

THE DOUBLE-EDGED ROLE OF AI IN ACADEMIC WRITING: STUDENT PERCEPTIONS, ETHICAL TENSIONS, AND LEARNING IMPLICATIONS

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ABSTRACT

The increasing integration of artificial intelligence (AI) tools in academic writing has transformed how students approach essay composition. This study investigates the double-edged role of AI in academic writing by examining university students' perceptions of its benefits, risks, and ethical implications. Adopting a mixed-methods design, data were collected through a structured survey administered to undergraduate students, complemented by open-ended responses to capture deeper insights. The findings reveal that students perceive AI as a valuable writing assistant that enhances efficiency, supports idea generation, and improves overall writing quality. However, these benefits are accompanied by significant concerns, including the risk of over-reliance, reduced critical thinking, issues of originality, and potential threats to academic integrity. Notably, students demonstrate an emerging awareness of ethical challenges associated with AI-assisted writing, while also expressing the need for clearer institutional guidelines and pedagogical support. This study highlights the paradoxical nature of AI in academic contexts, functioning simultaneously as a facilitator of learning and a potential source of academic risk. The findings underscore the importance of integrating AI literacy into higher education curricula and developing balanced instructional strategies that promote responsible and critical use of AI tools. By offering empirical evidence on student perspectives, this study contributes to ongoing discussions on the role of AI in reshaping academic writing practices and policies.

Keywords: artificial intelligence, academic writing, ethical concerns, higher education, AI literacy

1) INTRODUCTION

The rapid development of artificial intelligence (AI) has significantly transformed various sectors of human life, including education. In higher education, AI has increasingly become part of students' academic experiences, particularly in the area of academic writing. The emergence of advanced AI-powered writing tools such as ChatGPT, Grammarly, and QuillBot has changed how students approach essay writing, idea development, language correction,

and text organization. These technologies are no longer viewed merely as supplementary writing tools but are increasingly functioning as active collaborators in the writing process.

Academic writing is an essential component of higher education because it reflects students' critical thinking, argument development, and disciplinary understanding. However, many students experience challenges in academic writing, particularly when writing in English as a foreign language. Difficulties related to grammar, vocabulary, coherence, idea generation, and writing anxiety often hinder students' performance. In this context, AI-assisted writing tools offer practical support by helping students generate ideas, improve sentence structure, and revise language use more efficiently.

Recent studies have shown that AI tools can positively influence students' writing performance. According to Kasneci et al. (2023), large language models such as ChatGPT can function as educational support systems by reducing cognitive load and increasing productivity. Similarly, Zhai (2022) argues that AI can scaffold students' writing processes by assisting lower-order writing concerns, allowing learners to focus more on higher-order skills such as argumentation and content development. This is particularly valuable for second-language learners who often struggle with linguistic accuracy and writing confidence.

The integration of AI into writing practices also aligns with the broader concept of technology-enhanced learning, where digital tools facilitate more efficient and personalized learning experiences. AI can provide immediate feedback, suggest alternative sentence structures, and offer paraphrasing support, making writing more accessible for students with different proficiency levels. As a result, many students perceive AI as a valuable academic companion that improves both writing quality and confidence.

However, despite these benefits, the use of AI in academic writing also raises important concerns. One of the major issues is the risk of over-reliance. Students who depend excessively on AI-generated content may gradually lose the ability to think critically, construct arguments independently, and develop their own writing voice. Academic writing is not simply a process of producing grammatically correct sentences; it is fundamentally a cognitive activity that requires reasoning, analysis, and intellectual engagement. If these processes are delegated to AI, the educational purpose of writing may be weakened.

Selwyn (2019) emphasizes that educational technologies should support rather than replace intellectual labor. Similarly, Cotton et al. (2023) warn that generative AI tools may encourage

superficial engagement with academic tasks if students prioritize convenience over genuine understanding. AI-generated writing may also lack originality and authenticity, producing generic responses that do not reflect students' personal perspectives or analytical depth. This can negatively affect the development of independent academic identity.

Another major concern relates to academic integrity. The ability of AI tools to generate complete essays challenges traditional understandings of authorship, originality, and plagiarism. Students may struggle to determine the boundary between acceptable assistance and academic misconduct. For example, using AI for brainstorming or grammar checking may be considered acceptable, while submitting fully AI-generated work raises serious ethical questions.

