



WRITING AND ARTIFICIAL INTELLIGENCE (AI): A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The study of writing in the context of AI is currently widely discussed in the global context. In relation to that, this study aims to conduct a study of writing in the context of AI through a systematic literature review. This systematic literature review study used the PRISMA method. The data used, 944, including 32 papers, was collected to investigate trends in writing about AI. Related to the limitations of the study, the researcher used the Scopus database (2000-present) with the rationalization that the Scopus database is a reputable database related to international journal articles. The results of this research show that research trends in AI context writing are dominated by academic writing in education, with 15 articles focusing on the use of AI in teaching and the implementation of artificial intelligence technology in the learning process of writing. The results of this study contribute and provide insight to students and teachers regarding the advantages and disadvantages of using AI in learning to write and evaluating learning to write in the context of AI. In addition, learning to write using AI can be used to optimize the knowledge of more complex writing.

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1. INTRODUCTION

Writing is the most complex aspect of language skills (Ahmadi, 2019; Williams, 2018). It is challenging for researchers/teachers to find new writing methods/techniques (Baroudy, 2008; Fraser et al., 2024) so that learners understand the theoretical and methodological writing concepts. Not only that, motivational factors (Brouwer, 2012; MacArthur et al., 2016; Wendimu & Gebremariam, 2024), environment (Cleary, 2013; Lindenman & Rosinski, 2020; Lindenman, 2024), and teachers (Loder, 2015) also highlight success in writing. This fact shows that writing is the thing that gets the most attention from language researchers because in addition to having high complexity, writing also requires high skills, and is also supported by a simultaneous process. Thus, writing is not an easy process in language learning at the school or college level.

Writing is a thinking process (Menary, 2007; Teng & Yue, 2023) to produce writing. Writing can be related to aspects of academic writing or non-academic writing. Generally, writing is part of language skills, namely listening, speaking, and writing. Concerning language skills, "writing is an essential skill" (Graham & Hall, 2016, p. 3). That is why writing is the most complex segment of language skills. Not everyone can write because writing is more intricate than other language skills. In general, writing activity includes prewriting, stages related to preparation for writing; writing process, stages related to the practice/implementation of writing in academic and non-academic contexts; and post-writing, stages related to editing, evaluation, and publication of writing.

Therefore, Lemke (2002) claims that writing can help students connect between categories and concepts. Writing is generally divided into academic and creative writing (McVey, 2008; Yoo, 2017). Academic writing focuses more on the educational field, such as research, scientific articles, or theses/dissertations. There are academic writing standards that must be met by writers, starting from the introduction, literature review, and methods to clear, precise, and in-depth conclusions (Prinz & Arnbjörnsdóttir, 2021; Strongman, 2013; Williamson, 2021). Creative writing relates to writing literary works, such as poetry, drama, short stories, or novels. The standards in creative writing are different from scientific articles. Creative writing focuses more on experience and aesthetics (Behn, 2020; Hamand, 2023; O'Reilly & Yeh, 2023). Both academic writing and creative writing require high skills to produce quality work.

Writing as a language skill is related to other fields of science, namely psychology and sociocultural. In a psychological context, writing is a mental process/idea to produce writing (Ahmadi, 2019, 2021, 2024; Kellogg, 1999). Writing cannot be separated from constructing ideas from one's psyche. From a sociocultural perspective, writing cannot be separated from the complex sociocultural context concerning cognitive development (Ackerman, 1993; Englert, 2006; Prior, 2006) of a person to produce academic and creative writing. Both psychology and sociocultural factors play an essential role in a person's achievements when producing writing, whether academic or creative. Related to the study of writing, one of the current trending topics is writing in the context of artificial intelligence (AI) (Kacena et al., 2024; Tang et al., 2024; Yang et al., 2024), either in the category of creative writing or academic writing.

In an academic context, writing in the context of AI poses its own challenges for lecturers and students. In the context of lecturers, as educators, they must be able to understand and master AI. The hope is that the lecturers concerned will not only teach writing using AI, but also be able to practice writing using AI. In addition, lecturers can also anticipate academic fraud in writing using AI. In the context of students, students must be able to understand and master AI used to assist the writing process. However, it is not permitted to use AI in the form of academic fraud in writing. Several facts of academic fraud in schools and universities were found using AI (Akintande, 2024; Fyfe, 2023; Nguyen & Goto, 2024). This indicates that academic ethics are still not optimal. Writing in the context of AI has its challenges, ranging from aspects of cheating (Fyfe, 2023; Mah, 2024; Nguyen, 2023; Whalen & Mouza, 2023), writing that lacks depth/criticality (Cardon, 2023) to context mismatch (Hagendorff & Wezel, 2020), and bias (Rozado, 2023; Varona & Suárez, 2022). Also, ethical violation cases occur when someone writes using AI (Chetwynd, 2024; Higgs & Stornaiuolo, 2024; Miao, 2023). For this reason, researchers/educators must be able to tame AI (Tseng & Warschauer, 2023) so as not to be defeated by AI.

