

UNDERGRADUATE STUDENTS' PERCEPTIONS OF USING AI: DID QUILLBOT HELP STUDENTS' WRITING?

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Abstract: QuillBot is an application that uses artificial intelligence algorithms to help users produce coherent writing. It helps undergraduate students find errors in writing, such as punctuation, grammar, and others, because QuillBot offers features that facilitate students' writing effectively, such as language enhancement, grammar correction, and paraphrasing. The objective of this study is to investigate the ways in which QuillBot enhances confidence in writing and facilitates the assistance of writing abilities through a descriptive qualitative study. Data were collected through questionnaires and semi-structured interviews that were analyzed by using thematic analysis. The participants of this research were 31 students whose writing level is already at the advanced writing level. The results showed that undergraduate students responded positively, such as increasing their confidence when writing so they did not hesitate to write because QuillBot provides suggestions for improving writing identifying and correcting less clear sentences. Talking about its technical support, QuillBot is also easy to use without a long process and does not waste time. QuillBot offers valuable and helpful features for students because *its* features make it easy for them to improve their writing.

Keywords: *artificial intelligence, perception, QuillBot, undergraduate, writing*

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INTRODUCTION

Technology is a dynamic instrument that significantly impacts society, including education (Vannatta & Fordham, 2004). The technology could assist English teachers and students with available learning references (Arif & Handayani, 2021; Huang et al., 2022) because technology enhanced students' motivation, social relationships, and engagement while making learning engaging and dynamic (Baytak & Tarman, 2011).

Thus, owing to the ongoing development of technology and its profound impact on education, the current focus is on the use of Artificial Intelligence (AI). AI is a technology that enables computer systems to imitate human intellectual abilities (Shabbir & Anwer, 2018). The phrase artificial intelligence (AI) refers to a general word for any automated system that may act in ways similar to human intelligence,

including learning, reasoning, and self-correction (Popenici & Kerr, 2017). EFL students using AI in writing can receive help with grammar and language correction, assisting in error identification and correction. (Alharbi, 2023; Hz et al., 2023).

Utilizing AI to improve writing by adjusting grammar and perfecting sentences or paragraphs is a wise way to enjoy technology (Fitria, 2021a). Some learning resources, including a dictionary and grammar book, should be used when writing in a foreign language (Fitriani et al., 2021). In the writing context, some applications can help writers write the text, such as Grammarly, QuillBot, Chat GPT, Perplexity, and others, and one most used digital tool supported by AI is QuillBot. QuillBot was founded in 2017 and developed by Anil Jason, Rohan Gupta, and David Silin; it helps users paraphrase, check grammar, summarise, and translate. Thus, it can support EFL students, particularly in improving writing. It provides a solution that suggests paraphrases, grammar checkers, summarizers, and even plagiarism detectors (Dale, 2020). How it works is relatively easy. To find out how this AI functions, the users only write or copy paste the words or sentences they want to paraphrase, after that QuillBot rewrites them by clicking the paraphrase button. (Kinga & Gupta, 2021). It is believed that this application will benefit students, authors, bloggers, educators, and others (Wigham, 2020).

Writing is difficult because authors have to develop works with essential discourse elements (Jashari & Fojkar, 2019). This study found that students faced difficulties in their writing tasks. This is due to a lack of grammar, knowledge in constructing paragraphs or even not mastering vocabulary. Students are required to generate particular writing styles for academic purposes, including essays, research papers, summaries, and critical reviews (Bulqiyah et al., 2021; Maher & Al-Khasawneh, 2010; Okumuş Ceylan, 2019). Throughout the writing process, a student must be able to choose organized language, paraphrase, and terminology. This implies that writing is a talent that requires the application of one's full potential (Mulyadi et al., 2020). Using QuillBot increases students' confidence. Conducted by Azizah and Erlangga (2023), the effectiveness of using QuillBot to develop students' literacy in the writing process is that students can be more confident and effective in academics. There are relations between writing in one language and writing in another. Proficiency in English writing, especially for scholarly articles, has long been a challenging ability to learn. Reaching communicating objectives requires utilizing tactics and problem-solving abilities (Fithriani, 2019). With the development of technology, many writers utilize technology to facilitate their writing.

