

AI in Academic Writing: Reimagining Human-Centred Learning for the Digital Age

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ABSTRACT

The integration of Artificial Intelligence (AI) into academic writing has transformed how students plan, compose, and revise essays in higher education. While AI tools such as ChatGPT and ChatPDF offer instant feedback and language support, concerns arise regarding students' overreliance on technology and the diminishing role of critical thinking, creativity, and self-reflection in writing. This study explores how human-centred learning can be maintained and enhanced within AI-assisted writing environments. The research aims to identify students' perceptions of AI use in essay writing and how lecturer guidance shapes the balance between technological assistance and human judgment. Using a qualitative descriptive design, the study collects data through semi-structured interviews and classroom observations involving English as a Foreign Language (EFL) students. Findings indicate that AI tools can effectively support idea development and organization, but their educational value depends on human mediation that encourages reflection and ethical awareness. The study concludes that sustainable academic writing instruction in the digital age requires a human-AI partnership that prioritizes learner agency, critical engagement, and ethical literacy.

Keywords: *Artificial Intelligence, Academic Writing, Human-Centred Learning, Essay Writing, AI-Supported Revision.*

1) INTRODUCTION

The advancement of Artificial Intelligence (AI) has brought a transformative shift in educational practices, particularly in the domain of academic writing. AI-powered writing assistants such as ChatGPT, Grammarly, ChatPDF, and automated feedback systems are now widely integrated into student writing activities across universities globally (Suryani, I., & Fithriani, R: 2025). These tools offer instant suggestions for linguistic accuracy, coherence, organization, and content development features that traditionally depended solely on lecturer evaluation or peer feedback. As a result, the process of composing and revising academic papers is no longer limited to human mediation; instead, it operates within a hybrid ecosystem where technology collaborates with human cognition (Yang, K: 2024) . This transformation raises essential questions about how AI can be positioned not merely as

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a shortcut to writing completion, but as a constructive learning partner that fosters human-centered growth (Hanura, H., & Widiarti, T. R.: 2024)

In recent years, Artificial Intelligence (AI) has emerged as a transformative tool in education, particularly in the realm of language learning (Hamdan & Aldhaen, 2024). AI's ability to provide instant, personalized feedback on students' writing has been increasingly integrated into educational technologies (Kurt & Kurt, 2024). In the context of writing, providing corrective feedback is essential to improve students' language proficiency, particularly in writing structure, grammar, and storytelling coherence Tay (2024). However, while traditional feedback mechanisms, such as teacher-student interactions, have long been in place, the use of AI to support this process, especially in argumentative writing, has not been fully explored (T6, p. 6)., the use of AI to support this process has not been fully explored, especially in terms of writing.

The integration of AI in academic writing offers substantial benefits. Students can generate vocabulary alternatives, visualize referencing formats, summarize lengthy readings, and receive direct revision suggestions in real time, Tang, X., Chen (2025). These affordances reduce cognitive load and encourage students to write more confidently, especially for English as a Foreign Language (EFL) learners who commonly struggle with grammar, structure, and idea organization. Moreover, AI-generated feedback mirrors lecturer feedback in several areas, making it possible for students to revise their essays before submission. However, while AI enhances efficiency, it simultaneously triggers concerns regarding academic integrity, originality, critical thinking, and the potential decline of independent reasoning. Students may rely on the machine to think for them rather than using AI as a cognitive scaffold that stimulates learning (Lee, J. E., & Maeng, C, 2023).

This dilemma underscores the urgent need for human-centred learning approaches in AI-assisted writing contexts. Human-centred learning emphasizes student agency, reflective thinking, ethical awareness, and the meaningful role of lecturers as facilitators of intellectual growth (Hanura, H., & Widiarti, T. R: 2024). Instead of positioning AI as a replacement for human instruction, this paradigm views technology as a partner that works alongside teachers and learners. Lecturers remain responsible for guiding students to evaluate, question, and refine AI-generated feedback ensuring that AI does not replace human reasoning but enriches it (Erito, A: 2023).

Thus, this study aims to investigate how students perceive the use of AI tools in academic writing and how lecturer supervision determines the balance between technological assistance and human judgment. Through qualitative inquiry, this research seeks to answer:

- a. How do students experience and interpret the role of AI tools in developing academic writing?
- b. How does lecturer guidance shape responsible, reflective, and ethical use of AI assistance in writing revision?

