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A Phenomenological Study of Undergraduate Students Experiences Using Artificial Intelligence Tools to Enhance Academic Writing Skills

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A B S T R A C T

This study explores undergraduate students' experiences of using artificial intelligence (AI) writing tools to improve their academic writing skills. It was conducted in response to the growing adoption of AI in higher education and the persistent challenges students face in idea development, organization, grammar, vocabulary, and coherence. Using a qualitative phenomenological approach, the study involved eleven undergraduate students from an English Education Study Program who had experience with ChatGPT, Grammarly, and QuillBot. Data were collected through semi-structured interviews and field notes and analyzed using thematic analysis. The findings indicate that students used AI tools throughout the writing process, including brainstorming, outlining, drafting, revising, editing, and final refinement. Participants perceived AI as beneficial for generating ideas, improving language accuracy, organizing content, increasing writing efficiency, enhancing confidence, and reducing writing anxiety. However, several challenges emerged, including overdependence on AI, inaccurate or contextually inappropriate responses, unnatural language, prompt formulation difficulties, and platform limitations. Overall, the study concludes that AI writing tools can effectively support academic writing development when used critically, ethically, and responsibly. The findings highlight the need for pedagogical strategies and institutional guidelines that encourage the responsible integration of AI while strengthening students' critical thinking, academic integrity, digital literacy, and independent writing skills.

1. Introduction

Academic writing is an essential competence for undergraduate students because it enables them to communicate ideas, construct arguments, engage with scholarly

sources, and produce knowledge in higher education contexts. In university learning, academic writing is closely related to students' research competence, information literacy, and ability to produce quality academic texts (Castillo-Martínez & Ramírez-Montoya, 2021). However, academic writing remains challenging, particularly for English as a Foreign Language students, because it requires the integration of several complex skills, including idea development, organization, grammar accuracy, vocabulary mastery, coherence, and critical thinking. Previous studies have shown that tertiary and undergraduate students often experience difficulties in writing well-structured essays, choosing appropriate academic words, developing thesis statements, organizing ideas, and producing coherent paragraphs (Aldabbus & Almansouri, 2022). These difficulties indicate that undergraduate students need continuous support to develop academic writing skills effectively.

In recent years, artificial intelligence writing tools have increasingly emerged as learning support systems in higher education. Undergraduate students now use tools such as ChatGPT, Grammarly, QuillBot, and DeepL to assist them in completing academic writing tasks, particularly for generating ideas, checking grammar, paraphrasing sentences, translating texts, organizing outlines, and revising drafts (Malik et al., 2023; Raheem et al., 2023). This development shows that artificial intelligence is no longer viewed only as a technological innovation, but also as a practical academic resource that can support students during different stages of the writing process. In the context of higher education and language learning, generative artificial intelligence tools have attracted significant attention because they provide immediate feedback, flexible access, and individualized writing assistance that students may not always obtain in classroom settings (Kim et al., 2025; Kohnke et al., 2023). Previous studies have also reported that students perceive artificial intelligence writing tools as helpful for improving writing efficiency, language accuracy, organization, and confidence in academic writing (Malik et al., 2023). However, their increasing use requires further investigation into how undergraduate students actually experience and interpret these tools in their academic writing practices.

Artificial intelligence writing tools have the potential to support students throughout the writing process, from pre-writing to post-writing activities. In the pre-writing stage, these tools can help students generate ideas, explore possible topics, and organize their thoughts into more structured outlines. During drafting, artificial intelligence tools can assist students in developing sentences, expanding paragraphs, and improving the clarity of their arguments. In the revision and editing stages, tools such as ChatGPT, Grammarly, and other automated writing feedback systems provide immediate suggestions related to grammar, vocabulary, mechanics, style, coherence, and organization (Mahdi et al., 2025; Wang, 2025). Such support is valuable because artificial intelligence writing tools can provide accessible and individualized feedback that helps learners revise their texts more efficiently and become more aware of their writing weaknesses (Kohnke et al., 2023). Previous studies also indicate that artificial intelligence tools can improve writing quality, efficiency, content organization, language accuracy, and students' confidence when they are used critically in academic writing activities (Dewi et al.,

2025; Guardia-Paniura et al., 2026). Therefore, artificial intelligence writing tools can function not only as editing applications but also as learning support systems that guide students in developing academic writing skills.

