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EFL STUDENTS' PERCEPTION OF AI-ASSISTED ACADEMIC WRITING IN SUPPORTING CRITICAL FRAMING

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ABSTRACT

The use of Artificial Intelligence (AI) in academic writing is on the rise, presenting both opportunities and challenges for students of English as a Foreign Language (EFL). Although various studies indicate that AI-assisted writing tools can support the writing process, concerns remain regarding students' engagement in evaluating AI-generated information and the role of these tools in fostering critical framing. Therefore, this study aims to explore EFL students' perceptions of the use of AI-assisted writing tools in academic writing, understand their role in supporting critical framing, and identify the opportunities and challenges perceived by students. This study employed a quantitative descriptive design involving 45 EFL students at a Islamic State University in Cirebon. Data were collected via a questionnaire consisting of 17 Likert-scale statements and 3 multiple-choice questions regarding habits, opportunities, and challenges in using AI-assisted writing tools. The results indicate that students generally hold positive perceptions toward the use of AI-assisted writing tools. Students view AI as a tool that helps generate ideas, develop arguments, improve language usage, and enhance efficiency in the academic writing process. The findings also indicate that AI has the potential to support critical framing by helping students consider various perspectives and evaluate arguments more critically. However, challenges such as reliance on AI, doubts about the accuracy of information, and concerns regarding academic ethics were still identified. Further research is recommended to involve a more diverse group of participants and employ a mixed-methods approach to gain a more comprehensive understanding.

Keywords: *AI-assisted Writing Tools, Academic Writing, Critical Framing, EFL Students*

INTRODUCTION

The use of AI-assisted academic tools such as ChatGPT, Grammarly, and Quillbot is already very widespread among English Foreign Language (EFL)



students. The development of AI has brought about more efficient academic writing tools. Numerous studies have proven that AI-assisted academic writing can help students improve the quality of their writing. For example, AI writing tools can identify grammatical errors, coherence, organization of ideas, and argument structure (Mekheimer, 2025; Song & Song, 2023). In addition, AI can also increase the motivation and confidence of EFL students who often experience difficulties in the academic writing process (Malik et al., 2023; Selim, 2024).

Many EFL students view AI as a tool that can provide instant feedback, save time, and reduce anxiety when writing. In the context of EFL learning, this creates a sense of comfort and supports students' abilities. However, this also raises many concerns, such as dependence on AI, the potential for plagiarism, and the possibility of a decrease in the level of originality in students' writing (Malik et al., 2023; Rafida et al., 2024; Selim, 2024). This situation shows that although AI has various benefits in the learning process, if its use is not monitored, it will undermine the effectiveness of the main objectives of AI-based learning.

However, behind all these benefits, the interaction between students and AI is an intriguing issue to research. This is because in the writing process, students often accept the output provided by AI at face value without critically evaluating the content and perspective presented (Sabrina & Fahryan, 2023; Tahir et al., 2025; Widiati et al., 2023). This happens because students view AI such as ChatGPT as capable of producing writing instantly, correcting grammatical errors, and providing ideas or sentence structures that are appropriate to the context (Helmie, 2019). Therefore, writing produced by AI has become the choice of students as a quick solution (J. Kim et al., 2025).

Several studies have also revealed that intensive use of AI for academic writing has the potential to cause dependency and lead to a decline in students' critical thinking (Marisa et al., 2025). This dependence can affect how students develop ideas and express their arguments in academic writing. For example, research conducted by Noman Ali Othman, who studied the use of ChatGPT among EFL students at Rojava University, North and East Syria, shows that the challenge faced is the difficulty of adjusting and maintaining an original writing style when they are too dependent on AI.

Therefore, critical interaction with content and arguments is a very important aspect in the critical framing framework. From the perspective of multiliteracies and critical digital literacy, the use of AI in academic writing should not only serve to improve the quality of the text, but also encourage students to evaluate and question the sources provided by AI (Widiati et al., 2023; Zahra & Fithriani, 2025).

Although various studies have discussed the impact of AI use on the quality of academic writing and students' perceptions of AI writing tools, the aspects that make students interpret the role of AI in supporting critical framing are still rarely explored specifically (Mekheimer, 2025; Tahir et al., 2025; Widiati et al., 2023). Research on critical digital literacy does highlight the lack of critical engagement,



but it has not fully examined how students use AI to reframe arguments and discourse in academic writing (Sabrina & Fahryan, 2023; Wahyu et al., 2025). Furthermore, in the context of EFL in Indonesia, there is still little discussion of students' perspectives on the use of AI-assisted writing to support critical framing in academic writing.

