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Digital Dilemma: Challenges and Solutions in the Use of AI for Academic Writing among English Language Education Students

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ABSTRACT

This study examines the challenges and ethical dilemmas faced by English Language Education students at Muhammadiyah University of Luwuk in using Artificial Intelligence (AI) for academic writing. It identifies patterns of AI usage in the writing process. Data were collected through questionnaires and interviews. The findings show that although AI improves writing quality, increases time efficiency, and helps generate ideas, its use raises concerns. The main challenges include overreliance on AI, reduced critical thinking, potential plagiarism, difficulty creating effective prompts, overly general or irrelevant outputs, and unverifiable references. Interview results reveal linguistic and stylistic features of AI-generated texts. Students acknowledge the risks of misuse and propose solutions, including ethics training, university guidelines, mentoring, and access to reliable tools. This study recommends developing clear institutional policies, improving AI literacy, and implementing strict oversight to ensure AI is used ethically and effectively as a support tool rather than a substitute for students' abilities.

***Keywords*:**

Artificial Intelligence (AI); Academic Writing; Ethical Challenges.

ABSTRAK

Studi ini meneliti tantangan dan dilema etika yang dihadapi oleh mahasiswa Pendidikan Bahasa Inggris di Universitas Muhammadiyah Luwuk dalam menggunakan Kecerdasan Buatan (AI) untuk penulisan akademik. Studi ini mengidentifikasi pola penggunaan AI dalam proses penulisan. Data dikumpulkan melalui kuesioner dan wawancara. Temuan menunjukkan bahwa meskipun AI meningkatkan kualitas tulisan, meningkatkan efisiensi

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waktu, dan membantu menghasilkan ide, penggunaannya menimbulkan kekhawatiran. Tantangan utama meliputi ketergantungan berlebihan pada AI, berkurangnya kemampuan berpikir kritis, potensi plagiarisme, kesulitan menciptakan petunjuk yang efektif, hasil yang terlalu umum atau tidak relevan, dan referensi yang tidak dapat diverifikasi. Hasil wawancara mengungkapkan fitur linguistik dan gaya teks yang dihasilkan AI. Mahasiswa mengakui risiko penyalahgunaan dan mengusulkan solusi, termasuk pelatihan etika, pedoman universitas, bimbingan, dan akses ke alat yang andal. Studi ini merekomendasikan pengembangan kebijakan institusional yang jelas, peningkatan literasi AI, dan penerapan pengawasan ketat untuk memastikan AI digunakan secara etis dan efektif sebagai alat pendukung, bukan sebagai pengganti kemampuan mahasiswa.

***Kata kunci*:**

Kecerdasan Buatan (AI); Penulisan Akademik; Tantangan Etis.

1. Introduction

The development of Artificial Intelligence (AI) technology has brought significant changes to the academic world (Bennett, 2023; Ilieva, 2021; Kumar et al., 2023). Students and academics are utilizing AI for various purposes, including the creation of scholarly works such as articles, papers, theses, academic essays, working papers, and more (Aljuaid, 2024; Rinaldy et al., 2023). AI technologies like Grammarly, Quillbot, ChatGPT, and others play a role in enhancing students' writing skills by providing automatic feedback, improving sentence structure, and offering creative ideas (Raheem, Anjum, & Ghafar, 2023). In addition, AI offers various conveniences for English education students in academic writing. It can assist in identifying research trends, analyzing data, correcting grammar, spelling, and formatting in accordance with academic standards (Ajleaa, Rahman, Zulkornain, & Hamzah, 2022; Ma & Jiang, 2022; Wu, 2022). A study conducted by Mangendre et al. (2025) indicates that more than 70% of students stated that the use of AI improved their ability to complete assignments, generate new ideas, and gain additional knowledge.