Previous studies have explored the use of AI in enhancing writing skills, specifically focusing on the effectiveness of tools like QuillBot in aiding students' writing abilities (Kusuma, 2020). Additionally, research on a global scale has investigated the use of AI in writing, as evidenced by studies conducted by Zhang (2020) and Perkins (2023). On a national scale, research by Kurniati and Fithriani (2022) and Fitria (2022) has further examined the utilization of AI in writing. Collectively, these studies contribute to understanding how AI, including tools like QuillBot, impacts writing skills globally and within specific national contexts. These studies have examined how AI helps students in writing. However, research specifically investigating QuillBot's use in teaching undergraduate students is still limited. QuillBot addresses paraphrasing by providing a solution for individuals, including teachers and students, who may struggle with manual paraphrasing. The

tool is designed to assist students without the necessary skills or ideas to paraphrase content manually. Given the increasing integration of artificial intelligence (AI) into various aspects of life, particularly in English teaching and learning, QuillBot emerges as a valuable resource. This research highlights the potential benefits of QuillBot, especially for students enrolled in English education programs in Indonesia, offering them a tool to enhance and refine their writing skills. By incorporating paraphrasing capabilities, QuillBot becomes a practical solution for students facing challenges in paraphrasing sentences without the requisite skills or ideas.

This study is crucial as it explores the impact of using QuillBot on undergraduate students' writing skills from their own perspectives. There is a big difference in the level of postgraduate and undergraduate writing. The level of scientific writing of graduate students is already above the level of scientific writing of undergraduate students because postgraduate students receive additional instruction in writing scientific papers, while undergraduate students only receive basic scientific writing instruction. This allows undergraduate students to use QuillBot to improve their writing quality and increase their confidence. Hence, this study aims to find out how QuillBot helps increase confidence in writing and makes it easier to write, as well as utilizing features that allow their writing ability.

METHODOLOGY

Subjects

The participants of this study were undergraduate English education students at one state university in North Sumatra. The participants of this study were 31 students through purposive sampling with the criteria of having experience in using QuillBot in writing skills, and the 7th semester students who have already taken scientific writing.

Design and Procedures

This research was conducted using a descriptive qualitative study. According to Lambert & Lambert, (2012), the design of descriptive qualitative studies evolved as a means to define aspects of qualitative research that did not resemble qualitative research designs to date, despite including elements of those other study designs. Descriptive research focuses on describing situations and conditions in a report. This can help identify emerging patterns, student challenges, and perceived benefits. Using qualitative descriptive methods, researchers can gain a deep understanding of how university students experience and respond to AI technologies in educational contexts, such as QuillBot.

Data Collection and Data Analysis

This study's data came from a questionnaire and a semi-structured interview. The questionnaire is several written questions (Sujarweni, 2015) that are used to get information from participants about the cases/they know (Arikunto, 2006). The questionnaire was delivered through a Google form that consisted of closed-ended questions using the five-Likert scale (Strongly agree, agree, neutral, disagree, and strongly disagree). Then, the data collection continued to a semi-structured interview. Semi-structured interviews could allow participants to freely share their ideas and cover detailed information (Creswell & Creswell, 2018). Semi-structured

interviews were utilized to investigate participants' thoughts, feelings, and beliefs about their questionnaire responses and to delve deeply into personal and sometimes sensitive issues pertaining to the topic under discussion (Berg, 2007).

The researcher developed questions for semi-structured interviews based on the questionnaire responses. Three participants with more experience using QuillBot participated in the semi-structured interview. This aimed to find out more about QuillBot. The semi-structure interview questions are as follows:

Interview Questions

- | |
|---|
| <ol style="list-style-type: none"> 1. Why has using QuillBot increased your confidence when writing? 2. In your opinion, why is QuillBot easy to use? 3. Do you find the features of QuillBot helpful in academic writing? |
|---|

The gained data from the questionnaires were analysed by using frequency counts and percentages. This involved several steps: gathering all completed questionnaires from participants, converting responses into numerical values for analysis, and counting how often each response was given. Following this, the percentages of participants for each answer were calculated to provide a clear understanding of the distribution of responses. Finally, tables and figures visually represented the gained data. For the qualitative research, thematic analysis was employed to examine interviewees' replies (Clarke & Braun, 2017; Guest et al., 2014). This approach focuses on identifying, analysing, and reporting patterns within the data, emphasizing the need for carefully prepared and well-thought-out descriptions of the dataset.