THEORETICAL FRAMEWORK

Multiliteracies Theory

The development of digital technology and globalization has transformed the way individuals communicate and construct meaning in their daily lives. In this context, the concept of literacy is no longer limited to conventional reading and writing skills, but also encompasses the ability to understand various forms of meaning representation through diverse media. To explain these changes, the concept of multiliteracies introduced by Bill Cope and Mary Kalantzis emphasizes the importance of understanding the diversity of communication modes as well as socio-cultural contexts in the learning process (Cope & Kalantzis, 2009). This perspective suggests that modern literacy practices involve various modes of representation, such as written text, visuals, and digital media (Helmie, 2022). A number of recent studies also confirm that multiliteracies remain relevant in explaining literacy practices in an increasingly complex digital era (Panuel & O'Connor, 2017). Therefore, students need to develop the ability to interpret and produce meaning through various forms of communication that are constantly evolving.

However, some studies indicate that the implementation of multiliteracies in educational practice still faces challenges, particularly in accommodating the latest technological advancements (Panuel & O'Connor, 2017). The rapid development of artificial intelligence (AI) technology in education demands an expansion of the concept of literacy toward a more specific competency, namely AI literacy, which encompasses understanding, using, and critically evaluating AI-based technologies (Zhou & Schofield, 2024). Various recent studies emphasize that AI literacy is a critical competency in modern education because it helps students not only as technology users but also as individuals capable of critically thinking about the implications of its use (Provinzano et al., 2025). Therefore, multiliteracies can be positioned as a conceptual foundation that needs to be further developed to accommodate literacy demands in the era of artificial intelligence.

Critical Digital Literacy and AI Literacy

Advances in digital technology and globalization have transformed the ways in which individuals communicate and construct meaning in their daily lives. In this context, the concept of literacy is no longer limited to the ability to read and write



conventional texts, but also encompasses the ability to understand various forms of meaning representation through diverse media (Cope & Kalantzis, 2009; Panuel & O'Connor, 2017). To explain these changes, the New London Group introduced the concept of multiliteracies, an approach to literacy that emphasizes the importance of understanding the diversity of communication forms as well as the sociocultural context in the learning process (Cope & Kalantzis, 2009). This approach highlights that modern literacy practices involve various modes of meaning representation, such as written, visual, audio, and digital media (Pang et al., 2025). Therefore, literacy instruction must provide opportunities for students to develop the ability to interpret and produce meaning through various evolving forms of communication, including digital literacy and 21st-century skills. This concept was further developed by Bill Cope and Mary Kalantzis, who emphasized that a multiliteracies approach can help students develop critical, creative, and adaptive thinking skills in navigating the changing communication environment of the digital age (Iskandar et al., 2024).

Although multiliteracies theory makes a significant contribution to understanding literacy practices in the modern era, some studies also indicate limitations in its application within specific learning contexts, particularly regarding the need for a more systematic framework to integrate digital literacy and AI skills into the curriculum (Darvin, 2025). One of the main criticisms of this approach is that the concept of multiliteracies is often theoretical and still requires further development for practical implementation in the classroom. Furthermore, this theory was developed before the rapid advancements in artificial intelligence (AI) technology in education, so it has not specifically addressed how students interact with AI-based technologies in the learning process. In the current context of language learning and academic writing, there is a need to expand the perspective of multiliteracies to include more complex digital literacy and AI literacy skills, including the ability to critically understand, evaluate, and use artificial intelligence technologies. Therefore, the concept of multiliteracies needs to be viewed as a theoretical foundation that can be further developed to understand literacy practices in learning environments increasingly influenced by digital technology and artificial intelligence (Darvin, 2025; Hossain, 2025; Widiati et al., 2023).

AI-Assisted Academic Writing and Critical Thinking

Artificial Intelligence has brought about significant changes in academic writing practices. The use of AI as an AI-assisted writing tool is becoming increasingly common among students (Nguyen et al., 2024). Students utilize this technology to obtain various forms of assistance in academic writing, such as generating ideas, structuring an outline, and improving linguistic aspects like grammar and sentence coherence (J. Kim et al., 2025; Pang et al., 2025). From a language learning perspective, the use of AI in academic writing is viewed as an innovation that can support the learning process to make it more efficient and effective. Several studies have found that AI can help students improve the quality



of their academic writing by providing instant feedback, assisting in structuring arguments, and helping to revise texts to make them more systematic (Deep, 2025). Thus, AI not only serves as a writing aid but also supports students' cognitive processes in developing ideas and constructing arguments in academic texts (Raitskaya & Tikhonova, 2025).