Despite these numerous benefits, the use of AI in academic writing also presents serious dilemmas and challenges. One major concern is the increasing dependence of students on AI, which may weaken their critical thinking, creativity, and independent writing skills (Spector, 2019; Wang et al., 2023). Many students tend to copy AI-generated content without evaluating, paraphrasing, or verifying its accuracy, thereby increasing the risk of plagiarism and reducing the originality of their academic work. These issues suggest that students still have a limited understanding of how to use AI ethically and responsibly.

Based on preliminary studies, English education students at Muhammadiyah University of Luwuk who are working on their final projects have integrated AI into the writing of academic works (both theses and articles). This includes checking grammatical errors using Grammarly, detecting plagiarism with Turnitin, paraphrasing with Quillbot, reviewing literature with Mendeley, and more. With the help of these AI tools, students are expected to improve the quality and effectiveness of their academic writing, including the publication of scholarly articles, thereby contributing to the

advancement of science and education (Journal, Patty, Que, Ilmiah, & Inggris, 2023; Kim & Kim, 2022; Salvagno, Taccone, & Gerli, 2023).

However, the widespread use of AI among students has also led to negative impacts, including increased plagiarism and violations of academic ethics. The ease of accessing and copying others' work, along with the tendency to overuse AI, may reduce students' critical thinking skills, hinder their ability to complete tasks independently, limit creative problem-solving, and even foster dependency (Borenstein & Howard, 2021; Ma & Jiang, 2022; Madaniyah, Agustina, Aisy, Tinggi, & Tarbiyah, 2023; Reiss, 2021) Furthermore, according to Maula et al. (2023); Osamor (2023); Tripon (2018) students who rely heavily on ChatGPT to complete their assignments are at risk of diminished critical thinking and problem-solving skills.

Even more concerning is that excessive use of AI has negative implications, such as the fabrication of scientific texts in research, which may go undetected by peer reviewers and originality detection tools (Else, 2023; Teng, 2023). This concern aligns with findings from Druga et al. (2022); Celik et al. (2022); Zhang & Begum (2021), which highlight a critical gap between what AI technology can do and how it is implemented in authentic educational settings. Compounding this problem is the absence of clear institutional guidelines regarding AI use in academic writing at Muhammadiyah University of Luwuk. Many students report receiving no structured training or supervision in ethical or effective AI practices. This gap underscores the urgency and relevance of examining AI use at this institution, as it reflects real challenges students encounter in their academic writing.

Therefore, this study aims to identify the pattern of Artificial Intelligence (AI) use among English education students at Muhammadiyah University of Luwuk in academic writing, analyze the ethical issues and dilemmas they encounter, and propose solutions that promote the responsible, ethical, and effective use of AI. The findings of this study are expected to provide essential data to support institutional policy development, improve AI literacy, and serve as a foundation for creating academic guidelines for higher education. In doing so, this research contributes to ensuring that AI is used as a tool that enriches students' academic abilities and supports the improvement of educational quality and academic systems in Indonesia.

2. Methods

2.1. Research Design

This study adopts a mixed-methods convergent parallel design, enabling the simultaneous collection of quantitative and qualitative data for comprehensive analysis (Miles, Huberman, & Saldana, 2014). The population consists of students from the English Education Study Program at Universitas Muhammadiyah Luwuk, with participants selected purposively based on their engagement in academic writing involving AI tools. Data were gathered using an online questionnaire and semi-structured interviews. The questionnaire captured quantitative patterns of AI use, while interviews explored challenges and ethical considerations. Quantitative data were analyzed using descriptive statistics, and qualitative data were processed using the Miles and Huberman model. The results from both strands were then integrated to produce a consolidated interpretation of AI utilization in students' academic writing practices.

2.2 Research Participants

The participants in this study were 50 students from the English Education Study Program at Muhammadiyah University of Luwuk who completed the questionnaire and are actively involved in academic writing, including preparing final projects, research papers, and scientific articles. In addition, 10 students were selected for in-depth interviews to obtain deeper insights into the dilemmas and challenges associated with AI-assisted academic writing. The involvement of these participants is expected to yield rich, comprehensive information that supports the objectives of the mixed-methods design employed in this research.