Baidoo-Anu and Owusu Ansah (2023) argue that although students are increasingly aware of ethical issues related to AI use, many still lack clear guidance regarding responsible use. This uncertainty creates confusion and inconsistency in academic behavior. In addition, AI-generated content may contain inaccurate or fabricated information, requiring students to verify outputs critically rather than accept them passively.

These concerns have led scholars to advocate for the development of AI literacy in higher education. Long and Magerko (2020) define AI literacy as the set of competencies that enables individuals to understand, evaluate, and interact critically with AI systems. In academic writing contexts, AI literacy includes understanding the limitations of AI tools, recognizing ethical boundaries, and using AI responsibly as a support mechanism rather than a substitute for independent learning.

Despite the growing body of literature on AI in education, much of the existing research focuses primarily on either the effectiveness of AI tools or teachers' perspectives on AI use. Comparatively fewer studies have examined students' own perceptions, particularly from a balanced perspective that simultaneously explores both benefits and risks. Many studies tend to emphasize either positive outcomes such as efficiency and productivity or negative consequences such as plagiarism and dependency, without sufficiently examining how these dimensions coexist in students' real academic experiences.

This creates an important research gap. Understanding students' perceptions is crucial because they are the primary users of AI writing tools and their attitudes directly influence how these technologies are integrated into learning practices. A one-sided understanding may lead to

ineffective institutional policies—either overly restrictive approaches that ignore educational benefits or overly permissive practices that neglect ethical and pedagogical risks.

To address this gap, the present study investigates university students' perceptions of AI-assisted writing by adopting a “double-edged” perspective. This framework views AI as both a facilitator of learning and a potential source of academic risk. Specifically, the study explores three main dimensions: perceived benefits, perceived risks, and ethical concerns associated with AI use in essay writing.

By foregrounding students' voices, this study contributes to ongoing discussions about the role of AI in higher education and academic writing. The findings are expected to provide practical insights for educators, curriculum designers, and policymakers in developing balanced pedagogical strategies and institutional guidelines that promote responsible, ethical, and effective use of AI in academic writing.

Ultimately, the central question is not whether AI should be used in academic writing, but how it should be used in ways that strengthen rather than weaken learning. This study seeks to contribute to that discussion by examining how students navigate the opportunities and challenges presented by AI in contemporary academic contexts.

2) METHODS

Research Design

This study employed a mixed-methods approach to investigate students' perceptions of AI-assisted writing in academic contexts. Specifically, a convergent design was adopted, integrating quantitative data from a structured questionnaire with qualitative insights from open-ended responses. This design allows for a comprehensive understanding of students' views by combining measurable trends with in-depth perspectives.

Participants

The participants of this study were undergraduate students enrolled in higher education institutions. A total of 67 students voluntarily participated in the survey. The participants were selected using a convenience sampling technique, as they were readily accessible to the researcher. The sample represents students with varying levels of familiarity and experience with AI writing tools.

Instrumentation

Data were collected through a structured questionnaire consisting of two main sections:

- a. Closed-ended items measured using a Likert scale (e.g., strongly disagree to strongly agree), designed to capture students' perceptions of:
 - perceived benefits of AI (e.g., efficiency, idea generation, writing quality),
 - perceived risks (e.g., over-reliance, lack of originality, inaccuracies),
 - ethical concerns (e.g., academic integrity, responsible use).
- b. Open-ended questions aimed to explore students' personal experiences, opinions, and reflections regarding the use of AI in essay writing.

The questionnaire was developed based on existing literature on AI in education and academic writing, ensuring content validity.

Data Collection Procedure

The data were collected through an online survey distributed via Google Forms. Participants were informed about the purpose of the study and provided consent prior to completing the questionnaire. The survey was conducted at the end of the academic term to ensure that participants had sufficient exposure to academic writing tasks and AI tools.

Data Analysis

Quantitative data from the Likert-scale items were analyzed using descriptive statistics, including frequencies, percentages, and mean scores, to identify overall trends in students' perceptions. These results were used to categorize responses into key dimensions: perceived benefits, perceived risks, and ethical concerns.

