


# Investigating the Correlation Between the Use of AI Writing Tools and EFL Essay Writing Performance

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## ABSTRACT

The growing integration of AI writing tools in education raises concerns about their influence on EFL students' writing development. Empirical evidence is scarce, despite the assumptions regarding their advantages. This study investigated the correlation between the utilization of AI tools and essay scores among 23 fourth-semester students enrolled in the English Language Education Study Program at FKIP UNTAN (A1 class, 2024/2025). The data was obtained by distributing a questionnaire regarding the frequency of AI usage and scoring essays using a validated rubric. Pearson's correlation analysis revealed a non-significant, weak correlation ( $r = -0.078$ ,  $p = 0.723$ ). Grammarly and QuillBot were frequently employed to enhance grammar, clarity, and coherence, as evidenced by qualitative data. The findings challenge the assumption that the direct improvement of essay quality is an outcome of frequent use of AI tools, suggesting that other factors have a more significant impact on writing outcomes.

**Keywords:** *Correlational Study, AI Writing Tools, Essay Writing, EFL Students, QuillBot, Grammarly.*

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## INTRODUCTION

The worldwide educational system is being transformed by Artificial Intelligence (AI), which is altering how students learn, write, and interact with knowledge. AI tools are becoming increasingly integrated into university classrooms to enhance productivity, creativity, and communication. AI-powered writing tools have become particularly influential among the numerous applications, providing dynamic support for grammar, vocabulary, mechanics, and paraphrasing. These tools facilitate learning and enable students to enhance their writing in real time by offering immediate feedback (Dja'far & Hamidah, 2024).

The importance of these instruments grows stronger in the context of English as a Foreign Language (EFL). Writing is frequently regarded as the most challenging of the four language skills, requiring not only cognitive and organizational abilities but also linguistic knowledge (Brown, 2000; Fahmi & Rachmijati, 2021; Rezeki, 2017). In particular, the composition of academic essays necessitates precision, coherence, and control over structure (Nunan & Choi, 2023). However, EFL students continue to encounter common challenges, such as irregular sentence structure, inadequate vocabulary, and frequent mechanical errors (Rahmi et al., 2021). These challenges are particularly crucial in higher education, where essay writing is a significant indicator of students' academic readiness and knowledge.

Essay writing is a fundamental skill for English Language Education students at Tanjungpura University in Indonesia, for instance. Despite the expectation that they will exhibit advanced writing skills as future educators, research indicates that grammar errors, disorganized arguments, and citation issues remain prevalent (Alfaruqy et al., 2022; Setyowati et al., 2020). The urgent necessity for practical and accessible support mechanisms to enhance students' writing abilities is underscored by these challenges.

This requirement is currently being addressed through technological innovation. Real-time feedback on syntax, grammar, vocabulary, and organization is provided by AI writing

tools like Grammarly and QuillBot (Gültekin Talayhan & Babayiğit, 2023). Students have enthusiastically adopted them due to their user-friendly interfaces and accessibility (Salam, 2025). Grammarly helps students maintain authorship by correcting grammar, punctuation, and style (Zinkevich & Ledeneva, 2021). QuillBot, on the other hand, aids in paraphrasing to prevent plagiarism and improve coherence (Amanda et al., 2023; Nurmayanti & Suryadi, 2023).

It is imperative to investigate the extent to which AI-assisted learning tools truly improve the quality of writing, given the rapid development of this field. Consequently, this research examines the correlation between the quality of essay writing among fourth-semester EFL students at Tanjungpura University and the use of AI writing tools, specifically Grammarly and QuillBot. The research questions were established as follows:

*How frequently do the fourth-semester EFL students in A1 class at FKIP UNTAN in the academic year 2024/2025 utilize QuillBot for their writing assignments?*

*How frequently do the fourth-semester EFL students in A1 class at FKIP UNTAN in the academic year 2024/2025 utilize Grammarly for their writing assignments?*

*What is the quality of the essay writing produced by fourth-semester EFL students in the A1 class at FKIP UNTAN for the academic year 2024/2025?*

*Is there a correlation between the essay writing scores of fourth-semester EFL students in A1 class at FKIP UNTAN during the academic year 2024/2025 and the frequency of AI writing tool use?*

*What is strength of the correlation between the frequency of AI writing tool use and the essay writing scores of the fourth semester of the English Education Study Program, FKIP UNTAN, in A1 class for the academic year 2024/2025?*

Furthermore, this investigation suggests the following hypotheses. The null hypothesis states that there is no significant correlation between the frequency of AI writing tool use and the essay writing scores of fourth-semester EFL students at FKIP UNTAN in the academic year 2024/2025. Meanwhile the alternative hypothesis states that there is a significant correlation between the frequency of AI writing tool use and the essay writing scores of fourth-semester EFL students at FKIP UNTAN in the academic year 2024/2025.

