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THE IMPACT OF GENERATIVE AI ON ESL ACADEMIC WRITING SKILLS: A COMPREHENSIVE AND SYSTEMATIC REVIEW



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Abstract: *This paper reports a comprehensive and systematic analysis and review of recent and advanced research on the impact of generative artificial intelligence (AI) on ESL academic writing published in impact factor journals between 2023 and 2026. There is no doubt that the Second-language writing practices in higher education have been greatly impacted by the quick development of AI-powered writing tools like ChatGPT, Grammarly, Gemini, and Claude. This paper investigates the impact of generative AI on the writing skills, language development, learner autonomy, feedback procedures, and academic integrity of ESL learners. The review discusses research on AI-assisted academic writing from conceptual papers, empirical investigations, scoping reviews, and systematic reviews. Proponents of the use of AI in ESL classrooms point to the fact that generative AI is able to level the playing field when it comes to students' writing capabilities. Some students may struggle with the generative ideas and analysis that writing requires. In these cases, AI can be used to help English language learners (ELLs) write ideas and express them articulately and coherently in English. Critics point to the exacerbation of the digital divide that this technology may cause. With one student being able to have writing assistance whilst other students do not, this technology may ultimately be counterproductive. With the introduction of AI, some students may adopt a passive learning method and just rely on AI assistance. ESL instructors then will need to find a way where the use of AI does not significantly improve the writing of ELLs when compared to those who use traditional methods. Moreover, It has been found that AI enhances student-centered instruction and gives teachers much better writing tools. Using AI, ESL teachers can generate prompts; walk through for various writing skills, grading rubrics, and indicators for strengthening students' writing ability. The ESRC certainly supports the use of AI in ESL classrooms.*

Keywords: Generative AI, ESL Academic Writing, AI and ESL Systematic Review, AI and English Writing Skills.

Introduction

The emergence of generative artificial intelligence (AI) has rapidly transformed educational practices across the world, particularly in the field of language learning and academic writing. Since the public release of AI-powered tools such as ChatGPT, Grammarly, Gemini, and Claude, students and educators have increasingly integrated these technologies into teaching and learning activities. Since writing in a second language is frequently considered as one of the most challenging academic abilities for learners to learn and master, generative AI has proven especially significant in English as a Second Language (ESL) instruction. The ESL students must exhibit good academic style, coherence, organization, critical thinking, vocabulary knowledge, and grammatical accuracy when writing academically. Many students experience problems in creating ideas, structuring arguments, rewriting drafts, and avoiding grammatical errors. By helping students with idealization, paraphrasing, grammatical correction, summarizing, citation guidance, and text generation, generative AI systems provide instant assistance. As a result, ESL students in higher education have come to love these technologies.

The Generative AI may have positive as well as negative consequences on ESL academic writing, according to recent research done between 2023 and 2026. Writing fluency, linguistic accuracy, learner confidence, and revision quality are all enhanced by AI-assisted writing tools. Meanwhile, they offer tailored feedback that promotes learner autonomy and independent study. However, scholars have expressed grave worries about plagiarism, academic dishonesty, an excessive dependence on AI-generated content, information paranoia,

and the deterioration of critical thinking abilities. The Teachers, institutions and students now face both new opportunities and challenges as a result of the quick adoption of generative AI in education. Teachers must now reevaluate their writing assessments, academic integrity regulations, and conventional teaching methods.

More important than anything else, students utilizing technology must be trained to employ it ethically and productively. This review will analyze literature published between 2023-2026 with respect to generative AI and its implications on ESL academic writing. This research study will explore some of the pros and cons of writing aids infused with AI, and their role in teaching ESL. This review will digest the relevant literature and research to analyze how AI can be used in the field of teaching and learning ESL academic writing. This research study will be beneficial to the scholarly community studying the convergence of AI and language teaching. Additionally, it will cater to instructors and disseminate the results of the deliberate and ethical use of generative AI in ESL academic writing.