The convenience offered by AI in academic writing has also sparked various debates regarding its impact on the development of students' critical thinking skills. On the one hand, AI can help students explore information and various perspectives, evaluate arguments, and improve sentence structure (Rizkiani et al., 2024). However, there are concerns that AI may lead to dependency in its use. This is further supported by several studies revealing that AI can cause excessive reliance, thereby potentially reducing students' cognitive abilities in critical thinking (Zhai, 2022). Therefore, it is important for students to use AI reflectively in the academic writing process. This relates not only to the effectiveness of technology use but also to how students interpret AI in supporting critical thinking during academic writing activities. This is not only about the effective use of technology, but also about how students critically interpret and contextualize information generated by AI when constructing arguments in their writing. This process is closely linked to the concept of critical framing, the ability to critically interpret and evaluate information within the context of academic writing.

Although numerous studies have extensively discussed the use of AI-assisted writing tools to support students' academic writing processes, most of these studies still focus on improving writing quality, linguistic accuracy, or the efficiency of the learning process. Additionally, some studies also emphasize the importance of AI literacy and digital literacy in helping students understand and use artificial intelligence technology in an educational context. However, there is still relatively little research that specifically examines how students interpret the use of AI in supporting their ability to critically interpret and contextualize information during the academic writing process. Specifically, the concept of critical framing which refers to the ability to critically interpret and position information within a broader context has not been extensively studied in relation to the use of AI in academic writing. Therefore, further research is needed to explore how EFL students perceive the use of AI-assisted academic writing tools in supporting critical framing in their academic writing practices

METHOD

Study Design

This research employed a quantitative descriptive survey design. The study aimed to describe students' perceptions toward the use of artificial intelligence in academic writing, particularly in supporting critical framing. According to John W. Creswell and J. David Creswell, survey research provides a quantitative description of participants' attitudes, opinions, and tendencies by studying a sample from a population (Creswell John and Creswell David, 2023). Therefore, a survey design



was considered appropriate for this study because it allows the researcher to collect numerical data efficiently from multiple participants, as similarly demonstrated in a quantitative cross-sectional survey of 45 undergraduates exploring students' perceptions of generative AI's impact on critical thinking. This study adopted the concept of critical framing from the Knowledge Processes framework proposed by Bill Cope and Mary Kalantzis, where critical framing relates meanings to their social contexts and purposes, enabling students to interpret content beyond surface-level understanding. In this context, critical framing refers to students' ability to critically analyze, evaluate, and reflect on the use of AI-generated content in academic writing activities. Through this design, the study attempts to identify students' perceptions regarding the role of AI in fostering critical awareness during the writing process, which is particularly urgent given that without adequate critical skills, students may engage with AI superficially such as bypassing critical thinking or reinforcing misconceptions (Nelson et al., 2025; Sanz-Tejeda, Aránzazu; Domínguez-Oller, Juana Celia; Josep María et al., 2026; Zhu et al., 2025).

Sample and Setting

The participants of this study were undergraduate students from the English Language Teaching Department (ELTD) at Islamic State University in Cirebon, Indonesia. The participants consisted of students from the second until eighth semester who had experience using artificial intelligence tools for academic writing purposes. This study employed a convenience sampling technique, which belongs to non-probability sampling. The participants were selected based on their accessibility, availability, and willingness to participate in the study. According to John W. Creswell and J. David Creswell, convenience sampling allows researchers to select participants based on their accessibility and relevance to the research objectives. The selected participants were considered appropriate because they were familiar with the integration of AI tools in educational and academic writing contexts.

Instruments

The questionnaire contained 20 items in total. Seventeen items employed a 4-point Likert-type scale consisting of strongly disagree, disagree, agree, and strongly agree. These items aimed to examine students' perceptions and experiences regarding the use of AI in academic writing activities, particularly in relation to critical framing aspects such as evaluating information, reflecting on AI-generated responses, and considering the credibility and appropriateness of AI-generated content. In addition, three multiple-choice questions were included to identify possible situations and responses experienced by students when using AI tools during academic writing activities. The use of a Likert-type scale questionnaire was considered suitable because it is widely used in educational research to measure perceptions, attitudes, and experiences systematically. Before distributing the questionnaire to the participants, the instrument was reviewed and



adjusted to ensure the clarity and relevance of the questionnaire items in relation to the research objectives.

Data Collection and Procedures

The data collection process began with distributing the online questionnaire to undergraduate students of the English Language Teaching Department at Islamic State University in Cirebon. The questionnaire link was shared online, and the participants voluntarily completed the questionnaire based on their experiences using AI tools in academic writing activities. After all responses had been collected, the data were downloaded from Google Forms and organized using Microsoft Excel. The researcher then conducted data coding by assigning numerical values to each Likert-scale response to simplify the analysis process. Furthermore, descriptive statistical analysis was conducted to calculate the frequency, percentage, and mean score of each questionnaire item. The analysis aimed to identify students' perceptions toward AI-assisted academic writing and determine whether the use of AI supports critical framing in academic writing practices. Finally, the findings were interpreted descriptively and presented in tables and explanations to support the results of the study.