This research is significant because universities must redefine writing pedagogy for the digital era. As Rosmayanti, V. (2024) stated that AI becomes embedded in academic literacy practices, the goal should not be to restrict its use but to cultivate students' ability to think critically, evaluate machine-generated input, and construct knowledge independently. The findings of this study are expected to contribute to ongoing discourse on sustainable AI integration positioning technology as a tool that supports rather than replaces human intelligence. Ultimately, academic writing in the digital age must move toward a symbiotic model where AI provides assistance and humans maintain control, judgment, and creativity (Mursidha: 2025).

2) METHODS

This study adopts a qualitative descriptive design to explore students' perceptions of AI use in academic writing and to analyse how lecturer mediation contributes to human-centred learning during AI-supported revisions. A qualitative approach is appropriate since the goal is to capture students' experiences, reflections, behaviours, and interpretations rather than to measure numerical outcomes statistically. The design allows natural observation of writing processes and enables researchers to understand meaning from participants' perspectives (Braun, V., & Clarke, V: 2006).

Participants

The study involved 12 undergraduate students enrolled in an EFL academic writing course at some universities in Pamekasan Madura. Participants were selected using purposive sampling, focusing on students who had used AI writing tools for essay assignments and revisions. Three lecturers who supervised their writing were also observed to determine how feedback and instruction interacted with AI-assisted revisions.

Data Collection Procedures

Data were collected over eight weeks using:

Table 1: *Overview of Data Collection Procedures and Instruments*

Instrument	Description	Output
Semi-structured interview	Conducted individually with each student	Narratives on experience, benefits, risks, ethics of AI
Classroom observation	Students revising essays using ChatGPT & ChatPDF	Behavioral patterns & interaction logs
Document analysis	Drafts before vs after AI feedback	Changes in coherence, accuracy, organization

Interview questions explored students' reason for using AI, perception of its effectiveness, comparison with lecturer feedback, and ethical concerns. Observations were recorded in field notes focusing on how students interacted with AI prompts, how often they accepted machine suggestions, and when they required lecturer clarification (Creswell, J. W: 2009).

Data Analysis

Thematic analysis was used to process data. Interview transcripts and observation notes were coded to identify recurring patterns. Three major themes emerged:

- a. AI as a cognitive assistant that enhances writing confidence.
- b. Risks of over-dependence leading to reduced originality.
- c. Lecturer intervention as a balancing mechanism for ethical and critical learning.

Document comparison (pre-revision and post-revision essays) further supported theme validation showing noticeable improvement in vocabulary precision, idea organization, transitional cohesion, and grammar accuracy.

Ethical Considerations

Participant anonymity was protected using pseudonyms. Students were informed of their right to withdraw anytime. Research procedures received approval from the institutional ethics committee, ensuring that data collection complied with academic ethical standards.

3) RESULTS AND DISCUSSION

This section presents the findings obtained from interviews, observations, and document analysis conducted throughout the study. The results are discussed thematically to reflect students' experiences with AI-supported revisions and the role of lecturer guidance in shaping human-centred writing development. Qualitative evidence is interpreted alongside theoretical perspectives to better understand how artificial intelligence enhances and simultaneously challenges academic writing performance.

3.1 Improvement in Idea Development and Organization through AI Support

3.1.1 Students' initial writing challenges

At the beginning of the observation period, the participants showed common issues often found among EFL writers: difficulty in generating ideas, lack of cohesion between paragraphs, over-dependence on basic grammar structures, and frequent lexical repetition. Most students admitted that before using AI, they tended to write sentences word by word instead of planning their arguments structurally. Their essays reflected fragmented development, short paragraphs without topic sentences, and claims unsupported by evidence characteristics that indicate cognitive struggle during writing.

3.1.2 AI as brainstorming partner

After integrating ChatGPT and ChatPDF into the revision phase, significant improvement was detected in how students shaped their ideas. Many students used AI to:

- Generate multiple angles of discussion before selecting one.
- Request counterarguments to deepen analytical depth.

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- Ask for examples, evidence, and academic references.
- Reorganize paragraphs into logical flow.

AI responses expanded students' mental space, enabling them to view the topic more critically. Instead of staring at a blank page, students now entered the revision phase with a structured outline. Observational data also showed that students requested reformulations like *"make this paragraph more coherent"* or *"strengthen my argument using academic tone"*, demonstrating proactive engagement rather than passive copying.