Despite their potential benefits, artificial intelligence writing tools also present several challenges in academic writing. One major concern is students' overreliance on automated suggestions, which may reduce their engagement in generating ideas, evaluating information, and developing independent writing abilities. In academic writing, this dependence can affect students' creativity, critical thinking, and intellectual autonomy, particularly when they accept artificial intelligence-generated texts without careful review (Kim et al., 2025; Zhai et al., 2024). Another challenge concerns the accuracy and relevance of artificial intelligence outputs. These tools may produce responses that are too general, contextually inappropriate, or inaccurate, especially when students provide unclear prompts or lack sufficient knowledge to evaluate the generated content. In addition, the use of artificial intelligence in academic writing raises ethical concerns related to authorship, originality, plagiarism, transparency, and academic integrity (Kim et al., 2025; Perkins, 2023). These issues indicate that artificial intelligence writing tools should not be used as replacements for students' own thinking and writing processes, but as supportive tools that require critical, ethical, and responsible use.

Although studies on artificial intelligence writing tools in academic writing have increased, several research gaps remain. Previous studies have mostly examined students' perceptions, attitudes, writing performance, or the general benefits and challenges of artificial intelligence-assisted writing in higher education contexts (Kim et al., 2025; Malik et al., 2023). Other studies have investigated artificial intelligence use in English as a Foreign Language writing through survey-based or outcome-oriented designs, focusing on measurable aspects such as writing quality, efficiency, self-efficacy, and academic integrity (Almusharraf et al., 2025). However, less attention has been given to undergraduate students' lived experiences in using artificial intelligence writing tools during the actual writing process, particularly in relation to how they generate ideas, organize texts, revise drafts, manage confidence, face writing anxiety, and negotiate dependence on artificial intelligence. This gap is relevant to the present study because the earlier draft has already identified students' experiences across brainstorming, outlining, drafting, revising, and editing, as well as benefits and challenges such as confidence, anxiety reduction, dependency, inaccurate responses, and ethical concerns.

Based on these gaps, this study aims to explore undergraduate students lived experiences in using artificial intelligence writing tools to enhance academic writing skills. Specifically, this study investigates how students use artificial intelligence writing tools during the writing process and how they perceive the benefits and challenges of these tools in academic writing. A phenomenological approach is employed because this study focuses on students' subjective experiences, meanings, and interpretations rather than on measurable writing outcomes. This approach is relevant because recent studies emphasize the need to understand how students engage with generative artificial intelligence during different stages of academic writing, including idea development, drafting, revision,

and evaluation (Kim et al., 2025; Wang, 2025). The novelty of this study lies in its focus on Indonesian undergraduate students' cognitive, emotional, and behavioral experiences in using artificial intelligence writing tools. By examining their experiences, this study is expected to provide practical insights for educators and higher education institutions in guiding students to use artificial intelligence critically, ethically, and responsibly in academic writing practices.

2. Methodology

Research Design

This study adopted a qualitative method with a phenomenological approach to explore students' experiences in using artificial intelligence (AI) tools to support their writing development. This approach was considered appropriate as it enables the researcher to understand how individuals perceive and make sense of their lived experiences (Hossain et al., 2024). In this study, the phenomenon under investigation was the use of AI-assisted writing tools within academic contexts. By applying a phenomenological lens, the research aimed to capture the essence of students' experiences and how they interpret the role of AI in shaping their writing practices (Hirose & Creswell, 2023).

