

A Systematic Review of AI-Assisted Writing Tools: Impacts, Perceptions, and Challenges in EFL Academic Writing

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ABSTRACT

This article synthesizes ten empirical studies published between 2022 and 2025 that examine the integration of artificial intelligence-based writing tools (AIWTs) including Grammarly, ChatGPT, and various paraphrasing platforms in the context of academic writing in English as a foreign language (EFL). The primary objective of this review is to consolidate the latest empirical evidence on the extent to which these technologies influence students' writing performance, motivation, and learning dispositions. Using a qualitative literature review framework, the selected studies were analyzed based on their methodological features, participant profiles, types of AI tools used, and key findings.

The evidence that has been consistently reviewed shows that AIWTs contribute to significant improvements in linguistic accuracy, grammar mastery, text coherence, overall organization, vocabulary development, and overall writing quality. In addition, most students report positive perceptions of using these tools, including increased confidence, higher motivation, and reduced anxiety related to writing. However, these studies collectively highlight several critical issues, such as learners' overreliance on AI-generated feedback, the potential weakening of critical thinking and self-editing skills, occasional inaccuracies produced by these tools, and ethical issues related to plagiarism and academic integrity.

Overall, these findings indicate that artificial intelligence (AI)-based writing tools have significant pedagogical value when used as supplemental instructional support. Their use should complement teacher feedback and encourage independent writing development, rather than replace essential pedagogical processes or students' independent writing efforts

KEYWORDS: AI, Writing, EFL, Student, Linguistic Accuracy

1.0 INTRODUCTION

The rapid development of artificial intelligence (AI) over the past decade has transformed academic writing practices in various educational contexts around the world. AI-based writing tools such as ChatGPT, Grammarly, QuillBot, and other generative systems are increasingly being used in English as a Foreign Language (EFL) learning, changing the way students plan, compose, revise, and evaluate their writing. This technology provides instant feedback, linguistic support, and idea generation, which has the potential to improve writing skills and support learners who often struggle with grammar, vocabulary, coherence, structure, and academic tone. However, the pedagogical, cognitive, and ethical implications of these tools remain a subject of widespread debate.

Existing research shows an increasing interest in the role of AIWT in improving writing outcomes and student motivation. For example, Song & Song (2023) showed that the use of ChatGPT significantly improved the writing skills and motivation of Chinese EFL learners through personalized and immediate feedback. Similarly, research on the use of Grammarly (Armanda et al., 2022) reveals students' positive views on its ability to improve grammatical accuracy and clarity in writing. Beyond the specific effects of the tools, survey-based research in various higher education contexts (Gasaymeh et al., 2024) shows that students acknowledge the efficiency and linguistic benefits of AI tools, while also expressing concerns regarding accuracy, misinformation, and data privacy. These findings confirm that students' acceptance of AIWT is influenced not only by the usefulness they perceive but also by the risks they perceive.

Several studies also investigate the perspectives of teachers and the broader institutional context. Marzuki et al. (2023) report that teachers see significant improvements in content development and student organization when AI tools are used, but they are concerned about over-reliance and reduced conceptual understanding. Research in the Indonesian context further reinforces this tension. Rofikah et al. (2025) found that students often used tools such as ChatGPT and Grammarly during the revision and planning stages, benefiting from increased confidence and productivity, but also facing challenges related to AI hallucinations, limited contextual accuracy, and the risk of a decline in higher-order thinking skills. Research at the secondary level also shows improved performance but highlights significant risks of dependency among younger learners (Journal Bahasa, 2025).

Another major concern that emerges from the literature is the inconsistent impact of AI on cognitive development. Pervaiz et al. (2025) observed that although AI improves linguistic accuracy,

its contribution to critical thinking remains minimal, with variations in effectiveness influenced by institutional resources and access to technology. Meanwhile, research by Zulfa et al. (2023) emphasizes that students use a variety of AI and digital tools to support their academic writing, reporting improvements in grammar, vocabulary, structure, and confidence, but that these tools alone cannot replace true writing competence. Recent research continues to highlight the dual role of AI. Untsa & Nuha (2025) conclude that AI-generated feedback improves surface accuracy but has limited effectiveness in addressing global writing skills such as argumentation, coherence, and clarity. Furthermore, over-reliance can make students' writing formulaic and hinder self-monitoring abilities. A case study in the Society 5.0 era (Safitri & Fithriani, 2024) also shows that while AIWTs improve efficiency and creativity, they risk reducing originality and critical engagement if used without pedagogical guidance.

