

# AI Writing Assistants: Insights from EMI Higher Education

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## Abstract

One of the requirements of study in an EMI university is the ability to express ideas through academic writing tasks or projects. This explanatory study aims to investigate EMI university students' strategies of using artificial intelligence-based writing assistants for college writing tasks. This mixed-method study combined survey-based instrument and interviews. The survey was distributed online, consisting of 10 likert scale statements, with 1 = strongly disagree and 5 = strongly agree and 5 close-ended questions. This likert-scale statements seek to map students' use of AI-based writing assistants in stages of writing process while the close-ended questions seek to explain their perceptions of using AI writing assistants. This questionnaire was followed by interviews to several participants, purposively selected based on their responses in the questionnaire. The survey was distributed to 101 university students from 17 study programs at one university that implements EMI. The results revealed that AI tools support EMI students throughout the whole stages of writing processes, but mainly in pre-writing, drafting, and editing stages. Furthermore, students' positive views over the support and concerns over significant reliance on the use of AI writing assistants are also discussed. Further research could investigate the long-term effects of using these tools on students' academic writing skills and academic performance.

**Keywords:** AI Writing Assistants; Academic Writing; Originality; EMI University

## INTRODUCTION

Higher education requires students to be able to engage themselves in a discussion related to their specialised academic field. This requires competence to digest information from reading books and listening to lectures, and to later utilize those academic discourses in a discussion, both spoken and written tasks. Specifically, writing is a complex activity that requires not only cognitive abilities but also the ability to define goals, solve problems, and strategically utilize memory resources (Allen & McNamara, 2017). While it might still be hard for students whose first language is English, this activity becomes more challenging for students who speak English as a Foreign Language (EFL) or, in this research context, those studying in an EMI university (Doloksaribu & Simanjuntak, 2021). Particularly in writing tasks, findings from previous studies suggest that EMI students are struggling throughout the writing processes, from planning, organizing, revising, editing, to publishing (Fenton-Smith & Humphreys, 2017). Academic writing requires the skills to engage with scientific literature and discipline-specific discourse and to manage work systematically during stages of writing process (Tajik et al., 2022; Karisma & Lestari, 2023). Writing processes consist of five stages: prewriting, drafting, revising, editing, and publishing (Tompkins, 1994, as cited in Laksmi, 2006). Writing processes are not linear, students might go back and forth from one stage to another during writing. The first stage is Prewriting. In this stage, students research information regarding their topic to finally specify the scope of their writing. They will do further research to gather ideas to support their writing and organize them in the form of an outline. The second stage is drafting. In this stage, students write their first draft by writing all the ideas without really thinking about the mechanics of their writing, such as word order, punctuation, capitalization, spelling, grammar,

etc. the third stage is revising. In this stage, students share their writing to peers or teachers to receive feedback. With the emergence of online tools, this can be done with AI. Students type a prompt or use a specific feature of an AI tool to check their work. Some AI may correct their work directly, other might need the student's approval or give suggestions only. These feedbacks are used by the students to revise their writing. The fourth stage is editing. In this stage, students focus on checking the mechanics of their work and correcting them. Finally, in the publishing stage, students will submit their writing to their teacher.

The emergence of artificial intelligence (AI)-based tools plays a significant role in assisting EFL students throughout the stages of writing process and support the development of their writing skills. The development of AI is demonstrated by the emergence of word-processing applications, such as Grammarly and Quillbot, whose features are beneficial for both professional writers and students (Malik et al., 2023). This research emphasizes the importance of student characteristics and trust in their interaction with AI tools. In addition to that, another study also discusses the development and impact of AI writing tools on EFL writing instruction, focusing on grammar, syntax, content, and organization (Nurmayanti & Suryadi, 2023). They highlight the potential benefits of AI writing tools, such as providing real-time feedback, improving vocabulary and language use, producing creative and coherent texts, and facilitating literature searches. The ability of these AI writing assistants to help improve the quality of student's writing is proven by their ability to paraphrase and correct grammar. They can also identify and correct specific grammar and spelling errors to ensure technical accuracy. Moreover, they play a role in maintaining appropriate language usage, ensuring the selection of words and phrases that suit a particular context. Apart from rearranging sentences, they can also tidy up the structure and increase writing coherence (Mansoor & Al-Tamimi, 2022).

