

GENERATIVE AI IN EFL WRITING: EFFECTS ON ANXIETY AND STUDENT PERCEPTION

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ABSTRACT

This study analyzes changes in writing anxiety levels among English as a Foreign Language (EFL) students following the implementation of generative artificial intelligence (generative AI) in academic writing, while also exploring their perceptions of its use in that context. The study employs a mixed-methods approach with a pre-experimental design, in which quantitative data were obtained through pre- and post-intervention measurements using the Second Language Writing Anxiety Inventory (SLWAI), while qualitative data were collected through semi-structured interviews. The sample consisted of 21 EFL students. Quantitative analysis results showed no statistically significant difference in writing anxiety levels before and after AI use, although there was a slight increase in the mean score. Meanwhile, qualitative findings revealed that students viewed generative AI as a versatile tool that supports grammar checking, idea development, and improved writing efficiency. However, concerns were raised regarding contextual mismatches, overreliance on AI, and a decline in critical thinking skills. Overall, the results of this study suggest that while generative AI provides educational support for academic writing, its impact on reducing writing anxiety is complex and requires careful integration, supported by expertise in AI and effective teaching practices.

Keywords: Artificial Intelligence, Writing Anxiety, EFL Students, Students Perceptions of AI, Academic Writing

A. INTRODUCTION

Artificial intelligence (AI) technology has fundamentally transformed the landscape of education by providing more personalized learning experiences, reducing administrative burdens, and enabling data-driven analysis. Both inside and outside the classroom, a variety of AI-based tools can tailor educational content to individual students' needs, provide adaptive guidance, and drive innovation in the use of technology within the education sector. AI's extraordinary ability to process large volumes of data rapidly and identify complex patterns has had a significant impact on research processes, data analysis, and the creation of new knowledge (Shaikh et al., 2022). One of the key advantages of applying AI in education lies in its capacity to evaluate student progress and performance data (Ahmad et al., 2021).

In an era of rapidly advancing technology, students are becoming increasingly accustomed to various tools that support their writing activities. In the realm of academic writing, the primary challenges for EFL learners often arise from complex cognitive, linguistic, and emotional demands. As noted by Saleh et al. (2026), academic writing differs from other language skills, requiring students to construct well-structured arguments, employ formal academic language, and integrate evidence from diverse sources. Recently, the use of generative AI tools has become increasingly widespread in academic work activities, such as essay writing, paraphrasing, and idea development. Rapid advancements in AI have triggered profound changes in various aspects of education, particularly in the processes of drafting and creating academic works that demand critical thinking, mastery of standard language, and adherence to academic norms (Putriana, 2025). Furthermore, this technology is capable of generating a wide variety of content, such as poetry, political statements, and even scientific papers, which are often difficult to distinguish from human-generated work (Bullock and Oroz, 2019). Innovations like AI have had significant impact and ushered in a new era of technological development, including in the field of education, and have proven effective in solving complex problems across various sectors, particularly in education (Suryani and Fithriani, 2024).

Several prior studies have highlighted the role of AI in developing EFL students' writing skills. Marzuki et al. (2023) concluded that the use of AI-based writing tools, such as Quillbot, WordTune, Jenni, ChatGPT, Grammarly, Paperpal, Copy.ai, and Essay Writer, has a positive impact on improving the quality of students' writing, particularly in terms of content and organization. Similar findings were reported by Ozfidan et al. (2024), through survey of 189 novice academic writers, indicating that AI tools such as ChatGPT, Grammarly, and Google Translate aid in idea generation, grammar correction, and time-saving, although some respondents expressed concerns regarding accuracy and over-reliance on technology. A literature review by Munawwaroh and Fahreza (2025) further emphasizes the crucial role of AI technology in providing instant feedback, facilitating self-directed learning, and boosting students' confidence in writing, although issues of dependency and ease of access remain barriers. Furthermore, Hardinansyah and Hamidah (2024) report that students utilize technological tools to understand grammar, enrich their vocabulary, and produce more structured and coherent texts.

