



Empowering Academic Writing Through AI: A Systematic Review of Benefits and Challenges Impact

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Abstract

Artificial Intelligence (AI) has significantly impacted academic writing. AI-powered tools such as ChatGPT, Grammarly, and Quillbot enhance writing efficiency by providing benefits for the users. This systematic literature review analyzed 14 studies from 2019 to 2024 to examine the benefits and challenges of using AI for academic writing. From the findings, it was found that AI helps improve writing quality and efficiency (e.g., grammar correction features to help revise quickly), and accessibility (e.g., offering grammar correction, paraphrasing tools, and content generation). However, some of the studies highlight the need to be concerned about plagiarism risk due to uncritical copying of AI-generated texts, reduced creativity and critical thinking as students became over-reliant on AI suggestions, and the inaccuracy of information produced. These challenges highlight the need for ethical guidelines and responsible AI integration to balance innovation with academic integrity. Therefore, this study emphasizes the importance of collaboration among educators, students, and policymakers in developing appropriate frameworks for AI integration in the academic context, especially in academic writing.

Keywords: Artificial intelligence; Academic writing; Systematic review

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INTRODUCTION

With the development of technology in this era, artificial intelligence (AI) has been applied in various sectors, including educational practices. AI provides the ease of finding some information through technology, which can be accessed anytime and anywhere (Butson & Spronken-Smith, 2024). AI has changed the traditional teaching and learning process in education by using innovative tools that enhance accessibility, efficiency, and engagement. It facilitates the teaching and learning process by providing tools powered by AI that can be used to find diverse information and diverse resources, provide real-time feedback, analyze and identify the information, and address diverse learning gaps effectively (Fengchun et al., 2021; Guilherme, 2019).

In writing, AI provides ease in generating writing using AI tools such as ChatGPT, Grammarly, and Quillbot. ChatGPT helps to give ideas, grammar checker, summarize and translate, and it is helpful to provide real-time feedback in writing evaluation (Bom, 2023; Tai et al., 2023). On the other hand, many other platforms developed by AI such as ChatGpt, Grammarly, paperpal, quillbot, and many other platforms that can help people to develop their writing skills (Floridi & Chiriatti, 2020). Additionally, Grammarly

provides an automated writing evaluation (AWE) that enhances students' writing by identifying contents or errors in grammar, vocabulary, and language style (Barrot, 2022; Ding & Zou, 2024; Koltovskaia, 2020). AI writing can also provide easier paraphrasing using Quillbot. It can help to improve students' paraphrasing skills for their writing (Amyatun & Kholis, 2023; Mohammad et al., 2023). Besides, AI completes the response to give the human needs and stimulate human brains (Choudhuri, et al., 2023). Furthermore, AI helps the students in generating their ideas, grammar checker, and proofreading their writing (Dale, R., & Viethen, J., 2021).

Moreover, AI has a significant impact on writing skills such as efficient time, allowing students to finish writing faster by using all the platforms and getting automatic corrective feedback from AI (Lee & Moore, 2024). Mohd Ali et al. (2023) found that AI helps the students to identify grammatical errors and improve their academic vocabulary to improve their writing more professionally. Through AI the students feel more interested in writing, because they can generate their ideas and fix it with the help of AI (Casal-Otero, et al., 2023). From the widely described above, introducing AI to students from an early stage is important (Heintz, F. 2021).

However, the integration of artificial intelligence (AI) in academic writing has generated significant issues in its potential negative impact, particularly concerning academic integrity, creativity, and critical thinking. AI can generate written text of the same quality as human text, making it difficult to differentiate between AI-generated and human-written text. As stated by (Fodouop Kouam, 2024; Miao et al., 2024; Perkins & Roe, 2024) that AI produces written text with the same quality as human-written text, which is caused when checked by an AI detector, it doesn't make a difference or is not detected. Besides, AI can produce biases and inaccurate information in writing. It comes from (Miao et al., 2024; Titko et al., 2023) stated that AI may produce inaccurate information, for example, when producing references. When we check the references AI gives, they are often not found. Also, sometimes AI gives statements that are "hallucinatory" or not based on existing facts. In addition, AI also has a negative impact on students' creativity and critical thinking in writing. The ease of using AI in producing written text leads students to less creativity in producing their ideas into their written text. It also stated by (Storey, 2023) that students' creativity and critical thinking are reduced when using AI where activities such as writing, analyzing, providing ideas, reviewing, and identifying written text are all done by AI.

