that AI is conceptualized in two distinct ways: (1) as a supportive assistive technology that enhances linguistic output, and (2) as a co-constructive writing agent that participates in meaning-making and text generation. Such definitions indicate that AI tools can perform human-like functions in academic writing, which raise pedagogical concerns in academic writing classrooms.

2.2. AI Tools in Academic Writing

AI tools come in various forms given the variety of functions they can perform across the different stages of academic writing. Tools such as ChatGPT and Grammarly are among the most utilized, assisting writers in ideation, drafting, revising, and editing (Reis et al., 2023). ChatGPT facilitates brainstorming, organization, and linguistic refinement, enabling users to generate and restructure content effectively (Shen & Chen, 2025).

It also supports fluency and language proficiency by offering tailored suggestions, enhancing clarity, and guiding the development of arguments (Oubibi, 2025; Wang & Ren, 2024). Grammarly, on the other hand, focuses on mechanical accuracy and coherence, helping writers improve grammar, punctuation, and sentence structure (Barrot, 2025; Chanpradit, 2025). Aside from ChatGPT and Grammarly, other AI tools such as Gemini, Perplexity, and Quillbot have also gained prominence in academic writing. They provide similar support for idea generation, language enhancement, and revision, further expanding the range of AI-assisted writing resources available to learners.

Aside from text-oriented tools, newer AI tools such as AI-powered image generators and platforms like Padlet are being used in collaborative and multimedia-enhanced academic projects (Wang & Ren, 2024). These tools foster creativity and engagement in multimodal writing tasks. They are also helpful in collaborative writing. Multiple users can interact simultaneously with AI to co-

construct content, thereby enhancing composition dynamics and peer interaction (Barrett & Pack, 2023; Gabriel, 2024). However, use of all these AI tools is not without challenges. Concerns persist, particularly in situations where students substitute personal effort with AI-generated responses (Bakla, 2023; Latzel & Glauner, 2024). Clearly, while it is true that AI tools empower learners to enhance the quality and efficiency of their academic writing, they come with disadvantages. For instance, generative AI tools like ChatGPT are more prone to hallucination and epistemic uncertainty, while corrective tools like Grammarly may still reinforce structural bias in language norms. Thus, pedagogical guidance in academic writing classrooms should be in place to address the shortcomings of these AI tools.

2.3. Impacts of AI on Academic Writing Skills of Students

AI influences students' writing skills development in various ways. Despite the need for human thinking, students using generative AI tools like ChatGPT have reported improved idea generation and greater ease in overcoming writer's block (Wang, 2024). These tools contribute to students' increased autonomy in planning, drafting, and revising texts, promoting more structured and coherent writing outputs (Reis et al., 2023; Oubibi, 2025). They also provide scaffolding throughout the writing process, which enables novice and advanced learners alike to strengthen fluency and organization (Zhang et al., 2025). On an interpersonal level, AI fosters collaborative engagement, communication, and teamwork in writing-intensive learning environments (Daniel et al., 2025).

Despite these positive impacts of AI in academic writing, ethical dilemmas and skill-dependence concerns emerge in AI-assisted writing environments. Students often encounter challenges in projecting their authentic voice and managing the blurred boundaries between AI support and academic dishonesty (Moussu, 2025). This shows the importance of cultivating critical AI literacy, which enables students to balance technological aid with authorial integrity (Wang, 2024). Moreover, discrepancies in students' prior experiences and training with AI underline the need for needs-based educational interventions and structured instruction on responsible use (Kim et al., 2025; Nguyen et al., 2024). From these literatures, conflicting findings are notable.

Although some studies report that use of AI fosters skills development across the different stages of the writing process, others accentuate that students tend to rely on AI outputs without engaging in critical thinking. As such, the latter can lead to potential intellectual outsourcing. Hence, the use of AI tools must be guarded by pedagogical scaffolding to ensure effective and meaningful learning outcomes.

2.4. Limitations of AI in Academic Writing

Significant limitations surround AI use in academic writing. A primary concern is the accuracy and reliability of the contents that AI tools generate. AI tools may provide factual inconsistencies, illogical reasoning, or fabricated information, referred to as "hallucinations" (Mahyoob et al., 2023; Roman-Acosta, 2024). Such inaccuracies pose risks to academic integrity and the credibility of student outputs. Furthermore, AI systems may fail to understand contextual or discipline-specific nuances. This can then lead to superficial or irrelevant content suggestions

(Pakdel et al., 2025). These limitations reveal the importance of human oversight, particularly in tasks where students have to perform deep analysis, synthesis, and evaluation.

Also concerning are the ethical and legal issues surrounding authorship, plagiarism, and data privacy. Students' use of AI tools raises questions about intellectual ownership and the boundary between support and substitution in academic writing (Inam et al., 2024). Additionally, AI's outputs could stifle creativity and limit students' authentic voices, reinforcing a mechanized approach to learning and writing (Granjeiro et al., 2025). Also, students' critical engagement with writing tasks decreases while educators face difficulty in assessing the originality of AI-assisted submissions (Fleckenstein et al., 2024; Saliba & Rotzinger, 2025).

The growing sophistication of AI systems makes it difficult for educators to determine the true extent of student effort (Miao et al., 2024). A closer look at these limitations, we can discern a triadic structure of risks: epistemic (which concerns accuracy), ethical (which equates to integrity), and cognitive (which can result in dependency). Notably, these limitations are discussed in isolation, and to address them effectively, it is critical to approach them as an integrated pedagogical challenge, one that which demands a unified pedagogical model.

2.5. Integration of AI in Teaching Academic Writing

Considering the many limitations of AI in academic writing, pedagogical integration has introduced practices that redefine conventional approaches to academic writing instruction. One of them is the adoption of hybrid human-AI writing models. These models encourage dynamic engagement between students and AI tools during brainstorming, content generation, and evaluation processes (Parker et al., 2024). This interaction fosters metacognitive awareness and critical thinking as students are made to compare AI-generated outputs with their own compositions.