Although most studies report positive outcomes from AI-assisted writing, research examining its relationship with psychological factors, particularly writing anxiety, remains limited. For example, Yılmaz and Üstünel (2025) investigated the correlation between students' perception of AI use and anxiety about writing in a foreign language, and found a weak relationship, indicating that AI use does not significantly affect anxiety levels. This suggests that empirical evidence regarding the affective impact of AI-assisted writing remains inconclusive. Furthermore, the majority of existing studies emphasize the benefits of AI tools for improving writing quality and linguistic skills, while mixed-methods approaches that measure and explore changes in writing anxiety following AI interventions, along with students' perspectives on generative AI in EFL academic writing, are relatively rarely applied. Consequently, the emotional and psychological aspects of AI-assisted writing remain under-explored.

Based on the identified research gap, this study aims to analyze changes in EFL students' writing anxiety levels following the implementation of generative AI in academic writing. Additionally, this research explores students' perspectives on the use of generative AI in

writing, including their understanding of its role and potential benefits during the writing process. By considering emotional aspects and learners' perspectives, this study is expected to contribute to a broader understanding of the pedagogical application of AI implementation in academic writing within the EFL context. Given this research and the gaps identified in previous studies, this study focuses on changes in students' writing anxiety after the use of generative AI in academic writing, as well as students' perspectives on the use of AI in writing tasks. To achieve these main objectives, this study refers to the following research questions:

RQ 1: How does the integration of generative AI affect students' writing anxiety in academic writing assignments?

RQ 2: What are students' perspectives on using generative AI in writing?

B. METHOD

This study adopted a mixed method with a pre-experimental design to examine changes in students' writing anxiety after the integration of generative AI in academic writing and conducted interviews to explore students' views on the use of artificial intelligence (AI) in writing academic assignments. According to Creswell (2014), a pre-experimental design refers to a basic type of quantitative research that does not involve a control group and does not apply random assignment when placing participants into different conditions. This design is commonly viewed as an initial or exploratory approach, which is mainly used to examine the effect of a particular intervention, treatment, or variable on a single group of participants before moving on to a more rigorous or fully developed experimental study.

A quantitative method was used to measure changes in students' levels of writing anxiety. A paired t-test was conducted using the Second Language Writing Anxiety Inventory (SLWAI) developed by Cheng (2004), which has been proven to have good construct validity and reliability in previous EFL studies, as well as the Perception of AI Usage Scale (PAS) designed by Aydin (2024). A paired t-test was chosen to analyze writing anxiety levels before and after the intervention, as this test is most appropriate for evaluating differences between two related measurements from the same group of participants at different times (Talikan et al., 2025). A total of 21 third-semester students in the English Language Education Program at a private university in Yogyakarta participated in the study; they were selected through purposive sampling based on their prior experience in academic writing. This study was conducted in three phases: pre-intervention, implementation of the treatment through the integration of AI in writing instruction, and post-intervention, to observe changes in writing anxiety and gain a deeper understanding of the students' experiences and perspectives. Quantitative data analysis was performed using IBM SPSS Statistics software through descriptive statistics and paired t-tests at a significance level of 0.05 (Creswell and Creswell, 2018).

This intervention was implemented over four weeks in an advanced grammar course, selected because it also included academic writing exercises. During writing activities, students were encouraged to utilize AI as a supportive tool in their writing process. The instructional materials were structured around four generative AI tools to support students' academic writing tasks: ChatGPT, Grammarly, WordTune, and Hemingway. Each unit included guided activities in which students were asked to compose a paragraph or short essay. Generative AI tools were integrated at every stage of the writing process: during the brainstorming phase, AI was used to generate ideas and outline the structure; during the

drafting phase, AI assisted with sentence development and grammar checking; and during the revision phase, students were encouraged to review and revise their drafts based on AI feedback. This approach allows students to utilize AI as a tool, not a substitute for their independent writing process.