FINDINGS

Demographics

Data were gathered and analyzed from 45 EFL undergraduate students across four academic levels. The majority of participants were from Semester 6 ($n = 30$, 66.7%), followed by Semester 4 ($n = 15$, 33.3%), while Semester 2 and Semester 8 had no respondents during the data collection period. Female students constituted the overwhelming majority of the sample (88.9%, $n = 40$), while male students accounted for only 11.1% ($n = 5$). This gender distribution reflects the demographic composition of the English Language Teaching Department at Islamic State University in Cirebon. Table 1 presents the frequencies and percentages of participants by gender and academic level.

Table 1 Demographic Characteristics of Participants N=45

Academic level	n	Gender			
		Male		Female	
		f	%	f	%
Semester 2		0	0	0	0
Semester 4	15	1	2.2	14	31.2
Semester 6	30	4	8.9	26	57.8
Semester 8		0	0	0	0

EFL Students' Perceptions of the Use of AI-Assisted Writing Tools in Academic Writing

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Items 1–17 examined students' perceptions of AI-assisted writing tools in English academic writing. These items were grouped into three subdomains: Multimodal in Language Learning (items 1–7), Technology in Language Learning (items 8–12), and Knowledge Processes in Language Learning (items 13–17). Table 2 summarizes the descriptive statistics for all questionnaire items.

Table 2 Frequency and Descriptive Statistics for All Items (N=45)

No.	Item	Percent			
		SD	D	A	SA
1	AI-assisted writing tools help me understand academic writing through various forms of information, such as examples, explanations, or text suggestions.	0.0	0.0	53.3	46.7
2	AI tools help me explore different ways to develop ideas in academic writing.	4.4	0.0	62.2	33.3
3	AI tools help me express my ideas more clearly in English.	0.0	0.0	57.8	42.2
4	AI tools help me organize my ideas in academic writing.	2.2	0.0	62.2	35.6
5	AI tools help me connect various pieces of information or sources while writing.	2.2	2.2	71.1	24.4
6	AI tools sometimes make me rely too much on the suggestions or examples they provide.	24.4	0.0	55.6	20.0
7	AI tools sometimes make me less likely to explore my own ideas when writing.	20.0	4.4	55.6	20.0
8	AI-assisted writing tools make it easier for me to write academic assignments.	0.0	0.0	71.1	28.9
9	AI tools help me complete my writing tasks more efficiently.	2.2	0.0	71.1	26.7
10	AI tools help me find grammar mistakes in my writing.	0.0	0.0	62.2	37.8
11	Using AI tools has made me more confident in writing academic texts.	8.9	4.4	71.1	15.6
12	I find it hard to judge whether the information or advice provided by AI tools is always accurate.	0.0	15.6	57.8	26.7
13	AI tools help me identify implicit assumptions in academic texts.	2.2	2.2	73.3	22.2
14	AI tools help me consider various perspectives before writing my argument.	0.0	6.7	75.6	17.8
15	AI tools help me compare the perspectives that are and aren't covered in a given topic.	0.0	11.1	68.9	20.0
16	AI tools help me determine whether the AI's arguments are balanced or one-sided.	0.0	8.9	77.8	13.3
17	I tend to accept the framing provided by AI without critically evaluating it.	13.3	40.0	35.6	11.1

Note: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree

Multimodality in Language Learning (Items 1–7)

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The majority of English Education students at Islamic State University in Cirebon expressed positive perceptions regarding the use of AI-assisted writing tools in multimodal English language learning. The Multimodal in Language Learning subdomain obtained an average score of 3.2 (Table 3), indicating that students generally held positive perceptions toward the use of AI-assisted writing tools in academic writing. As shown in Table 2, all respondents (100%) agreed or strongly agreed that the use of AI-assisted writing tools helps them understand academic texts through various forms of information, such as examples, explanations, or text suggestions (item 1). Additionally, on item 3, all respondents also agreed or strongly agreed that AI can help them express ideas in English more clearly.

Overall, 97.8% of respondents agreed or strongly agreed that AI can help them organize their ideas in academic writing (item 4). Additionally, 95.5% of respondents stated that AI helps them develop ideas in academic writing (item 2) and can connect various pieces of information and sources while writing (item 5).

However, respondents' answers to the negative items showed more varied results. For item 6, 75.6% of respondents agreed or strongly agreed that AI can sometimes lead to dependence on the suggestions provided, while 24.4% of respondents strongly disagreed. Similar results were also found in item 7, where 75.6% of respondents agreed or strongly agreed that AI sometimes causes them to explore ideas less when writing, while 24.4% disagreed or strongly disagreed.

