

A systematic literature review of artificial intelligence in academic writing: Challenges and opportunities

M. Hilmy Hidayatullah^{1*}, Nunung Suryati², Bambang Yudi Cahyono³, Nadrotin Mawaddah⁴

¹Department of English Education, Faculty of Social Science and Humanities, Universitas Ibrahimy, Indonesia,

^{1,2,3}Department of English Language Education, Faculty of Letters, Universitas Negeri Malang, Indonesia

⁴Department of Information Technology, Faculty of Science and Technology, Universitas Ibrahimy, Indonesia

*) Corresponding Author, email: hilmyzuhil@gmail.com

ABSTRACT

Artificial intelligence (AI) is reshaping academic writing by offering both challenges and opportunities. Numerous studies have discussed this topic and are worth compiling and synthesising. Based on the topic, several existing studies published from January 2023 to March 2025 were reviewed systematically using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) framework. After searches in Scopus and Google Scholar yielded 1,024 records, 34 titles were selected based on defined inclusion and exclusion criteria. The findings highlight the two sides of AI in academic writing: 1) presenting ethical issues, training needs, Critical thinking degradation, AI misinformation, AI addiction, weak AI detectors, AI's rhetorical patterns, users' negative perceptions, and other challenges, 2) facilitating several opportunities, such as writing quality improvement (accuracy, organization, and style), writing productivity and efficiency, idea development, AI awareness, research support, new insights, writing engagement, and usability. This study contributed to developing guidelines to address ethical, effective, and prudent use of AI in academic writing. It is a foundation for upcoming researchers who delve into AI in academic writing and other related skills in the EFL teaching context. Moreover, investigations across disciplines and educational levels are worth exploring.

Keywords: academic writing; artificial intelligence; challenges; opportunities; SLR

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INTRODUCTION

The quick development of Artificial Intelligence (AI) has changed EFL learning, including academic writing. AI has increasingly transformed academic writing by offering applications that enhance linguistic accuracy, improve productivity, and assist in scholarly communication. AI-powered tools become a crucial source for L2 learners, providing personalized assistance to overcome individual writing obstacles (Michel-Villarreal et al., 2023). Furthermore, they have reshaped the way students, educators, and researchers produce and refine academic texts. Previous studies offer significant advantages, including enhanced language accuracy, improved quality and coherence, and time

efficiency (Dergaa et al., 2023; Giglio & da Costa, 2023; Huang & Tan, 2023; Meyer et al., 2023; Švab et al., 2023). The contribution of AI in language learning and academic literacy development has also been widely recognized, positioning it as a valuable aid in academic contexts (Godwin-Jones, 2021). However, while these developments underscore the potential of AI, the research which critically assesses how AI-tools incorporated into academic writing processes are still limited, particularly in addressing the challenges and opportunities.

In spite of these advantages, the growing use of AI in academic writing has caused several problems. Scholars have debated issues such as academic integrity, plagiarism, authorship ethics, risk of information, originality and the excessive dependence on AI-assisted content (Salimi & Saheb, 2023; Semrl et al., 2023). Although AI has ability to enhance writing performance, it can also undermine critical thinking and writing autonomy, essential components of academic literacy (Nurchurifiani et al., 2025). Even though previous research have analyzed the impact of AI-assisted writing tools (Aljuaid, 2024; Dja'far & Hamidah, 2024; Marzuki et al., 2023), a systematic examination of their broader implications, particularly the balance between challenges and opportunities, remains limited.

Accordingly, this study applied a systematic literature review (SLR) on the AI utilization in academic writing, which aimed to reveal the challenges and opportunities. The results will give precious information for educators, researchers, and policy makers in responding to the shift of AI in academic writing while ensuring academic honesty and fostering essential writing skills. By preserving academic honesty and encouraging higher-order thinking skills, the results will support a deeper insight of how AI can be properly and wisely embedded into academic writing.

LITERATURE REVIEW

The integration of AI into academic writing is quickly transforming the landscape of scholarly work. AI tools are being used to generate, refine, and even evaluate academic texts, presenting both significant potential and considerable challenges (Khalifa & Albadawy, 2024). This transformation necessitates a careful examination of how AI is changing citation practices and how its capabilities compare to traditional writing methods. Such examination is essential because the implementation of AI in academic writing is not always accompanied by clear acknowledgment by its role. Without explicit disclosure, academic integrity may be undermined, and the boundary between human and AI authorship can become blurred. Specifically, the analytical framework acknowledges the increasing citation of AI tools and AI-driven content in academic writing, highlighting the necessity for evolving guidelines and ethical considerations around these citations, as well as the significance of transparency and reproducibility in academic publications (Hosseini et al., 2023). It also analyzes the quality, accuracy, and efficiency of AI-driven text in relation to human-written academic work, noting how AI tools enhance linguistic accuracy, improve productivity, and assist in scholarly communication, particularly how they assist L2 learners (Carobene et al., 2024).

Nevertheless, the emergence of AI in academic writing also offers a set of challenges and opportunities. While AI offers advantages such as improved writing quality and efficiency, it brings up issues related to ethical considerations, scholarly integrity, and the potential impact on critical thinking (Hosseini et al., 2023; Malik et al., 2023; Qadhi et al., 2024; Stanford, 2025). An essential part of this critique is the analysis of AI's ethical implications, including concerns about authorship, plagiarism, scholarly integrity, and the possibility of bias in AI-generated content (Balalle & Pannilage, 2025; Stanford, 2025; Teng & Wang, 2023). Ultimately, this framework not only notes the challenges and opportunities but also evaluates the quality, accuracy, and efficiency of AI-generated text compared with human-written academic work. By synthesizing findings from previous studies, it highlights how AI can improve linguistic accuracy, increase writing productivity, and enhance scholarly communication.

