QUILLBOT AS AN ALTERNATIVE WRITING TOOL: EXAMINING ITS USES ON THE ACADEMIC WRITING PERFORMANCE OF EFL LEARNERS

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ABSTRACT
This study aimed to assess whether the use of QuillBot enhanced the academic writing skills of EFL learners in the English Education Department at Universitas Muhammadiyah Sumatera Utara. Pre-experimental design was implemented in this research. The participants in the research were selected from a class of 20 English as a Foreign Language (EFL) learners who had recently completed their academic writing classes the previous semester. Data from the pre-test and post-test was collected and a t-test was used for analyses using SPSS 29.0 version. This test consisted of an academic writing test about things that transpired in the educational sphere. The pre-test score reached 123, while the post-test score was 285. The data demonstrates that the t-test result was 56.53. The significance level of a = 0.05. The results determined that Sig (2-tailed) 0.000 is the probability value for the pre-test and post-test data for the EFL academic writing performance by using QuillBot. H_0 is rejected since the probability (Sig.) $0.000 < 0.05$. Furthermore, the results strongly indicate that QuillBot has greatly enhanced EFL learners' academic writing skills.

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Keywords: Artificial Intelligence, QuillBot, Writing tool, Academic writing, EFL Learner.

1. INTRODUCTION

Since its inception nearly thirty years ago, artificial intelligence in education (AIEd) has gained popularity in the field of educational technology and is also used in written discourse (Zawacki-Richter et al., 2019). Global civilization has witnessed a significant transformation due to the impact of artificial intelligence (AI) (Niemi, 2021). Artificial intelligence applications, especially in the sphere of education, have been made possible by the rapid advancement of computing technologies (Hwang et al., 2020). According to Popenici and Karr (2017), the development of new technologies and the computing capacity of intelligent machines will have a major impact on educational institutions in the future. Academics in the fields of computer science and education are taking an interest in the significant growth of artificial intelligence (AI) in education. By offering recommendations, identifying errors, and producing code automatically, AI-powered tools can assist students in learning

to code (Yilmaz & Yilmaz, 2023) when used in writing exercises. Effective writing is a talent that is highly valued in both academic and professional settings. According to Kim et al. (2021), writing is essential to both daily life and achieving academic achievement.

The act of paraphrasing or rephrasing a particular source text in one's own language is an essential step in the process of rewriting source materials (Shi, 2012). In order to maintain and transform the meaning of a text or essay, this method demands students to be able to develop and sequence ideas appropriately, rationally, and in accordance with the logic of the language (Fitria, 2021). It is frequently anticipated of students studying English as a foreign language (EFL) that they will generate in-depth written works (Siekmenn et al., 2022). Pupils encounter a wide range of writing tasks, from the basic work of creating letters to the more difficult task of structuring their ideas and using correct syntax, punctuation, and spelling (Wen & Walters, 2022). A great deal of students usually struggle to express their emotions, show little interest in writing, and struggle to articulate their ideas clearly (Gebremariam & Hiluf, 2023). Therefore, it is crucial that pupils be exposed to artificial intelligence (AI) when it comes to writing. Using artificial intelligence (AI) as a writing tool on a tablet can be a great way to help students with their assignments and improve their writing (Nazari et al., 2021).

Writing is one of the most crucial and difficult talents that students must acquire throughout their academic careers (Kha & Yen, 2022). Writing has always been considered the most difficult part of learning a language, according to Jabali (2018), especially when it has to be done in a foreign language. According to observations made by the researcher during an EFL class on writing an academic text, a number of students had problems finishing their academic assignment texts, such as plagiarism and the use of non-academic terminology. In an alternative research setting, many instructors

discovered that most pupils replicate entirely. Furthermore, proficient paraphrasing is a prerequisite for academic writing. One great example of an AI writing tool that can be used efficiently is Quillbot. In order to reduce the possibility of plagiarism, QuillBot offers a software solution that leverages artificial intelligence to provide synonyms or paraphrases (Dale, 2020). The purpose of this study is to investigate how learners' academic writing performance is affected by QuillBot, an alternative tool intended to help learners with the process of paraphrasing and rephrasing English written content. Composing applications may provide time savings and flexibility. Users can easily rearrange and reword their written content by using QuillBot's paraphrase tool, which makes it easier to modify and revise sentences (Fitria, 2021).