In addition, teachers utilize AI to facilitate concept clarification, content expansion, and source integration, enabling more structured and meaningful writing experiences (Usher & Amzalag, 2025). Collaborative activities such as multimedia Wikibook projects further promote creativity, teamwork, and practical engagement with AI technologies (Wang & Ren, 2024). Yet, from these practices, a significant gap is evident between the notion of co-writing models and classroom realities. Students often engage with AI in a linear, answer-seeking manner. However, academic writing is a reflective, iterative process. Therefore, pedagogical models need to purposefully integrate AI across various writing stages.

2.6. The Need for a Pedagogical Model for Integrating AI in Academic Writing

There is a consensus in literature that AI's potential to enhance writing instruction must be balanced with structured guidance, ethical considerations, and reflective learning strategies (Parker et al., 2024). A robust model enables students to engage in self-regulated learning cycles, including planning, prompt generation, verification of AI outputs, and post-writing reflection (Kong et al., 2024).

Frameworks, such as CARE (Critical, Authorial, Rhetorical, and Educational), highlight the important dimensions of AI-supported writing. They underline the need for pedagogy that promotes authorial ownership, rhetorical awareness, and critical engagement (Pflugfelder & Reeves, 2024). However, these frameworks are not fully operationalized for English academic writing contexts. For L2 writers, explicit linguistic scaffolding is necessary alongside AI literacy development.

Such models also address the growing concerns over students' dependency on AI (Singh et al., 2025; Subaveerapandiyar et al., 2025). In this case, human-AI collaboration must be framed as an instructional opportunity rather than a shortcut. Educators must guide students to see AI tools as writing assistants, not replacements (Kim et al., 2025; Parker et al., 2024). However, without a unified pedagogical structure, such collaboration risks becoming unregulated substitution rather than guided co-construction. Moreover, ethical literacy and transparency must be embedded within writing instruction to safeguard academic standards while empowering learners to utilize AI constructively. Implementation strategies such as workshops and portfolio tracking are essential to help students internalize responsible and productive writing habits (Barrot, 2025; Wang & Ren, 2024). Nonetheless, these strategies remain fragmented interventions rather than components of an integrated pedagogical model.

All in all, the reviewed literature consistently highlights the transformative impact of AI in academic writing. Across studies, AI tools have been shown to enhance not just linguistic skills but also meaning-making, idea generation, and collaboration. Although numerous studies have explored the tools, benefits, and limitations of AI, there remains a noticeable gap: the lack of a unified, pedagogically grounded model that consolidates these insights into actionable guidance for writing teachers. Therefore, there is a clear need for an ELT-specific, process-oriented pedagogical model that benchmarks on knowledge base of AI-assisted academic writing. In this study, we address this gap by synthesizing findings from current research on AI and academic writing to propose a pedagogical model that responds to the demands of AI-integrated English academic writing instruction.

3. Methodology

We employed a Systematic Literature Review (henceforth, SLR) in this study. SLR is a comprehensive and methodical approach to reviewing existing research on a specific topic. Its aim is to identify, evaluate, and synthesize all relevant studies to provide a thorough understanding of the research landscape. SLRs are a structured and transparent process to ensure that the review is reproducible and unbiased (Aromataris & Pearson, 2014). Through this research approach, we aimed to examine the impacts of AI in writing skills development, identify best practices of its instructional integration as well as its associated challenges and formulate a pedagogical model that integrates AI in academic writing.

3.1. Inclusion Criteria

We selected studies for this review through four inclusion criteria: focus of the study, context, publication year, and language. First, studies were included only

if they focused on academic writing in relation to AI, ensuring the relevance of each work to the core topic of the review. Second, the context was limited to studies written in or about the English language to maintain consistency and relevance to ELT. Third, only studies published between 2019 and 2024 in SCOPUS and WoS were considered, ensuring that the review included current and up-to-date literature. This timeframe was deliberately selected because AI is a relatively recent phenomenon. Its widespread adoption in educational and academic writing contexts have occurred primarily within these years.

By limiting the review to this period, we could ensure that the synthesized evidence reflects the most current developments in the field. Fourth, studies had to fall under the Social Sciences discipline to align with the educational focus of the review. It should be noted that studies were not excluded based on study design. This means that regardless of whether the studies employed qualitative, quantitative research or mixed methods design was not an important consideration.

3.2. Search and Screening Procedures

To ensure transparency and reproducibility, we executed the systematic search on October 6, 2024, following the PRISMA framework as can be seen in Figure 1. We used Scopus and WoS as databases because of the worldwide recognition and acceptance of these two databases as credible indexing platforms. We did not perform any additional manual searches or supplementary snowballing techniques. Our retrieval relied entirely on the electronic database searches. Our comprehensive search was performed by applying the exact Boolean search string to the specific search fields of Title, Abstract, and Keywords (TITLE-ABS-KEY / TS). The search string is as follows:

("Artificial Intelligence" OR "AI") AND "academic writing" AND "English"

