

CHATGPT IN INDONESIAN EFL ACADEMIC WRITING: A STUDY OF CRITICAL THINKING AND CREATIVITY IN HIGHER EDUCATION

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ABSTRACT

The integration of ChatGPT into academic writing has raised important questions about its influence on students' cognitive processes, yet studies examining both critical thinking and creativity simultaneously in EFL contexts remain limited. This qualitative descriptive study explored students' perceptions of how ChatGPT influences their critical thinking and creativity in academic writing at Tadulako University, Indonesia. Data were collected through semi-structured interviews with five purposively selected undergraduate students from the English Education Study Program who had experience using ChatGPT for academic writing tasks, and analyzed using Miles, Huberman, and Saldaña's (2014) qualitative procedures, guided by Facione's (1990) critical thinking framework and Torrance's (1966) creativity dimensions. The findings revealed three major themes: students engaged in active evaluative verification by cross-checking AI-generated content against academic sources; ChatGPT stimulated idea generation and topic exploration aligned with Torrance's dimensions of fluency and flexibility; and students consciously maintained their personal writing voice by paraphrasing and adapting AI outputs. The study concludes that ChatGPT can meaningfully support both critical thinking and creativity in academic writing when students engage with it reflectively and critically.

Keywords: Academic Writing, ChatGPT, Creativity, Critical Thinking, EFL Learning

INTRODUCTION

The rapid advancement of artificial intelligence (AI) technologies has increasingly transformed various aspects of education, including the ways in which students' approach and produce academic writing. One AI tool that has recently gained attention among students is ChatGPT, a generative AI system capable of producing human-like text. This tool can assist users in generating ideas, organizing arguments, and improving language expression.

In higher education, academic writing is an essential skill that students need to master. Through academic writing, students are expected to present logical arguments, develop ideas, and express their thoughts clearly. This process requires several thinking skills, such as analyzing information, evaluating sources, and developing new perspectives. AI tools like

ChatGPT may support these processes by helping students brainstorm ideas, clarify concepts, or refine their writing (Imran & Almusharraf, 2023).

Recent studies have explored the role of ChatGPT in academic writing across various contexts. Tran et al. (2025) conducted a study with 28 postgraduate students in Vietnam and found that ChatGPT was perceived as beneficial for generating diverse ideas, simplifying complex concepts, and improving grammatical accuracy.

However, students also acknowledged drawbacks such as plagiarism risks, diminished critical thinking from overreliance, and concerns over unreliable sources. Sudrajad et al. (2024) examined 120 Indonesian university students and reported that ChatGPT was widely perceived as beneficial for organizing ideas, accelerating drafting, and improving stylistic consistency, yet concerns were raised regarding its effectiveness in maintaining originality and its potential to diminish students' personal creative voice.

Firat (2023) found mixed perceptions where students believed ChatGPT could expand ideas and stimulate creativity while also expressing concerns that overuse might reduce their authentic creative voice and weaken independent problem-solving ability. In the Indonesian EFL context, Werdiningsih et al. (2024) found that master's students used ChatGPT strategically to generate ideas, strengthen arguments, and fix grammar, while still exercising their own judgment. Puteri et al. (2025) reported that using ChatGPT as an assistant helped Indonesian students write better essays, particularly in organizing thoughts and improving vocabulary.

Additionally, Guo and Lee (2023) demonstrated that ChatGPT could enhance critical thinking by challenging students' assumptions and providing multiple perspectives. However, major reviews have pointed out ongoing problems including concerns about academic integrity, overreliance, and the potential weakening of independent thinking when AI is used uncritically (Feng Teng, 2024; Zhai et al., 2024; Munaye et al., 2025).

Despite these important contributions, several gaps remain. Most existing studies have examined either critical thinking or creativity separately, but rarely both together. Tran et al. (2025) focused primarily on critical thinking without examining how it interacts with creativity during the writing process, while Firat (2023) examined creativity separately without connecting it to critical thinking. Sudrajad et al. (2024), despite being conducted in an Indonesian context, did not specifically examine students in an English Education Study Program nor explore the interaction between these two cognitive skills.

Furthermore, research on students' perceptions of ChatGPT's influence on both critical thinking and creativity within Indonesian higher education, particularly at the undergraduate level, remains limited. The Indonesian EFL context presents unique characteristics where students are learning to write in a second language while also adapting to new AI technologies. Previous Indonesian studies have looked at writing quality, grammar, feedback, and technology acceptance (Azwar & Sujarwati, 2025; Harintama et al., 2025; Karolina et al., 2025), but they have not yet examined how ChatGPT affects critical thinking and creativity simultaneously.