Participants

The participants were 11 undergraduate students from the English Education Study Program at Universitas Muhammadiyah Purworejo, Central Java, Indonesia. They were selected through purposive sampling to ensure their relevance to the research focus. All participants had completed an academic writing course and were familiar with using AI-based tools such as ChatGPT, Grammarly, and QuillBot in their writing activities. In the context of English as a Foreign Language (EFL), their proficiency level was generally categorized as intermediate. To maintain confidentiality, each participant was assigned a code ranging from P1 to P11, which was used throughout the presentation of the findings.

Instrument

The main instrument used in this study was a semi-structured interview guide consisting of open-ended questions. This instrument was designed to provide flexibility while still maintaining alignment with the research objectives. The questions aimed to explore students' experiences in depth, including how often they used AI tools, the benefits they perceived, the challenges they encountered, their level of reliance on AI, and how these tools influenced their confidence and writing development. In addition, field notes were employed to capture contextual information, including participants' expressions and the researcher's reflections during the data collection process.

Table 1. Semi-Structured Interview Questions

No	Interview Question	Research Objective
1	How did you first become familiar with AI writing tools such as ChatGPT, Grammarly, or QuillBot?	Explore students' initial experiences
2	How often do you use AI writing tools for academic writing?	Identify usage patterns
3	At which stages of academic writing do you usually use AI?	Identify AI use across the writing process
4	How do AI tools help you improve your academic writing?	Explore perceived benefits
5	What changes have you noticed in your writing after using AI?	Explore writing development
6	How has AI influenced your confidence when writing academic assignments?	Explore affective experiences
7	What challenges do you experience when using AI writing tools?	Identify obstacles
8	Have you ever felt dependent on AI when completing writing assignments?	Explore dependency
9	How do you ensure that AI-generated content remains original and academically ethical?	Explore academic integrity
10	In your opinion, how should AI be used responsibly in academic writing?	Explore ethical awareness

Data Colletction

Data were collected through semi-structured interviews conducted individually with each participant. Each session lasted approximately 30 to 45 minutes and was carried out in a setting that allowed participants to share their experiences comfortably. The researcher played an active role in guiding the conversation while allowing participants the freedom to elaborate on their responses. All interviews were audio-recorded to ensure accuracy and were later transcribed verbatim. Field notes were also taken to complement the interview data, particularly in capturing non-verbal cues and situational context. This approach allowed for a richer and more nuanced understanding of students' experiences (Sholokhova et al., 2022).

Data Analysis

The data were analyzed using thematic analysis. The process began with transcribing the interview recordings into written form, followed by repeated readings of the transcripts to gain familiarity with the data. The researcher then conducted coding by identifying meaningful segments of information and grouping them into related categories. From these categories, broader themes were developed to represent patterns in participants' experiences. These themes were subsequently interpreted to provide insights into how students experienced the use of AI tools in enhancing their writing skills. Thematic analysis was selected due to its flexibility in identifying and interpreting patterns within qualitative data (Ahmed et al., 2025). To enhance the credibility of the findings, validation strategies such as triangulation and member checking were applied. Triangulation involved comparing interview data with field notes, while member checking was conducted by asking participants to review and confirm the accuracy of the transcriptions and interpretations.

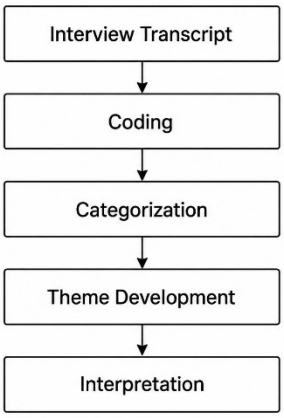

Figure 1. Thematic Analysis Process of Students' Lived Experiences

3. Results and Discussion

The findings presented in this section were derived from semi-structured interviews conducted with eleven undergraduate students who had experience using artificial intelligence writing tools in academic writing activities. Each interview lasted approximately 30–45 minutes and explored participants' experiences in using AI during different stages of the writing process, including brainstorming, outlining, drafting, revising, and editing. Participants were encouraged to describe their experiences freely while the interviewer used probing questions to obtain richer descriptions of their perceptions, benefits, challenges, and ethical considerations. After all interviews had been transcribed verbatim, the data were coded and analyzed through thematic analysis to identify recurring patterns and themes representing students' lived experiences (Hossain et al., 2024; Ahmed et al., 2025).