Technology in Language Learning (Items 8–12)

The “*Technology in Language Learning*” subdomain received a mean score of 3.2 (Table 3), indicating a positive response to the role of AI-assisted writing tools in supporting technology-based learning. Items 8 and 10 showed that 100% of respondents agreed or strongly agreed that AI can simplify the academic writing process, including helping them identify grammatical errors in their writing.

For item 9, a majority of respondents (97.8%) agreed or strongly agreed that AI can help them complete writing assignments more efficiently. Furthermore, 86.7% of respondents also stated that the use of AI boosts students' confidence in writing academic texts (item 11).

Although most respondents felt assisted by AI-assisted writing tools, they also found it difficult to assess whether the information or suggestions provided by AI were always accurate (item 12). These findings indicate that while students have a positive perception of AI assistance in academic writing, they remain concerned about the accuracy of the information generated by AI.

Knowledge Processes in Language Learning (Items 13–17)

Students also expressed a generally positive perception of AI-assisted writing tools in supporting the knowledge-building process in academic writing, with an average score of 3.0. A total of 95.5% of respondents agreed or strongly agreed that AI helps them identify hidden assumptions in a text (item 13); 93.4% of respondents also considered various perspectives before writing an argument



(item 14); 88.9% of respondents compared perspectives both those present and absent within a topic (item 15), and 91.1% of respondents assessed whether the arguments generated by AI were balanced or biased (item 16).

However, for item 17, respondents' answers showed more varied results. A total of 46.7% of respondents agreed or strongly agreed that they tend to accept the framing provided by AI without conducting a critical evaluation, while 53.3% of respondents disagreed or strongly disagreed with that statement. These findings indicate that although some students feel capable of critically evaluating the information provided by AI, there are still a number of students who admit they tend to accept the framing provided by AI without further assessment

Opportunities, Challenges, and Habits in Using AI-Assisted Writing Tools

In addition to the Likert scale responses, this study also collected data on the opportunities, challenges, and habits perceived by students in the English Language Teaching Department regarding the use of AI-assisted writing tools. The results are presented in Figures 1, 2, and 3.

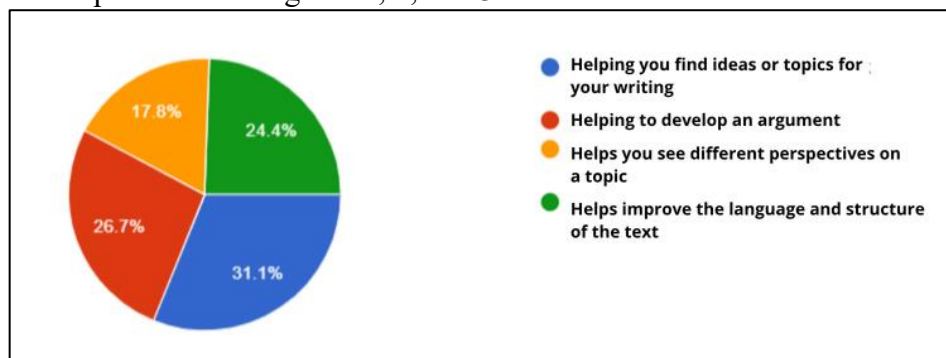


Figure 1 Perceived Opportunities of AI-Assisted Writing Tools in Academic Writing (N = 45)

Based on Figure 1, the majority of respondents (31.1%) believe that the primary benefit offered by AI-assisted writing tools is helping them find ideas or topics for their writing. Furthermore, 26.7% of respondents believe that AI helps them develop arguments, while 24.4% state that AI contributes to improving and refining grammar and writing structure. Meanwhile, 17.8% of respondents believe that AI can help them see various perspectives on a topic. Based on these findings, it appears that respondents primarily use AI to support the process of idea generation and argument development in academic writing.

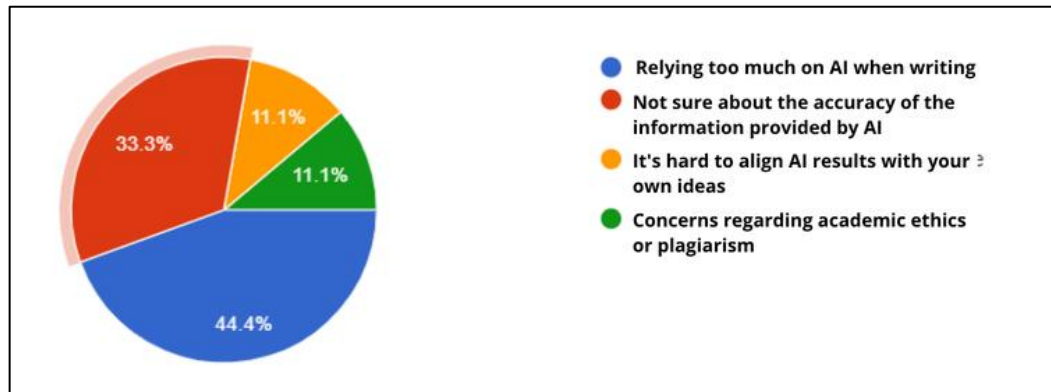


Figure 2 Challenges of EFL Students in Using AI-Assisted Writing Tools ($N = 45$)