## **Review of Literature**

### *Writing in EFL Context*

Writing is an essential skill in the EFL context, as it enables students to express their ideas, emotions, and knowledge effectively. It is a complex but valuable communicative skill that necessitates awareness of purpose, audience, diction, and linguistic accuracy (Brown, 2004). Content, organization, discourse, syntax, vocabulary, and mechanics are the six aspects of writing that Brown (2004) identified as critical criteria for assessing students' written work. These elements assist learners in the improvement of creative clarity and grammatical accuracy, in addition to the presentation of logical and cohesive arguments. Writing instruction also emphasizes process-oriented learning, guiding students through four primary stages which are prewriting, drafting, revising, and editing (Tribble, 2005). Such stages assist them in the following ways which are brainstorming ideas, generating written works, reorganizing content for clarity, and refining their writing with appropriate grammar and mechanics. This research concentrates on academic essay writing, which is one of the numerous genres of writing, including academic, job-related, and personal (Brown & Lee, 2015). EFL learners need to cultivate a strong writing proficiency, as it improves their critical thinking, creativity, and structural accuracy, as well as their ability to express ideas coherently and use grammar effectively (Hasanah, 2022; Yundayani et al., 2019).

### *Essay Writing in EFL Context*

Essay writing is an essential element of academic writing, as it enables writers to investigate and elaborate on a particular subject through a sequence of interconnected paragraphs (Checkett & Checkett, 2010). Essays serve a variety of purposes, such as

conducting research, passing examinations, persuading arguments, and communicating ideas, as stated by Strongman (2013). Essay writing is a life skill that incorporates intellectual, social, and cultural dimensions, as well as a reflection of a writer's comprehension, language proficiency, and organizational ability, in addition to serving these purposes. Structurally, an essay typically consists of a title, introduction, body, conclusion, and references (Redman & Maples, 2017). The introduction presents the topic and thesis, the body develops arguments with supporting evidence, and the conclusion synthesizes important points to provide closure. Furthermore, Strongman (2013) underscores that effective essays follow a three-tier structure (introduction, body, and conclusion), which guarantees the logical progression of ideas, coherence, and clarity.

Nevertheless, numerous variables impact the production of written material. Teachers are essential in providing students with guidance on the writing process, grammar, and structure, as well as in giving practice opportunities (Jashari & Fojkar, 2019). Additionally, successful writing necessitates compliance with grammatical, syntactical, and mechanical standards, as well as coherence (Rezeki, 2017). In this regard, AI writing tools can assist learners by reducing unstructured phrases, fortifying grammar, and improving the overall quality of their written work.

#### *AI Writing Tools*

AI writing tools apply artificial intelligence to assist students in the writing process by analyzing text inputs and providing feedback on grammar, vocabulary, syntax, content, and structure. These tools, as noted by Meechan (2024) and Marzuki et al. (2023) provide real-time feedback and remarks, which facilitate improvements in a variety of written work. The transition from conventional writing methods to technology-driven approaches has been notably advantageous for English language teaching. However, teachers should be cautious of the potential impact of AI tool use on student writing performance.

Numerous types of AI writing tools are designed to improve the content of writing by providing recommendations on grammar, spelling, and overall expression. Miller (2025) highlights the growing popularity of tools like Grammarly, Hemingway Editor, ProWritingAid, QuillBot, and Wordtune, which are recognized for their ability to improve the academic community's communication, correct errors, and enhance the expression of researchers. Recent research conducted by P and Dsouza (2024) and Dja'far and Hamidah (2024) has shown that tools such as Grammarly, Paperpal, Jenni AI, QuillBot, and ChatGPT offer advanced features, including style suggestions, content generation, citation management, and plagiarism detection. Positive student attitudes toward AI-assisted learning and enhanced writing quality have been the result of these advancements, which have fundamentally transformed academic writing. The researcher prioritized comprehensive writing support when selecting Grammarly and QuillBot for the current study. Grammarly supports it by providing explicit explanations and correcting grammar, spelling, and punctuation. QuillBot was also appreciated for its ability to paraphrase, enhance sentence flow, and assist in the prevention of plagiarism. Collectively, these instruments enable students and researchers to cultivate confidence in their writing abilities and maintain academic integrity.