The findings indicate that undergraduate students' experiences in using artificial intelligence writing tools were shaped by both social and academic factors. Students' initial motivation was not only driven by individual curiosity, but also by peer influence, collaborative learning, and academic writing needs. This shows that the adoption of artificial intelligence writing tools often begins informally through classmates, group assignments, and social media before becoming part of students' regular academic writing practices. In this sense, artificial intelligence writing tools are not merely technological applications, but also part of students' learning culture in higher education. This finding is relevant to Malik et al. (2023), who reported that higher education students perceived artificial intelligence writing tools as useful for grammar checking, translation, plagiarism detection, and essay outlining in academic writing.

Table 2 presents the essential structure of undergraduate students' lived experiences when using artificial intelligence writing tools throughout the academic writing process. The thematic analysis revealed five interconnected themes, namely initial engagement with AI, AI as a writing companion, perceived learning benefits, challenges in AI use, and ethical awareness. These themes illustrate that students' experiences extend beyond the technical functions of AI, encompassing cognitive, emotional, and ethical dimensions that shape how they interact with AI-assisted

writing tools. Presenting the findings through themes and representative quotations enhances the transparency and trustworthiness of the phenomenological analysis by demonstrating how interpretations were grounded in participants' lived experiences (Hossain et al., 2024; Ahmed et al., 2025).

Table 2. Major Themes Emerging from Students' Lived Experiences Using AI Writing Tools

Theme	Subtheme	Representative quotation
Initial engagement with AI	Peer influence	"I was introduced to AI by a friend and then I tried it." (P6)
	Academic writing needs	"AI helped me generate ideas when I wanted to write something." (P6)
AI as a writing companion	Brainstorming	"I usually use AI during brainstorming." (P1)
	Drafting and revising	"AI helps me check grammar and improve my sentences." (P4)
Perceived learning benefits	Improved organization	"My writing process becomes more structured." (P1)
	Vocabulary enrichment	"I noticed improvement in vocabulary and sentence variety." (P5)
	Increased confidence	"I feel more confident before submitting my writing." (Representative quotation from interview)
Challenges in AI use	Dependency	"Over time it has made me dependent." (P9)
	Inaccurate responses	"Sometimes AI gives wrong answers." (P2)
	Prompt difficulty	"Prompts have to be detailed." (P7)
Ethical awareness	Critical evaluation	"I still need to review AI suggestions before using them." (P1)

The data (Table. 3) indicated that students began using AI writing tools for a variety of reasons. Most participants reported that they first became familiar with AI through friends, classmates, or social media. They were interested in trying AI because they viewed it as a modern technology that could simplify academic work. In many cases, students initially used AI because they experienced difficulties in generating ideas, organizing paragraphs, or completing assignments within limited time. Several participants reported that AI became useful when they did not fully understand a topic and needed more detailed explanations. In addition, some participants explained that before using AI, they relied only on search engines such as Google. However, after using AI tools, they realized that AI could provide more direct answers, clearer explanations, and practical support for writing.

Table 3. Students' Initial Motivation for Using AI Writing Tools

Motivation	Key Finding	Evidence
Peer influence	Students first knew AI writing tools from friends or classmates.	P6: "I was introduced to AI by a friend and then I tried it."
Collaborative learning	AI was introduced during group work or academic tasks.	P2: "I remember when I'm in a group with my classmate… then Yoga show me AI to do our jobs. And I felt this AI is so helpful for us."