Artificial intelligence (AI) applications have been the subject of numerous research studies. According to earlier research by Nazari et al. (2021), using AI-driven writing tools may be a useful strategy for promoting technology acceptance and learning behavior in the context of formative assessment and feedback for postgraduate students who are not native English speakers and are writing academically in English. The study conducted by Fitria (2021) subsequently assesses the QuillBot as an artificial intelligence (AI) instrument intended to help teachers and students improve their English writing abilities by means of paraphrasing and rewriting. Like this study, earlier studies solely looked at using QuillBot as an AI writing tool. Therefore, to determine the potential for artificial intelligence to improve EFL learners' academic writing performance, a study on the effects of using Quillbots in the writing process must be done in the context of numerous previously established research imperatives.

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2. LITERATURE REVIEW

2.1 AI as Alternative Tools in Education

Artificial intelligence is a technological innovation that makes learning and education easier. The application of AI in education has grown and received a lot of attention in the last several years. The way that people are teaching languages has been profoundly impacted by the growing use of technology and the Internet. According to Popenici & Karr (2017), artificial intelligence (AI) is thus characterized as computational systems that are capable of learning, adapting, synthesizing, self-correcting, and utilizing data for complex processing, among other functions that are similar to those performed by humans. AI technology application in education has the potential to be beneficial, especially in terms of improving learning quality. There's little doubt that these useful technologies will have an impact on schooling in the future (Tseng & Warschauer, 2023). But humans still make the final decision; artificial intelligence technology is just a tool in the learning process. Therefore, in order to improve education, artificial intelligence (AI) technology must be applied in education in an efficient manner.

Higher education is undergoing a tremendous and quick change at the same time. The majority of this advancement is directly associated with the growing use of tools based on artificial intelligence. Technologies utilizing artificial intelligence (AI) offer effective support for online instruction and learning. Artificial intelligence (AI) technology has the potential to expedite feedback and input processing in the sphere of education, as well as reduce the time required to assess students' academic achievement (Rahayu, 2023). AI technology is being used extensively in education, especially when it comes to efficacy. By automating routine chores for teachers, customizing learning for students, and enabling adaptive evaluations, AI systems effectively assist online learning and teaching (Seo et al., 2021).

2.2 AI Tools for Writing Assistance

Artificial Intelligence and technology have become an important tool for improving students' writing abilities in academic English writing. In order to improve writing abilities that are challenging to learn through traditional training, learners may find it beneficial to use new AI-powered writing apps that are available on devices (Mohammad et al., 2023). In several writing-related domains, such as paraphrasing, proofreading, and improving sentence structure and writing quality, learners can make use of AI substitute tools. The best way to find plagiarism and other academic infractions is to paraphrase. In particular, learners must master the skill of paraphrasing or rephrasing texts in order to participate in academic writing workshops (Chen et al, 2015). Artificial intelligence and natural language processing advancements have strengthened writing and language tools (Brown et al, 2005).

Additionally, in the modern educational setting of English writing training, a range of useful online paraphrasing tools have been employed to assist students in managing their writing issues. According to Fitria (2023), using AI-based technology solutions helps students recognize mistakes in academic writing, which enhances the caliber of their work. It also gives them the chance to learn more grammar or vocabulary. Thanks to advancements in artificial intelligence (AI), students can now employ automatic paraphrasing software to enhance their academic writing (Alammar & Amin, 2023). This research suggests Quillbot as a potential tool to employ on learners' writing performance in order to improve their writing skills.

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2.3 QuillBot as an Alternative Writing Tool

QuillBot is an online application that can help writers write more efficiently by rephrasing words and phrases, identifying and preventing plagiarism, and summarizing lengthy passages. Users can easily rearrange and reword their written content by using QuillBot's paraphrase tool, which makes it easier to modify and revise sentences (Fitria, 2021). In 2017, David Silin, Anil Jason, and Rohit Gupta—three students studying computer science—founded QuillBot. Additionally, Dale (2020) discovered that QuillBot provides a software-based solution that makes use of artificial intelligence's powers to generate creative phrasings or paraphrases while reducing the likelihood of plagiarism. This study's primary goal is to determine whether Quillbot, a well-known artificial intelligence (AI) tool, is beneficial for rewriting and paraphrasing texts for ESL students.