Furthermore, a qualitative approach was applied to explore students' perspectives on the use of generative AI in academic writing activities through semi-structured interviews. The interview questions were adapted from the study by Kim et al. (2025) titled "Exploring students' perceptions of academic writing supported by generative AI", which involved eight university students. Qualitative data was utilized to provide a deeper understanding of the application of generative AI in writing instruction. To identify themes emerging from participants' perspectives regarding the use of generative AI in academic writing, this study employed thematic analysis following seven steps: transcription, data familiarization, coding, thematic analysis, data reduction, interpretation, and validation (Kim et al., 2025). The interviews were initially conducted online via Google Forms and then fully transcribed to capture every detail and expression of the participants. Subsequently, the researcher familiarized themselves with the data through repeated readings to gain a comprehensive understanding of the content and context of the interviews. The analysis continued with the grouping of interview data based on each participant's perspectives into thematic patterns. The next stage focused on identifying new codes and themes not previously detected. The resulting subtopics were then systematically analyzed, either by combining existing themes or breaking them down into more specific subtopics identified through the analysis process were carefully examined.

The results of this study are expected to provide valuable insights for English language educators and curriculum designers in efficiently integrating AI tools into the writing instruction process. The research will also benefit students by supporting the development of self-confidence, reducing writing anxiety, and improving their writing skills. Additionally, this study may contribute to future research on the use of AI in language teaching, particularly regarding writing.

C. FINDINGS AND DISCUSSION

This study examines changes in students' writing anxiety levels following the implementation of generative AI in academic writing activities, while also exploring students' perspectives on its use in the writing process. The focus of the study is not limited to the final written output but also encompasses students' experiences during the AI-assisted writing process. The research findings were derived from an analysis of questionnaire data designed to measure variations in students' writing anxiety levels. Additionally, interviews were conducted with students to explore their views on the use of generative AI, including perceived benefits, limitations, and their perceptions of AI as a supportive tool in the academic writing process.

1. Changes in Students' Writing Anxiety After the Integration of Generative AI

This study aims to explore changes in students' levels of writing anxiety after the application of generative AI in academic writing, as well as students' views on the use of generative AI in writing activities. The data obtained from this study were collected through a paired sample test, which compared students' writing anxiety scores before and after the intervention, namely before and after the use of generative AI tools. A summary of the descriptive statistic from the pre- and post-intervention result is shown in Table 1 to illustrate students' levels of writing anxiety.

Table 1. Paired Samples Statistics

Pair 1	Mean	N	Std. Deviation	Std. Error Mean
PRETEST	3,2287	21	,33556	,07322
POSTEST	3,3027	21	,28918	,06310

Based on Table 1, the average level in writing among students was recorded at 3.2287 in the pre-intervention phase, while the average after the intervention was slightly higher at 3.3027. These findings indicate a slight increase in students' anxiety levels in writing after using generative AI tools. Furthermore, the relationship between the pre- and post intervention scores in the same sample can be seen in Table 2.

Tabel 2. Paired Samples Correlations

Pair 1	N	Correlation	Sig.
PRETEST & POSTEST	21	,094	,686

A correlation coefficient of 0,094 indicates a very weak relationship between students' writing anxiety levels before and after the intervention. A level of significance of 0.686 further confirms that this relationship is not statistically significant. The results of the paired t-test presented in Table 3 were used to evaluate variations in students' writing anxiety levels following the intervention.

Table 3. Paired Samples Test

Pair 1	Paired Differences					t	df	Significance (2-tailed)
	Mean	Standar Deviation	Standar Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
PRETEST - POSTEST	-,07401	,42190	,09207	-,26606	,11804	-,804	20	,431

The average difference in pre- and post-intervention scores of -0.07401 indicates no significant reduction in students' writing anxiety levels. This finding is supported by the results of the statistical analysis, which show a t-value of -0.804 and a two-tailed significance level ($p = 0.431$) exceeding the significance threshold of 0.05, meaning the difference is not statistically significant.