Qualitative data obtained from open-ended responses were analyzed using thematic analysis. Responses were coded and grouped into recurring themes to complement and explain the quantitative findings. This process enabled the identification of patterns reflecting students' attitudes, experiences, and concerns regarding AI-assisted writing.

This study adhered to ethical research standards. Participation was voluntary, and respondents' anonymity and confidentiality were ensured. No personally identifiable information was collected, and the data were used solely for academic research purposes.

Research Framework

This study is guided by a “double-edged” conceptual framework, which views AI-assisted writing as both a supportive tool and a potential source of academic risk. The framework integrates three main dimensions: perceived benefits, perceived risks, and ethical considerations. These dimensions serve as the basis for analyzing how students negotiate the use of AI in academic writing contexts.

3) RESULTS

Overview of Findings

This study investigated university students’ perceptions of AI-assisted writing in academic contexts, focusing on three major dimensions: perceived benefits, perceived risks, and ethical concerns. Based on responses from 67 undergraduate students, the findings reveal that students generally perceive artificial intelligence as both a helpful academic support tool and a potential source of academic and cognitive challenges.

The quantitative findings indicate that students strongly acknowledge the practical advantages of AI, particularly in improving efficiency, supporting idea generation, and enhancing language accuracy. At the same time, students also demonstrate awareness of possible negative consequences, including over-reliance on AI, reduced critical thinking, weaker independent writing skills, and uncertainty regarding academic integrity.

The results show that students hold balanced perceptions of AI use in academic writing, recognizing both its opportunities and limitations.

Descriptive Statistics of Key Variables

To provide a clearer overview of students’ perceptions, mean scores were calculated for the three main dimensions examined in this study: perceived benefits, perceived risks, and ethical concerns.

Table 1. Mean Scores of Students’ Perceptions on AI-Assisted Writing

Variable	Mean Score	Interpretation
Perceived Benefits	4.21	High
Perceived Risks	3.68	Moderate to High
Ethical Concerns	3.89	High

The table shows that perceived benefits received the highest mean score ($M = 4.21$), followed by ethical concerns ($M = 3.89$), while perceived risks showed a slightly lower mean score ($M = 3.68$).

Perceived Benefits of AI-Assisted Writing

The findings show that students perceive AI primarily as a facilitator of writing efficiency. Most respondents agreed that AI helps them generate ideas more quickly, improve grammar and vocabulary, and organize their essays more effectively.

Students also reported that AI helps reduce writer's block and increases their confidence in academic writing, particularly when writing in English as a foreign language.

One participant stated:

"AI helps me start my essay when I don't know what to write. It gives me ideas and makes writing faster."

Another respondent explained:

"Using AI improves my grammar and vocabulary, especially when I'm not confident in my English."

These responses indicate that students view AI as a useful academic support tool that assists them during the writing process.

Perceived Risks and Challenges

Despite the positive perceptions, students also expressed concerns regarding the risks associated with AI use. One of the most common concerns was over-reliance. Many respondents believed that excessive use of AI could reduce their ability to think independently and write without technological assistance.

One participant commented:

"If I use AI too much, I feel like I don't think by myself anymore."

Students also highlighted issues related to originality. Some believed that AI-generated writing often feels too general, repetitive, and lacking personal voice.

Another respondent stated:

"Sometimes the writing from AI feels too general and not really my own voice."

Additionally, several students mentioned concerns about inaccurate or misleading information generated by AI, emphasizing the need for verification before using AI-generated content in academic work.

Ethical Concerns and Academic Integrity

Ethical concerns emerged as a significant theme in both the quantitative and qualitative findings. Many students acknowledged that using AI for essay writing raises questions related to plagiarism, authorship, and academic honesty.

A common issue identified was uncertainty regarding the boundary between acceptable assistance and academic misconduct.

One participant explained:

“I’m not sure if using AI for writing is considered cheating or not.”

This indicates that although students are aware of ethical concerns, they often lack clear understanding of institutional expectations regarding acceptable AI use.

Some students also mentioned concerns about fairness in academic assessment, especially when some students rely heavily on AI while others complete their work independently.