Opportunities of AI in academic writing

AI applications offer several important opportunities for enhancing academic writing. First, they can significantly enhance the quality, accuracy, and efficiency of the writing process (Khalifa & Albadawy, 2024; Tran et al., 2025; Nurchurifiani et al., 2025). For instance, AI can support in refining language, grammar, and syntax, leading to more accurate and professional academic work (Golan et al., 2023; Marzuki et al., 2023). Additionally, AI can automate specific aspects of writing, such as generating initial drafts or summarizing existing research, thereby increasing productivity for researchers and scholars (Al-Bukhrani et al., 2025). AI applications can also be particularly beneficial for L2 learners, providing personalized assistance and support to help them overcome language barriers and produce high-quality academic texts (Dakakni & Safa, 2023; Vall & Araya, 2023). The ability of AI to assist in scholarly communication is another important opportunity. By facilitating the writing process, AI can help researchers disseminate their findings more effectively and efficiently, contributing to the development of knowledge across different disciplines.

Challenges of AI in academic writing

In spite of numerous benefits, the integration of AI in academic writing also presents several challenges. Ethical concerns emerge as one of the main issue (AlSamhori & Alnaimat, 2024; Jeyaraman et al., 2023). The application of AI tools brings up questions about academic integrity, particularly regarding plagiarism and authorship. It can be challenging to determine the degree to which AI-generated content should be attributed, and ensure originality becomes more complex when AI is engaged in the writing process (Stanford, 2025). Furthermore, the potential for excessive dependent on AI tools raises apprehensions regarding the enhancement of critical thinking and writing autonomy among students and researchers (Zhai et al., 2024). If individuals become over reliant on AI for writing, their own writing skills and analytical abilities may be negatively affected.

Another significant challenge is the possibility for AI to introduce or perpetuate bias (Jain & Jain, 2024; Livberber & Ayvaz, 2023) and misinformation. AI models may contain biases because they are trained on existing data, that they are then reflected in the AI-generated text. It can lead to the unintentional promotion of biased perspectives or inaccurate information in academic work. Additionally, the increasing sophistication of AI writing tools makes it more difficult to detect AI-generated content, which can further exacerbate issues of academic integrity and the spread of misinformation (Livberber & Ayvaz, 2023). Overcoming these challenges demands careful consideration and the advancement of strategies to decrease potential risks related to AI in academic writing.

The challenges will provide a critical analysis of the existing studies on AI in academic writing, evaluating the methodological rigor of previous studies, identifying research gaps, and assessing the validity of claims regarding the opportunities and challenges of AI in academic contexts. An essential aspect of this critique involves examining the ethical considerations of AI, including issues related to plagiarism, authorship, academic integrity, and the potential for bias in AI-generated content (Teng & Wang, 2023). Ultimately, this framework connects the findings from the literature review to broader implications for education, research, and policy, exploring how AI is reshaping the way students, educators, and researchers produce and refine academic texts, and the impact on academic integrity and the development of essential writing skills.

The challenges will be even more severe at higher education because academic writing assignments at universities not only require writing quality but also the academic genre regulations of the institution (Li, 2025). Moreover, language barriers in English Language Teaching (ELT) within the EFL context present other challenges, such as translingual anxiety and other emotional aspects (Wu & Halim, 2024). Additionally, Stanford (2025) and Li et al. (2024) discovered that university students have a higher potential of violating writing integrity and relying on AI, which can diminish their critical thinking skills. Therefore, this systematic literature review focuses on AI in academic writing at higher education, especially in the EFL context.

Besides the context, the articles reviewed in this study are period-limited from January 2023 to March 2025. The range was determined based on the year when AI began to be widely popularized in 2023, particularly a year after OpenAI launched ChatGPT (Polyportis, 2024). Accordingly, to attain the research objectives and context, the writers set the following research questions:

1. What are the challenges of AI-assisted academic writing?
2. What are the opportunities of AI-assisted academic writing?

METHOD

This research employs a Systematic Literature Review (SLR) led by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) protocol (Moher et al., 2015; Page et al., 2021). The purpose of this review is to synthesize recent empirical and conceptual studies that examine the opportunities and challenges related to Artificial Intelligence (AI) in academic writing, focusing on higher education contexts and English Language Teaching (ELT) relevance where applicable.

Sources of data

To ensure in-depth analysis of the challenges and opportunities, this research relied on reputable academic databases as the primary sources of data. The literature was systematically gathered from Scopus and Google Scholar databases, which were selected because of their indexing of high-quality, peer-reviewed journal publications. These databases provided access to empirical and theoretical research articles relevant to the domain of this study. The search was limited to publications released between January 2023 to March 2025, ensuring the inclusion of the most current studies. All articles were selected and filtered for relevance based on predetermined inclusion and exclusion criteria, with a particular emphasis on the application of AI tools in academic writing and their associated ethical, pedagogical, and practical implications.