As shown in Figure 2, the most common challenge faced by EFL students is excessive reliance on AI when writing (44.4%). Furthermore, 33.3% of students expressed doubts about the accuracy of information generated by AI. Not only that, other challenges faced by students include difficulty in aligning AI-generated output with their own ideas (11.1%), as well as concerns regarding academic ethics and plagiarism (11.1%). These findings also align with the patterns observed in the negative items on the Likert scale questionnaire, particularly items 6, 7, and 12, which also indicate concerns regarding reliance on AI and the accuracy of the information provided.

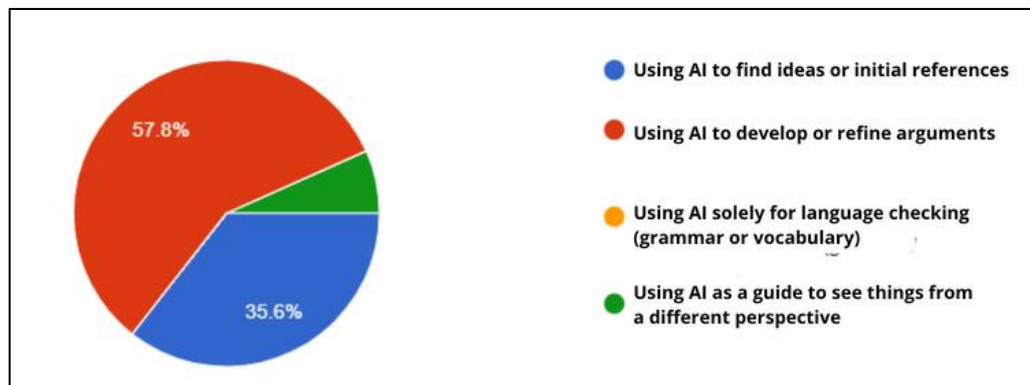


Figure 3 Habits of EFL Students in Using AI-Assisted Writing Tools ($N = 45$)

As shown in Figure 3, the majority of respondents (57.8%) stated that they frequently use AI-assisted writing tools to develop or strengthen their arguments. In addition, AI tools are also used to generate initial ideas or find relevant references (35.6%). Furthermore, a small proportion of respondents (6.7%) use AI as a tool to explore different perspectives on a topic. No respondents stated that students use AI solely to check grammar or vocabulary. Based on these findings, it can be concluded that students utilize AI not only for language or grammar correction but



also to support a more in-depth writing process, particularly in the development of ideas and arguments.

Summary of Students' Perception Across Subdomains

Table 3 presents a summary of descriptive statistics for each subdomain as well as students' overall perception scores regarding the use of AI-assisted writing tools in academic writing. In general, students expressed a positive perception of the use of AI-assisted writing tools, with an overall mean score of 3,1.

ASPECT	MEAN	MEDIAN	MODE	RANGE	SD
Multimodal in Language Learning (1-7)	3.2	3	3	2.4	0.63
Technology in Language Learning (8-12)	3.2	2.1	3	2	0.58
Knowledge Processes in Language Learning (13-17)	3.0	2.8	2.8	2.4	0.59
Overall	3.1	2.6	2.9	2.3	0.60

Table 3 Distribution of Mean Score for EFL Students perception of AI-Assisted Academic Writing in Supporting Critical Framing (N=45)

Of the three subdomains examined, “*Multimodal in Language Learning*” and “*Technology in Language Learning*” achieved the highest mean scores, at 3,2. These results indicate that students view AI-assisted writing tools as beneficial for understanding academic material, expressing ideas more clearly, improving writing efficiency, and refining and using language in academic writing. Meanwhile, the subdomain “*Knowledge Processes in Language Learning*” received an mean score of 3,0. Although this result is slightly lower than the previous two subdomains, it still indicates a positive perception of AI-assisted writing tools in supporting critical thinking skills and developing knowledge during the academic writing process.

Overall, these findings indicate that students have a positive perception of the use of AI-assisted writing tools across all subdomains studied. However, perceptions regarding knowledge processes and critical evaluation remain slightly lower compared to the other two subdomains.