2.3 Data Collection Procedure

Data were collected using a mixed-methods convergent parallel design. Quantitative data were collected via an online questionnaire distributed via Google Forms, using a Likert scale to assess students' patterns of AI use in academic writing. Qualitative data were gathered through in-depth interviews with selected participants to explore challenges, ethical concerns, and students' real experiences in using AI tools. All interview recordings were transcribed and processed systematically. The two datasets were collected simultaneously to enable complementary interpretation and to provide a comprehensive understanding of AI use in the academic writing practices of English Education students.

2.4 Data Analysis Technique

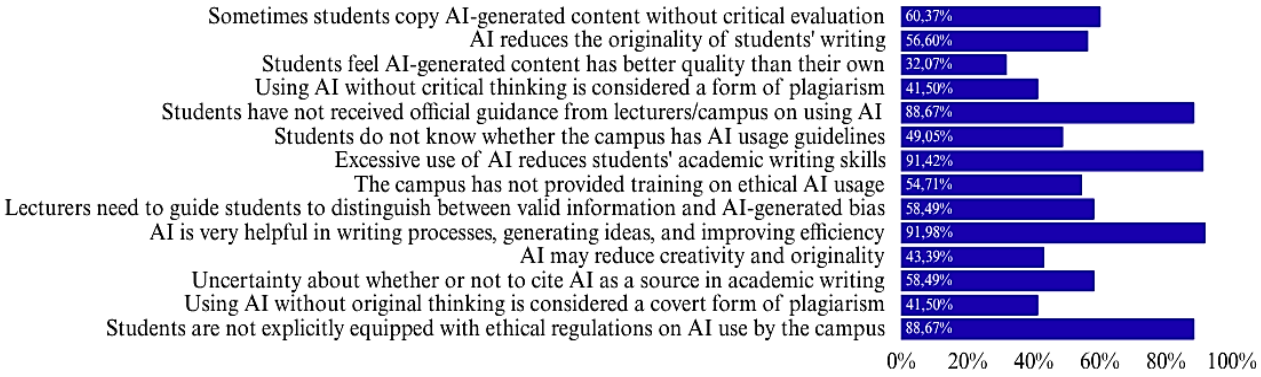
The study employed a mixed-methods analytical approach, with methodological triangulation, to ensure the validity and depth of the findings. Quantitative data obtained from Likert-scale questionnaires were analyzed using descriptive statistics and presented in frequency tables to illustrate students' patterns of AI use. Qualitative data from in-depth interviews were examined using the Miles and Huberman framework, which involves data reduction, data display, and conclusion drawing. Both datasets were then integrated using a convergent parallel design, allowing quantitative trends and qualitative insights to complement and substantiate one another for a more comprehensive interpretation.

3. Results and Discussion

This study employed a mixed-methods approach, combining questionnaires and interviews to explore the ethical considerations and challenges students face in the context of Artificial Intelligence (AI) use. The research focused on three main problem areas: (1) ethical issues and dilemmas encountered by students, (2) patterns of AI usage identified during the data collection process, and (3) potential solutions for promoting responsible and ethical use of AI in academic settings. The results from both quantitative and qualitative data are presented and discussed below to provide a comprehensive understanding.

3.1 Ethical Issues and Dilemmas Encountered by Students

The following picture presents the questionnaire findings on the ethical issues and dilemmas students face in utilizing AI for their academic work.



Picture 1. The Ethical Issues and Dilemmas Faced by Students

Based on the data above (see picture 1), we can conclude that although AI greatly assists with academic writing, students in the English Education Program at Muhammadiyah University of Luwuk still encounter ethical issues and dilemmas. Based on the results of questionaire, many students face ethical concerns and confusion when using Artificial Intelligence (AI) in academic writing. Most students (91.42%) believe that excessive use of AI can make them less skilled at writing on their own. A large number (88.67%) also said they have not received clear rules or guidance from their lecturers or campus about how to use AI properly. Some students (60.37%) admitted that they sometimes copy AI-generated content without thinking critically, and over half (56.60%) think that AI reduces the originality of their work. About 41.50% of students even see this as a form of plagiarism. More than half (58.49%) feel that lecturers should help students understand which AI-generated content is valid or biased. However, many campuses (54.71%) still have not given training on how to use AI ethically.

