



## College EFL students' perception toward AI assistance in academic writing assignments

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### Abstract

The rapid development of Artificial Intelligence (AI) has influenced many sectors, including education, which raises a question about how students interact with AI tools. This study explored the English as a Foreign Language (EFL) college students' perspectives on AI-assisted tools in academic writing assignments. Implementing a mixed-method approach, this study examined 76 students' awareness of the benefits of AI and their preference for the types of AI which can assist them in academic writing assignments. The quantitative data were derived through a Likert-scale questionnaire, while the qualitative data were derived through open-ended responses. The findings revealed that most students have perceived positive benefits from AI-assisted writing. The study also highlights ChatGPT, Gemini, and Perplexity as the most preferred AI tools for accessibility and accuracy in assisting the students with their assignments. However, the findings of this study show that while the students perceive AI positively, its use also raises concerns about overreliance and academic integrity. Therefore, it is recommended that future researchers address the negative potential of AI.

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## INTRODUCTION

Recently, the rapid development of technology has drawn significant attention in many sectors, including education. Education has experienced a slow yet consistent revolution (Tahiru, 2021) and it also experiences the same effect of the rapid development of technology particularly in the rise of Artificial Intelligence (AI). AI has many definitions, but it can be simply described as the human intelligence machines (Sumakul et al., 2022). Being a technology that can mimic human skills such as language processing, creating content, and making decision (Sheikh et al., 2023; Lim et al., 2023), AI tools have attracted a lot of attention as digital language learning aids in the field of language education (Slamet, 2024). The use of AI among language learners in various education has also raised concerns regarding its impact on the teachers' role and involvement in learning process (Wogu et al., 2018). Moreover, in academic writing, the integration of AI also brings issues such as plagiarism, overreliance, and ethical concerns (Flanagin, et al., 2023). Therefore, understanding how the students perceive AI tools is crucial in informing the effective and responsible integration into academic writing.

In the field of English as a Foreign Language (EFL) education, where students usually encounter language barriers, using AI to assist them could overcome these challenges. Therefore, the implementation of AI in EFL education is considered crucial for transforming the educational landscape (Selim, 2024). Much research has been done in utilizing AI in English Language Education. AI brings advantages in improving the students' language skills such as listening, speaking, reading and writing (Dai & Liu, 2024; Yuliani et al., 2024). Considering today's global academic and professional setting, having good proficiency in English especially in the ability of writing is crucial (Selim, 2024). Therefore, writing skill become one of the skills in English that has been highly assisted within the rise of AI. This is supported by Abdullayeva (2023) who stated that the development of technology also influences EFL students with the rapid use of AI especially in writing. This is also in line with the increasing number of AI online tools that are available to support academic writing prompts across various subjects, styles and formats by generating a wide range of prompts (Selim, 2024). Academic writing is a crucial genre of writing to be practiced since it is considered as a fundamental aspect of learning English and is applicable to the study of any other subject where English is the international language (Kurniati & Fithriani, 2022). To sum up, AI could provide EFL students as a tool that helps them in language improvement, research guidance, and moreover assists them in doing their writing for their academic writing assignments.

Despite the advantages that AI has brought in improving the students' skills in English, the effectiveness and the use of AI technology rely on who and how it is used (Yoon, 2019). Therefore, knowing the students' attitude in using AI to assist their academic writing assignment is important. However, there has been limited research exploring the students' attitude in AI-assisted academic writing assignment in different cultural and educational contexts. Thus, this study aims to fill the gap by examining the students' attitude of AI-assisted academic writing assignments among EFL students in different countries and education level. This research will contribute valuable insight for both the teacher and educational institutions in recognizing how the students perceive the use of AI in their academic writing assignments and what AI tools they used the most. Educational institutions need to stay aligned with the changing technological demands of industries and equip individuals to succeed in the workforce (Chen et al., 2024). Given that, this study aims to answer the following inquiry on:

1. How do EFL students perceive the use of AI in assisting their writing academic assignment
2. Which AI tools contribute the most?