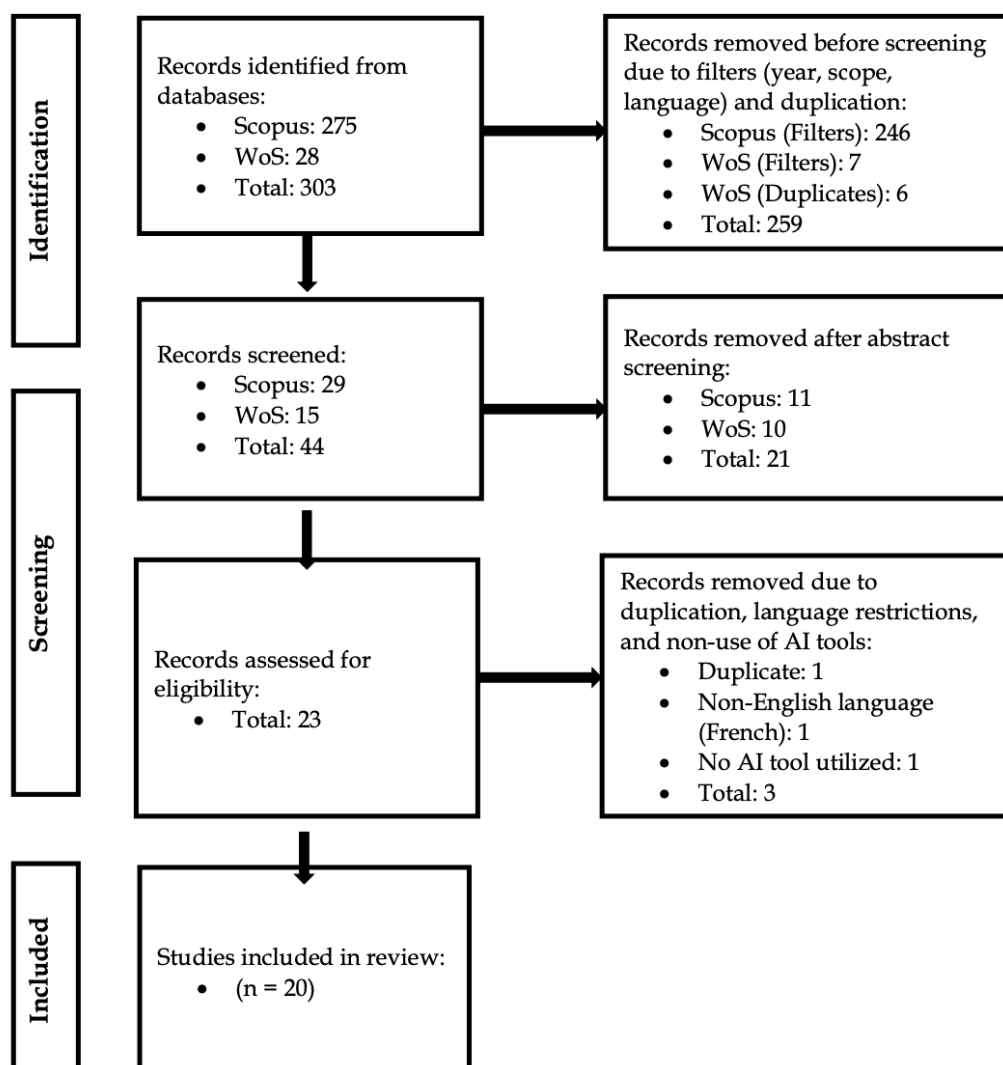


Figure 1: PRISMA Flow Diagram of the Study Selection Process

We proceeded with the detailed inclusion/exclusion screening logic through four structured stages: (1) *Identification*; (2) *Pre-Screening Filtering*; (3) *Title and Abstract Screening*; and (4) *Eligibility and Final Exclusion*. In the identification stage, the initial query yielded a total of 303 records (275 from Scopus and 28 from WoS). In the pre-screening filtering stage, automated database filters were then applied to align with the inclusion criteria. For the Scopus database, filtering for publication year (2019–2024) and subject area (Social Sciences) removed 246 records, leaving 29. For the WoS database, filtering for publication year (2019–2024) and subject area (Social Sciences) removed 7 records, leaving 21.

Additionally, 6 duplicate records across the databases were identified and removed at this stage. This resulted in a total of 44 unique records (29 from Scopus and 15 from WoS) to move forward to the screening phase. In the title and abstract screening stage, the remaining 44 records were screened based on relevance to English academic writing. This step resulted in the exclusion of 21 records (11 from Scopus and 10 from WoS) that did not meet the study's focus. Finally, in the eligibility and final exclusion stage, a total of 23 articles (18 from Scopus and 5

from WoS) were retained for full-text eligibility assessment. During this stage, three documents were excluded: a duplicate record that had not been detected during earlier screening stages, an article published in French, and an article that did not involve the use of AI tools.

This rigorous filtering process resulted in a final sample of 20 studies included in the review. To ensure trustworthiness, we carried out the entire search, screening, and selection process collaboratively, with consensus reached through deliberate discussions among the reviewers to eliminate selection bias. In cases where a consensus could not be reached, a third senior reviewer was consulted for final arbitration.

3.3. Basic Information of Selected Studies

After we finalized the list of studies for review, we systematically analyzed each and organized the basic information into a matrix, as reflected in Table 1. This was done to ensure that each selected study aligns with the purpose and scope of our research on academic writing in relation to AI within English academic writing. The table summarizes 20 studies in terms of author(s), year of publication, and study details. The study details further describe the context, design, AI tool utilized, writing focus, and key findings of these studies.

Table 1: Basic Information of the Selected Studies

No.	Author(s)	Year	Study Details
1	Allen & Mizumoto	2024	C: University EFL, Japan. D: Comparative quantitative. T: ChatGPT. WF: Paragraph editing/proofreading. KF: Students preferred ChatGPT's timely feedback over peer groups, but valued peers as a complement to AI.
2	Amirjalili et al.	2024	C: University English literature, Iran. D: Comparative qualitative. T: ChatGPT. WF: Essay authorial voice and quality. KF: AI generated coherent text but lacked depth, lexical diversity, and authentic voice of human writing.
3	Bilikozen	2024	C: Multinational university, UAE. D: Mixed-methods action research. T: ChatGPT. WF: Summary writing and ethical AI literacy. KF: Boosted digital/AI literacy and policy awareness; students emphasized the need for human verification.
4	Chirciu & Wren	2024	C: University ESL, Oman. D: Action research. T: ChatGPT. WF: Essay body paragraph revision. KF: Improved grammar and idea generation; promoted self-revision, but risked plagiarism and over-reliance.
5	Fathi & Rahimi	2024	C: IELTS center EFL, Iran. D: Qualitative. T: ChatGPT. WF: Academic writing and autonomy. KF: Scaffolding improved coherence and critical thinking; learners gradually developed writing autonomy.
6	Kim et al.	2024	C: Sino-British university, China. D: Qualitative. T: ChatGPT-4 embedded system. WF: Essay writing process. KF: Acted as a versatile assistant enhancing ideation and drafting but suffered from hallucinations and lacked human context.
7	Kohnke	2024	C: University EAP, Hong Kong. D: Qualitative. T: ChatGPT, Grammarly, MS Word. WF: EAP grammar and