These quantitative findings were supported and clarified by the interview data. Several students (P6, P10) admitted that they have become less motivated to think critically because they are used to copying and pasting content directly from AI. Many others (P1, P5, P6, P11) admitted they often copy and paste AI-generated text without paraphrasing. For example, P1 noted, “In some cases, we still find students making mistakes when using AI, such as copying entire sentences without paraphrasing them first.” At the same time, P5 shared, “If it's only a short part of writing, I usually just take it directly.” P6 added that “some students completely shut off their thinking, choosing to copy from ChatGPT without even reading or understanding the content.”

Furthermore, students like P6 and P8 explained that they often rely on AI without going through their own thinking or evaluating the information. P8 gave an example, saying, “If a lecturer gives us a question and we immediately look for the answer in ChatGPT and copy it without any thought process, it can reduce creativity and critical thinking skills.” P10 also admitted to heavy reliance on

AI, especially when struggling to generate ideas, saying, “I use it almost every day, especially when working on a proposal.” Supporting this, P11 remarked, “Many of my friends also just copy and paste the results from AI.”

Besides, plagiarism is also a major concern. P8 is not even aware that copying directly from AI without changes counts as plagiarism. He said, "When I did my assignment, it turned out to be flagged as plagiarism when checked." This shows that students' ethical understanding of AI use is still lacking. As realized by P6, "I believe that many students on campus still use AI, in some cases to an extent that may be considered misuse, as it is not applied responsibly."

From the results of both the questionnaire and the interview, it is clear that although AI is very helpful in improving writing and generating ideas, its use also raises serious concerns. Many students still do not fully understand the ethical rules when using AI, especially regarding plagiarism. The lack of clear guidance from the university and the tendency to rely too heavily on AI have led students to be less critical thinkers. While some students feel that AI helps them write better, others use it without responsibility. These findings show a strong need for clear rules, ethical guidance, and support from lecturers to help students use AI appropriately.

Besides, several challenges were identified in students’ use of AI. First, AI-generated outputs were often too general or irrelevant. Some students reported that AI frequently provided answers that did not match the questions asked (P1, P5, P10, P11) as P1 said "When I ask AI to create a sentence or a question for me, sometimes the result does not match what I requested.", requiring them to select and filter the relevant parts (P5) “…sometimes, perhaps because too many requests have been made, the answer ends up not matching the question.". In addition, the language or terminology used by AI was sometimes disconnected from the context or overly formal (P10). “Sometimes, if the keywords I provide are unclear, the ideas generated by AI also do not align with what I intended”. Second, many students struggled to understand how AI works, particularly in the context of prompting techniques. They were unfamiliar with how to craft effective prompts to obtain the desired responses from AI (P1, P5, P7, P9, P10, P11) as explained by P7 “The problem is that the results shown do not match what I want. This might be due to difficulties in creating prompts when using AI.”, it is leading them to repeat or rephrase instructions multiple times (P9, P10) as stated by P10 “So, we have to find the right keywords ourselves to get ideas that match what we want.” Third, the validity of AI-generated references was also an issue. AI often produced references with unclear sources or outdated information (P1, P4), and in some cases, the DOIs provided were fake or inaccessible (P4). “Some AI tools usually generate DOIs that are incorrect.”

3.2 Patterns of AI Usage Identified

The findings indicate that identifiable linguistic patterns suggest a text may have been generated by Artificial Intelligence (AI). Based on the participants’ interviews, there are 3 consistent patterns emerge in AI-assisted English academic writing, they are:

3.2.1 Formal and Advanced Vocabulary

AI-generated texts often use formal, high-level vocabulary, including uncommon or rarely used academic terms.