This method involves several key steps from Braun and Clarke (2006). First step was the transcription of the audio files verbatim. And then, the researchers familiarized themselves with the content through reading the transcript multiple times. Afterwards, they identified and labelled key pieces of information, assigned codes to significant words, phrases, or segments. These codes had potential themes by identifying patterns and relationships among them. The themes were then examined and refined to ensure they accurately reflected the data, which sometimes involved combining, splitting, or discarding some themes. Once the themes were clear and given descriptive names, the researchers summarized them and supported their findings with quotes from the transcripts to illustrate the points. This combined approach of frequency analysis for quantitative data from questionnaires and thematic analysis for qualitative data provides a comprehensive understanding of the experiences and viewpoints of the participants regarding the use of QuillBot in their writing processes.

FINDINGS AND DISCUSSION

Findings

Undergraduate Students' Demographic of the Use Digital Writing Tools

Students who participated in this study were English education majors, consisting of 31 undergraduate students. According to the results of the distributed questionnaire, they are utilizing AI as a digital tool to help them with their writing. Hence, the result of the Figure 1 presents that 23 undergraduate students utilize QuillBot over other AI tools such as Grammarly, Perplexity, Mendeley, and DeepL as their writing tools.

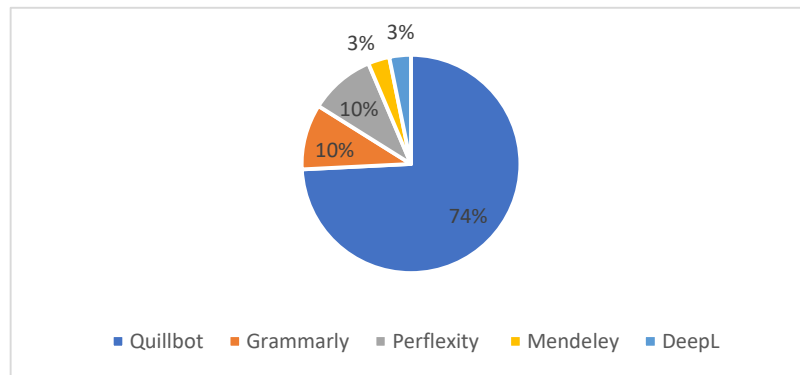


Figure 1. Experience with digital tools in writing

Based on the results from Figure 1, students predominantly utilized QuillBot as a writing tool. This suggested that QuillBot was widely used in the context of digital writing, and its popularity might be due to its effectiveness in improving writing quality and efficiency. Data from a questionnaire distributed to undergraduate students regarding the frequency of using QuillBot to assist their writing supported this result. Figure 2 below showed information on the frequency of QuillBot use by students who participated in the study. The survey likely included questions about how often they used QuillBot.

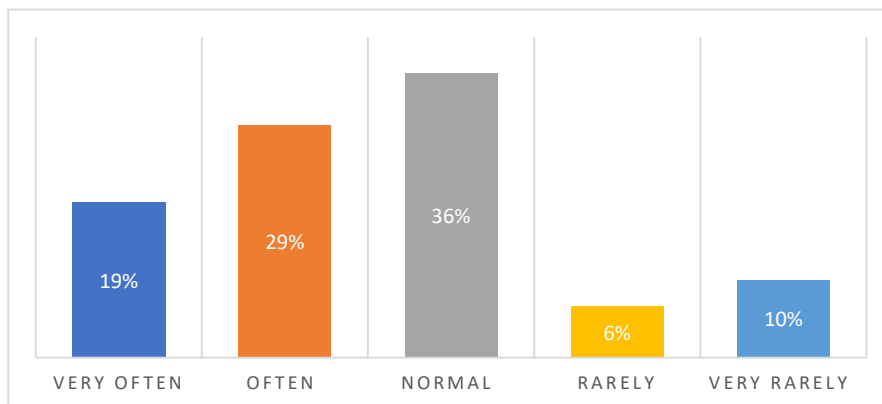


Figure 2. The frequency of the use of QuillBot

Figure 2 above showed the results of the questionnaire regarding the frequency of using QuillBot in writing. Of the 31 students who filled out the questionnaire, eleven students used QuillBot normally to help with their writing; there were nine students who often used QuillBot for their writing, compared to six students who used QuillBot very often in their academic writing. Meanwhile, only three students very rarely used QuillBot, and about two students rarely used QuillBot or specifically used other digital tools. The following table displays total results of the questionnaire.

