

An Explanatory Study: Exploring EFL Students' Attitudes Toward the Use of AI Tools in Academic Writing

***Nur Hidayat**

Universitas Muhammadiyah Surakarta, Indonesia

(*nh249@ums.ac.id)

First Received: 05-04-2025

Final Proof Received: 31-05-2025

Abstract

The purpose of this study was to investigate EFL learners' attitudes on the use of AI-powered tools in academic writing with the challenges. Combining quantitative and qualitative research, this mixed-methods study followed an explanatory study design. The participants were 38 EFL undergraduate learners from the English Education study program at a private university located in Central Java, Indonesia. To select the participants, the researcher conducted a purposive sampling technique. The researcher gathered the data through questionnaires and semi-structured interviews. Using SPSS through descriptive statistics analysis preceded by validity and reliability tests of the research instrument, researchers analyzed quantitative data. The thematic analysis helped the researcher to examine qualitative data. Triangulation was also done to validate the findings from the qualitative and quantitative data. The results of this study showed that EFL students had a positive attitude toward the application of artificial intelligence in academic writing, including encompassing structuring ideas, enhancing sentence structure, and raising self-confidence. However, the overuse of artificial intelligence shows signs of caution, such as a decline in its inventiveness and critical thinking. Besides, using artificial intelligence in academic writing presents some challenges for learners. These challenges include the quality of arguments and the validity of references presented by the AI as well as the detection of AI generated.

Keywords: AI; Academic Writing; EFL Students; Students' Attitudes and Explanatory Study.

In the past few years, the advancement of Artificial Intelligence (AI) has significantly affected numerous aspects of life, including the sphere of education. AI-driven software is now extremely utilized in multiple disciplines, from the automation of daily routine tasks to more complex applications, like data analysis and natural language processing. The implementation of AI in education, especially within academic writing, has obtained

increasing allure alongside the growing need to accelerate the teaching and learning phase as well as elevate writing agility (Ambarita & Nurrahmatullah, 2024; An et al., 2025; Malik et al., 2023; Sarwanti et al., 2024). The technology not only promotes convenience but also serves emerging challenges regarding its effective as well as ethical application, particularly among learners (Arifani et al., 2020; Hackman & Reindl, 2022; Hidayat et al., 2023; Salvatori,

2019).

Various studies have been conducted to investigate English as a Foreign Language (EFL) students' attitudes toward the employment of AI-powered tools in academic writing. The majority of the studies indicate that EFL learners have diverse views concerning the application of AI in their writing process. Several research declares that learners find assistance in implementing AI-based tools, like Grammarly, Chat GPT, and other correction applications to improve the quality of their written work (Devanti & Harfal, 2024; Malik et al., 2023; Sarwanti et al., 2024; Triwayatno et al., 2025). Nevertheless, other study reveals concerns associated with the over-reliance on technology, the possibility stifling of creativity, as well as the potential of plagiarism (Malik et al., 2023; Rafida et al., 2024). The research indicates that learners' attitudes toward the use of AI are significantly leveraged by their understanding of the technology itself and its implication for the learning journey.

While existing studies have shed light on EFL learners' attitudes toward the utilization of AI tools in academic writing, specific gaps remain to be addressed. Numerous research tends to concentrate more on the efficacy of AI-based tools from pedagogical perspectives and in terms of writing outcomes (He, 2024; Nguyen et al., 2024; Triwayatno et al., 2025), with less in-depth exploration of learners' attitudes within the academic setting of developing countries, including Indonesia. In addition, the existing study often focuses on the application of particular tools, without delving into how learners holistically apprehend AI in either supporting or impeding their creative phases in writing (Mohammad et al., 2024; Rezaei et al., 2024; Sarwanti et al., 2024; Usher & Amzalag, 2025).

The purpose of this study is to bridge existing gaps by exploring EFL learners' attitudes toward the usage of AI-powered tools in academic writing. Specifically, it seeks to investigate how undergraduate EFL learners perceive the role of AI in supporting

their academic writing, as well as to identify the challenges they face when utilizing such technology. By addressing these two key questions, What are EFL undergraduate learners' attitudes toward the usage of AI in academic writing? and What challenges do they encounter when employing AI in academic writing?, this research aims to provide valuable insights into learners' experiences. Furthermore, the findings are expected to inform teachers and technology developers in designing AI-driven tools that better meet the needs and expectations of EFL learners, while also contributing to the development of more effective educational policies regarding technology integration in the classroom.