The development of artificial intelligence (AI) applications has opened up new opportunities in developing English language education in internationally based university environments that adopt EMI. AI's success in improving students' English writing skills is based on its ability to present personalized and focused solutions, adapting learning methods to individual needs. In an educational context, AI-based applications embraces the idea that the use of AI can shape learning experiences that are more adaptive, efficient, and tailored to the needs of individual students. In writing contexts, these applications have demonstrated the ability to improve the quality of writing with features such as paraphrasing, grammar correction, and improved writing structure.

The rapid development of AI writing assistants have attracted significant attention from researchers, educators, and writers because of their potential to revolutionize the writing process and improve language skills (Raheem et al., 2023). Previous research suggests that traditional language and writing learning practices face several problems, including the anxiety-ridden nature of assessment, punitive use of assessment, bias in assessment against marginalized groups, a focus on surface features of writing, and the lack of influence teachers have over assessment criteria and instruments (Alfaki, 2015). Therefore, the development of AI in the context of language education marks a very valuable and essential breakthrough.

AI writing assistants can revolutionize language education by empowering the creation of intelligent tutor systems. These systems can create a learning experience that suits each student. They can analyze and understand each student's way of learning, strengths, and places that need improvement (Reguig & Mouffok, 2023). They use technology to pay close attention to students' performance and provide appropriate advice. This helps students learn the language better and more efficiently.

Despite the proven supports of these AI writing assistants, some concerns arise from both teachers and learners. From learner's points of view, one of the biggest concerns towards the use of AI is the accuracy of information generated by AI. While the text generated by AI might seem credible and relevant, the references used often lack of accuracy which lead to

misinterpretation of information (Kim et al., 2024). Previous studies have also raised teacher’s concerns on the potential risk of learner’s decreased writing skills as a long term effect of on AI writing assistants. However, limited information is available to provide empirical evidences and deep analysis towards the real risks of using these tools.

In addition to that, although several studies have investigated AI-writing assistants in EFL classrooms and outlined their significant impact, limited number of studies have captured the experiences of undergraduates at universities implementing EMI in using AI writing tools as a part of their regular writing assistants. EMI student’s frequent need to do writing tasks in English and their long exposure and familiarity with AI writing tools are expected to provide rich data about EMI students’ writing experiences with AI writing assistants. Therefore, the following research questions are formulated: 1) How do EMI students use AI writing assistants during their writing process?; 2) What are student’s views and concerns over the use of AI writing assistants?

**METHOD**

**Research Design**

This study is an explanatory study that combines quantitative and qualitative research design and data (Creswell, 2015) to map EMI students’ strategy in utilizing AI writing assistants during their academic writing process. Following the survey results, the qualitative data was gathered through interviews to explain the reasons behind their choices and their concerns towards their use of AI writing assistants. This information was expected to inform future pedagogic practices of incorporating AI writing assistants in EMI university.

**Participant and Context**

This study was conducted in a private university in Indonesia that implements EMI. The university provides 6 non-credit supplementary English classes that are offered during the first 6 semesters. These classes are designed to equip students with skills to perform in an English-speaking university, such as Survival English, Academic Writing, Professional English, etc. Purposive sampling techniques were used to select respondents to ensure that all of them were familiar with AI writing assistants. In order to gain detailed and relevant description, all participants taking Academic Writing class were invited to join the study. Participation of students were voluntary. There were 101 respondents participating in the survey, coming from 19 different study programs. The demographic information of the participants can be seen in Table 1.

**Table 1.** Demographic Data of Participants (N = 101)

Demographic	Value	Frequency	Percentage (%)
Gender	Male	35	34.7
	Female	66	65.3
Major	Agribusiness	2	2
	Actuarial Science	3	3
	Accounting	7	6.9
	Architecture	1	1
	Business Administration	6	5.9
	Interior Design	1	1
	Visual Communication Design	1	1
	International Relations	15	14.9
	Law	3	3
	Communications	16	15.8
	Information Technology	22	21.8
	Management	9	8.9

	Elementary Teacher Education	2	2
	Information System	8	7.9
	Industrial Engineering	1	1
	Environmental Engineering	3	3
	Mechanical Engineering	1	1
Batch	2021	4	4
	2022	68	67.3
	2023	29	28.7
Age	<18	5	5
	18-23	95	9
	>23	1	1

### Data Collection and Analysis

This study employs an explanatory mixed-methods research design. The data was collected sequentially: through an online questionnaire and an interview. The questionnaire consisted of 10 likert-scale statements and 5 close-ended statements which aimed to map students' strategy in using AI writing assistants throughout the writing process. The results were used to create a follow-up semi-structured interview. The interview aimed to gain further insights into the reasons behind their choices of using certain AI writing assistants or their concerns for not using them. The AI writing assistants being studied were chosen based on student's top 3 mostly used assistants: Grammarly, Quillbot, and ChatGPT. These tools were selected based on researcher's prior classroom observation and discussion with the students in Academic Writing classes. A descriptive analysis was employed to analyse the quantitative data, and a theme analysis was employed for the qualitative data. The themes of the qualitative data were expected to inform an interpretation of the quantitative data.