## Literature Review

### *AI in English Foreign Language Education*

AI mediated instruction in second and foreign language education seems to give positive impacts (Wei, 2023). Prior research has shown that Artificial Intelligence in Education (AIED) has tremendous potential in enhancing the learning process especially in language learning related to acquiring four main skills (Yuliani et al., 2024) which are speaking (Yang et al., 2024), listening (Kim, 2022; Xing, 2023), Writing (Wale & Kassahun, 2024) and Reading (Chea & Xiao, 2024). Moreover, AI in EFL also contributes in building the students' vocabulary offering translations, utilizing expressions, and correcting grammar (Lee et al., 2024). In addition to that, the use of AI in EFL also brings several benefits, including personalized learning, real-time feedback, access to extensive educational resources, and a more engaging learning environment (Dai & Liu, 2024). In

terms of minimizing the students' anxiety levels, AI also gives a positive impact in reducing their anxiety in language learning and developing their self-regulation (Hsu et al., 2023).

Moreover, prior research also showed how helpful AI is in assisting the teacher in material development and assessment. The integration of AI, especially ChatGPT, is becoming a valuable tool for EFL teachers, helping in numerous aspects of their practices such as personalization curriculum and material development to fulfill the students' individual needs (Koraishi, 2023). EFL teachers also give positive feedback on the use of AI in helping the teacher teach the students with consideration in the students' motivational level and the teacher's technological and pedagogical skills (Sumakul et al., 2021). In addition, Slamet (2024) in his study highlights how both EFL teachers and students give favorable viewpoints on ChatGPT as a tool for enhancing English Language Learning by increasing the students' interest, motivation and accessing authentic materials. Overall, the advantages of utilizing AI in English as Foreign Language education outweigh the disadvantages.

### ***AI in English Writing***

In Indonesia, the students particularly struggle the most with academic writing compared to other skills (Utami et al., 2023). Therefore, AI advanced technology comes to help students with their struggle in writing since AI could understand questions and give accurate answers that provide the users advantages in saving up time and effort to get the information they need for their writing (Fitria, 2023). As Wale and Kassahun (2024) in their previous study found that the use of AI in assisting students for their writing, could improve the students' writing skill by helping them in task completion, coherence and cohesion, grammatical variety, vocabulary use and accuracy. However, even AI-assisted writing could improve the students' writing, the research found out that the students who learned writing using AI could not outperform the students that learn writing in the traditional way.

Even so, in other studies, implementing AI for Media Writing classes gives great benefits as it has effectiveness in assisting the EFL students in generating ideas, planning short stories, and correcting grammar and spelling (Harunasari, 2023). Additionally, Amyatun and Kholis (2023) in their study that implemented the use of QuillBot AI in the learning process about writing hortatory text for EFL students in senior high school, discovered that the students showed an improvement in their writing skill. Even more, AI also helps students in dealing with one of the most crucial challenges that happen in language learning: anxiety. Research has proven that utilizing AI also reduces the students' anxiety in writing skill with easier grammar checks, expanding vocabulary, immediate feedback and providing individual learning experience (Arpaci & Kincal 2023). To sum up, AI-assisted writing gives the students benefits in many ways such as generating ideas, enhancing vocabulary, correcting grammar and many more.

### ***Students' Perception toward AI-assisted Writing***

Perception in the context of technology acceptance refers to an individual's personal appraisal of the features or qualities of a system (Davis, 1989). The technology may hold great potential, however the way users perceive is also important (Sumakul et al., 2021). John Biggs' 3P model, as discussed in Chan and Hu (2023), states that perception significantly influences learning approaches and outcomes, as students' perceptions of technology affect how they implement it in language learning (Sumakul et al., 2023). Amanda et al. (2023) in their previous study that examined the students' perception of using Quillbot in helping the students to write English showed that the students' have a lot of positive perception. Moreover, the study conducted by Lee et al. (2024) that explored the Korean University students' perception of AI tools in English writing courses discovered that the survey filled out by 80 students gives positive perception. The students found that AI tools particularly give advantages in enhancing their vocabulary, providing translations, rich expressions, grammar learning, and English writing proficiency. Furthermore, Selim (2023) in his previous research of fifty EFL students in Saudi Arabia showed that the students' giving positive attitude towards the use of AI tools in academic writing and it showed that the most favored AI tools are Grammarly and ChatGPT.