According to these negative impacts, it is crucial for collaboration among educators, policymakers, and AI developers to provide clear strategies to mitigate the risks associated with AI and to ensure the responsible use of AI ((Slimi & Villarejo-Carballido, 2024). Furthermore, (BaHammam, 2023) highlights that developing guidelines that promote ethical practices in AI use in research and writing is crucial. From that, the use of AI in writing can be used according to needs and with regulations on the use of AI.

Some previous study has been research about the use of AI in writing. First comes from (Wang, 2024), who studied the perception of native and non-native speakers in generated AI-assisted writing. This study used qualitative and adopted a phenomenological research design in one of the higher education institutions in the US. There were six students from the first-year writing classes were recruited based on their willingness. This study stated that AI has some benefits for students' writing, such as accelerating the writing process, fostering new learning opportunities, and providing immediate feedback. However, this study also highlighted issues such as the potential for inaccurate information, lack of creativity, and lack of authentic writing. Furthermore, the study from (Hwang et al., 2023) that study investigates the effectiveness of AI and recognition technologies in facilitating English writing for students. This study used a quasi-experimental design with a mixed-method approach, in which the participants were

104 second-year Indonesian university students majoring in informatics. This study found that AI provided valuable feedback for students that can effectively improve EFL writing skills and enhance student engagement in the learning process.

While these studies provide important insight into the benefits and challenges of AI in writing, the scope is still limited; few of these studies have a small sample size and focus on individual AI tools using qualitative or quasi-experimental designs. There is still a lack of a comprehensive synthesis that evaluates multiple empirical studies to identify the benefits and challenges of AI integration in academic writing. To address this gap, this systematic literature review analyzes recent research from 2019 to 2024, offering a broader understanding of how AI empowers academic writing. Therefore, this study aims to answer the following research questions:

1. What are the benefits of using AI tools in academic writing?
2. What challenges are associated with integrating AI in academic writing?

METHOD

This study used a systematic literature review, which is used to identify, evaluate, synthesize, and interpret research literature on a specific topic (Xiao & Watson, 2019). In this case, the article's resources come from Scopus database only, due to its wide range of modern and reputable knowledge. The year range of 2019-2025 was chosen because of the development and the integration of AI tools have accelerated significantly within this period, allowing for inclusion of the most recent and relevant studies.

To find relevant articles, the researchers selects the articles based on the inclusion and exclusion criteria. Below are the keywords that used to find relevant Articles.

Table 1. Keywords Used to Find Relevant Articles

Databases	Keywords
Scopus	ai AND in AND academic AND writing
Limit to	The Inclusion and Exclusion Criteria
Open Access	All ticked
Year	2019-2025
Author Name	All ticked
Subject Area	Higher Education
Document Type	Article and Conference Paper
Source Title	All ticked
Publication Stage	All ticked
Keywords	Artificial Intelligence, ChatGPT, Academic Writing, Higher Education, Writing, AI, Generative AI, Academic Writings, Artificial Intelligence (AI), Artificial Intelligence Tools, Writing Skills, Scientific Writing, Writing Tools, Quillbot, AI-assisted Writing, AI Chatbot, AI-generated Text
Affiliation	All ticked
Funding Sponsor	All ticked
Country/Territory	All ticked
Source Type	Journal and Conference Proceedings
Language	English

To assess the quality of the included articles, the three researchers evaluated the studies based on their relevance to the research questions, clarity of research objectives, appropriateness of the methodology, and credibility of the publication source. Articles that did not meet those criteria were excluded from this review.

This study used thematic analysis to identify and synthesize the key findings of the studies. Thematic analysis identifies and categorizes the data into themes related to the benefits and challenges in using AI. The other two researchers reviewed the themes to ensure their consistency and validity.

RESULTS AND DISCUSSION

Results

The result from Prisma can be seen in Figure 1, that 166 studies were identified through the SCOPUS database. In the identification phase, there were found only 1 duplicate reference, of which 165 studies were eligible for the screening phase. In the screening phase, the researcher excluded 113 articles after review based on the title and abstract. 52 left studies were review based on the inclusion criteria. 52 left studies were review based on the inclusion criteria.