Search criteria

The keywords were developed to reflect both the tools used and the themes relevant to the research objectives, including opportunities (e.g., enhancement of writing quality and efficiency) and challenges (e.g., ethical issues, plagiarism, authorship, and critical thinking). The core search terms included the following: “Artificial Intelligence” AND “academic writing”, “AI tools” AND “student writing”, “ChatGPT” AND “academic integrity”, “Grammarly” OR “QuillBot” AND “higher education”, “AI-assisted writing” AND “L2 learners”, “AI writing tools” AND “educational implications”, “AI in academic publishing” OR “scholarly communication”, “Ethical issues” AND “AI-generated content”, “Teacher and student perceptions” AND “AI in education”, “AI impact” AND “writing quality” OR “critical thinking”.

These terms were applied independently and in combination, utilizing Boolean operators (AND, OR) to optimize the search and assure both breadth and depth in capturing relevant literature. The keyword sets were tailored to each database’s indexing style to maximize retrieval efficiency. Titles, abstracts, and keywords of the articles were initially screened, followed by a full-text review to determine their eligibility based on the predefined inclusion and exclusion criteria.

Inclusion and exclusion criteria

To guarantee the relevance, quality, and consistency of the selected studies, a set of predetermined inclusion and exclusion criteria was applied during the screening and selection process. These criteria were designed to align with the objectives of this systematic literature review, which explores the challenges and opportunities of using Artificial Intelligence in academic writing. Only studies that explicitly examined the application, benefits, or drawbacks of AI tools in academic writing—particularly in higher education contexts—were included.

Table 1 provides a detailed overview of the criteria applied in the selection process. The review focused on peer-reviewed journal articles released between January 2023 to March 2025, written in English, and indexed in Scopus and Google Scholar. Studies were required to provide empirical or

theoretical insights into how AI tools (e.g., ChatGPT, Grammarly, QuillBot) influence academic writing practices, ethics, or pedagogy.

Sources such as books, theses, editorials, magazines, blogs, and non-peer-reviewed web content were excluded. Articles that focused solely on the technical or algorithmic development of AI—without any clear connection to academic writing—were also excluded from this review. The included studies represent a global perspective and are not limited to a specific geographical or cultural context, enabling a more deeper understanding of the phenomenon across diverse academic settings.

Table 1

Article Selection of Inclusion and Exclusion Criteria

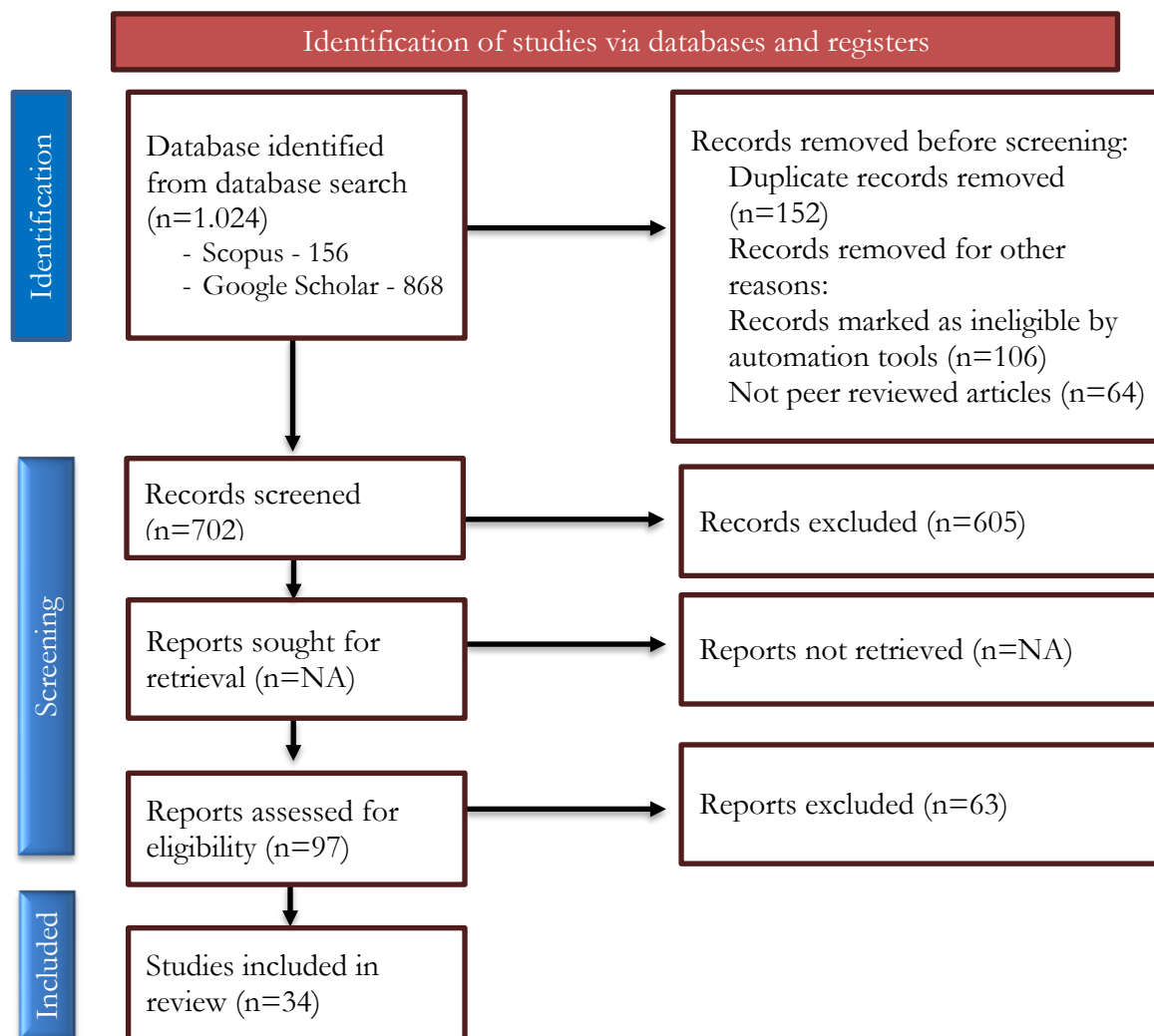
Criteria	Inclusion	Exclusion
Publication Date	From 2023 – 2025	Before 2023 or after 2025
Indexing	Indexed in Scopus and Google Scholar	Not indexed in Scopus or Google Scholar
Language	English	Non-English
Type of Publication	Peer-reviewed journal articles	Preprints, books, conference abstracts, opinion pieces, blog posts
Full-text Availability	Full-text available for review	Full-text not accessible
Focus Area	AI used in academic writing (including tools like ChatGPT, Grammarly, and others)	Focused on AI in unrelated domains (e.g., marketing, law, coding)
Content Relevance	Explores <i>challenges</i> and/or <i>opportunities</i> of AI in academic writing	Only discusses technical AI aspects without application to academic writing
Study Context	Involves students, educators, researchers, or academic institutions	Commercial, industrial, or non-educational settings
Methodology	Empirical (quantitative/qualitative), theoretical, or review-based studies	Informal commentary, editorial notes, or conceptual pieces without analysis
Educational Relevance	Addresses writing in higher education or ELT contexts	Targets non-academic or creative writing