In the last five years, several studies on writing and AI, namely the identification of writing produced from AI, were conducted by Cingillioglu (2023), Walter (2023), Waltzer et al. (2024), and Yan et al. (2023). Their research is more focused on how educators can recognize and understand that the articles written by their students are either personal work or the result of using AI. In addition, research on writing in the context of AI relates to the use of AI in education (Graham et al., 2024; Hsiao & Chang, 2023), including in language learning context (Alhusaiyan, 2025; Chen et al., 2025; Lubis, et al., 2024; Yang & Kyun, 2022), as well as the impact of using AI and the problems of using AI in writing (Grassini, 2023; Lederer, 2022; Zhang, 2024). This research shows that the use of AI in education, both in schools and universities, has a positive side in helping the academic community in writing. However, on the other hand, AI is a challenge for the world of education because, through AI, there is a lot of cheating in writing academic work when someone does not have ethics and integrity in writing.

Through a comprehensive study of relevant research, the researcher sought to (1) explore the different types of AI used in writing and (2) the methodologies used in AI context writing research. The researcher synthesized findings from various qualitative and quantitative studies relevant to writing. This review aimed to identify the types of AI used in writing. Thus, the literature review aimed to improve the understanding of the problem in writing. By highlighting the importance of this issue, this review aimed to strengthen writing through an AI perspective, strengthen teachers' writing, and strengthen students' understanding of writing in today's challenging context.

2. METHOD

The Scopus database was used to search for articles related to writing and AI. Researchers use the Scopus database because Scopus is a reputable international journal article database that is recognized globally. That

way, writing and AI articles in the Scopus database are categorized as reputable and can be used as primary data in this study. Relevant literature was searched from 2000 to 2024 using the keywords "writing and AI". Articles were categorized as eligible if they met the criteria of (1) containing writing and AI, (2) exploring writing in the context of AI, (3) qualitative or quantitative research, (4) published from 2000 to 2024, and (5) articles written in English. Non-English articles, book reviews, and reviews from journal editors were ignored/not used in the study. The research was conducted through three main stages, namely (1) article selection, (2) article screening and inclusion/exclusion (inclusion data is data that is used relevant to the study totaling 32 and exclusion data is data that is less relevant and not used in the study totaling 900), and (3) data coding, extraction, and analysis. The steps the researcher took in selecting articles for the literature review are presented in detail in the flowchart (Figure 1), and the categorization of research papers is exhibited in Table 1.

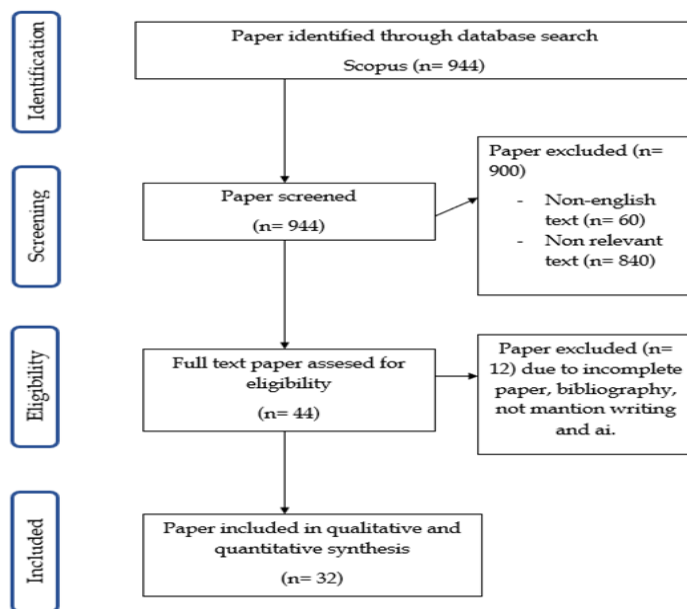


Fig. 1 – Flowchart model

Table 1 – Article categorization

Subject	Topic Category	Methodology
Health Professional Education [4]	Application in learning materials [1]	Qualitative
	Produce academic writing content [2]	Qualitative
		Qualitative
	Generate reports and assess articles [1]	Qualitative
Education [15]	Implementation for writing content [3]	Qualitative study using cross-sectional study, quasi-experimental
		Quantitative
		Quantitative
	Relationship with learning system [2]	Qualitative study with three steps prompting engineering process
		Qualitative
Quality generated writing content [4]	Qualitative	
	Mix methods experiment	
	Qualitative	
	Quantitative	