#### *QuillBot in Writing*

QuillBot is a writing tool powered by artificial intelligence (AI) that helps students with paraphrasing, summarizing, grammar checking, and citation generation. It does so while maintaining the original meaning of the text. It prevents plagiarism, enhances clarity and professionalism, and condenses extensive passages, as stated by Nurmayanti and Suryadi (2023). Bouchoux (2024) emphasized the functionality of its integrated grammar analyzer, while Marzuki et al. (2023) emphasized its significance in the cultivation of academic writing paraphrasing abilities. QuillBot is available in both free and premium versions. The free version permits restricted summarizing and paraphrasing, while the premium version offers a broader range of features, including plagiarism checking and extended paraphrasing modes (Hamilton, 2023; Hasbi, 2024; Meechan, 2024). Its benefits include the enhancement of text quality, the support of academic writing, the saving of time, and the improvement of

vocabulary (Amanda et al., 2023; Fitria, 2021). QuillBot continues to be a widely utilized and effective AI tool for academic purposes and English writing support, despite some limitations (Nurmayanti & Suryadi, 2023).

#### *Grammarly in Writing*

Grammarly is an AI-powered writing assistant that offers real-time recommendations to enhance the quality of writing, including grammar, spelling, punctuation, clarity, tone, and overall composition (Bouchoux, 2024; Deshmukh, 2024; Marzuki et al., 2023). It serves as a learning instrument by providing users with corrective recommendations, which enable them to enhance their writing abilities. Grammarly provides both free and premium versions. The free version encompasses fundamental grammar, punctuation, and style, while the premium version includes genre-specific writing assistance, advanced feedback, plagiarism detection, and vocabulary enhancement (Meechan, 2024; Zinkevich & Ledeneva, 2021). However, its extensive feedback may be overwhelming for users, and it necessitates internet connectivity to operate. Grammarly extensively implemented across platforms such as Microsoft Office and Google Chrome, despite these limitations. It utilizes Natural Language Processing (NLP) to analyze text and offer contextual feedback (Anwar et al., 2025). Grammarly is regarded as a valuable instrument for students to improve the accuracy and style of their writing.

#### *The Use of AI Writing Tools in EFL Writing*

The utilization of AI writing tools in EFL contexts has demonstrated significant benefits for students' essay writing abilities. Basu (2025) stated that AI-powered writing assistants have transformed material production by improving efficiency, style, and clarity. Dobrin (2023) underscored the prevalence of tools like ChatGPT, Grammarly, and Wordtune in identifying grammar errors, spelling mistakes, and awkward phrasings. In a similar direction, Alharbi (2023) emphasized the importance of automated writing evaluation and corrective feedback tools that aid in the development of learners. The immediate feedback provided by these applications, including Grammarly and QuillBot, supports grammar, vocabulary, sentence structure, and overall mechanics, thereby promoting coherent writing. In addition to correction, AI tools enhance the writing process, particularly during revision and editing, by improving linguistic awareness, clarity, and organization. In addition to fostering long-term language development, consistent engagement also reinforces independence. Briefly, the literature indicates that AI tools improve the academic performance of EFL students by improving content, discourse, style, and mechanics.

## METHOD

The correlational research design was implemented in this study to investigate the correlation between the utilization of AI writing tools and the essay writing of EFL students. As Creswell (2012, p. 338–340) defined it, correlation is a statistical test that is employed to ascertain the likelihood or pattern of consistent variation between two (or more) variables. However, it does not necessarily imply causation. The research process applied the procedures stated by Creswell (2012, p. 354). Initially, the issue was identified to ensure that the correlation was appropriate for the study's objective, which was to quantify the correlation between the use of AI tools and essay writing. The second step involved the selection of participants as the subjects of the analysis. Third, two or more variables were identified, and valid, reliable instruments were implemented. Fourth, data were acquired and monitored to prevent bias. Then, statistical procedures were implemented to evaluate the association's strength and direction. Ultimately, the findings were interpreted to provide context.

### **Respondents**

The population for this study is fourth semester students of English Language Education study program in academic year 2024/2025. In this study, purposive sampling was used to select participants from the population. According to (Johnson & Christensen, 2014), purposive sampling means the researcher specifies the characteristics of the population of interest and locates individuals with those characteristics. To determine the sample, the researcher selected A1 class from fourth-semester students in the academic year 2024/2025 of the English Language Education Study Program at Universitas Tanjungpura. The researcher

selected the A1 class with 23 students because all its members met the required criteria: they were enrolled in the essay writing course and had prior experience using AI writing tools for their essays. The researcher also verified that students in the A1 class were permitted to use AI tools in their essay assignments by consulting with the lecturer responsible for the course before the selection. Therefore, the research sample consisted of the entire A1 cohort, comprising 23 students.