## RESULTS AND DISCUSSION

### Results

The first research question seeks to explore how EMI students use AI writing assistants throughout the writing process. This includes their familiarity, frequency, purposes, and perceptions of using AI writing assistants. Overall, the results of this study reveal that AI writing assistants were utilized in all stages of writing process. Figure 1 provides information about the length of time students have used AI writing assistants. According to the figure, Grammarly was the tool they had spent the longest time of using, with 67 students (66%) reported that they had used it for more than two years, followed by Quillbot which had been used for over two years by 37% and One to two years by 47% of the participants. However, ChatGPT is the tool that was used between one and two years by 87% of the participants. This means that these students have been using it approximately since its first launched to public.

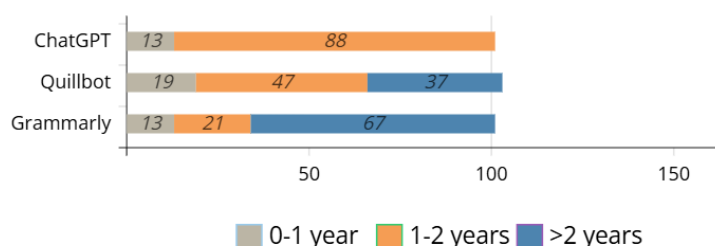
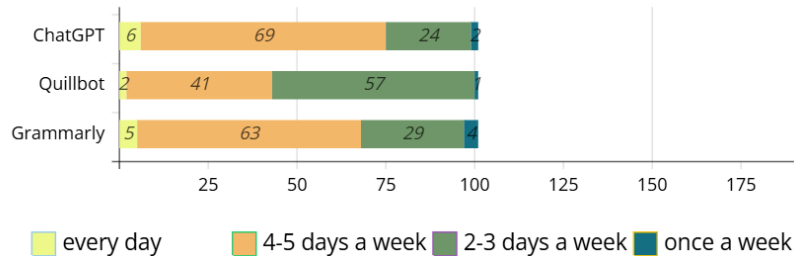


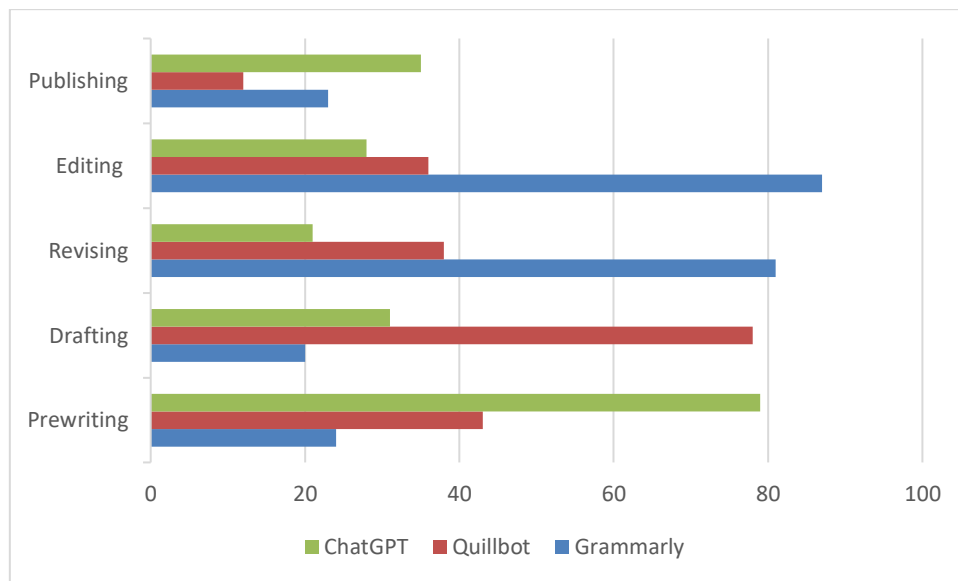
Figure 1. Student's Experience in Using AI Writing Assistants

Figure 1 explains the frequency of using AI for writing purposes. The data shows that EMI students used AI very frequently. Chat GPT is the most frequently used, with more than two-thirds of the participants using it 4-5 days a week; followed by Grammarly which was used 4-5 days a week by 62% of the participants, and Quillbot was by 41% of the participants with the same frequency. Around 4% of them even reported using these tools every day.