Collectively, these studies indicate a rapidly growing but fragmented body of research on AI-assisted writing in the context of EFL. Although AIWT consistently shows positive contributions, particularly in grammar correction, vocabulary enhancement, fluency, and motivation, there remain significant concerns regarding over-reliance, reduced cognitive engagement, ethical issues, and the need for clear institutional guidelines. Furthermore, most existing research focuses on specific tools, uses small or limited samples, relies heavily on self-reported data, or lacks longitudinal evidence. These gaps reveal the need for more systematic and integrated studies that consolidate empirical findings across different educational contexts, methodologies, and user perspectives.

Therefore, this systematic review aims to gather the latest evidence on the impact, perceptions, and challenges of AI-based writing tools in EFL academic writing. By analyzing ten recent studies from various contexts, including China, Indonesia, Pakistan, and various other higher education settings, this review provides a comprehensive understanding of how AI-based writing tools shape writing development, learning experiences, teaching practices, and academic integrity. The findings from this review are expected to assist educators, policymakers, and researchers in developing balanced and effective approaches to the integration of AI in writing instruction.

2.0 BODY

2.1 The Role of AI-Assisted Writing Tools in EFL Academic Writing

Based on ten empirical studies that have been reviewed, AI-assisted writing tools (AIWT) such as ChatGPT, Grammarly, and paraphrasing applications have played an increasingly important role in developing the academic writing of EFL students. ChatGPT is widely used as a

generative assistant that supports students in the planning, drafting, and revision stages, providing instant explanations, new ideas, and tailored feedback. This role is evident in research by Song and Song (2023), Rofikah et al. (2025), and Journal Bahasa (2025), where ChatGPT improved students' ability to develop ideas, strengthen paragraph organization, and reduce writing anxiety. Grammarly has a different function, serving primarily as an automatic grammar checking tool that helps students identify and correct errors in grammar, punctuation, spelling, and style, as revealed in Armanda et al. (2022) and Zulfa et al. (2023). On the other hand, paraphrasing applications such as QuillBot, which are commonly used among Indonesian EFL students, help in rephrasing sentences, enriching vocabulary, and adjusting tone to a more academic form, as reported in studies by Rofikah et al. (2025), Zulfa et al. (2023), and Untsa & Nuha (2025). Overall, these tools serve as technological aids that solve linguistic accuracy problems and high-level writing needs, although their effectiveness depends on how students integrate them into the writing process.

2.2 The Role of AI-Assisted Writing Tools in EFL Academic Writing

Findings from ten reviewed studies consistently indicate notable improvements in students' writing performance through the use of AI-based tools such as ChatGPT, Grammarly, and paraphrasing applications. ChatGPT shows significant positive influences on both writing competence and learner motivation. Song and Song (2023) reported that students achieved marked progress in coherence, idea expansion, and overall writing quality. Additionally, ChatGPT facilitates quicker feedback and boosts students' confidence during the drafting process, as similarly reported by Journal Bahasa (2025) and Safitri and Fithriani (2024).

Meanwhile, Grammarly primarily supports linguistic accuracy. Studies by Armanda et al. (2022) and Zulfa et al. (2023) reveal that this tool effectively reduces grammatical errors, improves sentence clarity, and increases students' awareness of writing conventions. Paraphrasing tools also play a significant role in enhancing lexical diversity, fluency, and sentence construction. Many Indonesian EFL learners stated that platforms such as QuillBot helped them polish their language use, minimize repetition, and produce a more academic style of writing (Rofikah et al., 2025; Zulfa et al., 2023). Furthermore, mixed-method research by Untsa and Nuha (2025) demonstrates that AI-generated feedback is particularly effective in improving surface-level aspects of writing such as grammar, punctuation, and fluency. In general, the integrated use of these tools contributes to better writing quality, increased linguistic confidence, and greater learner independence in academic writing activities.

2.3 Challenges and Risks of AI-Assisted Writing Tools in EFL Contexts

Despite their obvious benefits, ten studies highlight various challenges associated with students' dependence on AI-based writing tools. ChatGPT raises issues related to over-reliance, superficial understanding, and incorrect or contextually inappropriate responses. Gasaymeh et al. (2024) and Rofikah et al. (2025) note that students sometimes accept AI-generated content without verification, resulting in inaccuracies, a decline in critical thinking skills, and weak self-regulation skills. Grammarly, while useful for mechanical accuracy, sometimes provides incorrect corrections and can make students overly dependent on automated feedback rather than developing independent editing skills, as reported by Armanda et al. (2022).

Paraphrasing tools pose additional risks; research shows that these tools can alter meaning, simplify complex ideas, and contribute to plagiarism when students use paraphrasing as a shortcut to avoid original writing (Zulfa et al., 2023; Rofikah et al., 2025). The risks of reduced creativity, decreased originality, and weakened higher-order thinking skills are consistently highlighted in studies such as Untsa & Nuha (2025), Journal Bahasa (2025), and Safitri & Fithriani (2024). In various contexts, the lack of institutional guidelines exacerbates ethical concerns, making it difficult for students and teachers to distinguish between acceptable and unacceptable uses of AI in academic work.