Data extraction

As adapted from Kilde (2024), the data extraction is performed in Figure 1 below:

Figure 1

PRISMA Diagram for Systematic Literature Review adapted from Page et al. (2021)



Identification

The identification stage marked the beginning of the systematic search process. Using Publish or Perish software, academic articles were retrieved from three major databases: Scopus and Google Scholar. These databases were chosen based on their indexing of high-quality peer-reviewed publications relevant to AI in academic writing. A preliminary total of 1,024 records were identified. The search utilized specific keywords such as “Artificial Intelligence” AND “academic writing”, “AI tools” AND “student writing”, “ChatGPT” AND “academic integrity”, “AI-assisted writing” AND “L2 learners”, “AI impact” AND “writing quality” OR “critical thinking”. These Boolean operator keywords were applied and were designed to capture both conceptual and empirical studies related to the opportunities and challenges of AI integration in academic writing contexts.

Screening

After the removal of duplicates, 702 unique records remained. From these, 582 articles were excluded since they were no relevant title, variable or abstract. 120 articles were deemed potentially relevant based on title and abstract screening. The inclusion criteria applied at this stage were published in January 2023 until March 2025, written in English, available in full-text, and focused on the use of AI tools (e.g., ChatGPT, Grammarly, QuillBot) within academic writing in higher education. Articles that were non-empirical, unrelated to educational contexts, or lacking clear relevance to academic writing

practices were also excluded. As a result, 97 articles were sought for full-text retrieval. However, 23 articles could not be accessed and were excluded from further review.

Eligibility

A more in-depth eligibility assessment was conducted on the 97 full-text articles. Each study was reviewed to evaluate methodological quality, clarity of AI integration in writing instruction or research, and relevance to the central research questions of this systematic review. In this process, 16 articles were excluded for not containing empirical data, 14 articles were excluded for not focusing on academic writing, and 33 articles were excluded for not discussing the opportunities or challenges of AI integration. Thus, 66 articles were removed during the eligibility assessment, leaving 34 articles meeting all inclusion criteria.

Inclusion

Following the application of all criteria—along with duplicate removal and full-text assessment, a total of 34 articles were included in the final review. These studies provided a representative sample of current research addressing both the opportunities (e.g., writing improvement, productivity, support for L2 learners) and challenges (e.g., plagiarism, ethical concerns, over-reliance on AI) of using AI in academic writing. These articles form the basis for the synthesis presented in the findings section of this review.

FINDINGS

The following [Table 2](#) presents a synthesized overview of 34 selected studies included in this systematic literature review on the use of artificial intelligence (AI) in academic writing.

Table 2

The Result of Literature Review

No.	Articles	Objective	Method	Opportunities	Challenges
1	(Jin et al., 2025)	To elucidate how metaphorical constructs convey perceptions of generative AI within academic writing.	Metaphor Analysis (Qualitative)	Technical support, text development, and transformative function	AI addiction
2	(Alkamel & Alwagieh, 2024)	To evaluate ChatGPT's effectiveness in improving academic writing proficiency among Yemeni EFL students.	Qualitative Study	Grammatical accuracy, fluency, and other academic performances.	Academic integrity and plagiarism
3	(Cui, 2025)	To examine determinants influencing AI utilization in academic writing using HISAM and TRI theoretical models.	Quantitative Study (Survey)	Writing quality improvement, ease-to-use, and student engagement	Negative perceptions on AI, resistance to AI use, and academic dishonesty
4	(Stanford, 2025)	To interrogate the role of AI technologies in augmenting productivity in academic writing and research using UTAUT framework in the UK.	Literature Review and Case Study	Productivity and efficiency improvement	Integrity and trust issues, and algorithm bias
5	(Garg et al., 2024)	To assess the reliability of ChatGPT and Bard compared to Scopus and WoS databases.	Comparative Analysis	-	Reliability issues, and database mismatch based on the worldwide reputable journals such as Scopus and World of Science.
6	(Mo & Crosthwaite, 2025)	To analyze generative AI's impact on stance and	Comparative study (quantitative)	Aligned with human-authored writing, except in	AI tended to produce more constrained and