### **Instruments**

To gather data from EFL students, this study employs two primary instruments which are essay writing scores and a questionnaire. The questionnaire investigates the frequency and how students employ AI writing tools such as QuillBot and Grammarly. The questionnaire was adapted from Yu (2024) and Capinding (2024). It developed in accordance with Brown (2004) framework of essay writing components. The questionnaire consisted of 25 items presented on a four-point Likert scale (always, often, sometimes, never), distributed among six components which are content, organization, discourse, syntax, vocabulary, and mechanics. Two open-ended questions were included to gather more information about students' use of AI writing tools at different stages of the writing process. Pearson's product-moment correlation was used to evaluate the questionnaire's validity items (Johnson & Christensen, 2014). The results indicated that all items were valid, with the rcount values exceeding the rtable value of 0.413. The reliability analysis revealed a Cronbach's Alpha coefficient of 0.942, indicating exceptional internal consistency. The essay writing scoring rubric, which was adapted and modified from Brown and Lee (2015) and Brown and Abeywickrama (2019), was the second instrument. The rubric evaluated students' essays by evaluating the same six components which are content, organization, discourse, syntax, vocabulary, and mechanics. In line with Johnson and Christensen (2014), content validity was determined through the use of expert judgment by lecturers having experience in academic writing. Expert judgment was employed to determine its content validity by two lecturers from the English Language Education Study Program at FKIP UNTAN who possess academic writing expertise.

### **Data analysis**

The data's normality was assessed using the Shapiro–Wilk test, which is advised for sample sizes of less than 50 (Creswell, 2018). The results verified that both variables were normally distributed. The essay writing scores obtained a Shapiro–Wilk statistic of 0.948 with a significance value of 0.262, whereas the AI writing tools usage questionnaire generated a Shapiro–Wilk statistic of 0.916 with a significance value of 0.055. The data's suitability for parametric analysis was confirmed by the fact that both significance values exceeded 0.05, indicating that they met the assumption of normality (Creswell, 2018). Pearson's correlation coefficient was employed to investigate the correlation between essay writing and the utilization of AI writing tools (Creswell, 2018). Mardesci (2020) classification was employed to evaluate the correlation's strength, which ranges from very weak to very strong. Schober et al. (2018) recommended that such descriptors be interpreted with caution.

## **FINDINGS AND DISCUSSION**

### **Findings**

#### *Frequency of QuillBot Use Among Students*

The data indicated that QuillBot is primarily utilized by students as a paraphrasing tool. Paraphrasing sentences (2.48), rephrasing supporting details (2.44), and rephrasing introductions or conclusions (2.35) yield the most excellent mean scores. This suggests that the primary activities for the utilization of the utility are paraphrasing and sentence restructuring. QuillBot is also moderately effective in rewriting awkward sentences (2.39), improving flow (2.31), and restructuring sentence order (2.22). Vocabulary-focused features, such as the replacement of basic words with precise ones (2.05) or the discovery of synonyms (2.12), are utilized less frequently. Grammar-checking receives the lowest score (2.01), indicating that students do not consider QuillBot a reliable grammar tool. In general, students appreciate QuillBot for its ability to prevent repetition, elucidate concepts, and enhance the readability of

sentences; however, it is less well-received for its ability to assist with grammar and advanced vocabulary. This emphasizes a perception of QuillBot as a rewriting aid rather than a comprehensive language enhancement software.

Table 1. Frequency of QuillBot

No.	Statement	Mean Score	Interpretation
1	I use QuillBot to paraphrase sentences	2.48	Sometimes to Often
3	I use QuillBot to rephrase supporting details	2.44	Sometimes to Often
5	I use QuillBot to rewrite unclear/awkward Table 1. example sentences	2.39	Sometimes to Often
7	I use QuillBot to paraphrase topic sentences	2.35	Sometimes to Often
9	I use QuillBot to rephrase transition sentences	2.27	Sometimes
11	I use QuillBot to rewrite logical sentence order	2.22	Sometimes
12	I use QuillBot to paraphrase for flow improvement	2.31	Sometimes to Often
14	I use QuillBot to suggest alternative expressions	2.15	Sometimes
16	I use QuillBot to rephrase introduction & conclusion	2.35	Sometimes to Often
17	I use QuillBot to rewrite awkward sentences	2.17	Sometimes
19	I use QuillBot to vary sentence structure	2.10	Sometimes
21	I use QuillBot to find synonyms for repeated words	2.12	Sometimes
23	I use QuillBot to replace simple words with precise synonyms	2.05	Sometimes
25	I use QuillBot to identify and correct grammar errors	2.01	Sometimes

#### *Frequency of Grammarly Use Among Students*

The results showed Grammarly is widely acknowledged as a tool that facilitates clarity and grammar. The mean score of 2.50 suggests that students frequently employ it to verify grammar and punctuation errors, followed by the correction of lengthy sentences (2.40) and the assurance of conciseness (2.31). Other functions, including sentence structure verification (2.25), sentence connections (2.18), and the detection of misplaced or incomplete sentences (2.21), are moderately employed, which is indicative of their role in enhancing logical flow and coherence. Vocabulary error correction (2.07), punctuation editing (2.15), and resolving run-on sentences (2.09) are given less emphasis, indicating that students rely on Grammarly more for proofreading than for significant structural revisions. The data suggests that Grammarly is effective in supporting the final editing phases, assisting in the polishing of essays before submission. However, it is not consistently utilized for higher-order writing concerns, such as argumentation or content depth. Consequently, Grammarly is more significant as a tool for refining and correcting than as a developmental writing guide.