EFL Undergraduate Students' Academic Writing

Academic writing competence stands as an important skill that university learners must have, especially within the English as a Foreign Language (EFL) context. Academic writing needs not only sufficient linguistic capability but also critical thinking skills, the ability to organize concepts, and an understanding of academic conventions, like the usage of citation style as well as argumentation structure. Academic writing is an intricate social and cognitive process wherein learners demand to understand their audience, the objective of communication, and the specific norms of the academic field (Fernández-Cárdenas & Piña-Gómez, 2014; Gong & Pang, 2024; Londoño Vásquez & Ramírez Botero, 2017; Yang, 2023). For EFL learners, the obstacles are invigorated as they must master the target language while simultaneously internalizing academic writing standards that often vary from writing practice in the first language.

EFL learners experience diverse challenges in academic writing, ranging from grammatical issues and vocabulary to coherent and logical idea development (Hidayat et al., 2024; M. K. M. Singh, 2019; Wei et al., 2024; Zhu, 2023). A study conducted by Du (2022) and Riwayatningsih et al. (2025)

stated that limitations in English language competence usually led to learners struggling to assert their ideas effectively, resulting in poorly structured writing. Moreover, (Chang et al., 2024; Soozandehfar, 2020; Wang & Newell, 2025) described that constructing critical arguments in EFL learners' writings seems to be driven by a literal mindset and is infrequently observed. These learners' EFL academic writing skills are claimed to suffer from inadequate educational experiences, limited exposure to genuine academic texts, and language anxiety.

As academic demand in higher education intensifies, numerous strategies have been developed to help EFL learners improve their academic writing capabilities. Process-based strategies such as brainstorming, drafting, revising, and peer review have been effective in improving student writing (Dave & Russell, 2010; Lee & Ho, 2021; Rashtchi & Porkar, 2020; Wu & Schunn, 2021). Furthermore, technology such as Learning Management Systems (LMS) and AI-based writing tools are now more widely employed to enhance the development of writing skills (Ambarita & Nurrahmatullah, 2024; Devanti & Harfal, 2024; Sarwanti et al., 2024; Triwayatno et al., 2025). Nonetheless, the effectiveness of these technologies is highly contingent on the students' constructive mindfulness of them, alongside adequate support from lecturers and the educational framework (Kumar, 2024; Ravikumar et al., 2024; H. Singh et al., 2024). In this context, understanding the factors that influence the achievement of EFL learners in academic writing is gaining importance. These factors comprise the use of language, cognition, emotions, and technologies like artificial intelligence writing aids. Exploring EFL learners' viewpoints and experiences with these diverse resources will incorporate additional dimensions into the understanding of effective academic writing skill development. Hence, this study serves as a basis for formulating instructional designs that are more tailored and flexible to the specific requirements of

EFL learners.

EFL Students' Attitudes Toward AI in Academic Writing

The understanding of EFL students towards the use of AI in academic writing has recently become a pertinent focus for research in Language Education. As a broad spectrum, attitude is best explained as a combination of perceived advantages, trust versus concern of originality, and ethics of the technology that heavily influences intention and behavior (Alzahrani et al., 2023; Baturay et al., 2017, 2017). In this sense, most EFL students view AI-powered tools as helping to overcome their language challenges in academic writing which in turn boosts their confidence concerning effective engagement in academic writing.

Although there is a sizable gap in EFL learners' perception of AI-powered writing tools, studies by Devanti and Harfal (2024), Malik et al., (2023), Rafida et al., (2024) and Triwayatno et al. (2025) showed that most EFL students believe AI applications assist in the development of students' writing skills, especially in the basic components of writing like grammar and style. On the contrary, the research conducted by Alhajji (2024) and Anani et al. (2025) reported some ambivalence where learners appreciated the ease of work brought by AI but were concerned with overreliance on AI and the loss of originality in the writing. There is also fear regarding the use of AI undermining the critical thinking and creativity of learners, especially when the use of AI is not accompanied by purposeful thought (Devanti & Harfal, 2024; Malik et al., 2023; Rafida et al., 2024).

Social aspects are extremely influential in shaping EFL students' perceptions of AI software's relevance to academic writing. Students from educational cultures that prioritize rote learning and reproduction of information seem to adopt an AI utilitarian approach AI provided algorithms as a shortcut toward achieving mark-oriented outcomes. In opposition to the previous statement, students

from cultures that stress holistic thinking tend to be more critical in their thinking skills (Asgari et al., 2025; Fakhar et al., 2024; Lijie et al., 2025). Furthermore, factors such as basic digital skills, previous engagements with technology, as well as attitudes toward academic honesty profoundly shape AI-related views (Joseph et al., 2024; Lim, 2023; Shata & Hartley, 2025).