Motivation	Key Finding	Evidence
Idea generation	Students used AI when they had difficulty starting or developing ideas.	P6: "AI helped me generate ideas when I wanted to write something"
Writing improvement	Students used AI to improve paraphrasing, vocabulary, and writing quality.	P9: "What motivated me to use AI in writing was its ability to paraphrase my writing, especially when I used words that were too ordinary"
Insight expansion	AI helped students develop existing ideas.	P11: "AI is very helpful for my writing because it can provide various insights and develop the ideas that I already have."

P = participant

The students' use of artificial intelligence writing tools across brainstorming, outlining, drafting, revising, and editing suggests that these tools functioned as writing scaffolds. Students did not use artificial intelligence only at the final stage of writing to correct grammar; instead, they used it from the beginning of the writing process to generate ideas, organize content, develop drafts, and refine language. This finding is important because it shows that artificial intelligence writing tools can support academic writing as a process, not only as a product. In academic writing instruction, this means that artificial intelligence can be integrated into process-based writing activities, such as idea exploration, outline development, draft revision, and final editing. Wang (2025) also found that students used generative artificial intelligence across different writing components, including idea development, organization, drafting, and revision, which supports the present study's finding that artificial intelligence can assist students throughout the writing process.

Table 4. The Use of AI Tools During the Writing Process

Writing Stage	Use of AI Tools	Evidence
Brainstorming	Generating ideas, finding topics, and deciding what to write.	P1: "I usually use AI tools during brainstorming, outlining, and revising"
Outlining	Arranging ideas into structured points before writing.	P9: "I use AI when looking for an outline before writing because once I already have an outline, it becomes easier for me to write"
Drafting	Developing ideas into written content and making the writing process easier.	P5: "First, when I'm laying out my framework using bullet points before writing the main content."
Revising	Improving grammar, sentence structure, and clarity.	P4: "I use AI to check grammar and improve sentences so that my writing becomes clearer and easier to understand"
Editing	Checking spelling, grammar, punctuation, vocabulary, and formal language use.	P5: "I also use them after I finished with my writing to check for spelling or grammatical error"
Refining final draft	Making the text more structured and appropriate for academic/formal writing.	P10: "I usually use AI when refining the draft. I use AI at that stage because I want my writing to be more well-structured and more appropriate for formal use"

P = participant

The results revealed that students used AI tools in several stages of the writing process (Table 4). Most participants explained that they used AI during brainstorming because it helped them generate ideas, identify possible topics, and determine what to write. For many students, brainstorming with AI made it easier to begin writing because they no longer felt confused about how to start. These findings indicate that students used AI throughout the entire writing process, including brainstorming, outlining, drafting, revising, and editing. This suggests that AI became an important writing assistant that supported students from the beginning until the completion of their texts.

Table 5. The Influence of AI on Students' Writing Skills

Aspect of Writing Skill	Influence of AI Tools	Evidence
Writing organization	AI helped students make their writing more structured, focused, and systematic.	P1: "The use of AI tools has made my writing process more structured, efficient, and focused compared to before."
Vocabulary use	AI helped students improve vocabulary choice and use more varied words.	P5: "I have noticed improvements in my writing, especially in vocabulary use and sentence variety."
Grammar accuracy	AI supported students in identifying and improving grammar.	P6: "AI makes my writing process faster and more structured, especially in developing ideas and improving grammar."
Sentence variety	AI helped students develop more varied sentence patterns.	P5: "I have noticed improvements in my writing, especially in vocabulary use and sentence variety."
Academic expression	AI introduced students to more formal vocabulary and academic expressions.	P10: "Recognizing formal vocabularies and expressions that suits my writing."
Writing efficiency	AI made the writing process faster and easier to manage.	P6: ""AI makes my writing process faster and more structured, especially in developing ideas and improving grammar."
Dependency risk	Excessive use of AI could make students too dependent on automated support.	P9: "When I use AI, it does help me, but over time it has made me dependent on it."