The quantitative findings in this study reveal that students' writing anxiety levels increased slightly after using AI, although the difference was not statistically significant. These results indicate that the integration of AI has not yet shown a reduction in writing anxiety as previously expected. However, this small increase could be a sign that students are more aware and engaged when writing, especially in the context of academic writing. Based on the findings, it is not a matter of negative results, but rather an increase in cognitive awareness. Students feel helped by AI, but on the other hand, they become more aware that academic writing is complex and challenging. Thus, they feel helped, but also become more critical and meticulous in their writing. When students interact with AI that provides feedback and suggestions, they become more concerned about linguistic correctness, academic rules, and the quality of their writing. This can make them a little anxious, but it is a sign that they are becoming more critical and meticulous in their writing. Previous studies have also found the same thing, namely that when writers are aware of high writing standards, they become more critical of themselves and more concerned about other people's assessments of their writing. This is natural, because the more we know what is expected, the more we want to perform well (Hwang, 2025).

2. Students Perspectives on the Use of Generative AI in Writing

This study examines the concept from Kim et al. (2025) research, "Exploring students' perception on academic writing supported by generative AI." Through in-depth interviews with eight students. This study reveals that ChatGPT is considered a tool that provides various benefits in academic writing. The findings of this study are then divided into three main themes. The first theme is students' perception of expected roles of AI in academic writings tasks. This theme explains how students expect AI to act as an assistant in writing, for example by helping to develop ideas and clarify language use. The second theme, the benefits of generative AI in academic writing based on student experiences, emphasizes the advantages gained from using AI, particularly in increasing efficiency and reducing mental load. The third theme, the challenges students face when writing academically with generative AI, reveals various perceived limitations, including concerns about excessive dependence.

Expected Roles of AI in Academic Writing Tasks

Based on the interview results, students view AI as a multifunctional assistant in their academic writing process. Two main perceptions that emerged from the respondents include AI's role in technical language aspects and its role in idea development. From a linguistic perspective, students use AI to refine grammar, word choice, and sentence structure, making their writing more polished and easier to understand. Meanwhile, in idea development, AI is used to generate initial ideas and provide additional perspectives when students experience writer's block or uncertainty during the writing process.

AI for Grammar Checking

Based on their experiences, all participating students agreed that Generative AI was very helpful in completing academic writing assignments. They believed in AI's linguistic ability to improve the grammar in their writing. The majority of participants initially viewed AI as a tool to fulfill the technical aspects of their writing. As mentioned by some participants:

“At first, I thought Generative AI would only help with grammar, but during the writing task it also helped me develop ideas and organize my writing”

(Participant 8).

“I expected Generative AI to help check and improve my grammar because it has a strong knowledge of English.”

(Participant 4)

“At first, I expected Generative AI to mainly help with grammar and vocabulary”

(Participant 3)

This focus on grammar and vocabulary shows that students see AI as a practical solution to overcome language barriers in academic writing. This finding is in line with previous studies that mention that EFL students tend to utilize AI-based technology as a linguistic tool to reduce language errors and increase confidence in writing (Nguyen, 2025). In the context of writing instruction, this perception suggests that Generative AI can be positioned as an initial support tool in the writing process, particularly to help students overcome linguistic difficulties before they develop ideas and arguments independently.

AI for Supporting Idea Brainstorming

Based on their experiences, students expect AI to assist in the process of deeper understanding, particularly in the pre-writing stage, such as finding inspiration and organizing their train of thought. This finding reveals that AI acts as a partner that helps students discuss conceptual confusion that often arises in the early stages of writing. Interestingly, students also began to trust AI as a “guide” in structuring arguments and clarifying ideas that were still immature. This was confirmed by some participants' statements:

“The role that I expect from AI during my writing assignment is as a tool to help me get inspiration for writing and this is my hope because sometimes, I was confused about getting inspiration”

(Participant 2).