Although the literature provided the initial understanding of how EFL learners perceive the use of AI tools in academic writing, there is still a gap in understanding the nuanced perceptions in different local contexts. More specifically, it is imperative to explore the learners' awareness of the biases that AI presents and how they incorporate the technology without stifling their independent writing skill development. This more focused study is necessary to design instructional approaches that effectively enhance the employability of AI technologies while safeguarding scholarly integrity and nurturing advanced critical writing skills among learners of EFL.

Method

This study was done through a mixed-methods sequential explanatory approach (Creswell & Clark, 2017), applying both qualitative and quantitative techniques to better understand EFL learners' attitudes on AI tools functionality within academic writing classes. The participants were 38 EFL undergraduate learners from the English Education study program at a private university located in Central Java, Indonesia. Obtaining the participants was done using the purposive sampling technique, that is, choosing those who have first-hand experience of using AI-based tools in their academic writing processes. The inclusion criteria encompassed active learners in their sixth to eighth semesters, those who had taken academic writing classes, and those with at least one year of experience utilizing AI-based writing applications, like Grammarly and ChatGPT in the academic tasks. A total of 38 learners participated in

this research. The respondent screening was performed to guarantee they owned pertinent experience and could supply in-depth insights into the usage of AI-powered software in academic writing.

Data collection was carried out utilizing a combination of questionnaires as well as semi-structured interviews. Questionnaires were implemented to obtain quantitative data concerning learners' attitudes toward the usage of AI in academic writing. Those questionnaires were created by the researcher to measure students' views of employing AI writing software in academic writing which consisted of four points: strongly agree = 4, agree = 3, disagree = 2, and strongly disagree = 1. The questionnaires were delivered to 38 EFL undergraduate learners from the English Education study program at a private university located in Central Java, Indonesia. Semi-structured interviews were executed to examine learners' challenges with AI utilization in greater depth, as well as to determine the factors affecting the attitudes. Interviews were primarily performed face-to-face, with each session lasting between 30 to 45 minutes with six students as a representative of the participants.

The data collected from the questionnaires and interviews was analyzed distinctly using statistical analysis for quantitative data and thematic analysis for qualitative data. Using SPSS, description statistics were first calculated to gain insight into learners' perceptions of AI use in academic writing before proceeding to other analyses. The interview data was analyzed using thematic analysis as explained by Naeem et al. (2023). Furthermore, the researcher integrated results obtained from both quantitative and qualitative approaches to validate the findings. In this manner, the results derived from the questions and interviews were integrated to provide a clearer understanding of the issue under study. The phase was further improved by validation through member checking, where a subset of informants was inquired to confirm the

analysis results to guarantee the accuracy of data interpretation.

Result and Discussion

Before conducting descriptive statistical analysis, researchers first conducted validity and reliability tests to ensure that the data obtained through the questionnaire was valid and reliable. The researchers used Pearson correlation and reliability analysis to conduct validity and reliability tests. The results of the validity and reliability test results are shown in Tables 1 and 2.

Table 1. The validity test results of Questionnaires

Item	N	Pearson Correlation	Sig (2-tailed)
Statement1	38	0.310	0.000
Statement2	38	0.327	0.013
Statement3	38	0.378	0.000
Statement4	38	0.356	0.000
Statement5	38	0.337	0.001
Statement6	38	0.329	0.027
Statement7	38	0.412	0.001
Statement8	38	0.367	0.014
Statement9	38	0.476	0.000
Statement10	38	0.431	0.021

The validity test result of the questionnaires in Table 1 exhibited that the Pearson Correlation from all statements in the

questionnaires is positive and they are above 0.3. The highest Pearson correlation score is in Statement 9 with 0.476 while the lowest is in Statement 1 with 0.310. Moreover, the significance score (Sig.2-tailed) of all items is below 0.05. It asserted that there is a correlation between each item. Thus, all items of the questionnaires are valid and can be continued to the reliability test.