Table 1. Undergraduate students' perception of QuillBot

No	Statement	SA	A	N	D	SD
1.	QuillBot is an easy-to-use digital tool	47%	50%	3%	-	-
2.	The features of QuillBot help me in academic writing	34%	60%	6%	-	-
3.	Using the QuillBot application is very important because the features are enhanced	22%	50%	25%	3%	-
4.	My writing anxiety is reduced because the QuillBot application supports me in writing	22%	50%	28%	-	-
5.	While using QuillBot in writing, my confidence has increasing	56%	16%	28%	-	-
6.	My text organization skills in writing have improved due to using the QuillBot application	16%	50%	31%	3%	-
7.	My vocabulary has accidentally developed, especially in terms of words used in writing	13%	56%	28%	3%	-
8.	As a consequence of using the QuillBot, my grammar has improved to create writing academic	13%	38%	44%	6%	-
9.	I use QuillBot more often than other apps	19%	37%	28%	13%	3%
10.	While using QuillBot in writing, my results are better, and my writing is more accurate.	22%	47%	31%	-	-

The data from table 1 shows that most of the participating undergraduate students, which are 16 students, agree that QuillBot is an easy-to-use digital tool, and about 14 students strongly agree. Only one chooses neutral because they do not have a definite opinion about QuillBot ease of use. The second statement in the questionnaire asks whether QuillBot helps students in academic writing. About 18 students agree, so the survey show positive results regarding QuillBot features. About 11 participants strongly agree that QuillBot features help them in academic writing. One participant chooses neutral, which shows that a few may be uncertain about QuillBot contribution to their academic writing.

The table also reveals that as many as 16 participants agree that using the QuillBot application is essential because its features are well-developed. Students who use QuillBot consider QuillBot very important. However, about 8 participants

express a neutral attitude. Six students strongly agree, and 1 student disagrees that using the QuillBot application is very important. QuillBot can reduce students' anxiety towards writing as many as 8 participants express a neutral attitude. The other 7 students strongly agree that their writing anxiety reduced with the support of the QuillBot application. Not only that, the students claim that QuillBot does reduce writing anxiety when writing; in this case, 17 students strongly agree that their confidence increases when using the QuillBot application, and as many as 9 participants feel neutral when using QuillBot in writing and 5 students agree with the statement.

The data indicates that QuillBot significantly facilitates students in enhancing text organization skills, with 16 participants agree and 5 participants strongly agree with this statement. This totals 21 positive responses. Meanwhile, nine participants remain neutral, and only 1 respondent disagree. The overwhelming agreement suggests that QuillBot is an effective tool for organizing text, despite a small portion of neutrality and minimal disagreement. In addition to improving writing, QuillBot impact on vocabulary development is similarly positive. A total of 17 participants agreed, and four participants strongly agreed; bringing the positive response count to 21. Nine participants show neutrality, and one disagrees. These results mirror the positive perception seen in text organization skills, indicating that QuillBot is also effective in helping users expand their vocabulary, with a comparable level of neutrality and minimal disagreement. The responses regarding grammar improvement show a more varied perception. While 11 participants agree and six students strongly agree; resulting in 17 positive responses, a notable 14 participants are neutral, and two participants disagree. Although the positive response is still strong, the higher number of neutral responses suggests that users may be less certain about QuillBot effectiveness in improving grammar compared to its impact on text organization and vocabulary development.

After getting to know QuillBot, students use it more often than other digital tools as 12 participants agree, nine participants are neutral, and five participants strongly agree with this statement. However, four participants disagree, and a small portion (only 1) students strongly disagrees. QuillBot can also make writing results more accurate, as evidenced by 15 participants who agree, seven participants strongly agreed, and nine participants felt neutral about the accuracy of the results from QuillBot.

Undergraduate Students' Perceptions the Merit of Using QuillBot as a Digital Writing Tool

In the academic environment, especially among students, the use of digital especially among students, the use of digital writing tools such as QuillBot raises various perceptions. These perceptions relate to effectiveness, comfort, ease of use, and impact on the quality of writing results. This research aims to explore students' views on the benefits of using QuillBot. To support this, this study continued to the interviews with participants who have experience using QuillBot.