> "Texts generated by AI frequently include scientific terminology that is uncommon in daily language use" (P5). "...words that are rarely heard, uncommon, or have never been encountered before" (P6). "It uses advanced English vocabulary, and these words are rarely used" (P9).

These findings support the notion that the consistent use of formal and advanced vocabulary marks AI-generated texts. The repeated mention of uncommon and rarely used terms by multiple participants highlights a distinct linguistic pattern that sets AI-assisted writing apart from typical student compositions

3.2.2 Highly Structured and Organized Text

The output tends to be well-organized, with clear structure and coherence, which contrasts with the more spontaneous, less structured style of human writing, especially among non-native English writers.

> "When I use AI, the writing appears neater and more organized."

This indicates that AI-assisted writing enhances structural clarity and coherence, providing users, particularly non-native English writers, with more polished, systematically organized texts than their natural academic writing.

3.2.3 Distinct Stylistic Features

Certain stylistic cues, such as excessive use of bullet points, quotation marks, or overly formal phrasing, can indicate that AI generated the text.

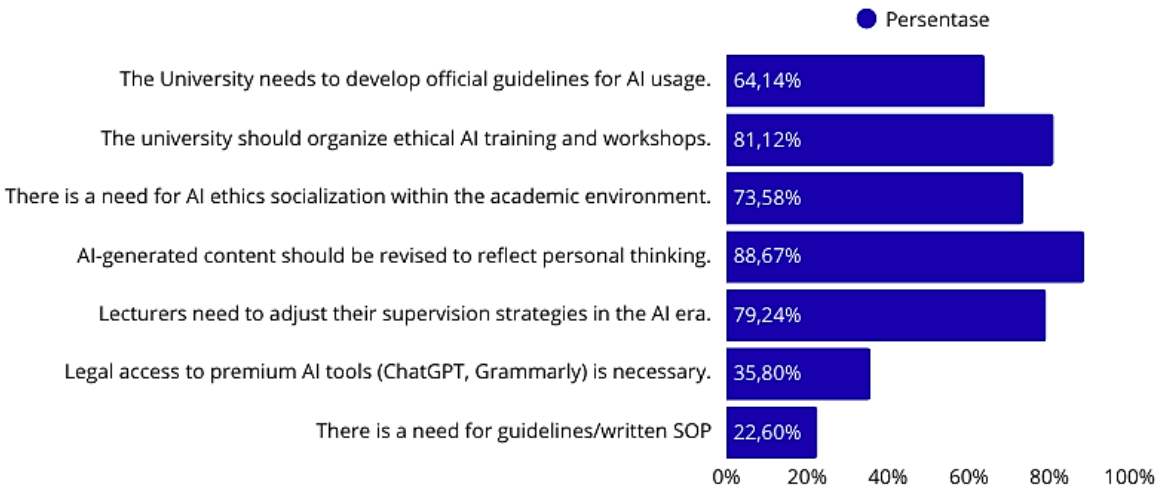
> "The characteristics are very clear, usually seen from signs such as bullet points or quotation marks that appear when AI-generated text is copied, making it look like a copy-paste result." (P11).
>
> "When AI-generated text is pasted into Word, the differences are usually immediately visible, both in terms of formatting, font size, and the very formal writing style." (P11)

These results highlight that AI-generated texts often carry distinct stylistic markers that set them apart from human writing. Elements such as uniform formatting, noticeable use of bullet points or quotation marks, and an excessively formal tone contribute to a "copy-paste" appearance, making such texts easily recognizable, especially when transferred into word processing software.