Table. 2 The reliability test result of Questionnaires

Cronbach's Alpha	N of Items
0.749	10

The reliability test result of the questionnaires described that the Cronbach's Alpha score was 0.749 for all items as seen in Table 2. It showed significant internal consistency from the questionnaires because the Cronbach's Alpha score was 0.749 which exceeded the minimum threshold of 0.7. It means that all the statements in the questionnaires are reliable.

EFL Undergraduate Learners' Attitudes Toward the Usage of AI in Academic Writing

To answer the first research question (What are EFL undergraduate learners' attitudes toward the usage of AI in academic writing?) the researcher distributed the questionnaires to 38 EFL undergraduate learners. It was analyzed

Table. 3 The Descriptive Statistics Result of Questionnaires

Items	N	Mean	Std. Deviation	Min	Max
I believe AI tools like Chat GPT help improve my academic writing.	38	3.08	0.632	2	4
I feel more confident writing academic papers when I use AI assistance.	38	3.17	0.804	1	4
Using AI in academic writing should be allowed with proper citation.	38	3.12	0.82	1	4
I rely too much on AI tools when writing academic assignments.	38	2.95	0.837	1	4
AI tools can help me organize my ideas more effectively.	38	3.27	0.823	1	4
I am concerned that using AI may reduce my critical thinking skills.	38	3.08	0.712	1	4
I use AI to check grammar and sentence structure in my writing.	38	3.25	0.658	1	4
AI-generated content needs to be reviewed carefully before submission.	38	3.07	0.754	1	4
I am aware of the ethical implications of using AI in academic writing.	38	2.84	0.805	1	4
I think AI is a useful support tool, but should not replace the writer's own effort.	38	3.24	0.751	1	4

by descriptive statistics through SPSS. The result of it was presented in Table 3.

As indicated in Table 3, the respondents' descriptive statistics revealed an overwhelmingly positive attitude towards AI in academic writing. This is evidenced by the participants' responses to the statement "AI tools can help me organize my ideas more effectively," which had the highest mean score of 3.27. Following closely was the statement "I use AI to check grammar and sentence structure in my writing" with a mean score of 3.25, along with "I think AI is a useful support tool, but should not replace the writer's own effort" scoring 3.24. This indicates that the respondents believe AI is highly constructive in organizing academic ideas, as well as strengthening grammar and structural quality, serving as a valuable assistant in academic writing.

Despite the overwhelming support, there are some concerns regarding the limitations on the use of AI as demonstrated in the mean score of 2.95 for "I rely too much on AI tools when writing academic assignments" and 3.08 for "I am concerned that using AI may reduce my critical thinking skills." These statements highlight neutral attitudes toward AI tools and underscore the concern about dependence on these tools for academic writing.

The statement above shows that despite acknowledging the advantages of AI in academic writing, respondents still seemed to recognize the possible harm it could cause to one's critical thinking and self-reliance skills. Furthermore, ethical concerns also stand as another major focus of this research. The survey item "I am aware of the ethical implications of using AI in academic writing" has the lowest average score ($M=2.84$), showing that students understand the ethical dimension of AI technology's application in works to a lesser degree than other factors. It shows the need for more in-depth education regarding academic ethics in utilizing AI technology in academic writing.

In conclusion, these findings illustrate that students have a positive attitude toward the use of AI in academic writing, especially in improving quality and efficiency. However, there is a need to balance between the utilization of AI technology and the development of critical thinking skills and ethical awareness in academic writing.

EFL Undergraduate Learners' Challenges Toward the Usage Of AI In Academic Writing

Semi-structured interviews were conducted with six undergraduate students from the English Education study program about their challenges toward the usage of AI in academic writing. The results of semi-structured interviews are presented in the following scripts:

"The various AIs I use facilitate me in creating academic paragraphs quickly. However, the arguments presented are sometimes general and seem rigid because they lack of emotion. Therefore, I have to reorganize everything to make it better." (S1)

"The toughest challenge of using AI in academic writing is avoiding AI detectors. Every time I use AI to help my academic writing and I check it with AI Turnitin, the writing is always 100% AI detected." (S2)

"I often use an AI detector to ensure that my writing is not detected. But every time I use AI such as GPT chat, my writing is always detected as AI-generated writing. I find it difficult to avoid the AI detector." (S3)

"AI helped me with the outline and opening sentence. But when I checked, that part is the highest detected by AI. So I often use AI only for idea development, instead of writing directly to avoid the AI detector." (S4)

"I have edited and adjusted my writing to the topics generated from the GPT Chat. However, when I uploaded the writing draft to the AI-generated checking platform, it turned out that 85% of it was considered AI-generated. It made me feel disappointed and annoyed." (S5)