Therefore, this study aims to fill the gap by exploring how students at the English Education Study Program of Tadulako University perceive the influence of ChatGPT on both their critical thinking and creativity in academic writing. The research question is: How do

students perceive the influence of ChatGPT use in academic writing on their critical thinking and creativity? The research objective is to explore students' perceptions of how the use of ChatGPT in academic writing influences their critical thinking and creativity processes.

The novelty of this research lies in its simultaneous examination of both critical thinking and creativity within a single study, its focus on undergraduate EFL students in an Indonesian university, and its use of qualitative methods to capture the nuanced, subjective experiences of students as they interact with ChatGPT during authentic academic writing tasks.

METHODS

This study employed a qualitative descriptive research design. This design is appropriate for exploring and describing students' perceptions and experiences regarding the influence of ChatGPT on their thinking processes in academic writing. According to Creswell and Poth (2016), qualitative descriptive research allows researchers to investigate complex phenomena by focusing on participants' perspectives and interpretations. The qualitative approach enabled the researcher to understand how students perceive the role of ChatGPT in shaping their critical thinking and creativity during the academic writing process, rather than measuring thinking skills quantitatively.

The research was conducted in the English Education Study Program at Tadulako University, Palu, Central Sulawesi, Indonesia. This setting was chosen because students in this program are required to develop academic writing skills throughout their studies, particularly during the preparation of academic papers and research proposals. Many students have begun using digital tools, including ChatGPT, to support their writing process, providing a relevant environment for examining the research question.

Participants consisted of five undergraduate students from the English Education Study Program at Tadulako University. Participants were selected through purposive sampling based on three specific criteria: (1) students currently enrolled in semester eight, (2) students who have completed the Academic Writing course, and (3) students who have used ChatGPT during the development of their academic writing tasks or research proposal. Although the number of participants is relatively small, this is appropriate for qualitative research, which prioritizes depth of understanding over generalization (Creswell & Poth, 2016). A smaller sample size allows the researcher to conduct in-depth exploration of each participant's perceptions and cognitive processes. Data collection was conducted until sufficient depth and consistency of information were achieved, indicating that data saturation had been reached.

Data were collected through in-depth semi-structured interviews. An interview guide consisting of six open-ended questions was developed to explore students' experiences in using ChatGPT during academic writing. The questions focused on how students interact with ChatGPT and how they perceive its influence on their critical thinking and creativity processes. All interviews were audio-recorded with participants' consent to ensure accuracy and completeness of the data. The recordings were transcribed verbatim for analysis. Supporting documentation such as interview transcripts, interview protocols, and field notes were also collected to support the credibility of the research process.

Data were analyzed using qualitative data analysis procedures proposed by Miles, Huberman, and Saldaña (2014), which involved four stages: data transcription, data reduction, data display, and conclusion drawing/verification. During transcription, recorded interviews were converted into written text. Data reduction involved selecting and focusing on the most relevant information from the interview transcripts, coding the data based on themes related to students' perceptions of critical thinking and creativity. Data display organized the reduced data into thematic categories to identify patterns and relationships among participants' responses.

Finally, the researcher interpreted the themes and drew conclusions. To guide the analysis, the interpretation of students' responses referred to Facione's (1990) critical thinking framework (including interpretation, analysis, evaluation, inference, explanation, and self-regulation) and Torrance's (1966) creativity dimensions (including fluency, flexibility, originality, and elaboration).

RESULTS AND DISCUSSION

The findings from the interviews provide insights into students' perceptions of how ChatGPT influences their critical thinking and creativity in academic writing. Based on the analysis of the interview data, three major themes emerged: (1) active evaluative verification reflecting critical thinking (Facione, 1990); (2) idea generation and topic exploration reflecting creativity (Torrance, 1966); and (3) maintaining personal writing voice through adaptation of AI outputs. Each theme is presented below.

Theme 1 – Active Evaluative Verification (Critical Thinking – Facione)

The first major theme concerns how students actively evaluate and verify the information provided by ChatGPT before using it in their academic writing. Participants consistently reported that they do not accept ChatGPT's responses at face value; instead, they engage in a process of questioning, cross-checking, and validating the AI-generated content against credible academic sources. This behavior aligns with Facione's (1990) critical thinking skills of evaluation and self-regulation.