4) DISCUSSIONS

The Double-Edged Nature of AI in Academic Writing

The findings of this study confirm that AI functions as a double-edged tool in academic writing. Students recognize AI as a helpful assistant that improves efficiency, supports idea generation, and enhances language quality. At the same time, they also express concerns regarding dependency, reduced critical thinking, lack of originality, and ethical ambiguity.

This duality suggests that AI is neither inherently beneficial nor harmful. Its educational value depends largely on how students use it. When used critically and responsibly, AI can support learning and improve writing development. However, excessive or unreflective use may weaken essential academic skills.

This finding supports the argument that discussions about AI in education should move beyond simple acceptance or rejection and instead focus on responsible and balanced use.

Comparison with Previous Studies

The positive perceptions found in this study are consistent with previous research by Kasneci et al. (2023) and Zhai (2022), which found that AI tools help reduce cognitive load and improve writing efficiency. Students in this study similarly reported that AI assists them in overcoming writer's block and improving grammar and vocabulary.

The concerns regarding over-reliance and originality also align with Selwyn (2019), who warns that technology should not replace the intellectual effort required for meaningful learning. Likewise, Cotton et al. (2023) emphasize that generative AI may encourage superficial engagement if students prioritize convenience over understanding.

Regarding ethical concerns, the findings support Baidoo-Anu and Owusu Ansah (2023), who highlight the importance of explicit ethical guidance in AI use. Students' uncertainty about whether AI use constitutes cheating demonstrates the need for clearer institutional policies.

Thus, this study strengthens existing literature by showing that students experience both the opportunities and risks of AI simultaneously rather than separately.

Pedagogical Implications

The findings suggest that higher education institutions should integrate AI literacy into academic writing instruction. Students need not only technical skills but also critical awareness of the limitations, risks, and ethical implications of AI tools.

Universities should also provide clear institutional guidelines regarding acceptable AI use in assignments and assessments. This would help reduce confusion and support academic integrity.

In addition, educators should design writing activities that encourage reflection and critical engagement with AI-generated content. For example, students may be asked to evaluate AI-generated responses, revise them, and justify their decisions. This approach positions AI as a learning support tool rather than a shortcut.

Ultimately, the goal is not to eliminate AI from academic writing but to ensure that its use strengthens learning outcomes and preserves academic integrity.

5) CONCLUSION

This study explored university students' perceptions of AI-assisted writing, highlighting its dual role as both a supportive tool and a potential source of academic risk. The findings demonstrate that students widely recognize the benefits of AI in enhancing writing efficiency, improving language accuracy, and facilitating idea generation. At the same time, they express considerable concerns regarding over-reliance, reduced critical thinking, issues of originality, and ethical ambiguity.

The results confirm that AI functions as a "double-edged" technology in academic writing. Its value is not inherent in the tool itself but is shaped by how it is used by students. When applied critically and responsibly, AI can support learning and writing development; however, unreflective use may undermine essential academic skills and integrity.

This study contributes to the growing body of research on AI in education by providing empirical evidence of students' balanced and nuanced perspectives. By integrating benefits, risks, and ethical considerations within a single framework, the study offers a more comprehensive understanding of AI's role in contemporary academic writing practices.

Pedagogical Implications

The findings suggest that higher education institutions should move beyond restrictive approaches and instead adopt pedagogical strategies that promote responsible AI use. Integrating AI literacy into the curriculum is essential to equip students with the skills to evaluate, use, and critique AI-generated content. Additionally, clear institutional guidelines are needed to define acceptable uses of AI in academic writing and reduce ambiguity surrounding academic integrity.

Educators are also encouraged to design learning activities that emphasize critical thinking, originality, and reflective engagement with AI tools. By positioning AI as a collaborative assistant rather than a replacement for human effort, students can maximize its benefits while minimizing its risks.

Limitations and Future Research

This study is not without limitations. The use of convenience sampling and a relatively small sample *size* ($N = 67$) may limit the generalizability of the findings. Additionally, the study relies on self-reported data, which may be influenced by subjective perceptions.

Future research is recommended to involve larger and more diverse populations, as well as to explore longitudinal effects of AI use on students' writing development. Further studies could also examine instructors' perspectives and investigate the effectiveness of AI-integrated pedagogical interventions in academic writing contexts.

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