



eISSN 3090-7012 & pISSN 3090-6822

JURNAL ILMIAH LITERASI INDONESIA

Vol. 2, No. 2, 2026

doi.org/10.63822/4w5f6n20

PP. 757-764

Homepage <https://ojs.indopublishing.or.id/index.php/jili>

A Comparative Analysis of Students Writing Before and After Using AI Tools

Tazkiyah Marwah Arina¹, Otong Setiawan Djuharie²

Program Studi Sastra Inggris, Fakultas Adab dan Humaniora,
Universitas Islam Negeri Sunan Gunung Djati, Bandung^{1,2}

Corresponding Author's Email: tazkiyahmarwah@gmail.com

Received: 07 03, 2026 | Accepted: 07 09, 2026 | Published: 07 11, 2026

ABSTRACT

The use of artificial intelligence (AI) tools in academic settings has increased significantly, including in assisting students to write in English. However, few studies have directly compared the quality of students' writing before and after using such tools. This study aims to analyze the comparison of fourth-semester students' writing in the English Literature Program at UIN Sunan Gunung Djati Bandung before and after using AI tools (such as ChatGPT or automatic translators). The method used is descriptive quantitative with a comparative approach. Data were collected from 9 students who were asked to rewrite an Indonesian text into English without AI assistance, and then rewrite the same text with AI assistance. The results showed that writing with AI assistance achieved higher average scores (70–95) compared to writing without AI assistance (12–85). The most common errors in writing without AI included grammar issues (tenses, prepositions, subject-verb agreement) and incomplete sentences. In contrast, writing with AI assistance tended to be more structured and aligned with standard English grammar rules. This study concludes that AI tools are effective in helping students improve their grammar and writing completeness, but supervision is still needed to prevent students from becoming fully dependent on AI.

Keywords: AI tools; comparative analysis; english grammar; students; artificial intelligence

How to Cite:

Arina, T. M., & Djuharie, O. S. . (2026). A Comparative Analysis of Students Writing Before and After Using AI Tools. *Jurnal Ilmiah Literasi Indonesia*, 2(2), 757-764. <https://doi.org/10.63822/4w5f6n20>

INTRODUCTION

In the English Literature Program at UIN Sunan Gunung Djati Bandung, fourth-semester students are expected to have adequate English writing skills. However, based on preliminary observations, many students still experience difficulties in grammar, diction, and constructing effective sentences. This can be seen from their writing assignments, where errors such as incorrect tense usage, wrong prepositions, and incomplete sentences are still commonly found. On the other hand, most students admit that they often use AI tools to help complete their writing tasks without going through a critical thinking process first.

The novelty of this study lies in its effort to directly compare the writing of the same students on the same text, before and after using AI tools. Previous studies have mostly focused on students' perceptions of AI use or the general effectiveness of AI, but few have conducted a quantitative comparative analysis by specifically measuring scores and types of errors. This study is also unique because it involves fourth-semester students who are in a transition period from basic to advanced levels of English proficiency.

This research is important to examine because it can provide an objective overview of the extent to which AI tools truly help students improve their writing, or whether they instead make students passive and dependent on technology. The results of this study can also serve as evaluative material for lecturers in designing more effective writing teaching strategies in the digital era. More broadly, this research is expected to contribute to the development of English pedagogy that is responsive to technological advancements.

Based on the background above, the research questions of this study are as follows:

1. How does the writing quality of students compare before and after using AI tools?
2. What types of grammatical errors are dominantly found in students' writing without the help of AI tools?
3. To what extent do AI tools help improve the quality of students' writing?

The objectives of this study are to analyze the comparison of students' writing before and after using AI tools, to identify the most frequent types of errors in writing without AI, and to measure the effectiveness of AI tools in improving students' writing quality.

The hypothesis of this study is that students' writing with the help of AI tools will achieve higher scores and fewer grammatical errors compared to writing without AI assistance, although there is a potential for less natural language style due to over-reliance on AI.

METHOD

This study employs a descriptive quantitative approach with a comparative design. The quantitative approach is used to measure and compare the scores of students' writing before and after using AI tools, while the comparative design is applied to analyze the differences between the two conditions (without AI and with AI). This design is considered appropriate because the study aims to examine the effect of AI tools on the quality of students' writing based on numerical data.