Moreover, Sumakul et al (2023) in their previous studies exploring the EFL students' perception of AI in writing class also showed a positive outlook, highlighting how AI assists them in their writing process by improving their grammar and vocabulary. They suggest that more studies that involve more data and context are needed to understand the issue of AI-assisted writing.

Additionally, (Kurniati & Fithriani (2022) in their prior study that examine the students' perspective of the use of AI particularly QuillBot shows that the students find it as an effective digital tool to assist them in doing their academic writing as it one of the most challenging form of writing since it requires more critical thinking and writing skills. On top of that, research done by Ahmed (2023) that examines the students' perspective of satisfaction of teacher mediated and ChatGPT-assisted writing opportunities that parted into four satisfaction components, showed that although ChatGPT-assisted gives favorable benefits to the students, ChatGPT could not overweight teachers in student engagement and motivation, classroom management, and selecting the most appropriate strategies for students of various background.

## METHODS

This study aims to examine the EFL students' perception in using AI-assisted for their academic writing assignments within a mixed-method approach. This method is chosen since it offers more in-depth studies compared to using only a single approach (Creswell, 2014). The quantitative data of this were used to identify the students' general perceptions, while the qualitative data were used to deepen the understanding on students' specific preference of AI tools and the reason behind their preferences. The participants in this study were 76 EFL students from private university in East Java, Indonesia. The university was selected because of its accessibility and relevance to the research context since the students had prior exposure to the academic writing tasks. The 76 participants were based on the total number of voluntary participants who completed the questionnaire.

The instrument used for collecting the quantitative data is a questionnaire adapted from the previous study by Selim (2023), who investigated EFL students' perception of ChatGPT in academic writing. The questionnaire is adapted to better fit the context of this study and reduce the number of items to improve clarity. Therefore, the questionnaire of this study has two sections. The first section contains 12 close-ended statements of 3 categories. The first category explores the students' awareness of AI writing tools; the second one explores the students' perspectives on the integration of AI writing tools in education; and the last category deals with the students' perception on the benefits of AI writing tools. While awareness is not the same as perception, it helps in the development of evaluative and attitudinal responses (Davis, 1989), allowing for a more comprehensive understanding of how students interact with AI when it is used in academic writing. To avoid neutralism, we adapted the questionnaire by removing the neutral section (Garland, 1991). Therefore, the Likert-type questionnaire has 4 points which are Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The close-ended section of the questionnaire is used to answer the first research question dealing with how the students perceive the AI-assisted academic writing assignments. The second section of the questionnaire consists of an open-ended question. The qualitative data were used to describe what people do in their life settings (Creswell, 2014). The open-ended questions were designed to ask the students on which AI tools they most frequently used, their reason for using those AI tools, and other AI writing tools they are familiar with. To avoid misunderstanding for the students in giving responses, the questionnaire was written in two languages, English and Indonesian.

To answer the first research question, the data were analyzed by using descriptive statistics by assigning the values of 4 for strongly agree, 3 for agree, 2 for disagree, and 1 for strongly disagree. The results of the data analysis in the form of percentages and means of the responses are interpreted on the basis of the table of interpretation by considering arguments proposed by Pimentel (2010). Pimentel stated that the difference of one scale and another should be uniform. This study used a table of mean interpretation as shown in Table 1:

Table 1. Table of Mean Interpretation	
Mean	Interpretation
1 - 1.75	Strongly disagree
1.76 - 2.50	Disagree
2.51 – 3.25	Agree

3.26 - 4

Strongly agree

Adapted from Pimentel (2010, p. 110).

On the other hand, the students' answers to the open-ended questions were analyzed using a simplified version of Braun and Clarke's (2006) thematic analysis. Since the questions were asked about students' opinions and preferences in a straightforward way, the analysis focused on identifying the repeated patterns and reasons behind their answers. All responses were organized in a spreadsheet first and commonly mentioned terms were assigned as initial codes, such as "user friendly and accessible", "accurate" and "improve the written work quality". The most commonly used tools such as ChatGPT, Grammarly and Quillbot were also recorded along with students' explanations for using them. Since the study focused on students' natural responses, the thematic analysis was carried out without using existing theories as framework. Instead, the patterns and themes were formed based on the ideas that repeatedly appear in the students' answer.