"In academic writing, I often use Chat GPT to help develop ideas that are supported by references so that the writing becomes more qualified. However, often the references provided are not appropriate. When I accessed the reference, it was not found." (S6)

The interview results showed that there were several challenges faced by students when using AI in academic writing. One of the challenges was the quality of content generated by artificial intelligence (AI) is sometimes not supported by arguments that involve emotions, making it feel stiff and contrived. The next challenge was the concern about the detection of AI-generated content by checking tools such as Turnitin AI or similar detectors. Most participants stated that their AI-assisted writing was always detected as AI-generated despite adjustments and edits. It created psychological pressure for them and made it difficult for them to avoid the AI detector. The information provided shows that even the most sophisticated detection software is able to find AI-generated openings and outlines which means that even though AI can provide a level of assistance in academic writing, the outcomes of such work would still be unsatisfactory with regard to the originality of academic writing. There was also a problem concerning the accuracy of the references created by AI. One participant noted that Chat-GPT often generated references that could not be found at all and therefore were invalid. It demonstrated that at present, Chat-GPT was still not in a position to offer empirical data or sources of academic verification. Such a mistake, in an academic setting that values references for their validity and accountability, undermines the reliability of student writing.

From this study's results, it was evident that respondents accepted and had positive attitudes towards the application of AI technology in academic writing including in the areas of idea arrangement, sentence construction, and heightened self-esteem. This agrees with earlier studies that emphasize the contribution of AI towards the enhancement of the quality and productivity of students' academic writing (Devanti & Harfal, 2024; Malik et al., 2023; Sarwanti et al., 2024; Triwayatno et al., 2025).

Nonetheless, some students express concerns about a possible dependence on the

use of AI. Dependence on technology is one of the negative aspects. Along with the positive impacts of AI, there is some severe concern regarding its ill effects such as dependence and deterioration in critical thinking skills. Alhajji (2024) and Anani et al. (2025) noted an emerging paradox wherein learners recognize the ease brought by these tools, yet simultaneously worry about becoming overly reliant on AI, fearing the erosion of authenticity in their work. The highlighted studies propose that AI has the potential for serious adverse effects as far as learners' creativity, critical analysis ability, and overall active intellectual engagement are concerned if the purpose of use lacks deliberation or intentional self-reflection (Devanti & Harfal, 2024; Malik et al., 2023; Sarwanti et al., 2024; Triwayatno et al., 2025).

The students' inability to appreciate the ethical implications surrounding AI use in academic writing within the context of originality and academic integrity is an emerging issue that requires additional focus in this study. For this reason, teaching the use of AI in academic writing should integrate digital ethics so that students do not step out of the academic corridor. Bilikozen (2024), Gao et al. (2025) and Hegazy et al. (2024) assert that educational institutions need to formulate policies to govern the ethical use of AI in academic writing and ensure enforcement for the sake of academic integrity.

Moreover, the results indicate that students using AI for academic writing face a number of challenges. Those include providing arguments of questionable quality, dubious references, and detectable AI-generated content. Navío-Ingles et al. (2025) asserted that the text generated by AI has high linguistic accuracy and sentence structure, but it lacks emotional involvement in the argument. Moreover, Scott-Herring (2024) and Xu and Jumaat (2024) reported that some AI suggestive tools provide invalid references which undermine academic credibility. Although the detection of AI content by AI

detectors poses a challenge for students, it has a positive impact on them in terms of maintaining the originality of their writing and academic writing ethics.

Conclusion

This research assessed the attitudes of EFL learners regarding AI assistance in academic writing as well as the associated challenges. The results showed that EFL learners were positively oriented towards the application of AI in academic writing for the purposes of idea organization, sentence level enhancement, and boosting self-esteem. On the other hand, there are some warnings concerning the extremes of AI usage such as reduction in critical analysis and creativity. Moreover, there are several difficulties encountered by learners when applying AI in academic writing. Issues include the quality, credibility of arguments, and validity of the references provided by the AI, as well as AI authorship detection.

This study has many biases and flaws which impact the validity of the conclusions. This group of participants was EFL learners from one of the universities in Central Java, Indonesia with a sample of 38 students as respondents and 6 students as interviewees. In addition, this study was conducted in a limited time and area. Further research can examine the same topic with a larger number of respondents and interviewees, different regional demographics, and a longer time to produce stronger research findings.

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