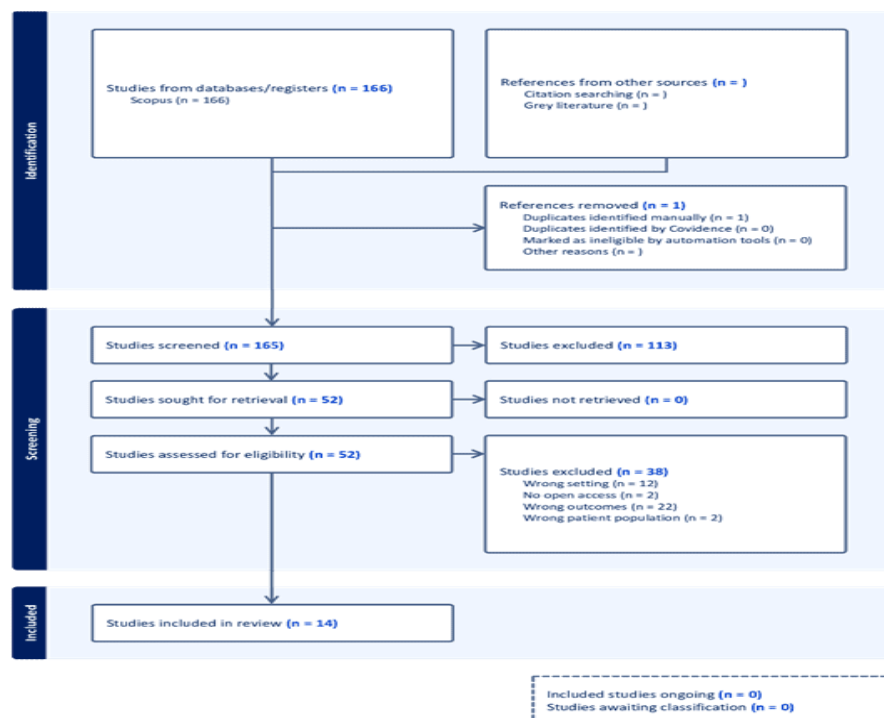


Figure 1. The result from PRISMA

Based on the PRISMA, that was found that 38 studies were excluded because 12 article were in the wrong setting, 2 article were no open access, 22 article consist wrong outcomes, and 2 articles consist of wrong population. Thus, only 14 articles were eligible for the final analysis in this study. Based on that, the 14 articles can be seen in the table below.

Table 2. Selected Article

Author (Year)	Title	Journal
Wediningsih, I., Marzuki, & Rusdin, D. (2024)	Balancing AI and authenticity: EFL students' experiences with ChatGPT in academic writing	Cogent Arts & Humanities
Malik, A. R., Pratiwi, Y., Andajani, K., Numertayasa, I. W., Suharti, S., Darwis, A., & Marzuki. (2023)	Exploring Artificial Intelligence in Academic Essay: Higher Education Student's Perspective	International Journal of Educational Research Open

Author (Year)	Title	Journal
Rafida, T., Suwandi, S., & Rusydi, A. (2024)	EFL Students' Perception in Indonesia and Taiwan on Using Artificial Intelligence to Enhance Writing Skills	Jurnal Ilmiah Peuradeun
Nazari, N., Shabbir, M. S., & Setiawan, R. (2021)	Application of Artificial Intelligence powered digital writing assistant in higher education: randomized controlled trial	Heliyon
Sarwanti, S., Sariasih, Y., Rahmatika, L., Islam, M. M., Riantina, E. M. (2024)	Are They Literate on ChatGPT? University Language Students' Perceptions, Benefits and Challenges in Higher Education Learning	Online Learning Journal
Rababah, L.M., Rababah, M.A., Al-Khawaldeh, N.N. (2024)	Graduate Students' ChatGPT Experience and Perspectives during Thesis Writing	International Journal of Engineering Pedagogy
Xu, T., Jumaat, N.F. (2024).	ChatGPT-Empowered Writing Strategies in EFL Students' Academic Writing: Calibre, Challenges and Chances	International Journal of Interactive Mobile Technologies
Alkamel, M. A. A., Alwagieh, N. A. S. (2024)	Utilizing an adaptable artificial intelligence writing tool (ChatGPT) to enhance academic writing skills among Yemeni university EFL students	Social Science & Humanities Open
Kim, J., Yu, S., Detrick, R., & Li, N. (2024)	Exploring students' perspectives on Generative AI-assisted academic writing	Education and Information Technologies
Chung, J. Y., & Jeong, S.-H. (2024)	Exploring the perceptions of Chinese pre-service teachers on the integration of generative AI in English language teaching: Benefits, challenges, and educational implications	Online Journal of Communication and Media Technologies
Isiaku, L., Kwala, A. F., Sambo, K. U., Ukaegbu, F. C., & Isaku, H. H. (2024)	Academic Evolution in the Age of ChatGPT: An In-depth Qualitative Exploration of its Influence on Research, Learning, and Ethics in Higher Education	Journal of University Teaching and Learning Practice,
Song, C., & Song, Y. (2023)	Enhancing academic writing skills and motivation: assessing the efficacy of ChatGPT in AI-assisted language learning for EFL student	Frontiers in Psychology
Kramar, N., Bedrych, Y., & Shelkovnikova, Z. (2024)	Ukrainian PHD Students' Attitudes Toward AI Language Processing Tools in the Context of English for Academic Purposes	Advanced Education
Gawlik-Kobylińska, M.	Harnessing Artificial Intelligence for Enhanced Scientific Collaboration: Insights from Students and Educational Implications	Education Sciences