## FINDINGS AND DISCUSSION

### Students' perception of AI-assisted writing

The results of the questionnaire are established and discussed in this section. The questionnaire is divided into three categories, which are: the students' awareness of using AI in academic writing, the integration of AI in education, and the benefits of AI writing tools. For the first category, there are 2 questions proposed to know the students' awareness of AI writing tools as shown in Table 2.

Table 2. The students' awareness of AI Writing tools

Question		SA	A	D	SD	Mean
I am aware of AI writing tools (for example, Grammarly, ChatGPT, Google Translate, and QuillBot)	F	12	60	3	1	3.09
	%	16	79	4	1	
I am aware of how to use AI writing tools to assist me with my academic writing assignments.	F	3	60	12	1	2.85
	%	4	79	16	1	

The findings from the first category address the students' awareness in AI-assisted writing tools, most of the students are aware or familiar with AI writing tools (16% strongly agree and 79% agree). Furthermore, the majority of them also know how to use AI tools in assisting their writing (4% strongly agree and 79% agree). Even though there are few students who are not aware of AI tools (4% disagree and 1% strongly disagree), the mean of the findings illustrates that the majority agree, based on the table of interpretation. This is also the case with the awareness of integrating AI tools to assist the students' writing, despite the fact that there are some of them who are not aware in integrating AI (16% disagree and 1% strongly disagreed), the mean suggest that it is still acceptable to conclude that the majority of students are in agreement.

These findings are in line with Selim (2024) who found that the majority of the students are aware of AI writing tools and know how to integrate or use AI as their writing assistant. For the second category, which explores the students' perception on AI integration in education, two questions address their perception on the integration of AI in EFL education, as presented in Table 3.

Table 3. The students' perception of the integration of AI in Education

Question		SA	A	D	SD	Mean
University instructors should encourage the use of AI writing tools in coursework.	F	9	53	13	1	2.92
	%	12	70	17	1	
AI writing tools should be integrated into EFL university courses.	F	11	56	7	2	3
	%	14	74	9	3	

The explanation of the students' perspectives on AI integration in education shows that, while few of the students are in disagreement with the perspective that university instructors should promote the use of AI writing tools in the coursework (17% disagree and 1% strongly disagree), the majority of the students support it (12% strongly agree and 70% agree). Following this, the second perspective of AI writing tools that should be integrated into EFL university courses also receive major support (14% strongly agree and 74% agree), compared to those who oppose it (9% disagree and 3% strongly disagree).

Following these findings, the perception of the students in the implementation of technology is important, so that the university instructor should reconsider the establishment of AI writing tools for the students (Sumakul et al, 2023). Moreover, these findings also support the idea that the connection of AI in many fields make the university instructors and course developers need to integrate AI topics in their classes and create specialized AI courses for specific domains (Schleiss et al, 2023).

The last category that is explore the students' perception on the benefits of AI tools in assisting their academic writing. There are eight questions proposed to know their perception as shown in Table 4.

Table 1. The students' perception of the benefits of AI writing tools

Question		SA	A	D	SD	Mean
AI writing tools help me improve my academic writing (identifying mistakes, correcting grammar, or indicating spelling errors).	F	18	54	4	-	3.18
	%	24	71	5	-	
AI writing tools assists me in improving the coherence of my written content	F	4	61	11	-	2.90
	%	5	80	15	-	
The use of AI writing tools can save time when editing my work.	F	14	48	13	1	2.98
	%	18	63	17	1	
It is convenient to use AI writing tools as an essential part of my academic writing process.	F	10	54	12	-	2.97
	%	13	71	16	-	
Using AI writing tools boosts my confidence in producing high-quality written assignments.	F	7	46	22	1	2.77
	%	9	61	29	1	