2.4 Students' and Teachers' Perceptions Toward AI-Assisted Writing Tools

Evidence gathered from ten selected studies indicates that students tend to have favorable views toward the use of ChatGPT, Grammarly, and paraphrasing tools, although these positive attitudes are accompanied by certain reservations. Students value ChatGPT mainly for its ability to provide fast and tailored explanations that assist them in generating ideas, improving coherence, and increasing motivation, as reported by Song and Song (2023) as well as Rofikah et al. (2025). Grammarly is also perceived positively due to its user-friendly features and effectiveness in detecting grammatical and punctuation errors (Armanda et al., 2022). Likewise, paraphrasing tools are appreciated for helping students expand vocabulary use and create smoother sentence structures (Zulfa et al., 2023).

Despite these advantages, several studies report students' concerns regarding the reliability of AI outputs. Issues such as hallucinated content, inaccurate recommendations, and weak contextual understanding are frequently associated with ChatGPT and paraphrasing applications (Gasaymeh et al., 2024; Untsa & Nuha, 2025). From the teachers' perspective, attitudes tend to

be more critical. Marzuki et al. (2023) found that while teachers recognize the benefits of AI in supporting idea development and text organization, they are also worried about its potential to weaken students' critical thinking skills, originality, and active involvement in the writing process. In addition, teachers emphasize the risks related to plagiarism and unethical practices, stressing that AI should function only as a supporting tool rather than a replacement for instructional guidance. Overall, both students' and teachers' views highlight the importance of implementing AI-assisted writing tools in a balanced, ethical, and well-supervised manner.

2.5 Pedagogical Implications and Future Directions

The results of the ten reviewed studies point to several important pedagogical considerations in implementing ChatGPT, Grammarly, and paraphrasing tools in EFL academic writing settings. First, the successful use of AI tools depends heavily on structured instructional support. Teachers need to guide students in critically assessing AI-generated feedback, verifying its accuracy, and avoiding unquestioned acceptance of suggestions. Research by Marzuki et al. (2023) and Untsa and Nuha (2025) shows that the integration of AI feedback with teacher feedback produces stronger writing outcomes, as AI mainly addresses surface-level issues, while teachers focus on deeper aspects such as coherence, organization, and argument quality.

Second, training in AI literacy is essential, since many learners still have difficulty detecting hallucinated information, incorrect interpretations, and contextual inaccuracies (Gasaymeh et al., 2024; Rofikah et al., 2025). Therefore, instruction should prioritize the development of students' critical judgment and decision-making abilities when using AI tools. Third, educational institutions are encouraged to establish explicit regulations on appropriate AI usage to minimize plagiarism and excessive dependence, as highlighted in several studies including Safitri and Fithriani (2024).

In terms of future research, further investigation is needed into the long-term impact of AI-assisted writing, particularly on higher-level skills such as critical thinking, originality, coherence, and rhetorical organization - areas that current studies suggest remain underdeveloped. Longitudinal, comparative, and mixed-method approaches will be particularly valuable in revealing how tools like ChatGPT, Grammarly, and paraphrasing applications influence students' writing growth over time. Overall, AI-assisted writing tools hold strong pedagogical promise when applied in a responsible, critical, and teacher-supported manner.

3.0 RESULT AND DISCUSSION

The results of this systematic review indicate that AI-assisted writing tools (AIWTs) have a meaningful contribution to the improvement of EFL students' academic writing skills in diverse educational settings. Most of the analyzed studies reveal that applications such as ChatGPT, Grammarly, and paraphrasing tools help enhance linguistic accuracy, writing fluency, vocabulary development, and textual coherence through instant and automated feedback. These benefits foster higher levels of writing confidence, lower writing anxiety, and stronger learning motivation, especially for students who struggle with complex language use and academic style. In addition, learners experience faster revision processes, improved productivity, and better self-regulation in completing writing tasks.

However, alongside these benefits, several important issues emerge concerning students' overdependence on AI-based feedback. Because these tools offer ready-to-use suggestions and even generate content, students may become overly reliant on AI assistance, which can weaken their critical thinking engagement and reduce their ability to revise texts independently. Problems such as contextual inaccuracy, hallucinated content, and misleading recommendations frequently appear, particularly when learners fail to critically evaluate AI-generated outputs. Ethical issues, including plagiarism and reduced originality, are strongly linked to the use of paraphrasing and generative tools, suggesting that improper use may obstruct the development of authentic academic skills.

Moreover, while both students and teachers generally express positive perceptions of AIWTs, their viewpoints differ in terms of caution and expectations. Students tend to value the simplicity and immediate feedback that improve their understanding of grammar and text organization. In contrast, teachers are more concerned about potential declines in creativity, originality, and engagement in deeper conceptual writing processes. Educators emphasize that AI should function as a supportive aid rather than a replacement for instructional feedback, particularly in fostering higher-order skills such as argument development and coherence.