1. Research Location and Participants

This research was conducted at the English Literature Program, UIN Sunan Gunung Djati Bandung, during the even semester of the 2025/2026 academic year. The population of this study consisted of all

fourth-semester students enrolled in the English Writing course. The sample was selected using a purposive sampling technique, with the following criteria: (1) students who were actively attending the course, (2) students who had access to AI tools (such as ChatGPT, Google Translate, or DeepL), and (3) students who agreed to participate voluntarily. A total of 9 students met the criteria and were included as the research sample.

2. Data Collection Technique and Instrument

The data were collected through a writing test administered in two stages. In the first stage, students were asked to rewrite an Indonesian text into English without using any AI tools or external help (handwritten, closed book). The Indonesian text consisted of five sentences describing daily campus activities, weather conditions, and the impact of technology on communication. In the second stage, the same students were asked to rewrite the same Indonesian text into English using AI tools of their choice (such as ChatGPT, Google Translate, or DeepL). Both writing results were collected and analyzed.

The research instrument used was a scoring rubric adapted from standard English writing assessment criteria, covering four aspects: (1) grammar (tenses, subject-verb agreement, prepositions), (2) sentence completeness, (3) meaning accuracy compared to the original text, and (4) overall clarity. Each aspect was scored on a scale of 1–25, with a total maximum score of 100.

3. Data Validity and Reliability

To ensure data validity, content validity was applied by aligning the test items with the learning objectives of the English Writing course. The Indonesian text used as the source material was validated by two expert judges (English lecturers) to confirm that its language level was appropriate for fourth-semester students. For reliability, inter-rater reliability was used, where two independent raters scored the students' writing samples. The correlation between the two raters' scores was calculated using Pearson's correlation coefficient, yielding a value of 0.87, indicating high reliability.

4. Data Analysis Technique

The data were analyzed using descriptive statistics and comparative analysis. First, the scores of students' writing without AI and with AI were calculated separately for each student. Second, the mean score of both conditions was compared. Third, the types of grammatical errors found in the writing without AI were identified and categorized (e.g., tense errors, preposition errors, subject-verb agreement, incomplete sentences). Finally, a paired sample t-test was planned to determine whether the difference between the two conditions was statistically significant, assuming the data met the normality requirement.

RESULTS AND DISCUSSION

Overview of the Findings

This study evaluates the impact of Artificial Intelligence (AI) translation and writing tools on the academic writing performance of fourth-semester students in the English Literature Program at UIN Sunan Gunung Djati Bandung. Nine students participated in a two-stage translation test: translating a specific Indonesian paragraph into English first without any technological assistance, and subsequently with the aid

of AI tools (e.g., ChatGPT, Google Translate, orDeepL). The evaluation framework focused on four primary writing aspects: grammar accuracy, sentence completeness, semantic equivalence, and overall clarity. The comprehensive results, including individual student performance metrics and categorized linguistic errors, are systematically summarized in Table 1.

Table 1. Quantitative Scores and Qualitative Errors in Students Writing Before and After Using AI Tools

No	Students Name	Score(Without AI)	Score (With AI)	Identified Grammatical & Lexical Errors (Without AI)
1	Septi Sabilla Rahmawati	48	85	Preposition error (at -> in), incorrect verb form (talk -> talking, read -> reading, going -> go), faulty infinitive phrase (for prepare), redundant/incomplete sentences.
2	Anabella Nursyafitri	70	90	Faulty relative clause (that been), incorrect perfect tense verb inflection (has significantly change).
3	Aini Qurrata	100	100	None (Demonstrated flawless target-language proficiency in both conditions).
4	Mila Aulina	35	80	Compound word spacing (everyday -> every day), subject-verb agreement (there are students is), typographical/spelling error (even tough), structural sentence fragments.
5	Amirah Syafika	25	75	Lexical choice (school -> campus), texting abbreviation (abt), spelling error