QuillBot offers an intuitive user interface that makes the process of paraphrasing the user's text easier. This includes the capability to easily copy and paste pre-existing content or submit written content. Users only need to click the "Paraphrase" button to have the content paraphrased when they enter text or paste already generated material (Kinga & Gupta, 2020). It gives students the chance to increase the scope of their vocabulary and grammar expertise. QuillBot is a user-friendly program that uses state-of-the-art capabilities to simplify any text's paraphrase process. Its fundamental objective is to restructure phrases by modifying their structural elements and, if needed, adding synonyms, all while preserving the original meaning. To meet the needs of different user scenarios, QuillBot offers both free and premium versions. The only writing styles available to QuillBot free edition users are Standard and Fluency. However, premium users have access to additional editing options such as the Formal, Academic, Simple, Creative, Expand, and Shorten settings.
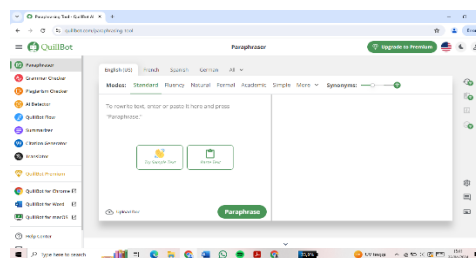

Figure 1.QuillBot Appearance on Website Platform

(Source:https://www.quillbot.com)

2.4 EFL Academic Writing Performance

Writing plays a vital function in facilitating communication between people worldwide. The writing style utilized in colleges and universities for instructional purposes is known as academic writing (Hien, 2023). Its importance, meanwhile, is inextricably linked to the reality that writing is among the most challenging aspects of learning English, especially for EFL students. According to Jabali (2018), if writing is seen as a form of communication, then the internet's development has led to a greater amount of written communication than spoken communication. Any writer may find it challenging to write academically in English, but students studying English as a second language (L2) or as a foreign language (EFL) may find it more challenging (Lin & Morrison, 2021). Improving students' academic writing abilities is a priority for higher education institutions, especially those in English-speaking nations (AlMawarni, 2020). It's believed that providing a solution can aid pupils in developing their writing abilities through paraphrase exercises.When it comes to skills, writing is the most important one that students should learn, particularly Indonesian EFL students. Many EFL learners still find it difficult to grasp this skill because there are several differences between Bahasa and English, including differences in grammatical and structural

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terminology as well as styles (Husin & Nurbayani, 2017). Academic writing in English at the university level is crucial for Indonesian students to advance their writing skills. According to Utami et al. (2023), artificial intelligence (AI) has been used into education in a number of nations, mostly in writing courses. Regretfully, a lot of English language learners struggle with writing correctly for scholarly purposes. As a result, students can easily organize their academic writing in English by using technology. A wide range of technological resources are available to assist students with their academic writing in English.

3. METHODS

3.1 Research Design

The research design used in this study was quantitative. To evaluate the impact of a modification on one or more intended outcomes, one or more variables are systematically modified in an experiment (Creswell, 2009). Pre-experimental research refers to studies that are carried out to investigate how particular therapies affect individuals under particular circumstances. One common type of pre-experiment design is the one-group pre-test-post-test design. Pre-test and post-test designs are frequently used for measuring change after experimental treatment and/or group comparison (Dimitrov & Phillip, 2003). One potential strategy would be to use a one-shot case study design with a pre-experimental design. Data from EFL students in the English Education Department who had finished their academic writing assignments in prior semesters were

acquired for this study. Data from the pre-test and post-test have been gathered by the researcher.

3.2 Population and Sample

The research took place at a private university in North Sumatra, specifically in the English Education Department of Universitas Muhammadiyah Sumatera Utara. The populations in this research were English as a Foreign Language (EFL) learners which were divided into three classes. The process of choosing people who just so happen to be available for research is called sampling (Mackey & Gass, 2021). The participants in this study were chosen from a class of 20 English as a Foreign Language (EFL) learners. A group of 20 English as a Foreign Language (EFL) learners have recently completed academic writing courses in the previous semester.

3.3 Instruments

In this research, EFL students were administered an academic essay pre-test to assess their writing skills before the intervention. After completing a 10-week AI-powered program with QuillBot, a post-test was administered to assess whether the student's writing skills had improved, comparing it to the pre-test. The characteristics that distinguish academic writing are essentially the same. These have a distinct, well-defined structure within scientific areas. The data were used to evaluate the characteristics of writing utilizing a scoring system adapted from Brown (2007) the aspects as shown in Table 1.