Participant 1 described an early negative experience that shaped their current critical approach: "When I first used ChatGPT, I often accepted the information without question. But when I started writing my research proposal in semester 7 on a topic outside my knowledge, I trusted ChatGPT too much and almost 100% relied on the information it gave. As a result, much of the information was inaccurate and I had to rewrite those sections. From that experience, I became more cautious and no longer fully trust ChatGPT." This reflection demonstrates self-regulation, where the participant monitored their own thinking and adjusted their behavior based on past mistakes.

Participant 2 explained their verification strategy: "I don't directly use ChatGPT's answers. Usually, I compare them with other sources like journals or books to make sure the information is correct. I verify by browsing the internet to see whether the information comes from a credible source or not." Similarly, Participant 3 stated, "If it relates to academic theories or concepts, I usually double-check first through scholarly articles. I often compare

ChatGPT's answers with what I find on Google Scholar to be more confident that the information is correct and relevant to my topic."

Participant 4 raised a specific concern about fabricated references: "From my experience, sometimes ChatGPT gives references from journals that turn out to be fictional or not real. I have my own standards to judge whether an explanation is relevant or not. If the answer is too general, I usually only take the main idea, while the supporting sources I find myself." Participant 5 added, "I don't directly use ChatGPT's answers. I usually double-check by reading journals, books, or materials given by the lecturer so that I can ensure whether the information is correct, relevant, and credible for my academic writing."

These responses collectively demonstrate that students engage in active evaluative verification. They do not passively consume AI-generated content but rather apply critical thinking skills—particularly evaluation (assessing credibility of information) and self-regulation (monitoring and correcting their own use of AI). This theme directly reflects Facione's (1990) framework, showing that ChatGPT can serve as a stimulus for critical thinking when students are taught to question and verify its outputs.

Theme 2 – Idea Generation and Topic Exploration (Creativity – Torrance)

The second major theme reveals that ChatGPT functions as a creative partner that helps students generate new ideas and explore diverse perspectives on their writing topics. Participants described using ChatGPT primarily at the beginning of the writing process to overcome writer's block, brainstorm possibilities, and see different angles they had not considered. This aligns with Torrance's (1966) creativity dimensions of fluency (generating many ideas) and flexibility (producing ideas from different perspectives).

Participant 1 explained how ChatGPT supports creative thinking: "ChatGPT really helps develop creativity. It can strengthen the ideas and concepts already in my head. For example, when I have an idea to write an essay about the relationship between lack of sleep and student grade performance, I usually discuss with ChatGPT to see whether the idea is reasonable or not. From ChatGPT's response, I can see whether the idea matches my thinking standards. If it's still not suitable, I can develop the idea more broadly or even redirect it to another idea."

Participant 2 shared a similar experience: "ChatGPT often provides new perspectives on the topic I'm writing about. Sometimes it helps develop ideas that I had previously thought of." Participant 3 noted, "From the answers given, I often get new perspectives that I hadn't thought of before. The ideas given are still quite general, so I still need to develop them further according to my own understanding. That way, I feel I have several initial references that help me before I actually start writing my own paper."

Participant 4 emphasized the role of ChatGPT in overcoming creative blocks: "It really helps, especially when I feel blank or run out of ideas. The most difficult part is actually starting the writing, not continuing existing writing. I usually use ChatGPT for brainstorming ideas. Sometimes the ideas given are too standard, but they trigger me to develop other ideas. I can see other possibilities that I hadn't thought of before." Participant 5 added, "I use it when I have difficulty finding a perspective or don't have a clear picture of the topic I want

to write about. From the response, I can get an initial picture that I then develop further with my own understanding and with the help of references from journals or books.”

These findings indicate that ChatGPT serves as a generative tool that enhances creative fluency (quantity of ideas) and flexibility (variety of perspectives). Students use it to explore multiple possibilities, evaluate which ideas are promising, and then expand those ideas through their own reasoning. This process directly reflects Torrance’s (1966) dimensions, showing that ChatGPT can stimulate creativity when students actively engage with its suggestions rather than passively accepting them.

Theme 3 – Maintaining Personal Writing Voice (Adaptation of AI Outputs)

The third major theme highlights how students consciously adapt and modify ChatGPT’s outputs to preserve their own writing style, voice, and academic integrity. Participants consistently emphasized that they do not copy-paste AI-generated text; instead, they paraphrase, restructure, and combine AI suggestions with their own ideas to ensure the final product remains authentically theirs. This theme demonstrates both critical self-regulation and creative elaboration.