			editing. KF: AI tools provided superior interactive explanations over traditional tools, though privacy and equity remain concerns.
8	Krajka & Olszak	2024	C: University Applied Linguistics, Poland. D: Quasi-experimental. T: Lex.page, Perplexity AI, ChatDOC, and ChatGPT. WF: Advanced EAP report writing. KF: Familiarity and efficiency with AI increased, but texts showed repetitive language and lacked creativity.
9	Kurt & Kurt	2024	C: Pre-service teachers, Turkey. D : Qualitative. T: ChatGPT (v3.0). WF: Argumentative/definition essays. KF: Provided highly adaptable global/local feedback; viewed as a complementary tool alongside peer/teacher feedback.
10	Li et al.	2024	C: Medical undergraduate, China. D: Quasi-experimental pre/post-test. T: ChatGPT-3.5 and ChatGPT-4. WF: Mini research paper structure/logic. KF: Significantly improved paper logic and quality; ChatGPT-4 grading closely aligned with human scoring.
11	Mohammad et al.	2024	C: Preparatory university EFL, Saudi Arabia. D: Mixed-methods descriptive. T: QuillBot. WF: Paraphrasing and vocabulary. KF: Positive perceptions for boosting sentence restructuring and confidence, but risked information overload.
12	Nugroho et al.	2024	C: University EFL, Indonesia. D: Qualitative narrative inquiry. T: ChatGPT. WF: Essay structure and translation. KF: Enhanced writing efficiency and translation accuracy but posed risks regarding fabricated references and integrity.
13	Tantivejakul et al.	2024	C: Public Relations undergraduate, Thailand. D: Qualitative. T: ChatGPT, Grammarly, Canva, QuillBot, and Gemini. WF: Academic and PR professional writing. KF: Workshops fostered high acceptance for saving time, though users preferred AI as an assistant rather than a replacement.
14	Tseng & Lin	2024	C: University EFL English majors, Taiwan. D: Qualitative. T: ChatGPT-3.5. WF: Essay organization and prompting. KF: Improved writing efficiency and peer-review quality; fostered learner autonomy.
15	Yuan et al.	2024	C: Higher education EFL, Malaysia. D: Qualitative interview. T: ChatGPT. WF: Academic English writing. KF: Supported fluency, content scaffolding, and productivity, balanced by challenges of bias and digital inequality.
16	Alexander et al.	2023	C: University ESL, Cyprus. D: Qualitative exploratory. T: ChatGPT, Turnitin, GPTZero, OpenAI Detector, and Crossplag. WF: AI-generated essay detection. KF: Lecturers struggled to accurately detect AI text; AI detectors outperformed humans but remained limited.
17	Dizon & Gold	2023	C: Public university EFL, Japan. D: Mixed methods. T: Grammarly. WF: Self-editing and error correction. KF: Reduced writing anxiety and raised learner autonomy, though automated feedback was occasionally vague.

18	Martono et al.	2023	C: Pre-service teachers, Indonesia. D: Qualitative case study. T: Scribo. WF: Argumentative essay intertextuality/citations. KF: Improved citation awareness and accuracy but failed to develop advanced synthesis or higher-order critical skills.
19	Song & Song	2023	C: University EFL, China. D: Mixed methods. T: ChatGPT. WF: Writing motivation, content, and organization. KF: Significantly enhanced writing proficiency, coherence, and student engagement.
20	Taskiran & Goksel	2022	C : Adult distance EFL, Turkey. D : Quasi-experimental quantitative. T: Write and improve. WF: Descriptive paragraph achievement. KF: Both automated and teacher feedback improved writing gains, with teacher feedback yielding slightly higher results.

Note. Context (C), Design (D), AI Tool (T), Writing Focus (WF), and Key Findings (KF)

Notably, the majority of studies were published in 2024, indicating a recent and growing scholarly interest in the intersection of AI and academic writing. A few studies from 2023 to 2022 were also included to represent foundational insights and emerging patterns over the last four years. In terms of geographical context, the selected studies reflect a broad international scope spanning different countries across Europe, the Middle East, and Asia. Most of the research were situated in Asian educational contexts, most notably led by China. These studies also represent methodological diversity, encompassing qualitative, quantitative, and mixed-methods research designs.

Additionally, they demonstrate considerable diversity in both AI tools and writing foci. While ChatGPT emerged as the most frequently investigated platform, other AI-powered tools such as Grammarly, QuillBot, and Scribo, among others, were also represented. These AI tools were applied across a wide range of writing tasks, including but not limited to language accuracy, vocabulary development, essay organization, and paragraph revision. This diversity in publication period, geographical coverage, methodological designs, AI tools, and writing contexts establishes a comprehensive and representative evidence base for the subsequent data analysis.

3.4. Data Analysis

In our data analysis, we methodically aligned with our study objectives: examining the impacts of AI on academic writing skills development, identifying best practices in its instructional integration, and examining the challenges associated with its use in academic writing instruction. We utilized inductive thematic analysis following the procedure by Braun and Clarke (2006) to analyze the included studies. We began the process of the data analysis by identifying key concepts (or codes) within the selected studies that were reviewed, from which we meticulously analyzed findings relevant to each of our research aims.

We then categorized these key concepts into broader conceptual groups to organize recurring patterns and meaningful linkages across the dataset. The final themes were explicitly mapped to the study's research objectives, with the resulting themes organized according to the impacts of AI on academic writing,

best practices for instructional integration, and challenges associated with its implementation. The data analysis was performed manually by two researchers who independently did the initial coding of the included studies before comparing and reconciling their coding outputs. Discrepancies in coding were resolved through discussion and re-examination of the original studies until consensus was reached. The use of independent coding, iterative comparison of coding decisions, and consensus-based theme development helped minimize individual researcher bias, thereby enhancing the trustworthiness of the analysis.