Table 2. Frequency of Grammarly

No.	Statement	Mean Score	Interpretation
2	I use Grammarly to check grammar/spelling mistakes	2.50	Sometimes to Often
4	I use Grammarly to identify and correct wordy sentences	2.40	Sometimes to Often
6	I use Grammarly to ensure sentences are concise	2.31	Sometimes to Often
8	I use Grammarly to check misplaced/incomplete sentences	2.21	Sometimes
10	I use Grammarly to check sentence structure clarity	2.25	Sometimes
13	I use Grammarly to check basic sentence connections	2.18	Sometimes
15	I use Grammarly to highlight confusing or disconnected sentences	2.10	Sometimes
18	I use Grammarly to correct basic grammar errors	2.22	Sometimes
20	I use Grammarly to check for run-on or incomplete sentences	2.09	Sometimes
22	I use Grammarly to correct vocabulary errors/misspellings	2.07	Sometimes
24	I use Grammarly to correct spelling and punctuation mistakes	2.15	Sometimes

*Investigating the Correlation Between the Use of AI Writing Tools and EFL Essay Writing Performance*  
*Students' Essay Writing Performance*

The researcher used Easy Mark AI, an automated scoring tool, to evaluate the students' essays with the aim of minimizing potential bias. The analytic rubric (adapted from Brown & Lee, 2015; Brown & Abeywickrama, 2019) was initially entered into the system by the researcher, and the essays were subsequently scored in accordance with the specified criteria. The scoring process was conducted twice to ensure reliability, and the final result was the mean score.

Table 3. Essay Writing Mean Scores

Aspect of Writing	Mean Score 1st Grading	Mean Score 2nd Grading	Mean Overall	Max Score	% of Max Score
Content	17.96	18.48	18.22	25	72.9%
Organization	14.30	14.70	14.50	20	72.5%
Discourse	14.80	15.30	15.05	20	75.3%
Syntax	11.20	11.10	11.15	15	74.3%
Vocabulary	7.87	8.09	7.98	10	79.8%
Mechanics	5.13	5.43	5.28	6	88.0%
Final Score	-	-	73.8 (avg)	100	73.8%

The data indicated that the standard of essay writing among fourth-semester students was generally satisfactory, as evidenced by an average score of 74/100. The content scored approximately 73%, indicating that the students presented ideas that were relevant and appropriate, despite the rare absence of more in-depth elaboration. The organization also averaged 73%, with logical structuring achieved but weaker transitions and planning. Discourse received a slightly higher score of 75%, indicating that students were able to connect ideas reasonably effectively, although cohesive devices were still an area in need of improvement. The average syntax score was 74%, which represented a satisfactory level of grammatical accuracy but restricted the use of complex sentences. The students' capacity to communicate with a diverse array of word choices was evident in the fact that vocabulary emerged as an asset at nearly 80%. Mechanics achieved the maximum score of 88%, demonstrating a comprehensive understanding of capitalization, punctuation, and spelling. In conclusion, students exhibited a high level of technical accuracy and vocabulary proficiency; however, content richness and organization were identified as areas in which they could improve. This suggests that their writing abilities are satisfactory; however, they could be improved by improving syntactic variety, detail, and cohesion.

*Correlation Between AI Writing Tool Use and Essay Writing Scores*

To analyze the data, the researcher applied Pearson's product-moment correlation formula ( $r$ ). The results indicated a correlation coefficient of -0.078, with a significance level of 0.723 and an N value of 23. A coefficient close to zero suggests virtually no linear relationship between students' AI tool usage and their essay writing outcomes. Moreover, the p-value exceeds 0.05, indicating that the correlation is statistically insignificant. Therefore, the findings revealed that the frequency of AI tool use did not have a significant impact on the students' essay writing performance. The use of AI in this context is one factor that can influence the essay writing of EFL students. There are still other factors that influence students' essay writing.