Based on the table presented above, the researcher has selected several articles that have been analyzed. The selected articles highlight the use of AI in academic writing, including the benefits and the challenges of AI. On the other hand, those articles also talk about the students, academia, and teacher perceptions related to the use of AI in academic

writing. With the integration of AI, the students feel very helpful in improving their writing. The articles are related to the present research, which shows that the AI, especially ChatGPT, gives some benefits for students such as improve the student's writing quality, time efficiency, motivation and interest, and generating new ideas. Meanwhile there are some articles also highlighted the challenges in using AI like plagiarism, the accuracy of the information that given by AI, and dependency on using AI. Therefore, when using AI, the students' needs a wise strategy to preserve the authenticity of the writing.

In addition to presenting more specific findings related to the benefits and challenges of AI in academic writing, the researcher presented it into a table below:

Table 3. Benefits and Challenges of AI in Academic Writing

Benefits	Challenges
ChatGPT provides notable benefits such as writing support, personalized learning, increased productivity, helps to generate ideas, and finds additional resources.	Lack of critical thinking, inaccuracy, and plagiarism detection.
Improve grammatical accuracy, support text paraphrasing, and improve time management.	AI fosters dependency and generates non-original content.
Improve self-efficacy and engagement.	AI sometimes provides "false results" or "hallucinations" that make the writing inaccurate.
Help to clarify vocabulary, offering content suggestions, and enhancing the quality of text.	
AI help to influence academic writing by enhancing students' writing abilities and understanding of academic integrity.	
Help to enhance students' writing abilities and motivation by providing interactive and innovative way facilitated by AI tools for academic writing.	
AI can provide personalized feedback, facilitate more efficient lesson planning, and offers students opportunities for self-paced learning.	

Based on the table above, those studies mainly discuss the benefits and challenges provided by AI, especially for academic writing. It is related to the research questions in this study, which focus on exploring the benefits and challenges of using AI for academic writing. It can be seen from the table that most of the studies present that AI gives some benefits for the user in education, especially for academic writing. While there are still some challenges that also influence the effectiveness of AI.

Discussion

In line with research questions of this research, this review aimed to describe an overview of the use of AI in academic writing and the impact of students, academia, teacher or lecturer. The results illustrated that in Tables 1, 2, and 3 describe an extensive array of investigations of the use of AI in academic writing and the perceive of students, academia, and teacher or lecturer. Numerous researchers found that the use of AI have positive impact in improving the academic writing. For example, Rababah et al. (2024) investigate the graduate students experience and perceptions using AI especially ChatGPT in writing their thesis. The results shows that the students have positive perceptions regarding to their experience in writing thesis with AI assistance. In line with Sarwanti et al. (2024) found that using ChatGPT the university students are easier to brainstorming

the idea, increase the resources, and personalized learning. At the same time, (Rafida et al., 2024; Werdiningsih et al., 2024; Malik et al., 2023) study about the students' perception in using AI. Then, these studies indicate that the AI have various advantages such as paraphrasing skills, improve grammar structures, overcoming uncertainties, giving recommendations for content, enrichment vocabulary, language translation, also essay outlines. Means that the EFL students have positive perception regarding to the use of AI in writing skills. Further, in Nazari et al. (2021) focuses on the use of AI as a writing tool, said that AI could be an efficient tool to promote students learning behavior like self-efficacy, engagement, and emotions.