DISCUSSION

EFL Students' Perceptions of the Use of AI-Assisted Writing Tools in Academic Writing

The results of a study conducted by students in the English Language Education program at Islamic State University in Cirebon indicate a positive perception of the use of AI-assisted writing tools in academic writing. This can be seen from the positive means across all subdomains, namely Multimodal in Language Learning (M = 3.2), Technology in Language Learning (M = 3.2), and Knowledge Processes in Language Learning (M = 3.0). These findings indicate that



students view AI-assisted writing as a technology that supports various needs and processes in academic writing, ranging from understanding information, developing ideas, improving writing quality, to assisting in the evaluation of the respondents' academic writing.

These findings align with research by Kim et al., 2025; Mahapatra, 2024; Nelson et al., 2025), which show that students generally hold positive perceptions toward the use of AI in academic writing. These various studies found that AI helps students generate ideas, improve writing quality, enhance language usage, and increase efficiency in completing academic assignments. The results of this study reinforce the view that AI is no longer seen merely as a technological innovation but also as a source of academic support that assists students throughout the writing process.

Furthermore, students' positive perceptions can be explained through the concept of multiliteracies proposed by Cope & Kalantzis, (2009). This concept emphasizes that literacy in the digital age involves the ability to understand and generate meaning through various forms of information representation and digital technologies. In the context of this study, AI-assisted writing tools provide various forms of support, such as examples, explanations, feedback, and suggestions for improving writing, which help students understand and manage the academic writing process more effectively. Thus, the use of AI-assisted writing tools reflects digital literacy practices that are increasingly integrated into English language learning in higher education.

The findings of this study also indicate that students utilize AI not only to improve technical aspects of writing but also to support the process of idea development and argument construction. These results align with Wang, (2025), who found that students use AI as a companion throughout various stages of writing, from brainstorming to final revisions. Therefore, students' positive perceptions of AI-assisted writing tools can be understood as a form of acceptance of technology that is perceived as capable of supporting their academic needs practically and efficiently.

The Role of AI-Assisted Writing Tools in Supporting and Hindering Critical Framing

The research findings indicate that students generally view AI-assisted writing tools as a means of supporting critical framing in academic writing. Most respondents stated that AI helps them identify hidden assumptions in texts, consider various viewpoints, compare different perspectives, and evaluate whether an argument is balanced or biased. These findings indicate that students view AI as a tool that can help them analyze and reflect on information during the writing process.

These findings align with the concept of Knowledge Processes proposed by Cope and Kalantzis (2009), particularly regarding the aspect of critical framing. In this concept, learners are encouraged to critically understand information, question



its underlying assumptions, and interpret an issue from various perspectives. The research results indicate that AI-assisted writing tools can support this process by providing various alternatives in terms of information, viewpoints, and arguments that students can use as material for reflection when composing academic writing.

These findings are also supported by research by Malik et al., 2023 and Raitskaya & Tikhonova, (2025), who found that AI has the potential to aid the development of critical thinking skills through its ability to provide rapid access to diverse information sources and perspectives. Furthermore, research on the use of AI in EFL education indicates that AI can encourage students to evaluate arguments, compare various perspectives, and develop a deeper understanding of an issue when used actively and reflectively.

However, this study also indicates that AI-assisted writing tools can hinder critical framing if used uncritically. Some students admitted that they still accept the information or perspectives provided by AI without further evaluation. Furthermore, doubts regarding the accuracy of information generated by AI were also a major concern among respondents. These findings align with those of Malik et al., 2023 and Selim, (2024), who emphasize that the use of AI must be accompanied by critical digital literacy skills so that users can evaluate the validity, bias, and relevance of the information provided by AI.

Malik et al., (2023) also caution that excessive reliance on AI can lead to cognitive offloading the tendency to delegate thinking processes to technology, thereby reducing user engagement in analysis and reflection. Therefore, although AI has the potential to support critical framing, these benefits can only be optimally realized if students maintain an active role in evaluating, verifying, and reflecting on the information they receive from AI

Opportunities and Challenges of AI-Assisted Writing Tools in Fostering Critical Framing

The research shows that students identified various opportunities for using AI-assisted writing tools during the academic writing process. The most commonly cited opportunity was assistance in finding ideas or writing topics, followed by support in developing arguments, improving language quality and writing structure, and helping to explore different perspectives on a topic. These findings suggest that AI is utilized not only to improve technical aspects of writing but also as a tool that supports the development of content and the academic thinking process.

Additionally, this study indicates that the majority of students use AI-assisted writing tools to develop or strengthen arguments in academic writing. Some other students utilize AI to find initial ideas and relevant references, while only a small portion uses AI to explore various perspectives on a topic. These findings indicate that students more frequently utilize AI as a tool for building and developing ideas rather than as a means to critically broaden their perspectives.