*Strength of the Correlation Between Tool Use and Essay Scores*

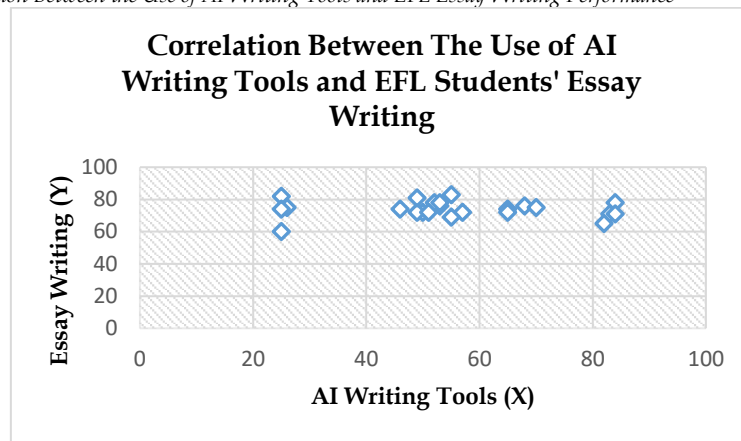


Figure 1. Graphic of Correlation

Figure 1 illustrates a very weak negative correlation between students' use of AI writing tools and their essay writing ability, indicating that more frequent use of AI tools is slightly linked to lower essay scores, although this relationship is minimal. Pearson correlation analysis was employed to test the hypotheses, for which the null hypothesis ( $H_0$ ) stated that there is no relationship between AI tool usage and essay writing skills, while the alternative hypothesis ( $H_a$ ) proposed that a relationship exists. Using a 0.05 significance level, the correlation test produced a significance value of 0.723, which is greater than 0.05. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted. This indicates that while the data reveal a weak negative correlation, it is not statistically significant. In other words, the results showed only a minor relationship, and there are other factors that influence the EFL writing besides AI usage.

### Discussion

The research findings, which revealed a very weak negative correlation between AI writing tool use and essay performance, drew a different perspective than previous studies. Dja'far & Hamidah (2024) found that AI tools increased students' acceptance of writing technologies and improved their writing outcomes. Similarly, Wulandari et al. (2024) discovered that Grammarly effectively addressed students' writing-related issues, whereas Pratama et al. (2025) showed that QuillBot improved coherence, grammar, and argumentation in students' writing. In contrast to these studies, the current study reveals that frequent use of such tools does not strongly correlate with higher essay scores, implying that improvements in grammar and surface-level accuracy (Amanda et al., 2023; Marzuki et al., 2023; Nurmawanti & Suryadi, 2023; Zinkevich & Ledeneva, 2021) may not directly translate into improved overall performance.

The negative, non-significant connection shows that increasing AI tool use may be associated with slightly lower essay scores, but the relationship is too weak to be statistically significant. In the educational setting, this suggests that an overreliance on AI support may indicate that students prioritize speedy corrections over acquiring deeper writing skills. It may also indicate that, while AI tools are useful for technical advancements, they do not adequately address higher-order abilities like organization, concept generation, and critical thinking, all of which have a significant impact on essay evaluations. As a result, the study does not indicate that utilizing AI damages writing, but it does highlight that its benefits are limited and insufficient without adequate instructional support.

At the same time, the findings are consistent with previous observations by Rahmi et al. (2021), Rezeki (2017), and Alfaruqy et al. (2022) who emphasized that EFL students frequently struggle with deeper writing competencies such as sentence organization, vocabulary limitations, and mechanics. While AI tools can help with language accuracy and technical refinement, these findings show that they have little impact on higher-order elements that drive essay quality, such as idea development, organization, and critical thinking. This reinforces the pedagogical argument that AI writing tools should be used as supplementary resources rather than replacements for core writing instruction.



Qualitative data provided richer insights, revealing that students frequently used tools such as ChatGPT, QuillBot, and Grammarly, particularly during the editing and revising stages. They praised these tools for grammar correction, sentence refinement, and increased clarity, noting that AI support made essays more polished. These findings are consistent with previous research, which has shown that AI can improve the technical aspects of writing, such as grammar and spelling (Amanda et al., 2023; Marzuki et al., 2023; Nurmawati & Suryadi, 2023; Pratama et al., 2025; Zinkevich & Ledeneva, 2021). However, surface-level improvements may not directly increase overall essay scores, which are frequently based on creativity, idea organization, and critical thinking.

This study has several limitations that need to be noted. First, the study did not examine issues of originality and plagiarism in students' essays, despite the potential concerns about authenticity or academic integrity that may arise from using AI writing tools. As a result, the findings do not address whether AI-assisted writing reduces originality or increases the risk of plagiarism, both of which are critical components of writing quality. Future research should include measures of originality and plagiarism to gain a more comprehensive understanding of AI's role in student writing. Second, the study used a small and limited sample size, drawing from only one of the population's four classes. This narrow scope limits the generalizability of the findings, as the relationship between AI tool use and writing performance may vary across larger or more diverse student groups. Expanding the sample to include multiple classes or institutions would increase the representativeness and validity of future findings. Addressing these limitations would enable a more comprehensive and accurate understanding of how AI writing tools impact EFL students' academic writing.