P = participant

Most participants believed that AI had a beneficial effect on their writing skills. Students explained that after using AI tools, their writing became more organized, clearer, and easier to understand. They also mentioned that AI helped them improve grammar, vocabulary, sentence structure, coherence, and paragraph development. The influence of artificial intelligence writing tools on students' academic writing skills can be seen in several areas, particularly writing organization, grammar accuracy, vocabulary use, sentence variety, academic expression, and writing efficiency. These findings imply that artificial intelligence tools can provide immediate language support that helps students notice weaknesses in their writing. For undergraduate students who often struggle with academic vocabulary, sentence structure, and coherence, artificial intelligence suggestions may help them compare their original writing with more formal or organized alternatives. Therefore, artificial intelligence writing tools may serve not only as correction tools but also

as learning resources. Kohnke et al. (2023) explain that ChatGPT offers useful affordances for language teaching and learning, although its use should be accompanied by awareness of its limitations and appropriate pedagogical guidance.

Another important point is that artificial intelligence writing tools influenced students' affective experiences. The findings showed that students felt more confident and less anxious when writing because artificial intelligence helped them check errors, clarify ideas, and improve sentence structure before submitting assignments. This benefit is significant because academic writing is not only a linguistic activity but also an emotional and cognitive process. Students who feel anxious about grammar mistakes or weak organization may become more willing to write when they receive immediate support. This finding is supported by Almusharraf et al. (2025), who found that generative artificial intelligence use in English as a Foreign Language writing was associated with students' self-efficacy, satisfaction, and intention to continue using artificial intelligence writing support.

Table 6 shows that students experienced several challenges when using AI writing tools, including dependency, inaccurate responses, contextual mismatch, unnatural language, prompt difficulty, and platform limitations. These findings indicate that AI tools cannot be used without critical evaluation. Students still need to review, revise, and adapt AI-generated outputs to ensure that their writing remains accurate, natural, ethical, and contextually appropriate.

Table 6. Challenges in Using AI Writing Tools

Challenge	Description	Evidence
Dependency	Students felt that frequent use of AI could make them too dependent on its suggestions.	P1: "The challenge I experience is becoming dependent on AI suggestions and the need to critically review the results it provides."
Need for critical review	Students needed to evaluate AI outputs before using them in their writing.	
Inaccurate responses	AI sometimes gave wrong or unsuitable answers.	P2: "Sometimes AI give the wrong answer because of different perceptions of me and AI, so I can't use AI 100%."
Contextual mismatch	AI responses did not always match students' intended meaning or writing context.	
Unnatural language	AI-generated texts sometimes sounded too stiff, formal, or unnatural.	P3: "One difficulty that often appears when using AI tools for writing is that the results are sometimes too stiff, so they need to be edited again to sound more natural"
Prompt difficulty	Students needed to write clear, detailed, and specific prompts to get appropriate answers.	P7: Prompts had to be detailed to get appropriate answers.
Platform limitations	Free AI tools had daily limits or limited access to premium features.	P8: Free AI tools had restrictions and limited features.

P = participant

One important challenge was the possibility of dependency. Some students admitted that frequent use of artificial intelligence suggestions made them rely on the tools, especially when they were confused or under pressure to complete assignments. This finding suggests that artificial intelligence can reduce students' effort to generate ideas independently if it is used without control. Kasneci et al. (2023) emphasize that the use of large language models in education requires learners and teachers to understand the limitations and "unexpected brittleness" of these systems, as well as to develop critical thinking and fact-checking strategies before using their outputs in learning contexts. Therefore, in academic writing, artificial intelligence should function as a support system rather than a replacement for students' thinking process.

The findings also indicate that dependency on AI may gradually reduce students' opportunities to develop independent writing strategies. When students rely excessively on AI-generated ideas or language suggestions, they may engage less frequently in planning, evaluating, and revising their own arguments. From a phenomenological perspective, several participants described an internal conflict between appreciating AI's efficiency and recognizing the importance of maintaining their own intellectual contribution. This finding suggests that AI should function as cognitive scaffolding rather than as a substitute for students' thinking processes, allowing learners to strengthen critical reflection while benefiting from technological assistance (Kasneci et al., 2023; Zhai et al., 2024).