“I realized that it could also help with organizing ideas and improving overall coherence”

(Participant 3)

“Expected Generative AI to act as a writing assistant, helping me organize ideas, improve grammar, and suggest appropriate academic expressions”

(Participant 5)

“I expected Generative AI to help make my writing more organized overall and to help me decide which ideas were better”

(Participant 4)

These statements clearly show that students view AI as a very useful tool in completing their academic writing assignments, not only as technical support but also as an aid in developing ideas. These findings show reveals that AI can improve the overall consistency of writing and also serve as an evaluation tool for students to select and organize ideas that best fit their assignment criteria. This perception is line with previous studies that reveal that the use of AI in the preparation stage can help EFL students reduce confusion in their ideas and clarify the structure of their writing (Alghasab, 2025). In the context of writing instruction, this suggests that generative AI can be utilized as a tool in the early stages of writing, particularly to help students formulate the direction and framework of their writing before they develop their arguments independently.

The result of this study show that students view genetive AI as more of a collaborative partner in the academic writing process that as a replacement for their role as writers. They hope that AI can provide linguistic support and assistance in developing ideas, especially in the early stages of writing. This perception reflects a common challenge faced by students of English as an foreign language (EFL), as language limitations often hinder their ability to express ideas. The reliance on AI for technical aspects such as grammar, vocabulary, and sentence structure indicates that students see AI as a solution to language difficulties. Moreover, students also hope that AI can support them in creative processes such as brainstorming and creating coherence, whis indicates a shift in the function od AI from merely a corrective tool to a cognitive aid in the writing process. Thus, AI not only serves to correct errors but also as a means to improve the quality of writing and conceptual understanding (Chanpradit, 2025).

Students' Perceived Advantages of Generative AI in Academic Writing

The findings of this study also reveals that the use of Generative AI shapes students' positive attitudes toward academic writing through various forms of support, ranging from linguistic assistance, idea development and organization, efficiency, and confidence in writing. Students perceive this support as practical and relevant to their needs in completing academic assignments, especially when facing difficulties in formulating ideas, structuring coherent paragraphs, or adapting language use to the academic context.

Language-related support in academic writing

The research findings generally show that language support from generative AI is one of the important factors that shape students' positive attitudes towards academic writing. This support is mainly related to how AI helps students convey ideas more clearly and structurally before discussing other aspects of AI use. Based on the interview results, participants reported that AI improved the quality of idea delivery through improved sentence structure and more formal vocabulary selection. Participants stated that generative AI played a role in organizing ideas and suggesting appropriate academic vocabulary. Similarly, participants emphasized that assistance with grammar and vocabulary made the writing process clearer and easier to understand. As expressed by the participants:

“Generative AI helped me write more clearly and with fewer mistakes than when writing alone”
(Participant 6).

“Generative AI helped me by organizing ideas, improving sentence structure, and suggesting academic vocabulary”
(Participant 5).

“Generative AI positively affected my writing by helping with grammar, vocabulary, and idea organization, making the writing process clearer and easier”
(Participant 8)

The result of this study indicate that AI-based language assistance helps students reduce language barriers in the writing process, allowing them to concentrate more on developing the content and ideas of the texts they create. This finding is in line with previous studies that state that generative AI technology serves as a powerful language tool for academic writing, especially in relationship to grammar, sentence structure, and the use of academic vocabulary (Riviyanti and Pratolo, 2025). Thus, generative AI can be seen as a facility in supporting academic writing, especially for students who still face difficulties in expressing their thoughts.

Facilitating idea generation and organization

The subsequent finding reveals that generative AI plays a role in facilitating the process of idea generation and text organization in academic writing. This role is one of the reasons why students tend to be positive about the use of AI, because AI helps them overcome writing obstacles and provides a more coherent framework for thinking before putting their ideas into text. Based on the interview results, participants explained that generative AI helps enrich vocabulary and improve sentence structure, which indirectly supports the organization of ideas. This is reinforced by participant 7's statement that AI's assistance in constructing more structured sentences not only improves the quality of the manuscript but also helps them better understand the material being written. Furthermore, participant 2 highlighted how AI plays a role in triggering creativity and increasing writing motivation by providing a variety of initial ideas:

“The aspect of AI that I think has a positive impact is that it gives me lots of ideas and allows me to explore my writing through a process that increases my intention to write”
(Participant 2)

“It helps with vocabulary and sentence structure”
(Participant 1).