AI writing tools help me meet F	13	48	15	-	2.97
deadlines for academic writing					
assignments.					
%	17	63	20	-	
AI-powered tools provide useful F	5	62	9	-	2.94
feedback in my academic writing					
%	7	82	11	-	
The accuracy of AI writing tools F	2	50	23	1	2.69
makes them indispensable for my					
academic writing.					
%	3	66	30	1	

In terms of the students' perception of the benefits of utilizing AI tools in assisting their writing, most of the students agreed that AI writing tools improve their academic writing such as identifying mistakes, correcting grammar, and pointing out spelling errors (24% strongly agree and 71% agree). AI writing tools also helps the students in making their writing more coherence (5% strongly agree and 80% agree), saving the students' time in revising their writing (18% strongly agree and 63% agree), and the majority of the students also agree that AI writing tools are essential for the students as part of their academic writing (13% strongly agree and 71% agree). Moreover, AI writing tools play the role as confidence boosters for the students in improving their written assignments (9% strongly agree and 61% agree) as the tools also help the students meet their deadlines (17% strongly agree and 63% agree) by giving the students useful feedback (7% and 82%) with its accuracy (3% strongly agree and 60% agree).

An earlier study showed that not all of the students gave a positive perception of the influence of AI on their academic writing (Abdullayeva, 2023) which is in line with the result of this study. On the other hand, although the students found it easy to use ChatGPT, they had neutral opinion on the benefit of it (Vo & Nguyen, 2024) which is different from the finding of this study which show that the students have a highly positive opinion on the benefits of AI-assisted writing. This is because the neutral option is removed in this study in order to gain better understanding of the students' polarized perception as either positive or negative.

Furthermore, the findings of this study also support the study by Badger and White (2000) about process genre approach; product approaches, process approaches, and genre approaches. Students shows that AI tools helped them in correcting grammar and spelling errors which reflect the product approach that mainly focused on structure of language and writing development. AI's ability in facilitating idea generation and coherence reflect a process-based function where in the stage of writing it is needed of facilitator to guide the students through the stages of writing. Moreover, the use of AI in academic writing tasks means that students engage with specific genres which reflect the genre approaches. Notably, AI tools appear as input provider and writing facilitator that usually fill by the teachers or model texts, highlighting the use of AI is not only to improve the quality of their writing but also manage both the social expectations and formal structures required in academic writing.

The findings of this study also can be seen through the study by Tardy (2006) on genre learning. Tardy differentiates between practice-based and instructional contexts and highlight the important aspect such as textual interaction, explicit instruction, transferability and identity. Although in this study students engage in academic writing as part of formal instruction, their independent use of AI tools like ChatGPT and Gemini shows a form of self-directed, practice-based learning. Students' positive perception toward AI use indicate that they are successfully utilize these tools across various academic tasks. However, this study also reveals growing concerns regarding overreliance and potential issues related to academic honesty.

#### *Students' Preference in AI Writing Tools*

Based on the analysis of the students' preference of AI tools, this study establishes three additional open-ended questions in the questionnaire: asking about the three AI tools that the students use the most, their reason for using those tools, and other AI writing tools they are familiar with. The data

gained from the questionnaire were analyzed using thematic analysis. To answer the second research question regarding AI tools the students most frequently use, they are shown in Figure 1, focusing on in AI-tools that are mentioned more than five times.