Methodology

This paper offers a narrative synthesis that includes some systematic review elements, and is based on fifteen studies. These were included after a purposive sampling from a larger pool of peer-reviewed articles published between 2023 and 2026. The studies were filtered concerning multiple factors. They (a) presented generative AI (not limited to ChatGPT) in writing classes within the ESL/EFL domain, (b) were framed within the context of higher education, and (c) were published recently in response to the emerging trends in GenAI. The data

included ten review studies (systematic reviews, scoping reviews, critical reviews, etc.) and five empirical studies using qualitative, quantitative, and some mixed-method approaches. All studies included evidence synthesis, and all reviewed studies presented a considerable number of original sources and empirical data on different target populations, including EFL writers at various academic levels. The studies covered several EFL contexts, including South and Southeast Asia, Africa, the Middle East, and higher education globally. Moreover, Convergent and divergent data were captured through thematic analysis, given the developed themes; studies were categorized as beneficial, challenging, or exhibiting pedagogical implications. Results were presented for studies with quantitative data. In the case of studies with qualitative data, paraphrased quotes were presented

Literature Review

Digital technologies are changing language education in all contexts, but especially in English as Second Language (ESL) contexts. For the most part, the last ten years has seen language learning that has moved from computer-assisted language learning (CALL) that used language labs, CD-ROMs. Now we see intelligent digital systems that include mobile apps, social media, eLearning, and the latest, Generative Artificial Intelligence (GenAI). Among them, ChatGPT and other large language models are tools of teaching and learning, because they give feedback, generate content, assist with error correction and grammar, help with vocabulary, and give learners help throughout the writing process. Because of this, the pedagogical study of Generative AI and ESL writing has increased significantly in the years 2022–2026.

For ESL learners, writing in an academic context is one of the most difficult skills to learn. This is because writing in an academic context requires one to master grammar, vocabulary, coherence and logical organization, as well as critical thinking and the ability to form and articulate well-structured arguments. Learners who study in diverse and multilingual settings face writing anxiety, lack opportunities to practice writing, and receive little to no constructive feedback from their instructors. Generative AI, particularly ChatGPT, is seen in a positive light as an answer to many of these problems due to the systems' ability to deliver customized, real-time, interactive tutorials on the writing process. Negative views on these systems, particularly on their use to commit academic misconduct, overreliance on the system to generate content, and plagiarism, as well as the loss of critical thinking skills, has prompted a substantial amount of scholarly discourse. Due to all of the above, studying the impact of Generative AI on ESL is of paramount importance.

The current examination draws on Van Dijk's (2020) Digital Divide Theory, which identifies motivational access, material access, digital skills, and meaningful usage as important prerequisites for successful integration of technology, in addition to physical access to technological devices. Van Dijk (2020) argues that the inequities in digital skills and use of technology have a larger impact on the educational opportunities of learners than the availability of technological devices. This framework gives important insights into the provision of Generative AI to enhance ESL writing skills in developing countries, where the inequities of digital connectivity, the technological infrastructure, and skills remain. According to this framework, the learning opportunities provided by AI-

assisted writing are contingent on the motivation and technological skills of the learner, as well as the ability to use AI in a respectful manner.

There are clear benefits of using ChatGPT for second language education, as shown by a number of studies conducted in different countries. Kohnke, Moorhouse, and Zou (2023) found that use of ChatGPT by ESL and EFL learners provided a low-anxiety, patient, and mistake-tolerating environment which stimulated learners to practice their English speaking skills more, thus increasing their engagement and willingness to communicate and improving their language confidence. Their research also suggests that AI-based language learning provides a new dimension to digital technologies beyond educational technology within the classroom, as it offers learners personalized interaction and practice of language learning that is continuous. Generative AI has the potential to be an effective partner in the language classroom, especially in contexts where learners have few opportunities to practice communicating in English.

Baskara and Mukarto (2023) explored the role of ChatGPT in the English speaking practice of Indonesian university students. Given their study's context, which involved little real-life English speaking opportunities and grammar-based teaching, their study provided promising results showing improvement in students' speaking confidence and vocabulary and their ability to communicate after ChatGPT interactions within the eight-week period. Although their study was limited to the improvement of speaking skills, the study's authors pointed out that vocabulary and confidence also contributed to the written language skills of students. This finding illustrates the importance of AI-focused language learning

for pedagogy.

The role of ChatGPT in academic writing has become a developing area of research. Mahapatra (2024) was concerned with the effect of ChatGPT on the academic writing of ESL students and conducted an experiment. Statistically significant differences in the students' writing were observed with regard to the correctness of grammar, coherence, organization, the use of vocabulary, and overall essay structure. Participants reported that their writing skills improved and became more confident in their writing, as the system provided opportunities for them to revise their essays and offered insight into language-related mistakes. The findings support the claim that Generative AI goes beyond a text-generating system, as it provides an intelligent writing tool that promotes self-learning and writing skills.