“The positive impact aspects of AI help me write using structured sentences and I learn a lot of new vocabulary, as well as improving my understanding”
(Participant 7)

This study indicate thet generative AI does not merely function as a technology tool, but also acts as a catalyst for thinking, helping students formulate and organize ideas in a more structured way. This findings is line with previous studies showing that generative AI can assist in the process of idea generation and manuscript preparation in the context of academic writing, especially for inexperienced writers or second language learners (Abdurrahman, 2021). Thus, the application of generative AI in writing instruction can be utilized as a tool to support idea development and text composition, not merely as a means to improve language skills.

Enhancing writing motivation and efficiency

Further research findings generally show that the use of generative AI contributes to increased motivation and time efficiency among students in completing academic writing assignments. Based on the interview results, participant 2 and participant 8 stated that the use of generative AI greatly helped them save time in completing assignments, making the writing process more interesting and less confusing. In addition, participant 3 highlighted the efficiency of feedback, where AI can provide instant corrections and speed up the revision process without having to wait for input from others. Participant 5 also expressed a positive psychological impact, feeling that the use of AI made the writing process more interactive and less stressful:

“It increased my interest in writing because the process felt more interactive and less stressful. It also saved time, especially during brainstorming and revising”
(Participant 5).

“Generative AI helped my writing process by providing quick feedback on grammar”
(Participant 3)

“It made writing more interesting and saved me time when completing the task”
(Participant 8)

The results of this study indicate that the time savings achieved through the use of generative artificial intelligence not only impact the technical aspects of writing but also contribute to increasing motivation and reducing stress levels during the writing process. These findings align with previous research stating that generative artificial intelligence can improve efficiency and student engagement in writing activities by providing instant feedback and support during the idea planning (brainstorming) and revision stages (Lo et al., 2025). Therefore, the integration of generative AI into writing instruction can be considered an effective approach to strengthening student motivation and optimizing time management in the completion of academic assignments. In general, research findings in this theme indicate that students perceive generative AI as a useful tool in the academic writing process. The benefits they experienced included language assistance, support in generating and organizing ideas, and increased motivation and time efficiency. They described the writing process as feeling faster, more interactive, and less confusing when AI was involved. Immediate feedback and easy access to language suggestions helped reduce delays during the brainstorming and revision stages, making the writing experience more engaging and fluid. These benefits contributed to students' positive attitudes toward academic writing, particularly as AI helped them overcome linguistic obstacles, clarify ideas, and manage writing assignments more effectively (Khalifa and Albadawy, 2024).

3. Students' Perceived Barriers in Generative AI in Academic Writing

This study reveals that the use of generative AI in academic writing does not always meet students' expectations, especially in terms of the relevance of the feedback provided. Although AI is considered a helpful tool, students sometimes feel that the recommendations generated are too general and do not fill in the context of the assignment or writing objectives they are facing. Furthermore, reliance on AI also poses obstacles to the development of students' critical thinking skills and confidence in writing. Some students expressed concern

that over-reliance on AI leads them to accept results without reflecting on or evaluating them independently.

Contextual Mismatch in AI Generative Feedback

Although generally positive about the use of generative AI, these findings confirm that students also face challenges related to contextual mismatches in the feedback provided by AI. This challenge is important because it is directly related to the AI's ability to understand the specific intentions of the writer and the academic context being worked on. Based on the interview results, participants revealed that AI's limitations in understanding context often result in answers that are too general or irrelevant to the needs of the writing.

Participants 1 and 2 highlighted that AI often provides responses that are unclear or different from what is needed due to limitations in understanding context. This is in line with the experiences of participant 7 and participant 8, who felt that the AI's suggestions sometimes contradicted the original understanding or ideas they wanted to convey in their writing. The difficulty in adjusting instructions to the results produced by AI was also emphasized by participant 5, who stated:

“The main challenge was ensuring that the suggestions matched my academic context and personal intention. These issues occurred because GPT does not fully understand context unless the instructions are very clear” (Participant 5).