Table 1
Scoring System Adapted from Brown (2007)

Components of Writing	Score	Level	Indicators
Content (C)	4	Excellent	Present the information in well-chosen detail across the paragraph
	3	Good	Present the information with the details in parts of the paragraph

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	2	Fair	Present the information with some details
	1	Poor	Present no clear information
Vocabulary (V)	4	Excellent	Good in vocabulary choice
	3	Good	Error in vocabulary choice are few and do not interfere with understanding
	2	Fair	Error in vocabulary choice and sometimes they interfere with understanding
	1	Poor	Many errors in vocabulary choice severally interfere with understanding
Grammar (G)	4	Excellent	Good in grammar
	3	Good	Error in grammar choice are few and do not interfere with understanding
	2	Fair	Error in grammar choice sometimes interfere with understanding
	1	Poor	Many errors in grammar choice severally interfere with understanding
Mechanics (M)	4	Excellent	Good in spelling, punctuation, and capitalization
	3	Good	Error in spelling, punctuation, and capitalization are few
	2	Fair	Error in spelling, punctuation, and capitalization sometimes interfere with understanding
	1	Poor	Many errors in spelling, punctuation, and capitalization sometimes interfere with understanding

3.4 Data Collection and Analysis

On November 21, 2023, pre-testing was used in a classroom to collect data on the writing performance of EFL learners prior to therapy. An academic writing test concerning events that happened in the field of education made up the pre-test. There were ten sessions for the treatment. The initial session took place on November 28, 2023. Students were told to use QuillBot to write the identical material they had on the pre-test during the treatment. The researcher then issued a challenge to the EFL students, asking them to express their ideas in writing and demonstrate how to use QuillBot to reword them in an academic manner. Lastly, the researcher strongly suggests that students use QuillBot to write their complete academic assignment.

The statistical analysis of the quantitative data gathered from the pre- and post-tests was conducted using the SPSS 29.0 program. Using the paired sample, the researcher examined and contrasted the results obtained from the pre- and post-tests. t-test to show how significantly the academic writing abilities of EFL learners improved both before and after using QuillBot.

3.5 Hypothesis

A hypothesis test is employed to address the issue identified in the design. H_a is accepted, while H_0 is rejected. H_0 indicates there is no significant boost in EFL academic writing performance through the utilization of QuillBot. H_a indicates there is a significant boost in EFL writing performance through the utilization of QuillBot. The decision criteria were taken into consideration; accepted the null hypothesis (H_0) if the probability value (Sig.) is greater than 0.05 (>0.05) and rejected the null hypothesis (H_0) if the probability value (Sig.) is less than 0.05 (< 0.05).

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4. RESULTS AND DISCUSSION
4.1 Results

To assess the impacts of the QuillBot on the academic writing skills of EFL learners, the researcher performed data analysis using a t-test. This involved comparing the total scores from both the pre-test and post-test tables.

Table 2
The pre-test score of EFL learners' academic writing

Participants	Components of Writing				Total
	Content (C)	Vocabulary (V)	Grammar (G)	Mechanics (M)	
EFL learner 1	2	1	1	2	6
EFL learner 2	2	2	1	1	6
EFL learner 3	2	1	1	1	5
EFL learner 4	2	2	1	2	6
EFL learner 5	2	1	1	1	6
EFL learner 6	1	1	1	2	5
EFL learner 7	1	2	1	2	6
EFL learner 8	2	1	1	2	6
EFL learner 9	2	1	1	3	7
EFL learner 10	1	1	1	2	5
EFL learner 11	2	2	1	2	7
EFL learner 12	2	2	1	1	6
EFL learner 13	2	1	1	2	6
EFL learner 14	2	2	1	1	6
EFL learner 15	3	2	1	2	8
EFL learner 16	2	2	1	2	6
EFL learner 17	2	1	1	1	6
EFL learner 18	2	1	1	3	7
EFL learner 19	1	1	1	2	5
EFL learner 20	2	2	2	2	8
Total Scores					123

As highlighted in the table above, when the data is analyzed, it shows that the total score of the pre-test was 123. This table illustrates the score of EFL learners while writing academic assignments before utilizing QuillBot. The post-test score is shown in the table below, it shows that the total score of the post-test was 285. This table illustrates the score of EFL learners while writing academic assignments after getting treatment by utilizing QuillBot.