	Machine learning [6]	Qualitative using surveys and semi-structured interviews
		Quantitative
		Qualitative
		Qualitative stimulated interview
		Mix method approach
		Quantitative
Social Science [1]	Leaps in creative writing [1]	Qualitative with observation and semi-structured interviews

The table above contains a classification of research based on topic, methodology, and focus. Topics covered include health education, general education, academic writing, article assessment, machine learning, and social sciences. Most studies used a qualitative approach, although some employed quantitative and mixed methods. This data highlights the variety of applications of technology and research methods in educational and writing contexts.

3. RESULTS AND DISCUSSION

Writing and AI

The findings in the categories of writing and AI based on the included data point to several key areas. First, the use of AI in the context of writing is associated with cheating in research, such as using AI to create abstracts (Cheng et al., 2023; Lawrence, 2024) and searching for references and citations using ChatGPT (Mugaanyi et al., 2024; Wu & Dang, 2023). These practices raise serious questions about academic integrity and the need for stricter ethical guidelines in using AI in scientific research.

Second, AI is used as a writing aid in learning, for example, to generate scenarios for learning implementation (Bai et al., 2024) and provide assessment and feedback on students' essay assignments that can improve efficiency and consistency in evaluation (Watts et al., 2023; Jansen et al., 2024; 30). In addition, ChatGPT can assist learners in applying self-learning in writing (Wang et al., 2024; Muslimin et al., 2024) and support the process of composing multimodal texts and expand students' ability to integrate different forms of media in their writing (Liu et al., 2024). AI in education can improve the efficiency of teaching and learning and provide more personalized support to students, helping them to develop at their own pace and learning style.

Third, AI has demonstrated its ability to generate high-quality content in academic contexts, such as quality scientific articles and essays that show the potential of AI as a powerful writing aid (6, Májovský et al., 2023; Bohlmann & Berger, 2024; Herbold et al., 2023), even down to creating tables and diagrams in a paper (Wang et al., 2024). AI's ability to generate this high-quality content offers excellent potential in supporting researchers and authors, helping them save time and effort in writing.

The study shows that AI-based platform tools are used for writing, evaluation, correction, and grading. There are many types of AI tools for writing, but the primary AI tool for writing is Chat GPT, which was mentioned the most in the study and followed by Google Bard and Cami AI. These AI writing tools help users generate ideas and provide feedback or evaluation for users' writing. It shows that a wide range of AI tools can be used in writing, from finding ideas to assessing a piece of writing content.

Writing and AI Context Methodology

Most studies used qualitative methods (Herbold et al., 2023; Janse et al., 2024; Kadi & Aslaner, 2024; Lawrence, 2024; Liu et al., 2024; Májovský et al., 2023; Singh et al., 2023; Wang et al., 2024) as these methods offer a more detailed explanation of the AI tools discussed. Qualitative techniques used in these studies include document analysis and follow-up interviews, with some studies also incorporating field surveys to enhance the data collected. These methods allow researchers to study the context, perceptions, and experiences associated with using AI tools, aspects that are challenging to capture with quantitative methods alone.

The second most popular research method after qualitative methods is the use of quantitative methods (Cheng et al., 2023; Klang et al., 2023; Mugaanyi et al., 2024; Watts et al., 2023; Wu & Dang, 2023). Ten studies have utilized this method, highlighting its importance in AI tool investigations. Quantitative methods allow researchers to collect numerical data that can be statistically analyzed, offering a broader and quantifiable view of trends, patterns, or relationships between variables in the use and impact of AI tools. This approach also facilitates the generalization of findings to larger populations, which is crucial for gaining a more comprehensive understanding of the topic.

Finally, some researchers use mixed methods designs (Bohlmann & Berger, 2024; Muslimin et al., 2024) to gain more comprehensive research insights. This approach combines the strengths of both qualitative and quantitative methods, thus enabling a deeper and broader understanding of AI tools. By integrating mixed methods, researchers can validate findings from one approach with another, overcome the limitations of each method, and generate more prosperous and more varied insights on the topic. Although fewer studies use mixed methods than

solely qualitative or quantitative approaches, this strategy has significant potential to achieve a more thorough understanding of AI tools and their impact.