4. Results and Findings

This study aimed to explore the impacts of AI on English academic writing proficiency, identify best instructional practices for its integration, and examine the challenges associated with its use in academic writing contexts. The findings are organized into thematic categories and are presented and discussed in relation to these research objectives.

4.1 Impacts of AI on Academic Writing Proficiency

According to the studies reviewed, six themes were identified that point to the impacts of AI on academic writing proficiency. These themes include: (1) *Well-Structured Writing*; (2) *Syntax Awareness and Development*; (3) *Language Enrichment*; (4) *Academic Writing Skills Enhancement*; (5) *Cognitive and Reflective Writing Processes*; and (6) *Writing Inspiration and Motivation*. The first theme, *Well-Structured Writing*, demonstrates how AI tools assist students in organizing and clarifying their ideas. This was found in both perception-based findings and measured learning outcomes. For instance, the study of Tseng and Lin (2024) indicates that features such as outline generation, formatting assistance, and AI-driven suggestions significantly improve paragraph coherence of student writing. Meanwhile, Li et. al's (2024) research found a significant increase in students' writing as indicated by an increase in both manual scoring by 4.23 points and AI-based scoring by 4.82 points.

The second theme, *Syntax Awareness and Development*, emphasizes the increased grammatical sensitivity students developed using AI tools. Studies like Kurt and Kurt (2024) and Nugroho et al. (2024) showed that automated feedback enabled learners to identify and correct errors in grammar, sentence structure, spelling, and punctuation. The third theme, *Language Enrichment*, focuses on vocabulary development and overall English proficiency. AI tools provide suggestions that expand learners' vocabulary and refine their use of academic language, as shown by Mohammad et al. (2024) and Song and Song (2023). Chirciu and Wren (2024) further reported that such a development leads to clearer word choice, improved writing flow, and increased awareness of tone and mechanics.

Additionally, the fourth theme, *Academic Writing Skills Enhancement*, highlights the role of AI in developing paraphrasing, proofreading, and research writing skills. Studies by Allen and Mizumoto (2024), Chirciu and Wren (2024), and Li et al. (2024) indicated that students revised content more effectively, located supporting information efficiently, and enhanced their overall writing productivity. The fifth theme, *Cognitive and Reflective Writing Processes*, indicates

how AI fosters critical thinking, independent judgment, and reflective practice. Students reported that AI tools strengthened their arguments, supported autonomous learning, and provided valuable feedback that complemented or, in some cases, substituted teacher input (Allen & Mizumoto, 2024; Li et al., 2024). Lastly, the theme *Writing Inspiration and Motivation* captures the positive emotional impact of AI use. Studies by Mohammad et al. (2024) and Nugroho et al. (2024) revealed that students experienced increased motivation and enjoyment in writing tasks, higher confidence levels, and a more productive writing experience when using AI tools. These tools also helped reduce their writing anxiety and encouraged them to take greater ownership of their writing process. These findings suggest that AI tools have positive impacts on the development of English academic writing proficiency, and students can strategically use these tools to help them navigate the complexities of academic writing.

4.2 Best Practices for Integrating AI Tools into Academic Writing Instruction

In terms of best practices for integrating AI tools into academic writing instruction, six key themes also emerged from the analysis. They are: (1) *AI as an Assistive Tool*; (2) *Structured Application within Pedagogical Frameworks*; (3) *Student Training and Prompt Development*; (4) *Policy and Ethical Guidelines*; (5) *Personalized Learning and Motivation*; and (6) *Feedback Mechanisms*. The principal theme *AI as an Assistive Tool* illustrates the dual function of AI as both a teaching and learning aid.

Teachers can utilize these tools to analyze student writing, generate lesson plans, and provide tailored feedback, as revealed by Dizon and Gold (2023), Krajka and Olszak (2024), and Tseng and Lin (2024). The second theme, *Structured Application within Pedagogical Frameworks*, underlines the value of integrating AI within structured pedagogical frameworks, such as the ADDIE model and TPACK. This approach promotes scaffolded and mediated instruction that enhances students' writing competence (Bilikozen, 2024; Chirciu & Wren, 2024; Fathi & Rahimi, 2024).

Furthermore, the third theme, *Student Training and Prompt Development*, demonstrates the necessity of equipping students with the skills to use AI responsibly. Studies by Alexander et al. (2023) and Li et al. (2024) stressed the importance of prompt development, critical evaluation of AI-generated content, and digital literacy training. The fourth theme, *Policy and Ethical Guidelines*, focuses on the development of institutional policies that ensure ethical AI use. As discussed by Kohnke (2024) and Tseng and Lin (2024), such policies reinforce the idea that AI should supplement, rather than replace, human instruction.

Meanwhile, the fifth theme, *Personalized Learning and Motivation*, underpins AI's capacity to support personalized learning and enhance student motivation. Tools such as ChatGPT can function as virtual tutors and confidence builders to help students increase engagement and develop autonomy (Fathi & Rahimi, 2024; Taskiran & Goksel, 2022). Finally, the sixth theme, *Feedback Mechanisms*, identifies feedback as a critical practice in AI integration. Studies by Kohnke (2024), Li et al. (2024), Mohammad et al. (2024), and Tseng and Lin (2024) showed that AI can effectively serve as a peer reviewer and revision assistant by providing immediate and detailed feedback that improves student writing. Notably, these findings

imply a balanced, ethically responsible, and pedagogically sound approach to integrating AI tools into academic writing instruction.

4.3 Challenges and Implications of AI-Assisted Writing for Institutional Policies

As for the challenges and implications of AI-assisted writing for institutional policies, eight themes surfaced from the analysis: (1) *Inaccuracy and Inconsistency of Information Reliability*; (2) *Over-Reliance on AI Tools*; (3) *Plagiarism and Copyright Concerns*; (4) *Lack of Authenticity and Credibility in Student Outputs*; (5) *Hindrance to Creativity and Critical Thinking*; (6) *Unequal Learning Opportunities*; (7) *Fragmented Systems and Awareness Gaps*; and (8) *Weak Relationships and Gaps in Pedagogical Skills*.