Another challenge was related to inaccurate and irrelevant responses. Students reported that artificial intelligence sometimes produced wrong, general, or unsuitable answers, particularly when the prompts were unclear. This problem shows that the quality of AI-generated writing is strongly influenced by students' ability to formulate clear and specific instructions. Plaatjies & van Wyk (2025) explain that prompt literacy has become an important skill in academic writing because effective prompts can improve students' engagement, critical thinking, and writing proficiency. In this study, students' difficulty in writing clear prompts indicates that prompt literacy should be taught explicitly in academic writing classes, so students can use artificial intelligence tools more effectively and critically.

Another important issue concerns the reliability of AI-generated information. Several participants explained that AI occasionally produced inaccurate or overly generalized responses, requiring them to verify information using textbooks, scholarly articles, or other credible academic sources. This finding demonstrates that AI cannot replace students' information literacy skills. Instead, effective use of AI requires users to critically evaluate generated content before integrating it into academic writing. Therefore, AI literacy should be developed alongside information literacy to help students distinguish accurate knowledge from potentially misleading outputs (Kim et al., 2025; Chan & Hu, 2023).

Beyond technical challenges, the findings also highlight concerns regarding originality and academic integrity. Although participants viewed AI as a helpful writing assistant, they recognized that submitting AI-generated text without

substantial revision could compromise authentic learning and violate academic ethics. Students therefore emphasized the importance of using AI as a tool for idea generation, language improvement, and feedback rather than as a replacement for their own intellectual work. These findings reinforce previous studies arguing that transparent, ethical, and responsible AI use should become an integral component of academic writing instruction in higher education (Perkins, 2023; Chan & Hu, 2023).

The limitation of free AI platforms also influenced students' experiences. Some students reported that free versions of AI tools had restricted access, daily limits, or limited features. This challenge suggests that access to AI support may not be equal for all students. Chan & Hu (2023) found that students recognized the benefits of generative AI for writing and brainstorming, but they also expressed concerns about accuracy, privacy, ethical issues, and broader impacts on personal development and societal values. In the context of this study, free-platform limitations show that AI integration in higher education should consider not only pedagogical value, but also access, fairness, and responsible use.

The findings have practical implications for higher education institutions. Lecturers may integrate AI literacy into academic writing courses by teaching students how to formulate effective prompts, critically evaluate AI-generated content, verify information using credible scholarly sources, and maintain academic integrity throughout the writing process. Universities may also develop institutional guidelines governing the ethical and responsible use of AI in academic writing to ensure that technological innovation supports, rather than replaces, students' critical thinking and independent learning (Kim et al., 2025; Yozaga, 2026).

4. Conclusion

This study concludes that undergraduate students experienced artificial intelligence writing tools as useful learning supports in enhancing academic writing skills. The findings show that students initially used these tools because of peer influence, collaborative learning, and academic writing difficulties. During the writing process, artificial intelligence tools were used in brainstorming, outlining, drafting, revising, editing, and final refinement. These tools helped students generate ideas, organize content, improve grammar accuracy, enrich vocabulary, develop sentence variety, use more formal academic expressions, and complete writing tasks more efficiently. They also contributed to students' confidence and reduced writing anxiety. However, the study also found several challenges, including dependency, inaccurate responses, contextual mismatch, unnatural language, prompt difficulty, and limitations of free platforms. Therefore, the success of artificial intelligence use in academic writing depends on students' ability to review, revise, and evaluate its outputs critically. Artificial intelligence writing tools should be used as supportive learning partners, not as replacements for students' own thinking, authorship, and writing responsibility. Future studies may involve more participants from different academic programs or combine qualitative and quantitative data to examine students' writing development more comprehensively.

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