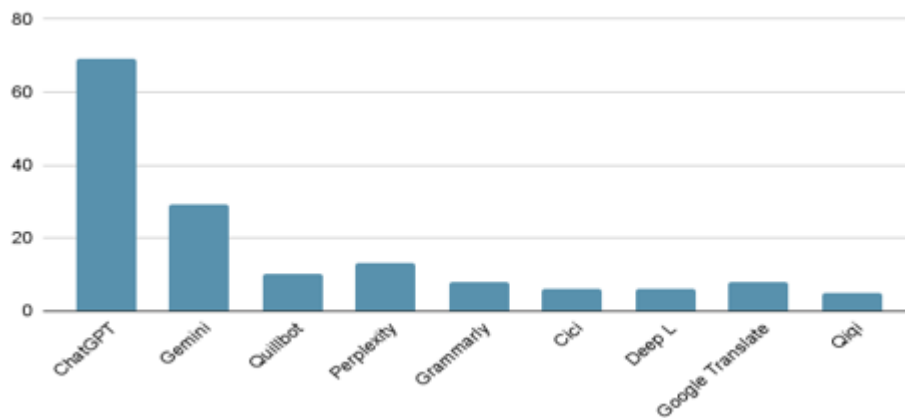


Figure 1. Types of AI-assisted Writing

Other AI-tools that mentioned less than five times are: Bard AI (n=4), Claude (n=2), suno (n=1), U dictionary (n=1), brain text (n=1), bing AI (n=1), scite (n=1), blackbox (n=1), Gamma (n=1), question.ai (n=1), studydrive (n=1), you.com (n=1).. These findings almost differ with Selim (2024) which the top three favorable AI writing tools in Selim (2024) are ChatGPT, Grammarly and Google translate, while in this are ChatGPT, Gemini and Perplexity. This difference is linked to the growing number of AI writing tools available, such as Gemini, which was released in 2024 as the development of bard AI (Google, 2024). Therefore, the students' preference in using AI writing tools may differ from time to time within the swift development of technology that brings many advanced AI technology.

Moreover, the reasons behind why the majority of the students favor ChatGPT, Gemini, and Perplexity are shown in Table 5.

Table 2. The Reasons for Favorable AI tools

AI Tools	Frequent Reason
ChatGPT	User-friendly and accessible
	Improve the written work quality
	Assist in completing assignments
	Enhance the learning experience
Gemini	User-friendly and accessible
	Assist in completing assignments
	Enhance the learning experience
Perplexity	Accurate
	User-friendly and accessible
	Improve the written work quality
	Enhance the learning experience



### Assist in making reference

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As shown in Table 5, the reasons behind the preference for ChatGPT, Gemini and Perplexity was that these AI tools are user-friendly and accessible. Furthermore, ChatGPT and Perplexity become favorable tools because they help the students in improving their written work; while Gemini is favorable as it assists the students in completing their assignments. Enhancing the learning experience becomes the third frequent reason for Gemini and perplexity while in ChatGPT, the power in assisting students in completing the assignments is the notable reason. Moreover, for the last frequent reason, ChatGPT is favored most in enhancing the students' learning experience; Gemini is favored most in its accuracy; and perplexity is most favored in making references.

In spite of the user-friendly feature of ChatGPT that makes it become the top of the AI tools that are favored by the students, it is different from the previous study which showed that the most frequent user-friendly AI is Grammarly (Wulyani et al, 2024). This is due to the fact that ChatGPT offers varied helps in improving the written work quality of the students, particularly for their written research paper (Alberth, 2023). Furthermore, in the last questionnaire that asked about other AI tools that the students are familiar with, perplexity gained some popularity among students as it became the mostly recognized tool (n=6), apart from the 33 students who answered that they were unaware of other AI tools. Perplexity has the ability to answer questions by adding quotes and references that indicate where the source of the information (Fitria, 2024). Because of this, perplexity is expected to gain popularity in the future. While Grammarly with its feature is align with the product approach (Badge and White, 2000) students nowadays increasingly favor more interactive AI tools such as ChatGPT and Perplexity which not only help them with different stages of writing but also offer clear guidance that reflect important parts of genre learning as explained by Tardy (2006).

### CONCLUSION

This study explores the students' perception of AI-assisted writing and identifies the AI tools they favor the most. The findings of this study shows that the majority of the students have positive perception on the awareness, the integration and the benefit of AI writing tools. Moreover, the findings on the top three favorable AI tools which are ChatGPT, Gemini and Perplexity can be the choice of the university instructors that are in willing to integrate AI-writing tools for their course since the majority of the students are in agreement with the idea on implementing AI tools in university courses are undeniable. Therefore, integrating AI-writing tools for EFL university students seems to hold valuable favor in assisting their academic writing assignment especially in improving the coherence of their written work and assisting with editing to meet the deadlines.

Several limitations which have not been explored in this study can be observed and the potential negative effect of AI-writing tools implementation in university coursework can be explored. Therefore, it is suggested for the future research explore the strategy and potential negative effect in utilizing AI for EFL students along with how to deal with the negative effect.

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