Overall, the interviews result reveal that while AI-generated academic writing often appears more sophisticated, it tends to be overly formal, rigid in structure, and filled with technical or scientific vocabulary. These characteristics, as noted by several participants, contribute to a writing style that feels unnatural and impersonal, making it easily distinguishable from typical student work. Additionally, AI tends to repeat the same ideas using different wording, resulting in lengthy paragraphs that sometimes lose focus or coherence. For example, a paragraph may begin with topic A, but by the third sentence, it may veer off into an unrelated subject. This contrasts with human writing, which is generally more personal, contextual, and cohesively structured from beginning to end. In this regard, AI tends to compile available information rather than conveying ideas with the depth and intentionality typically demonstrated by human writers.

3.3 Potential solutions for promoting responsible and ethical use of AI in academic settings

The following Picture 2 presents the questionnaire findings on potential solutions to promote responsible and ethical use of AI in academic settings.



Picture 2. Solutions and Recommendation Ethical Use of AI in Academic Settings

To promote the ethical use of AI in academic settings, several solutions and recommendations emerge from the findings. Students highlight the importance of clear institutional guidance and structured support as a foundation for responsible AI integration. A substantial proportion of respondents (88.67%) agree that AI-generated content should be revised to reflect one's own reasoning, indicating that AI should serve as a complementary tool rather than a substitute for human thinking. Furthermore, 81.12% emphasize the need for universities to provide training and workshops on ethical AI practices, and 73.58% call for socialization or awareness campaigns to strengthen ethical understanding within the academic environment. In addition, 79.24% of students recommend that lecturers adapt their supervisory and mentoring strategies to align with the rapid developments of the AI era, ensuring that academic guidance remains relevant. Meanwhile, 64.14% stress the necessity of institutional guidelines to regulate AI use. Conversely, only 35.80% view legal access to premium AI tools (such as ChatGPT or Grammarly) as a key priority, and an even smaller proportion (22.60%) considers formal written SOPs or policy documents essential, suggesting that practical guidance and human-centered support are valued more than access to paid tools or formal administrative documentation.

Interview results strongly support these survey findings. Many students (P1, P3, P5, P6, P8, P9, P10) suggested that the university or lecturers should provide training or mentoring on the use of AI. For example, P1 stated that "There should be training or direct guidance from lecturers or the university so that students can understand how to use AI properly, because many of them still misuse it or do not fully understand how to use it correctly." At the same time, P3 added that "It's important to have training, workshops, or seminars on campus, especially those focused on academic writing. Students need to be given a clear understanding of how to use AI properly in the writing process, so they know the limits and the right way to use it." And P10 noted, "I think training from the campus is really necessary, so that students don't just copy and paste everything."

Several participants (P1, P3, P4, P8, P10) said students need to be taught how to evaluate and paraphrase AI-generated content to avoid ethical problems. Others (P6, P9, P11) recommended that the university should develop clear policies or guidelines for AI use. For example, P11 noted that "there needs to be guidance that clearly explains how to use AI properly." There were also suggestions for the university to provide access to premium AI tools, such as institutional accounts for Grammarly or ChatGPT. For the fact as noted by P11, "there is a version of ChatGPT that requires paid access, so not all students have access to it", then P6 stated that "unfortunately, more advanced features require premium access, so in my opinion, the university should provide access through institutional email so that students can use AI tools."

Overall, these results reflect that students in the English Education Study Program at Universitas Muhammadiyah Luwuk are not only concerned about the impact of AI but are also aware of what is needed to use it responsibly. They expect the university to play an active role in providing education, structure, and resources to support ethical and effective AI use in academic contexts.