3.1.3 Document comparison analysis

A comparison of students' essays before and after AI revision reveals:

Table 2: *Comparative Analysis of Students' Writing Before and After AI-Supported Revision*

Indicator	Before AI use	After AI-supported revision
Coherence	Fragmented & abrupt transitions	Smooth logical sequencing
Paragraph development	One main idea repeated	Multi-layered argumentation
Lexical range	Basic and repetitive	Diverse and academic vocabulary
Evidence usage	Limited or absent	Clear examples & citations

These improvements indicate that AI acted as a cognitive scaffold, offering conceptual clarity that many EFL students typically struggle to achieve independently. However, this raises a critical question whether students genuinely learned to write better or merely accepted machine-generated suggestions.

3.2 Increased Confidence, Fluency, and Motivation to Write

Another prominent finding from this research is the rise in students' confidence after using AI feedback tools. During interviews, most students expressed that they felt less anxious when drafting essays because the machine could instantly highlight errors or suggest alternatives. Previously, students often hesitated to submit drafts due to fear of grammatical mistakes or unclear arguments. With AI assistance, however, writing felt less intimidating.

3.2.1 AI reduces cognitive load

Students often complained that thinking about grammar and idea generation simultaneously created cognitive overload. AI helped distribute mental workload by handling mechanical aspects while students focused on content. As a result, they wrote faster, longer, and more consistently. In classroom observation, typing hesitation decreased significantly students rarely paused for long periods, indicating fluent thought progression.

3.2.2 Motivation to revise increased

AI helped transform revision from a painful obligation into a guided learning process. Instead of waiting weeks for lecturer feedback, students could revise immediately. This instant reward system strengthened motivation because improvements were visible in real time. However, this advancement carries inherent risk, which will be addressed in the following subsection (Safitri,2024).

3.3 Dependency Risks: Reduced Creativity, Originality, and Critical Thinking

Although AI facilitated clarity and fluency, excessive reliance emerged as a recurring concern. Some participants began to accept AI suggestions without questioning them. During revision sessions, several students copied text output entirely, assuming that AI-generated sentences were automatically correct, more academic, and therefore superior to their own.

3.3.1 Passive learning behaviour

The analysis identified passive behaviour patterns such as:

- Students bypassing planning and jumping directly to AI-generated content.
- Lack of self-reflection on whether AI suggestions aligned with assignment goals.
- Minimal evaluation of factual validity or contextual relevance.

In extreme cases, students replaced entire paragraphs with AI-generated ones, losing personal voice and analytical authenticity. From an educational perspective, this is problematic because writing is not only a language skill but also a cognitive tool through which individuals construct knowledge.

3.3.2 Threat to originality

Because AI synthesises patterns from existing corpora, it may inadvertently encourage generic expression rather than innovative reasoning. Students who rely solely on AI risk producing uniform

essays lacking authorship identity. Although plagiarism detection software may not always detect AI-generated text, intellectual integrity erodes when human thinking is outsourced to a machine (Kapraja Sangadji: 2024).

The finding confirms growing academic concern: *technology is beneficial only when learners maintain ownership of ideas*.

3.4 Lecturer Intervention as Cognitive Regulator in AI-supported Writing

This theme emerged as the most critical component of the research AI does not teach how to think; humans do. Lecturer supervision acted as a balancing force between the advantages and the risks of AI usage.

3.4.1 Lecturer as mediator

Throughout classroom observation, lecturers consistently required students to:

- Justify why they accepted or rejected AI feedback.
- Highlight AI errors or misleading claims.
- Re-explain ideas in their own words.

This task forced students to re-engage mentally. AI became a resource, not a crutch.

3.4.2 Developing ethical digital literacy

Lecturers guided students to use AI responsibly, reminding them to:

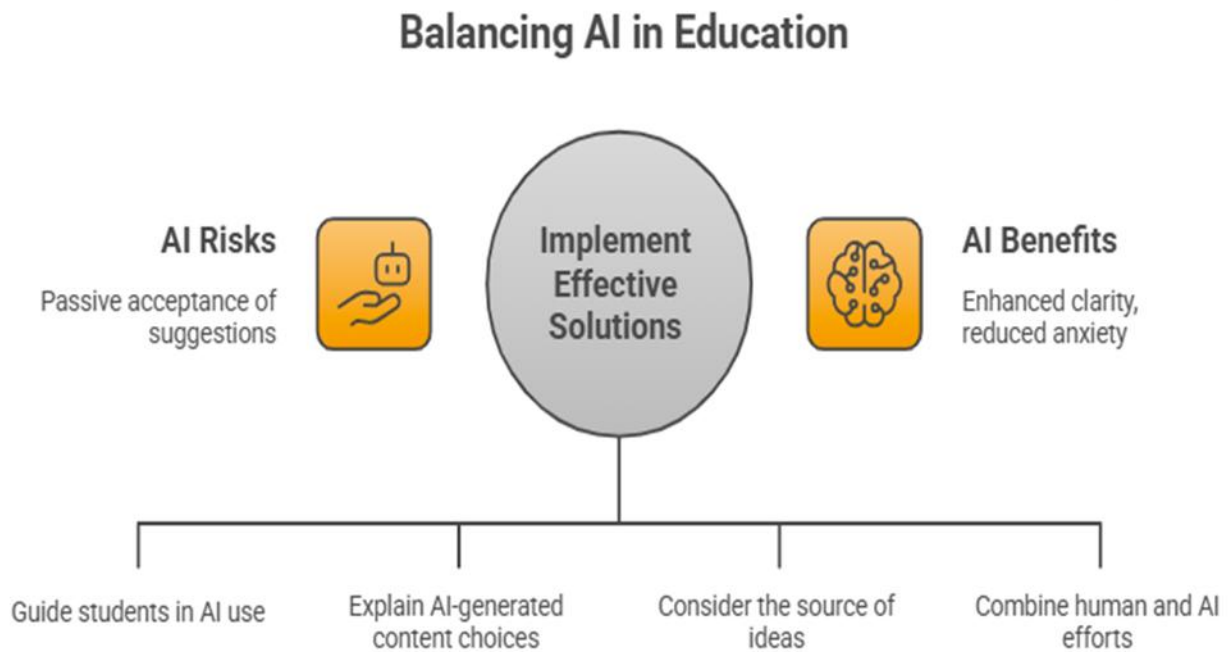
- Cite sources instead of copying.
- Distinguish between machine-generated language and original reasoning.
- Treat AI as suggestion, not solution.

When mediated properly, AI actually improved critical thinking because students compared machine feedback with lecturer feedback, identified differences, and reflected on writing choices as Nugrahawati, A.W (2025) stated.

3.5 Human–AI Partnership as Future Writing Pedagogy

The results of this study confirm that the best writing outcomes emerged **when AI and lecturer guidance worked together, not separately**. The classroom evolved into a space where students *write* → *consult AI* → *refine* → *consult lecturer* → *reflect*. This cycle fosters continuous improvement and metacognitive awareness as stated by Xu, Z. (2025).

Below is the visual of AI balancing in education



Picture 1: *Balancing AI in Education*

3.5.1 Sustainable digital-age literacy

Academic writing in the future should not aim to remove AI that is neither realistic nor beneficial. Instead, universities must adopt a new literacy model that:

- Recognises AI as cognitive collaborator.
- Preserves critical and reflective human intelligence.
- Encourages originality, ethics, and self-authored knowledge.

AI becomes a tool that amplifies human potential, not replaces it as the table ilustrasion below.

Table 3: *Benefits, Risks, and Pedagogical Solutions for AI Use in Academic Writing*

Benefit of AI	Risk of AI	Solution
Enhances clarity and structure	Passive acceptance of suggestions	Lecturer mediation and justification tasks
Reduces anxiety and increases fluency	Erosion of originality	Reflection on idea ownership
Expands argument depth	Over-dependence on the tool	Human-AI balanced workflow

4) CONCLUSIONS

This study explored how undergraduate EFL students at an Indonesian university perceive and use AI writing tools (such as generative-AI and automated feedback systems) in their academic writing process, and how lecturer supervision moderates their experience. The findings show a clear dual nature of AI-assisted writing:

- On one hand, AI tools significantly enhanced writing improving idea development, coherence, lexical richness, essay organization, and reducing anxiety and cognitive load. These benefits helped students produce more structured, fluent, and confident texts.
- On the other hand, over-reliance on AI suggestions sometimes led to passive writing behavior, diminished originality, and weaker critical engagement. When students accepted machine-generated content uncritically, their own voice and analytical thinking were compromised.
- Crucially, the presence of lecturer mediation asking students to reflect on, justify, and revise AI-generated suggestions served as a “cognitive regulator,” preserving human agency, encouraging reflection, reinforcing academic integrity, and fostering more meaningful learning.

In light of these results, the study argues that AI should not be treated as a shortcut to finish writing faster, but rather as a cognitive collaborator: a tool that supports human thinking rather than

replacing it. The most productive and pedagogically sound outcome arises when AI assistance is integrated within a human-centered writing pedagogy, where lecturers guide, challenge, and scaffold students' thinking and ethical use of technology.

Therefore, academic writing in the digital age should evolve toward a symbiotic model one where technology amplifies human potential, but human judgment, creativity, and responsibility remain central.

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