## CONCLUSIONS

This study concludes that fourth-semester EFL students at FKIP UNTAN in the A1 class (2024/2025) use AI writing tools in different ways. QuillBot is used moderately, primarily for paraphrasing and rephrasing, whereas Grammarly is used more frequently for grammar and spelling errors. These tools are mainly used to improve technical accuracy rather than conceptual development. The students' essay writing ability was generally excellent, with particular strengths in mechanics; however, areas such as creativity, cohesiveness, and originality require further growth. The correlation analysis found no significant association between the frequency of AI tool use and essay scores ( $r = -0.078$ ). This weak and negative link implies that, while AI tools can assist with basic features such as accuracy and clarity, they do not consistently promote deeper writing competencies or improved essay performance. Other elements outside AI use have a more significant impact on student writing outcomes. Future research should include larger and more diverse samples, investigate various AI writing tools, and examine different writing genres, as well as variables such as plagiarism and originality, to provide a more comprehensive understanding of AI's impact on writing. Teachers should strategically integrate AI tools to support technical aspects of writing, such as grammar, structure, and clarity, while also emphasizing originality, critical thinking, and independent idea development. Students can use AI writing tools such as Grammarly and QuillBot to help improve clarity and polish while editing and revising, but they should be used with guidelines to avoid overreliance and ensure authentic skill development.

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## REFERENCES

- Alfaruqy, D., Setyawan, H., & Rohman, T. N. (2022). Exploring first-year EFL students' problems in essay writing. *ELE Reviews: English Language Education Reviews*, 2(1), 1-12. <https://doi.org/10.22515/elereviews.v2i1.4453>

- Alharbi, W. (2023). AI in the foreign language classroom: A pedagogical overview of automated writing assistance tools. *Education Research International*, 2023, 1–15. <https://doi.org/10.1155/2023/4253331>
- Amanda, Elsa, M. S., Nursyahrina, L., & Utami, D. (2023). Quillbot as an AI-powered English writing assistant: An alternative for students to write English. *Jurnal Pendidikan Dan Sastra Inggris*, 3(2), 188–199. <https://doi.org/10.55606/jupensi.v3i2.2026>
- Anwar, M., Ali, M., Fazal, S., & Ayyaz, S. (2025). *AI applications for English language learning*. IGI Global Scientific Publishing.
- Basu, A. (2025). *AI tools for everyone: Your guide to artificial intelligence*. Aditya Basu.
- Bouchoux, D. E. (2024). *Legal research and writing for paralegals* (Tenth). Aspen Publishing.
- Brown, H. D. (2000). *Teaching by principles an interactive approach to language pedagogy* (Second). Pearson Education.
- Brown, H. D. (2004). *Language assessment : Principles and classroom practices*. Pearson Education.
- Brown, H. D., & Abeywickrama, P. (2019). *Language assessment: Principles and classroom practices* (H. D. Brown, Ed.; Third). Pearson Education.
- Brown, H. D., & Lee, H. (2015). *Teaching by principles : An interactive approach to language pedagogy*. Pearson Education.
- Capinding, A. T. (2024). Students' AI dependency in 3R's: questionnaire construction and validation. *International Journal of Information and Education Technology*, 14(11), 1532–1543. <https://doi.org/10.18178/ijiet.2024.14.11.2184>
- Checkett, G., & Checkett, L. (2010). *The write start: Sentences to paragraphs with professional and student readings*. (Fourth). Cengage Learning.
- Creswell, J. W. (2012). *Educational research : Planning, conducting, and evaluating quantitative and qualitative research*. Pearson Education.
- Creswell, J. W. (2018). *Research design 1ualitative, quantitative, and mixed methods approaches*. SAGE Publication.
- Deshmukh, J. (2024). *AI tools for everyone : 119 best AI tools to master everyday tasks*. Deshmukh, Jayant .
- Dja'far, V. H., & Hamidah, F. N. (2024). Improving English pronunciation skills through AI-based speech recognition technology. *Ethical Lingua: Journal of Language Teaching and Literature*, 11(2). <https://doi.org/10.30605/25409190.747>
- Dobrin, S. I. (2023). *AI and writing*. Broadview Press.
- Fahmi, S., & Rachmijati, C. (2021). Improving students' writing skills using Grammarly application for second grade in senior high school. *PROJECT (Professional Journal of English Education)*, 4(1), 69. <https://doi.org/10.22460/project.v4i1.p69-74>
- Fitria, T. N. (2021). QuillBot as an online tool: Students' alternative in paraphrasing and rewriting of English writing. *Englisia: Journal of Language, Education, and Humanities*, 9(1), 183. <https://doi.org/10.22373/ej.v9i1.10233>
- Gültekin Talayhan, Ö., & Babayiğit, M. V. (2023). The influence of AI writing tools on the content and organization of students' writing: A focus on EFL instructors' perceptions. *Journal of Current Debates in Social Sciences*, 2(2), 83–93. <https://doi.org/10.29228/cudes.71701>
- Hamilton, J. (2023). *QuillBot review: Is it a good tool for authors?* Kindlepreneur. <https://kindlepreneur.com/quillbot/>
- Hasanah, I. (2022). An analysis of madrasah aliyah students' ability in writing recount text. *Takuana: Jurnal Pendidikan, Sains, Dan Humaniora*, 1(1), 50–58. <https://doi.org/10.56113/takuana.v1i1.17>
- Hasbi, M. et al. (2024). *The ways QuillBot enhances English academic writing*. Rizquna.
- Jashari, L. T., & Fojkar, M. D. (2019). Teachers' perceptions of developing writing skills in the EFL classroom. *ELOPE: English Language Overseas Perspectives and Enquiries*, 16(2), 77–90. <https://doi.org/10.4312/elope.16.2.77-90>
- Johnson, R. B., & Christensen, L. (2014). *Educational research : Quantitative, qualitative and mixed approaches*. SAGE Publications.