Participant 1 described their adaptation process: “Usually the output from ChatGPT doesn’t directly match my needs, especially for assignments using English. So I often ask ChatGPT to paraphrase if the result feels unnatural or too robotic. If the prompt I give hasn’t produced a suitable text, I usually revise manually and sometimes also use Google. If the response is too general or too formal, I change it using my own language manually.” Participant 1 also noted an important metacognitive benefit: “ChatGPT actually makes me more aware of my own writing style. When reading ChatGPT’s responses, I can clearly see the difference between my writing style and ChatGPT’s style. So ChatGPT actually helps me maintain my own writing style.”

Participant 2 explained how they customize prompts to preserve their voice: “I usually enter a prompt so that the answer can better match my writing style. I give examples of sentences or word choices that I usually use, so that ChatGPT can adjust its response to my writing style. If the result is not yet suitable, I usually change it independently. Sometimes I combine ChatGPT’s response with my own ideas that appear after reading the response.”

Participant 3 described a multi-step adaptation process: “I usually change the output from ChatGPT to suit my writing style. After that, I add analysis from examples or my own thoughts. I also combine ideas from ChatGPT with references from journals and my personal understanding of the topic. That way, after editing, the writing still feels like my own.” Participant 4 added, “Almost all results from ChatGPT I edit again. I usually only take the core idea, then rewrite it using my own language. Sometimes I change the sentence structure. I often add other examples whose phenomena are closer to my experience. I also adjust the terms to better fit the context of the assignment. I often combine my personal opinions into the writing. So even though I use AI assistance, the final result still feels like my own writing.”

Participant 5 similarly emphasized: “I always change the structure or grammar of ChatGPT’s answers to better suit my writing style. I never directly copy-paste results from ChatGPT. I read the answer first, then rewrite it using my own thinking and language so that it still feels like my writing.”

These responses collectively show that students actively engage in adaptation strategies to maintain their personal writing voice. They paraphrase, restructure, add personal examples, combine multiple sources, and critically select which parts of AI outputs to use. This process not only preserves academic integrity but also represents a creative act of elaboration (Torrance, 1966) and self-regulation (Facione, 1990). Students transform generic AI-generated text into personalized, authentic academic writing.

CONCLUSION

This study aimed to explore students' perceptions of ChatGPT in academic writing and its influence on their critical thinking and creativity. The findings indicate that students in the English Education Study Program at Tadulako University engage with ChatGPT as a cognitive support tool, demonstrating three key processes: active evaluative verification of AI-generated content (critical thinking), idea generation and topic exploration (creativity), and conscious adaptation to maintain personal writing voice. These processes reflect Facione's (1990) critical thinking skills of evaluation and self-regulation, as well as Torrance's (1966) creativity dimensions of fluency and flexibility. The study concludes that ChatGPT holds meaningful potential to enhance academic writing when students engage with it critically and reflectively.

However, a limitation of this study is the small sample size from a single university program, which may limit generalizability. Additionally, self-reported data may be subject to social desirability bias.

Based on the results and conclusions, several suggestions are offered. For students, it is recommended to use ChatGPT as a thinking tool, not a replacement for their own minds. Students should verify AI-generated information with academic sources, use ChatGPT for brainstorming while adding their own originality, and always paraphrase or adapt outputs to preserve their personal voice. For lecturers, particularly those teaching academic writing, integrating explicit instruction on ethical and critical AI use is encouraged. Activities that require students to evaluate, compare, and adapt AI-generated content can help develop both critical thinking and creativity. For future researchers, long-term studies examining the effects of ChatGPT on writing quality, academic integrity, and originality are needed. Larger and more diverse samples, as well as methods such as longitudinal observations or anonymous surveys, would provide deeper insights into AI's role in higher education writing contexts.

ACKNOWLEDGMENT

The author would like to express sincere gratitude to Sir Mukrim, S.Pd., M.Ed., Ph.D., for his valuable guidance, constructive feedback, and continuous support throughout the completion of this study. Appreciation is also extended to Sir Moh. Abraham Akbar Eisenring, M.Pd., for his insightful suggestions and academic encouragement, as well as to Ma'am Afrillia Anggreni, S.Pd.I., M.Pd., for her critical review and helpful comments that improved the quality of this article.

The author gratefully acknowledges all lecturers and staff of the English Education Study Program, Faculty of Teacher Training and Education, Tadulako University, for their

academic support during the study. Special thanks are addressed to the participants who willingly contributed their time and perspectives, making this research possible.

Finally, the author would like to thank family, umi Mumtaz, abi Erfandy, and adik Ahmed, also to all friends, and colleagues for their moral support and encouragement throughout the research process.

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