In a similar extension of this line of investigation, Xiao and Zhi (2025) studied the effects of ChatGPT on the writing motivation and the quality of academic writing of non-native English-speaking university students. Their findings suggested that students who learned with the aid of ChatGPT wrote better essays by using richer vocabulary, had better grammatical complexity and coherence, and had better quality ideas. Students also showed a higher level of motivation and engagement, as ChatGPT offered real-time feedback, tailored suggestions, and writing support during all the stages of drafting and revising. Their study showed that feedback generated by AI has a positive influence on the cognitive and motivational aspects of writing.

The study of the acceptance of Generative AI by students has also become a focal point. In the context of the

Technology Acceptance Model (TAM), Anwer (2026) studied the trust that students had in ChatGPT and the perceived benefit of ChatGPT in improving students' writing skills. The results indicated that students who had higher trust in ChatGPT had a better perception of the improvement of their writing skills and a greater intention to use AI writing tools in their other academic tasks. The study stressed that trust and the perceived benefit of ChatGPT were the two main factors that determined the extent to which students were willing to use AI tools in their writing.

In Pakistan, data on Generative AI is scarce, but being developed. Siyal, Sangi, and Panhwar (2026) studied AI writing tools on university ESL students and found ChatGPT helped with grammar, writing, vocabulary, and coherence, as well as writing anxiety and confidence regarding the presentation of writing and the completion of assignments. The authors warned though of the possible weakening of independent writing if instructional strategies were not provided and students continued to rely on AI tools.

Yuan and Dao (2026) also studied the use of ChatGPT in the writing development of tertiary ESL students. Their findings uncovered that the use of AI writing tools promoted students' participation in the writing process during the stages of brainstorming, drafting, revising, and editing. Students developed a higher degree of self-revision and were able to recognize writing standards and conventions after using ChatGPT. Generative AI systems, according to the authors, contribute positively to the writing process and development by serving as a partner in the process, rather than as a write-my-text tool.

The literature consistently shows that

Generative AI can enhance various aspects of ESL writing including grammar, vocabulary, structure, and cohesion, as well as the confidence, motivation, and engagement of learners. It can also aid in the development of self-regulated learning. Studies have proposed using ChatGPT to support language and writing instruction. However, researchers have identified numerous issues regarding the responsible use of AI, ethical writing, and the effects on students' critical thinking and writing skills. Therefore, students and teachers should be equipped with responsible AI literacy.

Research Gaps

While the literature on the use of Generative AI in language education has expanded rapidly, key gaps remain. First, the majority of studies are empirical and situated in one or a few countries (mostly China and Indonesia), and even fewer are in developed countries with robust education systems. There is a distinct lack of systematic reviews that involve a variety of contexts to portray how Generative AI can assist in ESL writing in an integrated manner. Second, although most studies have reported advances in grammar, vocabulary, and coherence, as well as enhanced learner confidence, many have neglected the contradictory findings of reliance on AI, ethical considerations, and diminished writing autonomy. Due to this, the positive and negative effects of Generative AI continue to remain largely unexplored. Thirdly, few studies focused on Pakistan and similar contexts have been published. The most frequently cited studies from Pakistan are recent and concentrate on students' thoughts about issues without a structured body of empirical work. Developed nations have a different digital context, different infrastructures, and different levels of digital literacy and openness to English. As such,

findings from developed countries cannot be applied to Pakistani higher education.

Findings and Discussion

This section reports and comprehensively discusses the major themes, trends, impact of Generative AI on ESL Students English Language writing skills from the selected corpus from 2023-2026.

Benefits of Generative AI for ESL Academic Writing

There are numerous studies indicating that GenAI tools assist ESL students in developing various writing skills and competencies, including grammar and vocabulary. These same tools have also been credited with improving various facets of academic writing, including fluency and grammar. Mhundu et al. (2026) assessed eight empirical studies on L2 academic writing of Graduate Students and found that use of Grammarly and ChatGPT improved grammar, spelling, coherence and style. Increased proficiency and engagement, along with improved clarity and cohesion in writing were also reported by Chanpradit (2025) in his review of 30 studies published between 2023 and 2024..

Beyond linguistic form, several studies highlight improvements in writing organisation and argumentative structure. Khampusaen (2025), in a mixed-methods study of thirty third-year English majors in Thailand, found statistically significant gains in argumentative essay quality following structured ChatGPT integration, with the most notable improvements in logical structure and the integration of supporting evidence. Bacon and Kraus (2025), employing a quasi-experimental design with ninety-two international students in a data-driven learning framework, report that the ChatGPT-

assisted group significantly outperformed comparison groups in overall essay quality, with participants also reporting heightened writing confidence.