- Mardesci, H. (2020). The effect of online learning on university students' learning motivation. *JPP (Jurnal Pendidikan Dan Pembelajaran)*, 27(1), 42–47. <https://doi.org/10.17977/um047v27i12020p042>
- Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, 10(2).
- Meehan, D. (2024). *Generative AI for students: The essential guide to using artificial intelligence for study at university*. SAGE Publications.
- Miller, M. (2025). *Using artificial intelligence absolute beginner's guide*. Pearson Education.
- Nunan, D., & Choi, J. (2023). *Clarity and coherence in academic writing: Using language as a resource*. Routledge.
- Nurmayanti, N., & Suryadi, S. (2023). The effectiveness of using Quillbot in improving writing for students of English education study program. *Jurnal Teknologi Pendidikan : Jurnal Penelitian Dan Pengembangan Pembelajaran*, 8(1), 32. <https://doi.org/10.33394/jtp.v8i1.6392>
- P, G., & Dsouza, P. K. (2024). Artificial intelligence tools in academic writing assistance: a comprehensive study of emerging tools and techniques. *IJIRT*, 11(3), 1383–1387.
- Pratama, Y., Fridolini, F., & Pitaloka, R. M. (2025). The impact of AI QuillBot in improving student writing ability to write argumentative essays. *English Review: Journal of English Education*, 13(1), 215–222. <https://doi.org/10.25134/erjee.v13i1.9746>
- Rahmi, W., Sada, C., & Riyanti, D. (2021). An analysis of students' problems in writing essays. *Syntax Literate ; Jurnal Ilmiah Indonesia*, 6(6).
- Redman, P., & Maples, W. (2017). *Good essay writing a social sciences guide* (Fifth Edition). SAGE Publications India.
- Rezeki, Y. S. (2017). Collaborative written feedback experience: A case study of Indonesian EFL students in an essay writing class. *International Journal of Educational Best Practices*, 1(2), 24. <https://doi.org/10.31258/ijebp.v1n2.p24-37>
- Salam, U. (2025). The integration of ChatGPT in English for foreign language course: elevating AI writing assistant acceptance. *Computers in the Schools*, 42(2), 145–165. <https://doi.org/10.1080/07380569.2024.2446239>
- Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763–1768. <https://doi.org/10.1213/ANE.0000000000002864>
- Setyowati, L., Agustina, F., Sukmawan, S., El-Sulukiyah, A. A., & Mabaroh, B. (2020). The students' problems and solutions in writing an argumentative essay on gender issue. *Journal of English Language Teaching and Linguistics*, 5(3), 279. <https://doi.org/10.21462/jeltl.v5i3.424>
- Strongman, L. (2013). *Academic writing: A handbook for international students*. Routledge.
- Tribble, C. (2005). *Language teaching writing*. Oxford University Press.
- Wulandari, S., Laeli, A., & Astutik, I. (2024). Using Grammarly software to check the problems in essay writing: EFL pre-service teachers' perceptions. *New Language Dimensions*, 5(1), 12–22. <https://doi.org/10.26740/nld.v5n1.p12-22>
- Yu, Z. (2024). The study of the correlation between AI-assisted EFL writing frequency and writing anxiety among Chinese university students. *Academic Journal of Humanities & Social Sciences*, 7(7). <https://doi.org/10.25236/AJHSS.2024.070702>
- Yundayani, A., Susilawati, S., & Chairunnisa, C. (2019). Investigating the effect of Canva on students' writing skills. *English Review: Journal of English Education*, 7(2), 169–176.
- Zinkevich, N. A., & Ledeneva, T. V. (2021). Using Grammarly to enhance students' academic writing skills. *Professional Discourse & Communication*, 3(4), 51–63. <https://doi.org/10.24833/2687-0126-2021-3-4-51-63>