These findings imply that the successful adoption of AIWTs demands well-structured pedagogical guidance and institutional-level AI literacy training to promote responsible and ethical use. The establishment of clear regulations on acceptable usage is essential to prevent plagiarism and to help students understand the limitations of AI-generated feedback. Future investigations are encouraged to employ longitudinal, comparative, and mixed-method research designs to examine the long-term effects of AI-assisted writing on students' cognitive development, including critical

thinking, originality, and rhetorical competence.

In conclusion, this review affirms that AIWTs possess strong potential to support the development of EFL students' academic writing skills when applied carefully alongside human instruction. While these tools offer valuable linguistic support, their use must remain critical and ethical so that technological convenience does not undermine students' independent thinking and academic integrity

4.0 CONCLUSION

This systematic review shows that AI-based writing tools play a significant and growing role in supporting the development of academic writing for EFL learners. In the ten studies reviewed, tools such as ChatGPT, Grammarly, and paraphrasing tools consistently showed a positive impact on students' grammatical accuracy, vocabulary variety, coherence, fluency, and confidence. These tools serve as accessible language learning companions, providing immediate feedback, facilitating idea development, and reducing the anxiety typically experienced by EFL writers. However, these findings also reveal important challenges that limit the effectiveness of AI integration. Overreliance on AI, lack of critical evaluation skills, risks of misinformation, and ethical issues such as plagiarism and academic dishonesty remain prominent issues. The accuracy of AI-generated content is not always reliable, and students often find it difficult to determine when AI suggestions should be accepted, corrected, or ignored. These limitations show that AI cannot replace the need for teacher guidance, critical thinking, or independent writing practice.

Both students and teachers generally express positive perceptions of AI-based writing tools, but their attitudes reflect a shared emphasis on balance. While students appreciate the language support and motivational benefits of AI tools, teachers remain cautious about reduced creativity, decreased cognitive engagement, and potential misuse. This perspective emphasizes the importance of a pedagogical framework that encourages responsible and informed use of AI.

Based on the evidence gathered, the effective integration of AI into EFL writing instruction requires structured guidance, increased digital literacy, and clear institutional policies. Teachers should help students learn how to critically interpret AI feedback, while institutions need to set limits on the ethical use of AI in academic writing. Future research should explore the long-term impact of AI on writing competence, its influence on higher-order skills such as argumentation and critical thinking, and strategies for developing AI-literate students.

In conclusion, AI-based writing tools offer great potential for improving the academic writing skills of EFL students. When used appropriately and supported by pedagogical guidance and ethical

policies, AIWT can serve as a powerful resource that complements, rather than replaces, human teaching and students' cognitive development.

5.0 LITERATURE CITED

Armanda, D., Nagara, Y., & Zhafira, R. (2022). Students' perceptions toward the use of Grammarly in improving writing skills. *Journal of English Language Teaching and Linguistics*, 7(2), 287–300.

Gasaymeh, A.-M., Alzubi, A. A., & Al-Tarawneh, H. A. (2024). University students' perceptions of AI-based writing tools: *Benefits and concerns*. *Educational Technology & Society*, 27(1), 45–58.

Journal Bahasa. (2025). The effect of AI writing tools on secondary students' writing performance. *Journal Bahasa*, 14(1), 12–25.

Pervaiz, S., Ahmad, R., & Khan, M. I. (2025). Evaluating the effectiveness of AI writing assistants in higher education institutions. *International Journal of Emerging Technologies in Learning*, 20(2), 99–112.

Rofikah, I., Utami, R., & Sari, M. (2025). Students' use of AI tools in academic writing: Opportunities and challenges in Indonesian universities. *Indonesian Journal of Applied Linguistics*, 15(1), 67–80.

Safitri, W., & Fithriani, R. (2024). AI-based writing applications in the era of Society 5.0: Impacts on students' creativity and academic integrity. *Journal of English Language Teaching Innovations*, 4(2), 55–70.

Song, Y., & Song, H. (2023). Exploring ChatGPT's role in supporting EFL students' academic writing: *Benefits and challenges*. *English Language Teaching Research*, 12(3), 230–245.

Untsa, F., & Nuha, U. (2025). The impact of AI-generated feedback on global writing skills in EFL contexts. *Journal of Language and Education*, 11(1), 102–115.

Marzuki, A. G., Yusuf, Y. Q., & Rahman, D. (2023). Teachers' perceptions of AI-based tools in EFL writing classrooms. *TESOL International Journal*, 18(6), 120–135.

Zulfa, N., Widodo, P., & Lestari, S. (2023). Digital tools and AI platforms for enhancing students' academic writing skills. *Journal of English Language Studies*, 8(3), 154–166.