No.	Articles	Objective	Method	Opportunities	Challenges
		engagement features in disciplinary writing.		the field of philosophy.	repetitive rhetorical patterns.
7	(Obura & Emoit, 2025)	To identify existing gaps and opportunities in the implementation of AI in writing classes in Kenya.	SLR + Case study	The elevation of research quality and academic standards.	AI policy frameworks handling academic research integrity.
8	(Malik et al., 2023)	To find out higher education students' attitudes toward AI in academic essay composition.	Mixed method	The improvement of students' writing skill, self-efficacy, and academic integrity awareness	Loss of creativity, critical thinking, and ethical responsibility, tutor involvement necessity
9	(Odri & Ji Yun Yoon, 2023)	To evaluate detection tools for identifying AI-generated scientific texts.	Experimental Study	-	The limitation of AI detectors
10	(Madanchian & Taherdoost, 2025)	To determine AI's influence on the efficiency of academic research processes.	Review Article	Writing efficiency	-
11	(Hysaj et al., 2025)	To examine multicultural undergraduate students' rationale and ethical perceptions regarding GenAI use.	Descriptive qualitative	Awareness toward academic integrity, ethical and moral aspects, especially plagiarism	Revealed a dissonance between ethical knowledge and actual application.
12	(Dorta-González et al., 2024)	To investigate how demographic factors shape AI adoption among researchers.	Quantitative Study (Survey)	AI's contribution in AI contributed to writing productivity and research support.	insufficient training, gender-based disparities, and resistance to adoption
13	(Khlaif et al., 2023)	To investigate ChatGPT's capabilities and drawbacks in scientific inquiry.	Mixed method	research speed	accuracy, misapplications, and quality issues
14	(Hakam et al., 2024)	To compare the academic quality of orthopedic literature produced by humans versus AI.	Comparative Qualitative Analysis	Efficiency and quality	Ethical issues, difficulty in differing AI vs human texts.
15	(Cohen & Moher, 2025)	To evaluate generative AI's dual role in academic writing.	Quantitative Research (Survey and Regression Analysis)	productivity and creativity.	scientific integrity.
16	(Khalifa & Albadawy, 2024)	To determine whether AI tools supplement or supplant human academic writing expertise.	Systematic Literature Review	Idea construction, Research Design, Literature Review, Data Analysis, Editing, Reviewing, and Publishing Support	The risks in integrity and over-reliance on AI
17	(Ou et al., 2024)	To conceptualize a critical AI literacy framework for doctoral-level writing.	Qualitative Research	-	Lack of training in ethical use, prompting critical review to revise, and awareness in benefits and limitations of AI
18	(Nguyen et al., 2024)	To analyze doctoral students' strategies in collaborating with AI-powered writing assistants.	Quan	improved performance in writing texts	lower writing competencies.

No.	Articles	Objective	Method	Opportunities	Challenges
19	(Balalle & Pannilage, 2025)	To synthesis academic integrity amid increased AI adoption.	Systematic Literature Review	Writing efficiency and content accuracy	academic integrity
20	(Wise et al., 2024)	To encourage doctoral engagement with AI discourse through dialogical scholarship.	Dialogical approach		academic integrity and authorship, difficult to assess students' writing.
21	(Safrai & Orwig, 2024)	To assess ChatGPT-4's capacity to author a biomedical review.		minimal plagiarism	Content inaccuracies and unreliable citations
22	(Cheng et al., 2025)	To explore challenges and mitigation strategies in AI-assisted academic publishing.	Literature review	-	Bias and hallucinations, incorrect database or sources, the risk of losing deep knowledge of the writers. Serious ethical issues in certain disciplines, such as healthcare and medicines
23	(Anani et al., 2025)	To investigate postgraduate attitudes toward AI in Ghana using the Planned Behaviour Theory.	Mixed method	Enhancing grammar accuracy, preventing plagiarism, outlining ideas, upgrading overall writing proficiency, and time-saving	alarms over diminished critical thinking and creative autonomy.
24	(Li et al., 2024)	To assess ChatGPT's role in strengthening English academic writing among students.	Mixed method	Improve writing quality, Support language proficiency, and academic research tasks.	-
25	(Liu et al., 2024)	To compare human versus AI detector accuracy on rehabilitation-related content.	Comparative study		misleading articles and fabricating scientific claims.
26	(Kim et al., 2024)	To explore student perceptions of GenAI in academic composition.	Descriptive qualitative	Benefits in the writing process, performance, and their affective domain.	Need prompting skills and critical thinking to optimize and evaluate the results
27	(Mahapatra, 2024)	To investigate the implications of ChatGPT use on ESL academic writing.	Mixed method	Corrective feedback by AI and reducing language barriers	-
28	(Barrett & Pack, 2023)	To examine student and educator perspectives on AI-facilitated writing.	Comparative study (survey)		The complexity of prompting
29	(Revell et al., 2023)	To assess AP's analytical capacity in literary essay writing on Old English texts.	Comparative study	Well-organized essays, and research direction	Authorship, transparency
30	(Werdining sih et al., 2024)	To analyze EFL students' strategies and experiences with ChatGPT in writing.	Case study	Facilitated idea generation, vocabulary refinement, and content planning.	Raised authenticity and cultural relevance concerns; advocated for