3.4 Discussion

In today's digital era, access to information is easier than ever; however, students' critical thinking skills remain lacking, and the incidence of plagiarism is still relatively high Fitroh et al. (2023). One example is how students nowadays use AI to produce academic work. Based on the research data, it was indicated that while AI provides significant benefits in supporting academic writing, its use also poses quite serious dilemmas for students. The habit of over-reliance on AI, often without critical evaluation or paraphrasing, has led to reduced student engagement in independent thinking and even led to cases of plagiarism. These findings are in line with Alharbi (2023) who stated that students who face obstacles, such as increased laziness and plagiarism due to reliance on AI, may see a decline in personal abilities, including creativity and critical thinking. In addition, this study found that many participants experienced difficulty creating effective prompts, and the information provided by AI was often too general, irrelevant, or too formal, so students needed to filter, adjust the information, or conduct repeated experiments to get the output that suited their needs. This is in line with the findings of Marrone et al. (2022), where students reported problems with AI systems that did not work effectively every time they used them. They also expressed concerns that AI results were too general or irrelevant, which affected their overall experience. This case shows that the quality of the information provided by ChatGPT depends heavily on the user's ability to write clear instructions or use effective prompts. Another prominent challenge is the validity of AI-generated references; students reported receiving outdated, unverifiable references, even fake DOIs, as also expressed by Sweeney (2023) that AI tools such as ChatGPT can produce incorrect information, including outdated or unverifiable references and fake DOIs, which complicates the assessment process and poses a significant challenge to academic integrity in higher education.

The interviews clearly demonstrate that AI-generated academic writing exhibits distinct linguistic and stylistic patterns that set it apart from student-produced texts. These patterns, such as the use of formal and advanced vocabulary, highly structured organization, and distinct formatting features, are consistent with prior research and theoretical perspectives on machine-generated language. First, the tendency of AI-generated texts to employ formal and advanced vocabulary aligns

with the observations of scholars such as Floridi & Chiriatti (2020), who argue that AI language models often favor academic or technical terms due to the nature of their training data, which heavily features formal written texts such as journal articles, encyclopedic entries, and technical manuals. This explains why participants frequently identified uncommon and scientific vocabulary as markers of AI-generated content. The repeated reference to "words that are rarely heard" or "scientific terminology" by participants (P5, P6, P9) further validates the linguistic divergence between AI and human language use, particularly among non-native student writers. Secondly, the highly structured and coherent nature of AI outputs supports the claims made by Bender & Cortes-Ciriano (2021) in their analysis of large language models. They note that while AI-generated texts are syntactically fluent and well-organized, they often lack semantic depth or contextual nuance. This observation is echoed in the participant feedback, which notes that the use of AI resulted in writing that is “neater and more organized.” While this can enhance clarity for some users, especially those with limited writing proficiency, it can also contribute to a mechanical or impersonal tone that may not reflect the writer's authentic voice. The third pattern, distinct stylistic features such as bullet points, quotation marks, and overly formal formatting, reflects what Bryson et al. (2017) refer to as algorithmic bias. AI systems often replicate formatting patterns found in training data, leading to predictable textual markers. Participants noted that these markers give AI-generated texts a "copy-paste" appearance. These formatting consistencies make AI-assisted writing easily identifiable, particularly when pasted into word processing platforms, suggesting a lack of contextual flexibility and human spontaneity.

Moreover, a notable issue raised in the interviews is the redundancy and loss of coherence in longer AI-generated paragraphs. This is consistent with findings from Ji et al. (2023), who found that large language models tend to repeat content with varied phrasing, resulting in verbose, repetitive, and sometimes unfocused text. Unlike human writers who maintain topic unity and logical progression, AI models generate content probabilistically, often diverging from the central idea within the same paragraph. These findings support the argument that while AI can be a useful tool for assisting with academic writing, particularly in improving grammar, vocabulary, and structure, it should not be relied upon entirely. AI lacks the critical thinking, context awareness, and personal voice that are essential to authentic academic expression. According to Selwyn (2019) educational institutions must teach students not only how to use AI tools effectively but also how to critically assess and revise AI-generated outputs to align with academic integrity and personal authorship.