				(altought), incorrect negation (doesnt support).
6	Ai shofa	18	70	Lexical choice (school -> campus), double verb redundancy (theres a is a), mechanics/negatio n (is), missing auxiliary verb (it raining), spelling errors (heaving*, *teknology), multiple empty sentences.
7	Rafael Alzazilu	55	85	Spelling errors (usuly, comunication, significan), missing definite article (at front gate, in library), incorrect pronoun usage (and them), missing noun pluralization (among student).
8	Cita Afiyah	60	85	Capitalization error (assigment), missing article (reading book), incorrect adjective usage for adverbial function (serious), spelling errors (eventhought, weater), incorrect verb tense form (has significantly chance).
9	Amirul Mukminin	85	95	Sub-optimal lexical choices for academic registry (homework -> assignment, studying -> reading).
	Average Score	55.1	85.0	<i>Overall drop-off in error density when AI tools are deployed.</i>

Discussion

1. Quantitative Performance Enhancement

The empirical data explicitly reveals a significant disparity between the scores obtained by students prior to and following the integration of AI writing assistants. The lowest score recorded in the unassisted stage was an 18 (Ai Shofa), which dramatically scaled up to a 70 when AI tools were introduced. On average, the students' scores escalated from **55.1** (categorized as low-to-intermediate proficiency) to **85.0** (highly proficient/excellent academic standard).

Notably, only one student (Aini Qurrata) attained a perfect score of 100 in both modes, signaling that while exceptionally proficient students do not inherently depend on AI to output high-quality texts, the vast majority of the cohort benefits substantially from AI interventions..

2. Categorization of Errors in Unassisted Writing

When writing purely based on their independent interlanguage competence, students frequently fell victim to several critical linguistic pitfalls:

- **Morphosyntactic Discrepancies:** Errors in subject-verb agreement (e.g., "*there are students is reading*") and incorrect tense structures (e.g., "*has significantly change*" instead of the past participle *changed*) were highly prevalent.
- **Mechanical and Spelling Omissions:** Students habitually struggled with L1 interference in orthography (e.g., *teknology* derived from the Indonesian *teknologi*) and general spelling approximations like *eventhought*, *altought*, and *usuly*.
- **Syntactic Completeness and Structural Fragments:** As seen in the cases of Septi Sabilla, Mila Aulina, and Ai Shofa, unassisted translation often yielded fragmented thoughts, missing predicates, and structural voids (ellipses or empty clauses) where the student did not know how to express the complex Indonesian syntax in English.

3. The Structural Shift via AI Tools.

In stark contrast to the error-laden unassisted drafts, the writing generated with AI assistance demonstrated a profound shift toward standard English grammar rules, structural cohesion, and contextual accuracy. AI tools seamlessly resolved basic mechanical failures, adjusted prepositional allocation (e.g., changing "*meet in the front of*" to "*meet at the front gate*"), and enforced proper academic registers (e.g., upgrading colloquial words like *homework* to the academically appropriate *assignments*).

The AI-mediated outputs successfully neutralized L1 interference. For instance, complex Indonesian structures like "*Maupun cuaca tidak mendukung...*" were smoothly reorganized into mature subordinating structures: "*Even though the weather is unfavorable...*" or "*Despite unfavorable weather conditions...*".

4. Pedagogical Implications: Autonomy vs. Dependency

While the results definitively confirm that AI tools serve as highly effective mechanisms for improving syntax, lexical choice, and overall writing completeness, the patterns also highlight a core pedagogical dilemma. The stark contrast between a student scoring an 18 independently and a 70 with AI implies that the final output may not reflect the student's actual internal grammar system (*interlanguage*).

Without close pedagogical supervision, the excessive reliance on these automatic processing platforms threatens to mask lingering cognitive gaps in writing proficiency. Therefore, while AI can be strategically positioned as an automated proofreader or formative scaffolding tool, traditional fundamental grammar acquisition and independent writing exercises must remain core anchors within the English Literature curriculum.

CONCLUSION

This study investigated the impact of Artificial Intelligence (AI) writing and translation tools on the academic writing quality of fourth-semester students in the English Literature Program at UIN Sunan Gunung Djati Bandung. Based on the descriptive quantitative and comparative analysis conducted on the students' writing before and after using AI assistance, several key conclusions can be drawn.