No.	Articles	Objective	Method	Opportunities	Challenges
					ethical training and critical reflection.
31	(Tang et al., 2024)	To evaluate transparency in AI usage within nursing academic journals.		-	Transparency and credibility in academic writing. Those requires for AI usage declarations to journal reviewers
32	(Yao et al., 2024)	To investigate students' metacognitive engagement while using ChatGPT for writing.	Case study	Propose a set of strategies: planning, controlling, evaluating or reflecting	
33	(Levin et al., 2024)	To synthesize literature on AI's transformative impact on scientific communication.	Literature review	Efficiency, greater accessibility, and new insight generation	Risks of integrity and quality of scientific writing.
34	(Winberg et al., 2024)	To examine the effectiveness of a GAI-integrated intervention for postgraduate writing skills.	Experiment	Writing quality	Responsible and reflective use

The article reviews then analyze using thematic categorization to recurring patterns. The tables below display a summary of the most frequently cited themes, highlighting both the opportunities and challenges.

Table 3

The Opportunities

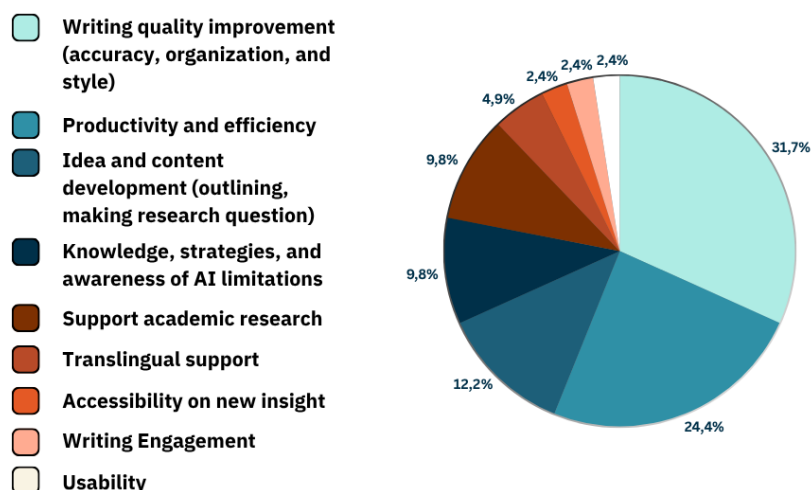
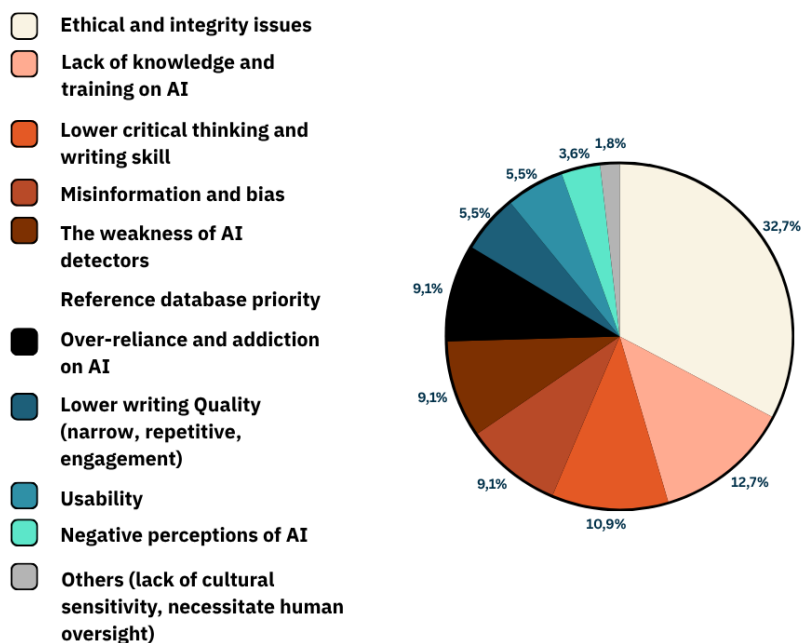
No	Opportunities	Articles (no.)	Frequency
1.	Writing quality improvement (accuracy, organization, and style)	1, 2, 3, 7, 8, 14, 15, 18, 21, 23, 24, 27, 29	13
2.	Productivity and efficiency	1, 4, 9, 12, 13, 14, 15, 18, 19, 23	10
3.	Idea and content development (outlining, making research question)	1, 6, 16, 19, 23	5
4.	Knowledge, strategies, awareness on AI limitations	8, 24, 32, 34	4
5.	Support academic research	7, 18, 24, 29	4
6.	Translingual support	24, 27	2
7.	Accessibility on new insight	33	1
8.	Writing engagement	3	1
9.	Usability	3	1