The findings also indicate that students are not only aware of the potential risks of AI misuse but are also proactive in suggesting strategies to promote its responsible and ethical use in academic contexts. This is indicated by 88.67% of students strongly agreeing that AI-generated content should be revised to reflect personal thoughts, indicating a strong awareness that AI should function as a support tool. This is in line with Marrone et al. (2022) which argues that AI-generated content should be revised to reflect personal thoughts, demonstrating their awareness of AI's role as a supportive tool rather than a replacement for human creativity. Furthermore, a high percentage of students (81.12%) requested training and guidance on the ethical use of AI that the university should provide. This is supported by the findings of Ma & Jiang (2022) which emphasizes the importance of establishing effective training mechanisms in information literacy for students and teachers, and highlights the need for universities to guide the ethical use of AI to address potential risks and promote responsible

technology use. In addition, there are also student recommendations (64.14%) for the establishment of clear university guidelines and policies on the use of AI in scientific writing, as well as suggestions to provide access to premium AI tools, which also reflect the need for campus support in terms of the wise use of AI in scientific writing. Overall, these findings indicate that students of the English Language Education Study Program at Muhammadiyah University of Luwuk are not only aware of the ethical dimensions of AI use but also expect the university to play an active role in equipping them with the knowledge, skills, and resources necessary for responsible and effective AI integration in their academic activities.

In comparison with previous studies, the present research provides a more detailed and context-specific understanding of how AI challenges manifest in an Indonesian EFL academic environment, particularly within English Language Education programs. While earlier studies, such as Alharbi (2023) and Sweeney (2023), have highlighted risks of plagiarism, reference fabrication, and reduced critical thinking, these works were conducted in broader or international academic contexts. This study deepens the discussion by showing that these challenges become more pronounced in institutions where AI literacy, institutional guidelines, and access to reliable tools remain limited. This institutional dimension has received limited attention in earlier literature, thereby representing a distinct contribution of the current research.

Furthermore, this study offers originality by identifying how students themselves perceive the linguistic and stylistic markers of AI-generated texts. Previous studies have mostly relied on expert analysis or computational methods to describe patterns in machine-generated language. The inclusion of student voices and user-based observations provides practical insights into how AI output is recognized, interpreted, and sometimes misused by novice academic writers. These insights strengthen existing theories on machine-generated language by presenting authentic, experience-based evidence from non-native English learners.

Finally, the findings of this research hold important implications for future studies. The documented gap between student awareness and institutional readiness underscores the need for research on university-level AI policies, ethical guidelines, and AI literacy frameworks tailored to developing countries. Additionally, the patterns of misuse identified in this study provide a foundation for further exploration into AI's long-term effects on writing development, academic integrity, and learning autonomy. By situating AI-related challenges within the local realities of Indonesian higher education, this study lays a meaningful foundation for researchers, educators, and policymakers seeking to develop ethical and effective strategies for integrating AI.

4. Conclusion

In conclusion, this study highlights several important insights regarding the use of AI in academic writing. The findings show that AI-generated academic writing displays clear linguistic and stylistic markers such as highly formal vocabulary, structured organization, and distinctive formatting that differentiate it from student-produced texts. Despite these benefits, several issues emerged from the data. Some problems students face include a tendency to rely excessively on AI without critical evaluation or paraphrasing, which reduces independent thinking and increases the risk of plagiarism. Many students also struggle to create effective prompts, resulting in outputs that are often too general,

irrelevant, or overly formal, requiring further filtering and adjustment. Another significant challenge is the validity of AI-generated references, as students frequently encounter outdated, unverifiable, or even fabricated DOIs. These findings emphasize that AI should function as a complementary tool rather than a substitute for human reasoning and academic integrity.

The results further underscore the importance of strengthening AI literacy, developing clear institutional guidelines, and providing continuous support from lecturers to ensure ethical and responsible AI use. The recommendations derived from this study include revising AI-generated content to align with personal thinking, offering training on ethical and effective AI practices, establishing university-level policies on AI usage, and ensuring access to reliable AI tools. By addressing these needs, educational institutions can help students integrate AI meaningfully into their academic activities while preserving authenticity, critical thinking, and independent writing skills.

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