Consistently recognized as another advantage is the role of GenAI as a personalized feedback tool. Nurjati, Syahria, and Khan (2025) illustrate the instance of ChatGPT-based reflective feedback among twenty EFL graduate students to help them improve grammar, coherence, and clarity while writing an article. Their study shows the largest improvement of feedback given to graduate students was in lower-order linguistic features, a finding seen in various studies. Ramadhanti and Anjaniputra (2025) also in their systematic review of EFL and ESL studies, from 2023 to 2025, state that idea generation and content design, skills in writing, that AI personalized feedback has the capability to assist, are significantly improved among ESL students.

Further benefits are reported in the areas of motivation and attitude. With the advent of GenAI tools, students have reported a noticeable decrease in writing related anxiety, increased confidence in putting down and changing their written thoughts as desired and a decrease in desk work avoidance. Ferhat and Mohamed Salah (2025) conducted a qualitative case study of thirty-two undergraduate English education students in which they reported that ChatGPT improved confidence, self-editing behavior and time-efficiency. Amoush and Mizher (2026) studied a group of one hundred and six EFL learners using the Technology Acceptance Model and found that learners with prior ChatGPT experience, along with a perceived usefulness and ease of use, had positive attitudes towards its use in educational writing. These attitudes are of extreme importance for ESL learners who feel

anxiety when writing in a language that is not their own. With the availability of a confidence-boosting and anxiety-reducing tool, learners have the ability to engage in writing more frequently.

Challenges and Risks of Generative AI in ESL English Writing Skills

Despite various degrees of optimism regarding the benefit of AI, the studies analyzed in this section share some concerns about the impact of AI on academic writing. They mentioned the problem of over-dependence. For them, the danger was that students would rely on AI rather than develop their writing skills and the skills necessary for articulation of their own ideas. Shabir's (2025) review of 102 studies expresses the same concern regarding over-dependence. Shabir ranks over-dependence as the second biggest concern of all, after the issue of academic integrity. Angraini (2025) presents the same concerns in her review. Over-dependence and learner disengagement are the principal concerns that Angraini (2025) articulates regarding ESL learners and the use of GenAI for academic writing.

The problem of academic integrity is very concerning and difficult to manage. The validity of student assessments is called into question if students can generate coherent responses and outputs using GenAI. Li (2025) states that the principles and theories of assessing academic integrity will need to be re-evaluated if we are unable to delineate a clear boundary between the role of humans in academic writing and the role of GenAI in text generation. Where citations and references are critically important in academic writing, Chanpradit (2025) expresses a concern that GenAI may confidently and willfully produce references that do not exist. In academic writing, the

veracity of information, sources, and references is critically important. This is a major concern.

Like a lot of research, the studies conducted by Zaheer et al. show that the use of GenAI negatively impacts the ability to perform higher order critical thinking skills as well as synthesis and the ability to research and create original arguments. The review of 46 studies published between 2019 and 2023 by (2025) argues that the use of ChatGPT and other AI text generation applications enhance and improve the quality of written output, grammar, and the overall structure and writing aids.

These tools likely will not help in developing advanced critical thinking. Our results suggest that GenAI aids in developing the structure and format of academic writing. However, they do not assist the user in developing the advanced structures of intellectual writing. Writing and editing aids by ChatGPT (2025) or Mohamed Salah (2025) might help. Writing, editing, and improvement aids by ChatGPT (2025) or Mohamed Salah (2025) might serve students. However, students believe that ChatGPT promotes the culture of laziness and lack of scholarly effort and engagement. Moreover, there are also concerns about equity and accessibility in using ChatGPT. Chanpradit (2025) argues that GenAI tools could create educational inequities in the Global South if students cannot go online, afford the devices, and pay for the subscriptions. Chanpradit (2025) reviewed several studies, and most were from developed countries. Therefore the global inequality should be addressed to open access to English higher education for everyone.

Pedagogical Frameworks and Tool-Specific Patterns

ChatGPT is the most reviewed application in the literature. It is the main focus or the exemplar of a generative AI application in 11 of the 15 studies. Considering L2 graduate writing, Mhindu et al. (2026) mentioned Grammarly while Gabay et al. (2026) stated that learners used a generative AI application as scaffolding to plan, draft, and revise Frameworks, thereby embedding assistive technology into the writing process. Although the studies we reviewed acknowledged that this was more theory than practice, a more recent theory seems to suggest that the use of generative AI at this juncture has more potential as a writing companion.