Table 4

The Challenges

No.	Challenges	Articles (no.)	Frequency
1.	Ethical and integrity issues	2, 3, 4, 7, 8, 11, 13, 14, 15, 16, 17, 19, 20, 21, 22, 25, 31, 33	18
2.	Lack of knowledge and training on AI characteristics, technical use, prompting, evaluating, integrity issues	8, 12, 17, 26, 28, 30, 32	7
3.	Lower critical thinking	3, 4, 8, 18, 22, 23	6
4.	Misinformation and bias	5, 13, 22, 25, 30	5
5.	The weakness of AI detectors	9, 14, 20, 29, 31	5

No.	Challenges	Articles (no.)	Frequency
6.	Reference database priority	5, 19, 22, 25, 31	5
7.	Over-reliance and addiction on AI	1, 13, 16	3
8.	Writing quality (narrow, repetitive, engagement)	6, 13, 33	3
9.	Negative perceptions of AI	3, 12	2
10.	Others (lack of cultural sensitivity, necessitate human oversight)	30	1

Figure 2*Proportion of The Opportunities***Figure 3***Proportion of The Challenges*

Based on the table and diagram above, the most dominant opportunities are that AI can improve writing quality (accuracy, organization, and style) in 31,7%, followed by productivity and efficiency enhancement in 24,4%. Afterward, they are followed by other opportunities, such as idea development, AI awareness, research support, new insights, writing engagement, and usability.

Regarding challenges, ethical and integrity issues dominate the proportion in 32,7%, followed by the need for AI training for educators and students in 12,7%. Critical thinking degradation should also be noted as a potential issue since it is relatively high in 10,9%. Furthermore, some studies also identify other challenges such as misinformation, AI addiction, weaknesses in AI detectors, decline in writing quality, negative perceptions toward AI, and other challenges.

DISCUSSION

According to Table 3, 13 studies (e.g., Alkamel & Alwagieh, 2024; Cui, 2025; Jin et al., 2025) acknowledged elevating writing quality based on accuracy, organization, and stylistic consistency as the most widely opportunities. AI was also thought to increase writing and research productivity and efficiency, enabling quicker content creation and process simplification. By assisting with document structuring, citation creation, and summarization, AI tools were also seen as helpful writing assistants. While idea and content generation, including formulating research questions and outlining them, was cited as a significant improvement to scholarly activity, language support was identified as a significant advantage for non-native writers. Furthermore, AI contributed to increasing student engagement with writing tasks and offered broader accessibility to new insights and academic knowledge.

Despite the opportunities, this study identified several challenges. Ethical and integrity concerns were the most prevalent, appearing in more than half of the reviewed articles (Balalle & Pannilage, 2025; Hosseini et al., 2023). Plagiarism, a lack of authorship transparency, and abuse in demanding academic settings were among the second barriers (Garg et al., 2024; Safrai & Orwig, 2024). Threats also came from bias and misinformation, with AI occasionally generating content that was distorted or factually inaccurate (Cheng et al., 2025). Over-reliance on AI, which can reduce writers' independent thought and potentially decrease their critical and creative thinking skills, was another persistent issue (Stanford, 2025; Zhai et al., 2024). It becomes more challenging since unfavourable opinions and opposition to its adoption, which frequently resulted from insufficient training and a lack of knowledge about AI's potential and constraints (Dorta-González et al., 2024). In order to use AI in writing tasks responsibly, the studies also underlined the necessity of thorough comprehension of prompting, evaluation methods, and technical knowledge (Ou et al., 2024).

Additional challenges included AI's inability to live up to academic standards for originality and quality. Compared to texts written by humans, several studies emphasized problems like limited or repetitive content and low engagement (Mo & Crosthwaite, 2025; Revell et al., 2023). The weakness of AI detectors, which occasionally misdetect the differences between AI-driven text versus original text by humans became an additional drawback in this study (Liu et al., 2024; Odri & Ji Yun Yoon, 2023). Furthermore, issues with cultural sensitivity (Werdiningsih et al., 2024), reference database accuracy (Garg et al., 2024), and the requirement for human supervision highlight the continued importance of human participation in academic writing processes. Even though AI has much to offer academic writing, its careful integration necessitates training, ethical frameworks (Hosseini et al., 2023), and reflective practices.

The opportunities and challenges synthesized in this study deliver broader thematic insights, while the earlier studies that often emphasized narrower scopes on the use of artificial intelligence (AI) in academic writing (Stanford, 2025). For instance, Aljuaid (2024) and Meyer et al. (2023) highlighted the pedagogical tools and general implications of AI in higher education writing, but this current review provides a more granular synthesis, identifying specific benefits such as enhanced writing engagement, language support, and idea development—opportunities that were often understated in previous works. Furthermore, compared to studies like Giglio and Costa (2023), which focused on writing improvement for non-native speakers, this review expands the scope to include how diverse user groups also benefit from AI in their writing productivity and academic works.

While previous studies, such as Hosseini et al. (2023) and AlSamhori and Alnaimat (2024) emphasized AI misuse as authorship transparency issues, this review establishes a clearer typology of ethical challenges, including issues of misinformation, database reliability, and the limitations of AI detectors—areas that were only briefly covered in prior research.. For instance, the inclusion of

concerns about AI-generated hallucinations and the mismatch between AI content and academic database standards adds depth to the discourse initiated by Švab et al. (2023) and Carobene et al. (2024). Moreover, this study, which criticized the insufficiency of AI detection technologies and demanded more sophisticated detection technology, is an emerging concern that complements but also advances the discussions in Jain and Jain (2024).