The prominent theme *Inaccuracy and Inconsistency of Information Reliability* indicate concern regarding misinformation, hallucinated content, and unreliable citations generated by AI tools, which require additional verification (Amirjalili et al., 2024; Kurt & Kurt, 2024; Nugroho et al., 2024). The second theme, *Over-Reliance on AI Tools*, reveals that students, particularly those with lower writing proficiency levels, tend to rely excessively on AI tools, especially in terms of prompt quality and automated feedback at the expense of developing independent writing skills (Chirciu & Wren, 2024; Kohnke, 2024; Yuan et al., 2024).

The third theme, *Plagiarism and Copyright Concerns*, illustrates issues of academic dishonesty. These issues happen when AI tools generate unoriginal or generic content without proper source attribution, raising ethical and institutional concerns (Kurt & Kurt, 2024; Nugroho et al., 2024). Closely related to this is the fourth theme, *Lack of Authenticity and Credibility in Student Outputs*. Studies by Kohnke (2024), Li et al. (2024), and Tseng and Lin (2024) reported that AI-generated content may mask genuine learner progress, making it difficult for teachers to accurately assess students' writing development.

Moreover, the fifth theme, *Hindrance to Creativity and Critical Thinking*, emphasizes that when students rely excessively on AI tools, they tend to produce formulaic outputs. In this case, their opportunities to engage in and develop higher-order thinking are hindered (Bilikozen, 2024; Krajka & Olszak, 2024). The sixth theme, *Unequal Learning Opportunities*, exposes disparities in access to AI tools. Dizon and Gold (2022) found that limited access to premium AI tools may widen the educational gap among learners. The seventh theme is *Fragmented Systems and Awareness Gaps*. Both students and educators face challenges in identifying AI-generated texts. These challenges are driven by insufficient training, lack of cohesive systems, and weak integration strategies, which can result in inefficiencies and limited contextual understanding (Kim et al., 2025).

Lastly, the eighth theme, *Weak Relationships and Gaps in Pedagogical Skills*, emphasizes concerns about AI's limited capacity to support pedagogical development, student-teacher relationships, and social interaction. Studies by Bilikozen (2024), Martono et al. (2023), and Yuan et al. (2024) accentuated the irreplaceable role of human interaction in fostering holistic learning. Collectively, these findings reveal that institutions must have established, well-defined policies, standards, and guidelines to support pedagogical integration of AI in

academic writing instruction. With institutional regulations, pedagogical efforts would become more grounded and coherent.

5. Discussion of Findings

The findings of this study point to a paradigmatic shift in ELT pedagogy. The use of AI tools in English academic writing must move beyond a mere corrective function to transform the complex ways these tools support the development of writing skills. Rather than just automating surface-level corrections, the findings confirm that AI tools substantially alter the writing process by scaffolding macro-structural coherence alongside micro-linguistic accuracy. Tools like ChatGPT serve as immediate formative mechanisms that bridge the gap between outlining, paragraph coherence, and transitions, which contribute to more logically sequenced writing (Barrot, 2025; Reis et al., 2023). Such affordances position AI as an external working memory for students, which helps reduce cognitive overload and allows for more attention devoted to grammar and spelling (Barrett & Pack, 2023; Daniel et al., 2025).

In this case, the pedagogical value of AI in academic writing lies not just in the correction itself, but in the explicit metalinguistic explanations provided to the students. For L2 learners, this is crucial because active learning can happen as a result of passive error-correction (Kim et al., 2025). These findings conform to Vygotsky's (1978) sociocultural theory of learning in which AI is seen as a mediational tool that extends learners' Zone of Proximal Development (ZPD) by enabling performance that would otherwise require direct human scaffolding. From a socio-cognitive standpoint, the use of AI tools also fosters vocabulary enrichment and broader English language proficiency. These tools facilitate the internalization of context-appropriate vocabulary, enabling clearer expression of ideas and better alignment with academic tone (Wang & Ren, 2024; Oubibi, 2025). Thus, with AI use in academic writing, learners become exposed to lexical variety within contextualized academic constraints.

Another interesting insight from the findings is that the enhancement of proofreading, paraphrasing, and research abilities indicates a shift toward greater student autonomy in composing well-supported arguments (Chan et al., 2024; Kong et al., 2024). This insight aligns with the theoretical conceptualization of AI tools as cognitive partners that promote critical thinking and reflective writing. Viewed from Zimmerman's (2010) self-regulated learning perspective, such gains manifest stronger engagement in planning, monitoring, and evaluating writing processes, although such regulation may risk weakening if learners become too reliant on automated feedback cycles. Again, as discussed, this dialogic interaction mirrors the Vygotskian ZPD traditionally facilitated by human instructors (Daniel et al., 2025; Gabriel, 2024).

Furthermore, the psychological dimension of this interaction cannot be understated. The increased student motivation and writing confidence found suggests AI's usefulness as a nonjudgmental partner, making students become less anxious and more engaged in the writing process (Oubibi, 2025; Zhang et al., 2025). Essentially, these findings uncover a profound epistemological paradox

between efficiency and learning. Although AI can accelerate writing production, excessive reliance risks short-circuiting the cognitive struggle of learners. This implies that AI is most effective when positioned strictly as a scaffold rather than a substitution. Therefore, learners need to be guided through structured pedagogical interventions when using AI tools in their academic writing.

Beyond writing skills development, the findings crystallize a clear mandate for pedagogical re-engineering. One of the salient approaches found involves moving away from ad-hoc tool usage toward structured application. This is realized within established pedagogical frameworks, where AI is harnessed as a dual-purpose assistive tool for both teaching delivery and student revision (Barrot, 2025; Reis et al., 2023). The documented success of structured interventions, such as the 6-P framework (Plan, Prompt, Preview, Produce, Peer-review, Portfolio-tracking), exemplifies that AI's utility is contingent upon systemic instructional design (Kong et al., 2024). For ELT pedagogy, this means that AI integration should be intentionally embedded across the various stages of writing process, countering the popular practice that AI tools are being used solely as proofreading or text-generation mechanisms.