These findings align with the research by (Amani & Bisriyah, (2025); Deep, (2025); J. Kim et al., (2025) and Mahapatra, 2024), which show that AI-assisted writing tools help students generate ideas, develop arguments, improve language



quality, and accelerate the academic writing process. Wang (2025) also found that students utilize AI at various stages of the writing process, from planning ideas to revising their work. Thus, AI holds great potential to support the academic writing process while helping students develop more structured arguments.

On the other hand, this study also identified several challenges in the use of AI-assisted writing tools. The most commonly reported challenge is a tendency to rely too heavily on AI during the writing process. Additionally, students expressed doubts about the accuracy of information generated by AI. Some respondents struggled to integrate AI-generated content with their own ideas and expressed concerns regarding academic ethics and the potential for plagiarism. These findings support the research by Darwin, (2025); Mahapatra, (2024); Malik et al., (2023) and Tahir et al., (2025) Mahapatra (2024), which indicates that excessive use of AI can reduce students' engagement in independent thinking and critical reflection. Mahapatra (2024) found that some students were concerned that intensive use of AI could reduce creativity and increase dependence on technology. Meanwhile, Darwin (2025) emphasized that AI users need to possess critical digital literacy to understand the limitations, biases, and potential errors present in AI outputs.

Therefore, although AI-assisted writing tools offer various opportunities to support academic writing and critical framing, their use must be balanced with adequate critical evaluation skills and digital literacy. With a reflective and responsible approach, AI can serve as a tool that supports the development of academic writing skills while strengthening the critical thinking skills of EFL students.

Pedagogical Implications

The findings of this study have several pedagogical implications for academic writing instruction in an EFL context. From a Multiliteracies perspective, learning in the digital age must provide space for learners to interact with various forms of meaning representation and digital technologies as part of the knowledge-construction process (Cope & Kalantzis, 2009). In this study, students viewed AI-assisted writing tools as aids for generating ideas, developing arguments, improving language use, and enhancing efficiency in the academic writing process. These findings suggest that AI-assisted writing tools can be utilized as learning resources that support the planning, development, and revision of academic writing.

On the other hand, the challenges identified in this study suggest that the integration of AI into writing instruction must be balanced with the development of critical thinking skills and critical digital literacy. Sabrina & Fahryan, (2023) emphasize the importance of strengthening critical digital literacy so that students can evaluate information obtained from digital technologies more critically. In line with this, Darwin, (2025) asserts that the use of generative AI in language learning must be accompanied by the ability to verify information, recognize potential biases, and reflect on AI-generated results. Therefore, AI-assisted writing tools



should be positioned as learning support tools that help students explore ideas and perspectives, rather than as a substitute for their critical thinking processes. This approach is also consistent with the findings of Amani & Bisriyah, 2025; Tahir et al., (2025), which show that the benefits of AI are maximized when students remain actively engaged in the processes of evaluation, reflection, and decision-making during academic writing.

Limitations and Future Directions

This study has several limitations that should be taken into account when interpreting its findings. First, this study involved only 45 EFL students from a single university in Cirebon; therefore, the results cannot yet be generalized to a broader population of EFL students. Second, this study used a questionnaire as its sole data collection instrument. Although questionnaires can provide insight into students' perceptions, this instrument is not capable of delving deeply into how students actually use AI-assisted writing tools in their academic writing practices.

Furthermore, this study focused on students' perceptions of the use of AI-assisted writing tools and did not directly explore how the use of AI affects the quality of their writing or the development of their critical framing skills. However, from a Multiliteracies perspective, the learning process is not only related to students' perceptions but also to how they construct and apply knowledge through various literacy practices (Cope & Kalantzis, 2009).

Therefore, future research is recommended to involve a more diverse group of participants from various educational institutions and to use a mixed-methods approach to provide a more comprehensive understanding of students' experiences in using AI-assisted writing tools. Future research could also examine the relationship between AI use, the quality of academic writing, and the development of students' critical framing skills to gain a deeper insight into the role of AI in writing instruction in an EFL context.

CONCLUSION

This study explores EFL students' perceptions of the use of AI-assisted writing tools in academic writing, their role in supporting critical framing, and the opportunities and challenges perceived by students. The results show that students generally have a positive perception of AI use because it helps generate ideas, develop arguments, improve language usage, and increase efficiency in the writing process. The findings also indicate that AI has the potential to support critical framing by helping students consider various perspectives and evaluate arguments more critically. However, these benefits are still met with a number of challenges, such as reliance on AI, doubts about the accuracy of information, and concerns regarding academic ethics. Therefore, AI-assisted writing tools can be a valuable source of support for EFL students' academic writing if used critically, reflectively, and responsibly.



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