This metacognitive engagement represents a key opportunity of AI-assisted academic writing, because it supports essential writing stages such as outlining, drafting, and revising. For example, Yao et al. (2024) found that AI can facilitate the development of arguments during revision, demonstrating a cognitive benefit that enhances overall writing quality. Beside cognitive engagement, affective aspects such as increased confidence and reduced writing anxiety also considered as notable opportunities. However, these engagements also reveal potential challenges, including the risk of AI addiction and diminished self-regulation skills. The findings extend the understanding of how AI can support complicated academic writing practices by connecting cognitive and affective engagement to specific writing processes.

Finally, this study provides practical insight by identifying the need for structured training and awareness program regarding AI's technical use, prompting strategies, and ethical considerations, a point that aligns with but also extends the findings of Nurchurifiani (2025) and Subaveerapandiyan et al. (2025). Unlike earlier studies that treated training needs as supplementary, this review establishes them as central to responsible AI use in academic contexts because it directly determines how effectively and ethically AI tools are integrated into the writing process. Without structured training, students and educators may need more technical skills to generate effective prompts, critically evaluate the content, or verify the accuracy and credibility. Thus, this study consolidates its findings and expands the conceptual framework through which AI's role in academic writing can be more effectively understood, navigated, and optimized.

CONCLUSION

According to the systematic review, several AI challenges in academic writing have been synthesized. There are ethical and integrity issues, such as the lack of AI training for educators and students, critical thinking degradation, AI misinformation, AI addiction, weaknesses of AI detectors, AI rhetorical patterns, negative perceptions toward AI, and other challenges. On the other hand, the opportunities revealed in this review are writing quality improvement (accuracy, organization, and style), writing productivity and efficiency, idea development, AI awareness, research support, new insights, writing engagement, and usability.

The research findings established its position and contribution among previous studies. First, while other studies focused on integrity and rhetorical challenges, this study offers more comprehensive insights, including cognitive and affective issues such as the risk of critical thinking decline and overreliance on AI. Second, this study also explains how experts, lecturers, and publishers can identify AI-driven text directly using their own eyes, instead of using AI detectors that are still being developed to be more accurate. Third, the identified opportunities of AI in academic writing, such as writing efficiency, language support, writing engagement, and new insight access, provided potential for academic writing instructors to train students to utilize AI effectively and wisely.

Even though this is a comprehensive and systematic literature review study, some limitations exist. Firstly, the analysis is restricted to published studies available in English, which may exclude valuable insights from non-English-speaking academic contexts where AI tools are also being adopted. Additionally, the super-fast and aggressive AI developers can automatically make the findings outdated, particularly with the advancement of their large language models and the broader databases. Thus, the findings of this study, which took several months to publish, may no longer align with AI's current and latest version. The variability in research methods and objectives among the included studies also posed challenges in synthesizing data uniformly, which impacted the generalization of some themes. Furthermore, the review relied on reported outcomes and perspectives without direct empirical verification, potentially introducing bias from authors' interpretations.

Positively, the study delivers implications for upcoming research, educational policy, and academic practice. It highlights the suggestion for targeted training in AI academic writing, including ethical use, prompt engineering, and critical evaluation skills, particularly among students and educators. The thematic findings can inform curriculum development that balances the benefits of AI tools with the maintenance of independent writing and critical thinking abilities. For policymakers and institutions, the study underscores the urgency of developing guidelines and frameworks to address ethical concerns, authorship transparency, and proper citation practices in AI-assisted writing. Finally, this review is a basis for longitudinal and empirical research that can conduct more investigations on AI's evolving impact on academic writing practices across disciplines and educational levels.

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CONFLICT OF INTEREST STATEMENT:

The authors declare that the research was conducted in the absence of any potential conflict of interest.

About the authors

M. Hilmy Hidayatullah is a doctoral student in the Department of English Language Education, Faculty of Letters, Universitas Negeri Malang, Indonesia. He is a lecturer in the Department of English Education, Faculty of Social Science and Humanities, Universitas Ibrahimy, Indonesia. His research interests are ICT-based ELT, Teaching English as a Foreign Language (TEFL), and English for Specific Purposes. ORCID: <https://orcid.org/0009-0002-9288-9507>, email: hilmyzuhil@gmail.com

Nunung Suryati is an Associate Professor at the Department of English Language Education, Faculty of Letters, Universitas Negeri Malang, Indonesia. Her post-graduate degree was from the University of Newcastle, New South Wales, Australia. Her teaching areas are English for Specific Purposes (ESP), Basic Listening, and Advanced Listening. ORCID: <https://orcid.org/0000-0002-4672-2952>, email: nunung.suryati.fs@um.ac.id

Bambang Yudi Cahyono is a Professor of Applied Linguistics at the Department of English Language Education, Faculty of Letters, Universitas Negeri Malang, Indonesia. He earned his M.A. from Concordia University, Montreal, Canada, and Ph.D. from the University of Melbourne, Australia. His research interests include Second Language Writing, English Teacher Professional Development, and Media in English Language Teaching. ORCID: <https://orcid.org/0000-0001-5210-5208>, email: bambang.yudi.fs@um.ac.id

Nadrotin Mawaddah is a lecturer at Universitas Ibrahimy, Indonesia. Her graduate degree was from Universitas Islam Malang, Indonesia. She is a researcher in the field of teaching English as a foreign language (TEFL) and English for specific purposes (ESP). ORCID: <https://orcid.org/0009-0006-5341-7194>, email: nadrotinmawaddah@gmail.com