Consequently, institutions must transition from defensive or reactive postures to proactive governance. Training students to use AI effectively and ethically must be institutionalized through explicit instruction in prompt-crafting, content verification, and transparency (Rulfi & Spada, 2023; Singh et al., 2025). To resolve the systemic lag where institutions struggle to establish clear standards, clear policy guidelines are necessary to regulate AI use and delineate appropriate boundaries (Inam et al., 2024; Miao et al., 2024). When framed within a responsible policy structure, the ability of AI tools to offer personalized learning experiences can provide targeted individualized responses, scaffolding, and motivation (Usher & Amzalag, 2025; Wang, 2024).

In addition, AI can safely function as a peer reviewer that offers real-time formative feedback without replacing teacher evaluation (Gabriel, 2024; Chan et al., 2024). AI literacy should be treated as a core instructional competency encompassing prompt design, source verification, critical evaluation of outputs, and ethical decision-making. This insight is consistent with the critical digital literacy viewpoint. AI literacy is essential to enable learners to interrogate the credibility, bias, and epistemic limits of AI-generated texts rather than accepting outputs as authoritative (Pangrazio, 2014).

Finally, the systemic challenges identified underline that AI integration risks exacerbating existing educational inequities. The pressing concern is regarding the inaccuracy of AI-generated content, such as hallucinated facts, improper citations, and misleading claims (Pakdel et al., 2025; Roman-Acosta, 2024). This is a major equity hazard especially when paired with over-reliance, as students would tend to become passive recipients (Granjeiro et al., 2025; Subaveerapandiyan et al., 2025). This passivity further complicates plagiarism and authorship concerns, where blurred boundaries challenge the maintenance of academic standards (Miao et al., 2024; Moussu, 2025). Furthermore, the variance

in technological access and literacy warns of a compounding digital divide, where learners with limited digital access or lower familiarity struggle to benefit fully from the affordances of AI (Kim et al., 2025; Obura & Emoit, 2024). This gap is further worsened by institutional inertia. Fragmented systems and insufficient training lead to inconsistent practices (Daniel et al., 2025), which are compounded by a distinct lack of professional development opportunities for educators (Barrett & Pack, 2023; Maphoto et al., 2024). To prevent AI from degrading instructional quality, institutions must implement assessment practices that evaluate the writing process itself, and coherent faculty development and equitable access must be in place.

In sum, the findings of this study affirm that pedagogical integration of AI in academic writing must be accompanied by thoughtful planning, training, and institutional support. Addressing the limitations while amplifying its strengths calls for a pedagogical model that is grounded in ethical practice, instructional design, and student empowerment, with institutional capacity. Moving forward, the right question to ask is whether AI should be used in academic writing instruction. Rather, it is how AI can be integrated in ways that strengthen learner agency, preserve academic integrity, and support the development of authentic academic voice. The next step is to translate these insights into a structured model that balances innovation with integrity and aligns AI's capabilities with the evolving needs of ELT.

5.1 Pedagogical Model for Integrating AI into Academic Writing Instruction

Considering the insights gained from this study, a pedagogical model for integrating AI into English academic writing instruction is proposed. Figure 1 presents this proposed pedagogical model. Emerging from the synthesis of the study's findings, the model is structured around four interrelated dimensions within a situated institutional context: (1) Structured Pedagogical Integration of AI; (2) Critical AI Literacy Development; (3) Personalized Learning Management; and (4) Balanced Academic Writing Agency. These four dimensions were directly informed by the recurring themes identified across the study's findings. The model views academic writing as a socially mediated, reflective, and technology-supported practice, aligned with sociocultural theory of learning (Vygotsky, 1978), self-regulated learning (Zimmerman, 2010), and critical digital literacy (Pangrazio, 2014).

As a pedagogical model, the core dimension is *Structured Pedagogical Integration of AI in Academic Writing*. This principal dimension positions teachers as instructional designers who must intentionally embed AI across the different stages of the writing process, anchored on established instructional designs. This pedagogical dimension then supports two complementary learner processes: *Critical AI Literacy Development* (equipping students to evaluate AI-generated content, identify inaccuracies and biases, and make informed decisions about AI use) and *Personalized Learning Management* (using AI's capacity to provide individualized support, adaptive feedback, and self-paced learning). The relationship between these two dimensions shows the reciprocal nature of critical evaluation and self-regulated learning, mainly with teachers' guidance in place. Through these processes, *Balanced Academic Writing Agency*, is expected as an

outcome. This dimension underpins the critical importance of intellectual ownership and critical judgment while utilizing AI tools. It suggests that AI is used not as a replacement but as a co-pilot in the writing process (Kim et al., 2025; Parker et al., 2024), with learners remaining as the pilot of the writing process guided by the teachers. The feedback loops, as indicated by the imaginary lines, emphasize that academic writing development is iterative, with learner experiences continuously shaped by pedagogical decisions, critical AI engagement, personal reflections, and desired outcomes. Surrounding all these dimensions is *Ethical and Policy Alignment*, an institutional context through which pedagogical decision is enacted. It provides the institutional foundation through several means, such as academic integrity policies and faculty capacity-building initiatives. The presence of ethical and policy alignment in this case is critical. Otherwise, the pedagogical integration would remain misguided, fragmented, and inconsistent.