“During my time using GPT, there may be some challenges because sometimes the explanations given are not well understood and differ from our own understanding”
(Participant 7)

“Difficulties may occur because interaction with GPT has limits and also sometimes the answers given are different, making me disappointed that GPT does not give me what I need”
(Participant 2)

These findings underscore that the contextual limitations of AI require students to actively evaluate and adjust the suggestions provided, rather than accepting the AI results directly. These results are in line with previous studies that state that generative AI still has limitations in understanding complex contexts and writing objectives, thus requiring critical involvement from users in the academic writing process (Creely, 2024). Therefore, in writing instruction practices, the use of generative AI needs to be accompanied by an emphasis on the ability to provide clear instructions and critical evaluation skills regarding the feedback generated by AI.

Challenges to Critical Thinking and Self-confidence

Although artificial intelligence speeds up the writing process, the findings of this study raise concerns about the long-term effects on students' thinking skills and mental health. These concerns are mainly related to the possibility of dependence, which can affect students' critical thinking skills and their confidence when writing without assistance. Based on the interview results, several respondents, including participant 6 and participant 7, acknowledged that continuous use of AI tends to form habits that are difficult to break, where students find it difficult to explore their own original ideas and opinions. Similar concerns were also expressed by participant 5 and participant 3, who felt that dependence on AI

suggestions could reduce their courage in making independent decisions during the writing process. The impact on this self-development process was emphasized by participant 2, who stated:

“My writing performance experience process makes me less able to find out for myself and does not train my ability to think critically” (Participant 2).

“Sometimes it will have an impact on habits and dependencies where we have difficulty thinking or using our own ideas and opinions” (Participant 7)

“One negative aspect was the risk of becoming too dependent on GPT for wording and structure. This sometimes reduced my confidence in my own writing decisions” (Participant 5)

The results of this study reveal that although artificial intelligence (AI) offers convenience, its unregulated use has the potential to reduce opportunities for independent thinking and reflection in the writing process. These findings are consistent with previous studies highlighting the risks of technology dependence in learning, which can hinder the development of students' critical thinking skills and independence (Yavich, 2025). Thus, the application of generative AI in writing instruction must be balanced to support efficiency while maintaining students' cognitive growth and self-confidence. Although benefits were observed, qualitative findings on this topic also revealed deep concerns regarding the limitations of generative AI, particularly in contextual understanding and learner autonomy. Students frequently noted that AI feedback tended to be generic or misaligned with their academic goals. Such mismatches require additional cognitive effort, as students must re-evaluate, adapt, or even disregard the suggestions generated by AI. Research findings indicate that the presence of AI actually encourages students to think more intensively using different approaches, which may ultimately increase their mental load (Azzahra and Widhiatama, 2025). Therefore, although generative AI can alleviate the technical burden of writing, its use also has the potential to trigger increased psychological anxiety related to perceptions of self-competence (Jin et al., 2025).

D. CONCLUSION

This study aims to analyze changes in students' writing anxiety levels following the implementation of generative artificial intelligence in academic writing, while also exploring their perceptions of AI use in the writing learning process. Quantitative analysis using a paired t-test revealed no statistically significant difference in students' writing anxiety levels before and after the use of AI-based writing tools, although the mean showed a slight shift. These findings suggest that the presence of generative AI does not necessarily reduce writing anxiety. However, the qualitative results provide deeper insights. While students view generative AI as a tool that supports improved language accuracy, idea development, and writing efficiency, they also report the emergence of new pressures, such as confusion in evaluating AI recommendations, doubts about their own writing abilities, and anxiety stemming from reliance on technology. This diversity of perspectives explains why students' anxiety levels did not decrease significantly, while highlighting the complexity of generative AI's role in the realm of academic writing. From an educational perspective, these findings suggest that integrating generative AI into EFL writing instruction requires appropriate guidance and the development of critical thinking skills related to AI, with further research

needed to examine in greater detail the impact of classroom support on students' emotional and cognitive engagement in AI-assisted writing.

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