First, the integration of AI tools significantly enhances the quantitative performance of students' writing. The empirical findings demonstrate a substantial increase in scores, where the average score escalated from 55.1 in unassisted writing (low-to-intermediate proficiency) to 85.0 when AI tools were deployed (highly proficient standard). This indicates that the vast majority of the students benefit immediately from AI interventions to produce higher-quality target-language texts.

Second, the qualitative analysis reveals that unassisted writing is heavily prone to critical linguistic errors, dominated by morphosyntactic discrepancies (such as tense errors, preposition misallocations, and faulty subject-verb agreement), spelling omissions driven by first-language (L1) interference, and structural sentence fragments. In contrast, writing generated with the assistance of AI tools (such as ChatGPT, Google Translate, or DeepL) effectively shifts toward standard English grammar rules, eliminates structural voids, neutralizes L1 interference, and elevates the text to a more appropriate academic register.

In conclusion, while AI tools serve as highly effective mechanisms for improving syntax, lexical choice, and overall text cohesion, they also introduce a core pedagogical dilemma. The dramatic disparity between independent performance and AI-mediated outputs suggests that the final texts may mask lingering cognitive gaps in a student's actual internal grammar system. Therefore, this study concludes that while AI can be strategically utilized as an automated proofreader or formative scaffolding tool, traditional grammar acquisition and independent writing exercises must remain core structural anchors within the English Literature curriculum to prevent total dependency.

REFERENCE

- Budiyono, H. (2025). Exploring long-term impact of AI writing tools on independent writing skills: A case study of Indonesian language education students. *International Journal of Information and Education Technology*, 15(5), 1003–1013. <https://doi.org/10.18178/ijiet.2025.15.5.2306>
- Chen, X., & Pan, Q. (2022). Computer or human: A comparative study of automated evaluation scoring and instructors' feedback on Chinese college students' English writing. *Journal of Educational Technology*, 35(2), 123–134.
- Fitria, T. N. (2021). Grammarly as AI-powered English writing assistant: Students' alternative for writing English. *Metathesis: Journal of English Language, Literature, and Teaching*, 5(1), 65–78.



- Liu, C., Hou, J., Tu, Y. F., Wang, Y., & Hwang, G. J. (2021). Incorporating a reflective thinking promoting mechanism into artificial intelligence-supported English writing instruction. *Interactive Learning Environments*. Advance online publication.
- Meyer, J., Jansen, T., Schiller, R., Liebenow, L. W., Steinbach, M., Horbach, A., & Fleckenstein, J. (2024). “Your argumentation is good,” says the AI vs humans: The role of feedback. *Journal of Educational Psychology*, 116(3), 356–370.
- Mizumoto, A., & Eguchi, M. (2023). Exploring the potential of using AI language model for automated essay scoring. *Language Assessment Quarterly*, 20(2), 140–161.
- Steiss, J., Tate, T., Graham, S., Cruz, J., Hebert, M., Wang, J., Moon, Y., Tseng, W., Warschauer, M., & Olson, C. B. (2024). Comparing the quality of human and ChatGPT feedback of students’ writing. *Learning and Instruction*, 91, 101894. <https://doi.org/10.1016/j.learninstruc.2024.101894>
- Sun, T., Wang, C., Lambert, R. G., & Liu, L. (2021). Relationship between second language English writing self-efficacy and achievement: A meta-regression analysis. *Journal of Second Language Writing*, 53, 100817. <https://doi.org/10.1016/j.jslw.2021.100817>
- Yang, H., Gao, C., & Shen, H. (2024). Learner interaction with, and response to, AI-programmed automated writing evaluation feedback in EFL writing: An exploratory study. *Education and Information Technologies*, 29(4), 3837–3858.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 1–27. <https://doi.org/10.1186/s41239-019-0171-0>
- Zhai, C., Wibowo, S., & Li, L. D. (2024). The effects of over-reliance on AI dialogue systems on students’ cognitive abilities: A systematic review. *Smart Learning Environments*, 11(1), 28. <https://doi.org/10.1186/s40561-024-00316-7>