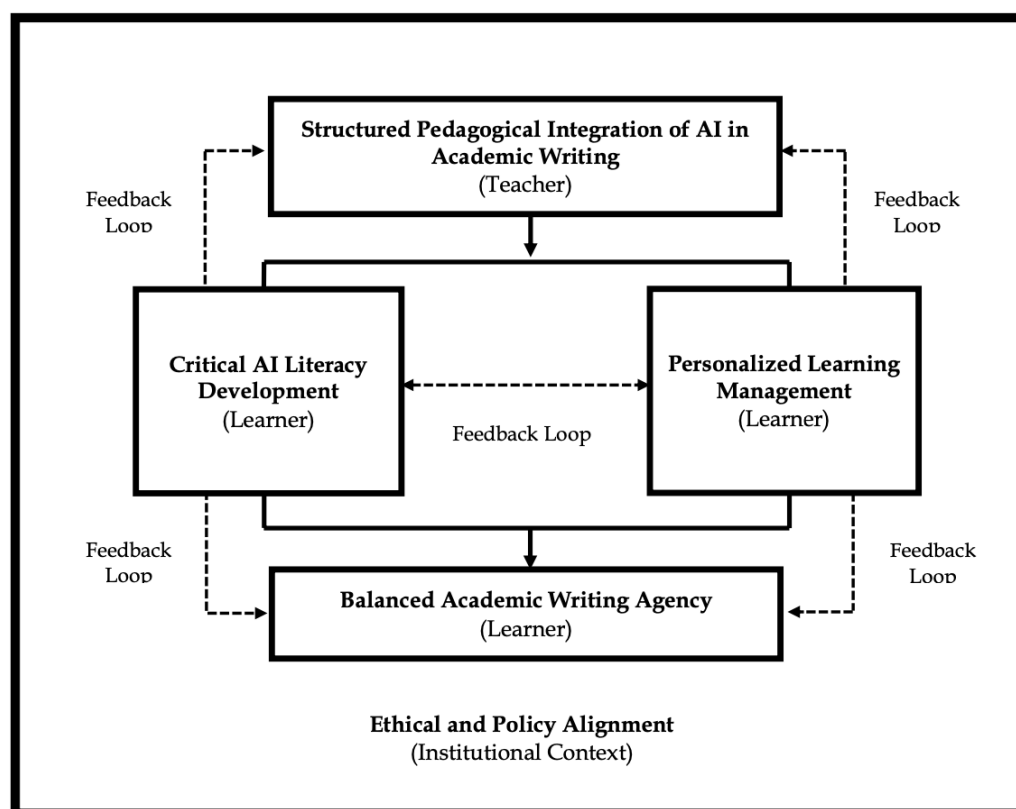


Figure 2: Pedagogical Model for Integrating AI in English Academic Writing

As an implementation pathway, the model may be enacted through scaffolded writing tasks in which teachers strategically integrate AI across stages of planning, drafting, feedback, and revision while simultaneously developing students' AI literacy and reflective self-monitoring. While existing frameworks like TPACK focus broadly on teacher knowledge, and the CARE framework emphasizes teaching technical writing with AI, this model is unique in the sense that it operationalizes the interaction between pedagogy, literacy, and personalization with AI, grounded in institutional support, to foster a balanced academic writing

agency. The end goal is to guarantee that students maintain intellectual ownership and critical judgment in their academic writing, preventing over-reliance on AI while harnessing its potentials.

6. Conclusion

This study synthesized evidence on the use of AI in English academic writing instruction and, based on this synthesis, proposed a pedagogical model to guide its responsible and effective integration in ELT. The model brings together structured pedagogical integration, critical digital literacy development, and personalized learning management to cultivate a balanced academic writing agency within learners in a situated institutional context. The proposed model offers a framework for navigating both the opportunities and challenges associated with AI-assisted academic writing in ELT. It further underlines its role as a pedagogical support tool whose effectiveness depends on purposeful instructional integration, critical engagement, and appropriate institutional support. Hence, the study contributes a practice-oriented model that may assist educators, curriculum developers, and institutions in making informed decisions about AI integration in academic writing instruction.

The findings should, however, be interpreted in light of the study's limitations. As a systematic review of existing studies, the analysis was limited to research articles indexed in Scopus and WoS and focused specifically on the ELT context. Future research may validate and refine the proposed model through empirical implementation across diverse educational settings and learner populations. Despite these limitations, the study offers timely and relevant insights into the evolving interplay between AI and academic writing pedagogy. It sets the foundation for developing instructional practices, professional development initiatives, and institutional policies that promote the pedagogically sound and ethically responsible use of AI in academic writing education.

7. Recommendations

This study advances several key recommendations. To enhance academic writing proficiency, curriculum designers and writing educators should integrate AI tools strategically into writing courses. Instructions must be scaffolded progressively across all stages of the writing process, moving from teacher-led demonstrations to guided practice and independent student use to build confidence and competence. To ensure balance, AI feedback must be paired consistently with human evaluation and guidance so that students develop authentic academic voice and critical thinking alongside their technical skills. Course-based self-assessment tools such as writing checklists or rubrics may also be used to help students monitor their progress in organization, syntax, and language use during AI-supported writing tasks.

In addition, to strengthen instructional practices for responsible AI use, teacher educators and program coordinators are encouraged to embed AI activities within existing pedagogical frameworks such as TPACK, or ADDIE. Explicit training on critical AI literacy should be provided through pre-service and in-service teacher education programs. These trainings may include prompt engineering, verify AI-

generated information, and recognize potential content biases. Reflective writing tasks, peer collaboration, and guided discussions should also be incorporated to support critical engagement with AI and maintain student ownership of texts.

Furthermore, to address the challenges and institutional implications identified in the study, it is of critical importance that policymakers and higher education administrators develop and enforce clear policies that delineate acceptable uses of AI, setting out expectations for academic integrity. Teacher professional development in AI-supported writing instruction should also be prioritized to strengthen pedagogical competence and ethical classroom implementation. Pedagogical integration of AI tools in academic writing classrooms would demand that teachers themselves are adept at these tools. Equitable access to AI tools should also be considered to ensure fairness in learning opportunities.

Lastly, future research may examine the long-term effects of AI on English writing proficiency, learner autonomy, and critical thinking across different proficiency levels and educational contexts. Case studies of classroom-based AI integration including those that will implement the proposed model in this paper may further inform practical ELT strategies.

Conflict of Interest

The authors declare no conflict of interest in the conduct and publication of this work.

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