Raitskaya and Tikhonova (2024) describe three role boundaries that writing tools based on AI may occupy within academic writing: enhancement (writing is better), challenges (writing is harder), and authorship/integrity issues. These three types of roles correlate with the findings of this study and provide a basis for more extensive discussions regarding the use of pedagogical generative AI tools in ESL writing.

The focus of Generative AI instruction is on the development of critical thinking and metacognitive skills of learners through the analysis and evaluation of AI-generated text within the context of academic writing (Li, 2025). One of the most helpful examples of prompt engineering, which is a metacognitive sub-competence, is the ability to use natural language to control the outputs an AI produces. This is even more crucial for students learning English as a Second Language, as they will need to function on both the linguistic and pragmatic tiers of the English language in addition to their ability to communicate with AI..

4. Discussion

The information collected in this review gives ESL educators on the hopeful and cautious side on the impact GenAI tools have on ESL academic writing. GenAI has impacts on the academic writing of ESL learners in positive ways. Learners have been reported to write more accurately, write in fewer words, write more frequently, and in some cases, learn to enjoy writing. Some of the positive impacts are substantial. GenAI helps adult ESL learners write in a second language, in a second culture, in an academic context. Writing in an academic context is complicated and mentally demanding. GenAI aids ESL learners in the writing process and the final writing product.

There are also reasons for concern for ESL educators. When learners use online tools to generate or complete their work, the detrimental effects on the writing process are well documented. This means that GenAI, when used to assist writing, reading, and editing, does more harm than good. GenAI was created to assist ESL learners when there are substantial impacts or costs that are barriers to them. This technology was designed to eliminate barriers and assist learners in developing their critical thinking. Moreover, the concerns with the validity of assessments that Li (2025) and others mention should be taken up by curriculum developers and policy makers in institutions. If, in the case of AI-assisted writing, standard writing assessments are unable to measure learners' writing abilities, the assessments have no value.

We also lose the integrity of English medium academic qualifications. While technology may assist us, it does not solve the problem. Both the intention behind and the design of the academic writing tasks should be considered, and thus the response must be both pedagogical and institutional.

Similarly, there is more comprehensive articulation of integrity and skills in this literature, while the equity dimension is more underdeveloped but recognizes an important and largely unexplored dimension. The use of GenAI tools in academic writing will mean that issues of geographical inequities, digital divides, and institutional inequities will be superimposed on ESL students that struggle greatly with inequities in the English-Medium Higher Education system compared to their peers.

Pedagogical Implications and Recommendations

This review has distinct effects on ESL writing instructors, general educators, and curriculum designers. First, if curriculum planners intentionally and strategically incorporate GenAI in teaching, your GenAI lessons in the classroom are likely to have minimal or no impact on these teachers. Such teachers, in bringing such curriculum changes, create a version of GenAI writing that requires critical engagement and constructive feedback. In the context of GenAI, assessment needs to be writing focused. GenAI ESL writing learners may be offered some frameworks, reflective writing journals, and a series of drafts to be defended orally. GenAI can hardly support the reflective and iterative processes that the writing assessment techniques aim at.

Furthermore, within the concerns of this review, it is critical to have reasoned and tempered integration policies of GenAI and ESL academic writing. GenAI needs to be incorporated within the teaching, with boundaries shown to the learners. This needs to be supportive teaching. Finally, the consequences of GenAI on equity demand a reasoned and targeted response from institutions. It is both an ethical and pedagogic responsibility of institutions to

ensure that all ESL writing learners receive access to computers, the internet, and teaching to support digital literacy.

Conclusion

To sum up, this research paper comprehensively evaluated the findings from fifteen studies conducted on the impact of generative AI on ESL academic writing at the university level. From the available studies, there is evidence of positive effects on levels of linguistic accuracy, cohesion in the writing text, confidence in writing, and learner engagement. The concerns raised regarding the impact of generative AI on the development of critical thinking skills, academic integrity, and the potential creation of an undeserved advantage are all legitimate concerns. This work has scope for further development, and subsequent research will be required to provide a comprehensive, evidence-informed teaching approach to capitalize on the opportunities and mitigate the adverse effects associated with the use of generative AI. Indeed, there are significant gaps in the current research literature, and the ESL writing context is in urgent need of longitudinal research to understand the positive potential of generative AI. In addition, urgent attention is needed to develop cross-border, comparative research to provide equitable access to GenAI in ESL writing. The generative AI-based academic writing paradigm has come to stay, and with ESL academic writing, ESL writing focuses more on engagement, and GenAI can provide educational equity.

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