Table 3
The post-test score of EFL learners' academic writing

Participants	Components of Writing				Total
	Content (C)	Vocabulary (V)	Grammar (G)	Mechanics (M)	
EFL learner 1	4	3	3	4	14
EFL learner 2	4	3	3	3	14
EFL learner 3	4	3	4	3	14
EFL learner 4	4	4	3	4	15

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EFL learner 5	4	3	3	3	13
EFL learner 6	3	4	3	3	13
EFL learner 7	3	4	3	4	14
EFL learner 8	4	3	4	4	15
EFL learner 9	4	4	3	4	15
EFL learner 10	3	4	3	4	14
EFL learner 11	4	4	3	4	15
EFL learner 12	3	4	3	4	14
EFL learner 13	4	4	3	4	15
EFL learner 14	4	3	3	4	14
EFL learner 15	4	4	4	4	16
EFL learner 16	4	3	3	4	14
EFL learner 17	4	3	3	3	13
EFL learner 18	4	4	3	3	14
EFL learner 19	3	3	3	4	13
EFL learner 20	4	4	4	4	16
Total Scores					285

4.2 Results of the paired sample t-test

The paired sample t-test is employed to address the issue presented in the design. The data was processed using the SPSS 29.0 version.

The table provides the results of the paired sample t-test, which assesses if there is a significant boost in EFL academic writing skills through the utilization of QuillBot.

Table 4
Paired Samples Statistics Test Results
Pre-Test and Post-Test EFL Academic Writing Performance Using QuillBot

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	6.1500	20	.87509	.19568
	Posttest	14.2500	20	.91047	.20359

A summary of the descriptive statistical findings for the two samples under investigation the pre-test and post-test scores is presented in Table 4. The average academic result or mean for the pre-test score was 6.150, however the average academic

result or mean for the post-test score was 14.250, which was higher than the 6.150 mean score for the pretest. The number of respondents used as research samples was 20 people for the Std. value of pre-test deviation is 0.875 and the Std. value of post-test deviation is 0.910.

Table 5
Paired Samples Statistics T-Test Results
Pre-Test and Post-Test EFL Academic Writing Performance Using QuillBot

Paired Samples Test

Paired Differences		t	df	Sig. (2-

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| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | tailed) |
				Lower	Upper			
Pair 1 Pretest - Posttest	-8.10000	.64072	.14327	-8.39987	-7.80013	-56.537	19	.000

A unique test method for analyzing the difference in the continuous variable averages between two groups is the t-test (Muijs, 2022). It has been established that the probability value of the pre-test and post-test data on EFL academic writing performance using QuillBot is 0.000. The method of decision-making provisioning is based on the following needs; H0 reveals that using QuillBot does not significantly improve EFL academic writing skills. According to Ha, the use of QuillBot significantly improves EFL writers' performance. The null hypothesis (H0) was accepted if the probability value (Sig.) is greater than 0.05 (>0.05) and rejected if the probability value (Sig.) is less than 0.05 (< 0.05) in accordance with the decision criteria. 0.000 is the probability value for the pre-test and post-test data for the EFL academic writing performance with QuillBot, according to the data shown above (Table 5). Given that the probability (Sig.) 0.000 < 0.05, H0 is rejected. This suggests that QuillBot has greatly enhanced EFL academic writing performance.

4.3 Discussion

The results suggest a positive outlook for the feasibility of utilizing QuillBot as a substitute writing instrument. This suggests that it's acceptable to use QuillBots to improve EFL students' academic writing abilities. Artificial intelligence (AI) based technological solutions provide students with the opportunity to learn more grammar and vocabulary while also assisting them in identifying errors in their academic writing (Fitria, 2023). Furthermore, Dale (2020) found that QuillBot offers a software-based solution that permits the application of artificial intelligence's capabilities to produce original words or paraphrases while lowering the likelihood of plagiarism.

One excellent approach to help students with their assignments and improve their writing is to use artificial intelligence (AI) as a writing tool on a portable device (Nazari et al., 2021). The researcher adds originality by measuring students' learning achievement using a pre-test and post-test, in contrast to previous research that is acknowledged in this study. Based on this research, it was concluded that employing QuillBot to treat EFL learners improved their academic writing performance. This supports Hien's claim that students' academic writing improves when they utilize AI-powered tools (Hien, 2024).

5 CONCLUSION

The impact of QuillBot on the academic writing abilities of EFL learners is examined in this study. The researcher employed statistical analysis (t-test) at the significance level of a = 0.05 in light of the findings. H0 is refused, whereas Ha is accepted. Twenty respondents were employed as research samples, and the standard deviation of the pre-test variance was 0.875 and the standard deviation of the post-test deviation was 0.910. According to the findings, the probability value for the pre- and post-test data on the academic writing performance of EFL students using QuillBot is Sig (2-tailed) 0.000. Given that the probability (Sig.) 0.000 < 0.05, H0 is rejected. Additionally, the findings clearly show that QuillBot has

improved EFL learners' academic writing abilities.

6 ACKNOWLEDGEMENTS

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