Another research from Song & Song (2023) asserts how ChatGPT enhancing students' academic writing skills and motivation in language learning. Most of the students felt that their writing skills improved in various aspects of writing, including organization, grammar, coherence, and vocabulary. This result also supported by students' positive perception related to the interactive, innovative learning environment facilitated by AI tools. Gawlik-Kobylińska (2024) delves the students' perspectives regarding to the use of AI in scientific collaboration, particularly in writing academic articles. AI tools contributed to boost efficiency, work quality, and idea development in the process of writing the articles. Whereas Isiaku et al. (2024) demonstrated the use of ChatGPT in education context for supporting individual learning experiences, encouraging innovation, and aiding in the development of ideas. This AI offers numerous benefits for both teachers and students such as generating content and translation language. A further example from Chung & Jeong (2024) explores how AI enhance the teaching efficiency, particularly in teaching grammar and writing. The result revealed that ChatGPT may offer specific feedback, so the students can quickly identify and correct errors, make lessons plan more efficient, and enable students to learn at their own speed. For the teachers said that with the ability of AI to automate repetitive tasks enables teacher to be more creative and interactive.

Kim et al. (2024) examine that students expected using AI to serve multiple roles, including multi-tasking writing aid, virtual tutor, and digital peer support numerous writing processes and performance. The students said that AI aid them in three areas such as the process of writing, associated domain, and performance. Moreover, Alkamel & Alwagieh (2024) reported that ChatGPT improved the students' writing fluency, accuracy, and a whole quality of their academic work. Xu & Jumaat (2024) this study underscores the powerful benefits of AI in the students' writing strategies. Notably, ChatGPT could be a facilitator in academic writing strategies, it may help students in understanding research trends, refining writing content, creating writing outlines, analyzing literature, and proofreading papers.

However, AI presents some negative impacts on academic writing, such as inaccuracy, lack of critical thinking, plagiarism, and other technical issues. Firstly, according to (Gawlik-Kobylińska, 2024; Sarwanti et al., 2024; Xu & Jumaat, 2024), AI provides inaccuracy and inconsistent outputs. For example, using ChatGPT to generate citations may lead to misinformation. Besides, according to (Rafida et al., 2024; Werdiningsih et al., 2024) argue that AI-generated sources often lack authenticity, making it difficult to verify the credibility of the information. This inaccurate information can lead the student or researcher to misinformation that impacts academic writing work. Another issue is plagiarism, which has a negative impact on researcher for their academic writing. It is according to (Gawlik-Kobylińska, 2024; Kramar et al., 2024; Rafida et al., 2024; Xu & Jumaat, 2024), that AI-generated content may include copied content from others' papers, which makes academic writing dishonestly. This also lead to producing false result, which impact to the integrity of academic writing. and the most impact for academic writing is may less creativity and critical thinking (Alkamel & Alwagieh, 2024;

Sarwanti et al., 2024). In this case, academic writing requires reasoning, argumentation, and originality skill that AI cannot fully develop. It makes the critical thinking and creativity of the students cannot be improved.

To strengthen the relevance of this reesearch, it is crucial to realate the results back to the research questions as described above. The findings clearly answered both questions by presenting that AI provide various benefits such as improve students grammar skills, vocabulary, generate the ideas, and writing efficiency (Bin-Hady et al., 2024). In addition this review also present some challenges that provides by AI like plagiarism, inaccurate information, and reduced critical thinking (Kotsis, 2024; Octaberlina et al., 2024). This findings not only confirm that the integration of AI in academic writing has a promosing future, but also raises issues, reinforcing the dual nature of these tools.

From the insight above related to the pedagogical perspective, the insight suggest that teachers should foster critical AI use by encouraging students to reflect on and evaluate AI generated content. In terms in curriculum design, incorporating AI literacy into academic writing teaching may empower students to navigate technological tools responsibly (Southworth et al., 2023). Furthermore, to improve students autonomy, academic programs should prioritize the development of original thinking and ethical writing habits, with AI assisting as a support for iontellectual progress rather than a replacement.

CONCLUSION

AI has improved academic writing by providing flexibility to students to check grammar, rephrase sentences, and generate ideas. However, it also comes with challenges, such as plagiarism, over-reliance on AI, and inaccurate information. While AI can be a helpful tool, it should not replace students' creativity and critical thinking. Therefore, educators and institutions can provide clear guidelines and training on ethical AI use, integrate AI literacy into academic writing courses, and encourage students to use AI as a supportive tool rather than a replacement for their own ideas. Policymakers should also establish frameworks to ensure responsible AI use in education. By using AI responsibly, we can enjoy the benefits of AI for academic writing.

RECOMMENDATION

This study recommends that students and educators must balance the use of AI with the need to maintain originality and critical thinking. Also, the use of AI must depend on clear guidelines and ethical use. For example, institutions can develop AI usage policies that include when and how AI tools can be used in academic writing, and provide training on AI literacy and academic integrity. Lastly, for future research, it is recommended to explore how AI affects writing development across different educational contexts.

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