The findings of this review study reveal that writing context AI has diverse and significant trends in various fields, especially in education. AI, particularly ChatGPT, shows great potential in supporting writing learning, such as generating formative essays (6), writing scenarios for scenario-based learning (Bai et al., 2024), and supporting independent learning (Wang et al., 2024). AI can also provide feedback on students' argumentative writing (Jansen et al., 2024; 30) and assist in preparing multimodal texts for EFL writers (Liu et al., 2024). These findings are supported by other studies, such as Taghizadeh and Yourdshahi (2020), who found that chatbots can increase students' motivation and engagement in the writing process, and Zhai et al. (2021), who revealed the potential of AI in providing quick and consistent feedback.

Nonetheless, using AI in academic contexts also has drawbacks and raises ethical challenges. Li and Qi (2023) found that AI tools can help EFL writers overcome language barriers and improve the quality of their writing. However, Bommarito et al. (2022) emphasized the importance of developing clear ethical guidelines for using AI in academic writing to maintain academic integrity while leveraging the advantages of this technology. While AI can assist in the writing process, it can lead to over-reliance and potentially hinder the development of critical thinking skills essential for authentic academic writing (Reeves & Zwagerman, 2023). Furthermore, Deng et al. (2022) point out that while AI can produce seemingly coherent texts, it sometimes lacks the depth of analysis and contextual understanding that characterize high-quality academic writing. Therefore, while AI offers many benefits in learning to write, its use must be accompanied by a clear understanding of the boundaries between AI assistance and students' original work and strict ethical guidelines to maintain academic integrity.

The findings of this review study reveal that AI context writing has two sides. First, it tends to make writing easier. Someone who uses AI will find writing easy and fast. It is in line with Baidoo-anu & Owusu (2023), who showed that writing using AI's assistance would be quicker, and AI can solve more complex problems. Second, the tendency is 'dangerous' if not controlled. In this context, students appear to undertake AI-assisted writing tasks with the excuse that they can produce instant work. Sonntag et al. (2014) referred to this as 'instant knowledge'. AI users do not want to write naturally and through long stages. They go through a shortcut called AI. In addition, this literature review research highlights a weakness and an advantage in writing in the context of AI. Understanding that writing and AI are critical among students, teachers, and lecturers. As academics, we must be able to use AI correctly and ethically in writing. Therefore, the other side, such as ethical violations concerning writing using AI, must be abandoned.

Writing and AI become problematic when the writer commits ethical violations. Ethical violations in writing using AI are sometimes challenging to detect. Especially in this case, students who write articles for coursework. Therefore, there is a need for tools/applications used to check for ethical violations concerning the use of AI in writing. Some tools/applications in writing that can be used to check for ethical violations include Turnitin, plagiarism, and iThenticate. Rogerson & McCarthy (2017) showed that students use applications to avoid plagiarism detection tools. This is why writing skill teachers must understand plagiarism-checking applications and applications that process writing so that it is not considered plagiarized. This is certainly not easy because teachers must understand the use of applications that make writing easier.

The results of this study specifically provide an understanding to researchers that writing associated with AI is not only a national problem. However, writing associated with AI is a problem in a transnational context. Several cases have occurred, including ethical violations committed by a writer from country A who submitted his article to an international journal in country B. A reputable international journal publisher will conduct screening related to international journal articles. In this context, is the article submitted by a writer categorized as minimal plagiarism, either auto plagiarism or committing an ethical violation because it fully uses AI assistance? Indeed, the use of AI in writing is not prohibited. However, what is prohibited in writing using AI assistance is that all written works result from AI. Thus, the author's thoughts do not appear in his arguments in the article submitted to the international journal. In this position, an international journal editor plays a vital role in screening related to the level of originality of a person's article.

4. CONCLUSION

This article's literature review study on writing and AI shows two main points. First, writing is closely related to AI. The existence of AI greatly helps students, teachers, and lecturers as a sophisticated technology in solving problems with a high level of complexity. Second, this study shows that the current trend of writing using AI is overwhelming, with around 944 data relevant to the topic found. As for the excluded data (62), it indicates that writing today cannot be separated from AI. Other findings in this study show that writing and AI appear more in the education category and the least in the social science category. For recommendations, teachers are expected to use AI wisely when writing. Teachers are expected to show the advantages and disadvantages of using AI in writing. In addition, teachers are likely to be able to sanction students who commit violations related to the use of AI in writing. In a more specific context, academic institutions (schools or universities) are expected to be able to formulate rules relating to academic ethics which relate to the use of AI in writing. Thus, it is expected that there will be no academic cheating/violations caused by misunderstanding/lack of understanding by academics in using AI for writing. In addition, this study also evaluates the trend of writing research associated with AI on a global scale.

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