**Figure 2.** Frequency of Using AI Writing Assistants

Figure 3 shows the applications used throughout the stages of writing process: prewriting, drafting, revising, editing, and publishing. As can be seen in Figure 3, Grammarly are popularly used for revising and editing purposes. Meanwhile, Quillbot is mainly used in the drafting stage. However, ChatGPT are most frequently used during the prewriting stage.



**Figure 3.** Applications Used for Writing

Table 2 provides data on EMI students use of AI throughout the writing process. Question 1 to 4 explains how AI is used in the prewriting stage. The data reveals that more than half of participants (61.4%) used AI as a search engine to gather relevant materials prior to their writing. Similarly, 62.5 % of them used AI as a summarizing tool to understand text better. In contrast, not many of them (31.75) used AI to arrange their ideas into an outline. Then, a similar proportion (33.6%) used AI as translation tool.

In the drafting stage, the majority of participants (84.2%) composed text with the support of AI paraphrasing tools. However, only 5.8% of them used it to generate citations and references. In the revising stage, a considerable number of students revised their writing with the words or phrases suggested by AI. In the editing stage, most students relied on AI to check spelling and

grammar (92.2% and 95.1%). Lastly, slightly over three-quarters of the participants (77.3%) utilized AI plagiarism detection tool to ensure the originality of their writing.

**Table 2.** Student’s Use of AI throughout the Writing Process

No.	Writing Process	Attribute	Level of Agreement (%)				
			1	2	3	4	5
1.	Stage 1: Prewriting	I utilize AI as a search engine/to gather relevant materials.	2.9	7.9	27.8	33.6	27.8
2.		I improve my understanding of texts by utilizing AI to summarize them.	1.9	4.9	30.7	29.8	32.7
3.		I utilize AI-generated outlines to arrange my ideas before writing.	7.9	12.9	47.5	14.9	16.8
4.		I improve my understanding of a text written in foreign languages by using AI-powered translation.	18.8	34.7	12.9	26.7	6.9
5.	Stage 2: Drafting	I utilized AI to help me paraphrase texts.	0	0	15.9	62.4	21.8
6.		I utilized AI to generate citations and references.	6.9	67.4	19.8	3.9	1.9
7.	Stage 3: Revising	AI provided me with word or phrase suggestions to improve my writing.	1.9	8.9	8.9	56.4	23.8
8.	Stage 4: Editing	I examined and improved my work using AI-powered spelling checkers.	0	3.9	3.9	59.5	32.7
9.		I examined and improved my work using AI-powered grammar checkers.	0	0	4.9	63.4	31.7
10.		Stage 5: Publishing	I used AI-based plagiarism detection to ensure the originality of my writing.	1.9	14.9	5.9	45.6

Level of agreement: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree (2, 4, 7, 8, 9)

Level of agreement: 1=Never; 2=Rarely; 3=Sometimes; 4=Frequently; 5=Always (Question 1, 3, 5, 6, 10)

Table 3 presents information about how EMI students perceive their use of AI writing assistants. Regarding fostering creativity, there is no clear trend as student’s responses were quite fairly distributed into Disagree (25.8%), Neutral (23.8%), and Agree (30.6%). In the following statement, however, almost half of the participants (43.6%) admitted that AI reduced their critical thinking in writing. In the next, two statements, the participants praised AI for improving their writing skills and their confidence in writing (66.3% and 85.3). Despite the helpful support provided by AI, more than half of them perceived that AI do not always provide reliable or accurate information.

**Table 3.** Student’s Perceptions of AI Use

No.	Attribute	Level of Agreement (%)				
		1	2	3	4	5
1.	AI fosters my creativity in writing.	13.9	25.8	23.8	30.6	5.9
2.	AI fosters my critical thinking in writing.	3.9	43.6	24.8	25.7	2
3.	AI improves my writing skills.	9.9	9.9	23.8	46.5	19.8
4.	AI improves my confidence/reduces anxiety in writing.	0.9	2.9	10.9	52.6	32.7
5.	Information provided by AI is always reliable/accurate.	14.9	37.6	35.7	7.9	3.9

Level of agreement: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree

To answer research question 2, interviews to 10 selected participants were conducted to gain deeper insights on their perceptions of using AI: praises and concerns. There are four main aspects of AI writing assistants that the participants praised during the interview. First, AI writing assistants can improve the quality fo their writing. Participants lauded Grammarly for



its real-time grammar and spelling suggestions, highlighting its ability to enhance clarity and professionalism in writing.

*It has the ability to provide real-time grammar and spelling suggestions as I write. This feature helps users catch errors and suggest words to improve the clarity and professionalism of my writing, which is invaluable when creating papers or other written content. (P14)*

*Grammarly can revise my sentences, making it much shorter and sounds more professional. (P33)*

*Grammarly helps me improve my grammar, punctuation, and overall writing clarity, while QuillBot aids in paraphrasing and rewriting sentences to enhance fluency and coherence. (P72)*

Additionally, QuillBot's paraphrasing feature was highly praised, with several users emphasizing its value in retaining original meaning while crafting engaging content.

*One of the standout features of QuillBot that I appreciate the most in helping me write and create papers is its remarkable ability to rewrite and paraphrase text while preserving the original meaning. This feature is invaluable for crafting unique and engaging content while ensuring the core ideas remain intact. (P92)*

Second, AI writing assistants can act as a learning platform. Several participants recalled having learned from the revision done by AI to their sentences. P14 stated: *“I make repeated mistakes in grammar. The feedback from Grammarly makes me aware of my mistakes and understand the right structure because of its consistent grammar correction”*.

Third, AI reduces anxiety during writing processes. P33 claimed that AI acts as a company during the drafting process. P5 echoed a similar experience about the editing process, claiming that receiving feedbacks generated by AI makes them less anxious compared to receiving it from teachers and peers.

*I often ask questions to ChatGPT during my writing, especially when I want to confirm something. It makes me less stressed and stuck. It feels like I have a friend. (P33)*

*I know we should not be ashamed to ask questions about grammar, but I am always nervous whenever I show my work to my teacher or friends. ... I am afraid of being judged as stupid. ... AI does not make me feel nervous. (P5)*

Fourth, writing with AI improves student's communication skills. P92 states: *“To get the answer I expected, I have to formulate specific questions and instructions. I learn that the more detailed my prompts are, the more effective they will be”*.

Fifth, AI writing assistants improves student's understanding of a complex and long text. This comment is repeatedly mentioned by all participants, suggesting that AI has the ability to simplify information, which helps EMI students, whose first language is not English, to see the bigger picture of a long and complex discussion. However, this is a two-sided object that may sacrifice a valuable lesson in writing: analytical thinking, as reported by P83.

*“It’s hard to say whether it affects my analytical thinking more in a positive way or in a negative way. AI summarizing tool helps me finish and understand my reading, but reading the summary makes me less interested to read the full text again. Maybe the negative is my understanding will not be thorough. (P83)*

Another concern is the accuracy of the information provided by AI. While AI systems like ChatGPT are designed to generate coherent and contextually relevant responses, they are not infallible. AI often relies on large datasets that may include outdated, biased, or incorrect information. An example of this happens in a word level, as recounted by an IT student (P66).

*Quillbot’s ability to handle domain-specific terminology and academic jargon may need to be improved. I once found that networking skills as in network programming skills are paraphrased into socializing skills. (P66)*

The third concern is regarding the ethical boundaries. All the interviewed participants reported that they are not sure how far they can allow AI to support them in writing. AI’s support is huge, starting from researching and outlining process, to the publishing stage. Therefore, having an ethical guidelines of the use of AI in writing from the university will help students to confidently use AI in their writing. At the same time, some participants reported feeling reluctant to use AI as a text generator, thinking that it might spoil their thinking and in the long run, making them not perform well in the professional world after they finish their education.

## **Discussion**

This study reveals that EMI students do not only see AI as an assistant, but as a partner. First, they do not only perceive AI as a tool to proofread their writing (correcting grammatical mistakes, punctuation, spelling, etc.), but also as a writing partner, a platform for them to identify their weaknesses and develop their sensitivity of academic writing discourses (Kim et al., 2024). Due to its personalized, instant, and consistent feedback, AI can improve student’s English writing skills. By suggesting improvements, indentifying common errors, AI allows them to have continuous practice and refinement.

Furthermore, AI provides a safe place to learn by offering constructive feedback without any emotional pressure or negative social consequences. This fosters a sense of comfort, allowing learners to experiment and make mistakes without the worry of being judged, which often makes writing experience more stressful. This resonates with the previous findings which stated that AI writing assistants provide students with “emotional comfort and support in the virtual environment” (Kim & Cho, 2023).

AI feedback can transform the writing experience by offering real-time, supportive responses that make learners feel as though they have a companion guiding them through the process. This constant interaction helps break the solitude often felt during writing, as learners receive encouragement, suggestions, and constructive criticism, much like having a friend to bounce ideas off of. With enough datasets and training, AI can be a social robot which has the ability to interact and communicate with humans as in human-human interaction, which is important for language development process (Van den Berghe et al., 2019). Additionally, when AI provides prompts, it encourages learners to think more clearly and organize their thoughts effectively, improving their communication skills. By refining how they phrase requests and express ideas in prompts, learners develop a deeper understanding of how to communicate their



needs, leading to more focused and efficient writing sessions without the frustration of getting lost in their thoughts.

However, the use of AI writing assistants by EMI students raises significant concerns regarding the potential reduction of analytical thinking. Students may rely heavily on AI to generate structured essays, arguments, or responses, potentially bypassing critical processes such as brainstorming, researching, and synthesizing ideas. Over time, this dependency may erode their ability to think independently and critically engage with topics, which are vital skills for academic and professional success. Other research supports this concern, highlighting that tools providing pre-formed solutions can discourage students from actively engaging with content and developing their problem-solving skills (Luckin et al., 2016).

Previous studies have suggested potential risks of students submitting or relying on flawed materials because of not cross-checking the content generated by AI against credible sources risk. Instances of AI confidently presenting incorrect information, known as "hallucinations," further emphasize this issue (Alkaiissi & McFarlane, 2023). For EMI students, who might already face challenges with language comprehension, discerning the validity of AI-generated content can be particularly problematic.

Lastly, over-reliance on AI writing assistants can stifle creativity and originality. These tools often produce responses that adhere to common patterns and structures, which may discourage students from exploring unique ideas or expressing their personal voice. (Lund & Wang, 2023; Tlili et al., 2023). Academic institutions emphasize originality as a cornerstone of scholarship, and AI's propensity to recycle widely available content could inadvertently lead to plagiarism or a lack of innovative thought. Studies suggest that habitual dependence on technology can inhibit intrinsic motivation to create and think divergently, limiting long-term intellectual growth. For EMI students, balancing the convenience of AI tools with the cultivation of their own creativity is critical to avoiding such pitfalls.

## CONCLUSION

This research explored the use of AI writing assistants among EMI students, examining their application during the writing process and students' perceptions of these tools. The findings reveal that AI tools such as Grammarly, Quillbot, and ChatGPT are widely employed by students for tasks like grammar correction, paraphrasing, and enhancing text coherence. Students rely on these tools across all stages of writing, from prewriting to publishing, demonstrating their role in reducing anxiety and improving writing quality. The tools were particularly appreciated for their ability to provide real-time feedback, simplify complex texts, and serve as a learning platform for grammar and sentence structure. However, concerns arose regarding the over-reliance on AI, with students acknowledging potential impacts on critical thinking and creativity.

Despite the benefits, this research highlighted significant limitations of AI writing assistants. Many participants expressed concerns about the accuracy and reliability of AI-generated content, as errors or misinformation could undermine the credibility of their work. Additionally, over-reliance on AI was seen as a barrier to developing analytical thinking and originality, skills essential for academic success. The study underscored the need for balanced use of AI tools, emphasizing their role as supportive aids rather than substitutes for independent writing and thinking skills.

Future research could expand on these findings by investigating the long-term impacts of AI writing assistants on students' writing development and critical thinking skills. Additionally, exploring the experiences of educators in managing AI integration in EMI classrooms could provide valuable insights into effective pedagogical strategies. Comparative studies between

EMI and non-EMI students regarding AI usage might also shed light on differences in dependency, challenges, and outcomes in diverse learning environments.

## ACKNOWLEDGMENTS

This study is funded by the grant from Lembaga Riset dan Pengabdian kepada Masyarakat (LRPM) of President University, 2024

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