Theme one: Increased confidence in writing

Utilizing QuillBot can help undergraduate students with academic writing and can have positive effects, such as increasing students' confidence in their writing results. This is evidenced by the statement of one of the interviewees below:

"Using QuillBot in writing has been very helpful and has increased my confidence because QuillBot provides suggestions for improving my writing. QuillBot can also help identify and improve my sentences that are unclear or have incorrect word structure. With the feedback from QuillBot, I know and improve my writing so that I become confident in my writing after improving from the feedback given by QuillBot" (Interviewee-HF).

This research's findings align with expectations from Nur Azizah and Tira Erlangga (2023) that the effective use of QuillBot can develop student literacy in the writing process, enabling students to be more confident and effective in their academic work. QuillBot not only acts as a grammar correction and paraphrasing tool but also gives writers confidence in expressing ideas and composing their work. In this way, QuillBot, as a digital tool, can increase confidence in writing. As an online tool that assists with paraphrasing to prevent plagiarism, compressing lengthy text, and refining grammar to make writing more accurate and polished, QuillBot users believe that their writing quality has improved (Williams & Davis, 2017)

Theme two: Make it easy to help write

Another point how QuillBot helps students in writing is its ease of use. This tool aims to highlight text by modifying its structure and comparing it with the original text while maintaining its quality. For students still struggling with the English language, QuillBot makes it easier to write academic essays. QuillBot is also easy to use and learn (Amanda et al., 2023; Nurmayanti & Suryadi, 2023). The ease of accessing QuillBot helps students without requiring a long process when used, as the following student statement reinforces:

"Because QuillBot uses automated features to improve my writing, especially for paraphrasing, so using QuillBot does not take much with these features in contrast to manual paraphrasing, which takes a lot of time, just copy and paste my writing paraphrased in seconds" (Interviewee, AR).

This finding is consistent with previous research (Kinga & Gupta, 2021) that using this tool is simple. QuillBot rewrites the texts we write or copy and paste. Next, we select the Paraphrase option. QuillBot is considered an easy tool in assisting undergraduate students' writing. The main reason is the ease of access and the variety of features offered by QuillBot, making it an effective and simple tool without requiring a long process. QuillBot is a useful online resource to help students produce academic research writing (Kurniati & Fithriani, 2022). It can also be used without downloading an app, as we can use it by opening it in Google Chrome. However, be aware that the results may not always be perfect and need to be checked manually to ensure the accuracy and suitability of the text as needed.

Theme three: Provides features that help writing

Students' perceptions of QuillBot are also influenced by its features that can improve the writing quality of students at an advanced writing level, especially undergraduates. (Fitria, 2021b) supports this, noting that QuillBot provides features to improve writing skills by removing redundant words and helping users convey clear messages. The following student statement supports this:

"I find it very helpful because using the features in QuillBot makes it easier for me to improve my writing" (Interviewee, RA).

With the use of artificial intelligence (AI), students are helped by the features that QuillBot provides. These research findings are consistent with (Dale, 2020), who states that QuillBot provides a service that leverages AI to offer paraphrases, grammar checks, summaries, and even plagiarism detection. QuillBot is an online tool that can assess students' work by providing automatic online system-based paraphrasing, grammar and translation checks, plagiarism detection, summarizing, and citation generators. Undergraduate students find QuillBot to be a useful tool with its wide range of advanced features, which can effectively improve their writing quality and provide support in their academic writing process. By utilizing these features, writers can improve the quality, speed, and variety of their academic writing. Paraphrasing in English is a different approach for students to express the same idea in their own words when writing in the language (Ariyanti & Anam, 2021).

DISCUSSION

A significant majority of students found QuillBot easy to use. This aligns with results obtained by Nurmayanti and Suryadi (2023), who found that QuillBot facilitates the writing of scientific papers for students, particularly those struggling with English. It is also simple to use, comprehend, and access. Students typically utilize it to paraphrase texts, improve organization, and avoid plagiarism in their written work. Fitria (2021b) notes that when students lack the proper approach for paraphrasing while preserving original meaning, QuillBot can serve as a substitute. This high level of agreement underscores QuillBot user-friendly interface, facilitating its widespread adoption among students. The ease of use likely contributes to its popularity and frequent use. This statement is in line with the interview results, which indicate that QuillBot features critically improve the efficiency and quality of writing, making it an essential tool in the writing process.

Most students believe that QuillBot features aid their academic writing. This suggests that the tool's functionalities, such as paraphrasing and grammar checking, effectively support students' writing tasks. This is consistent with (Fitria, 2022) study, which highlights QuillBot utility in helping students maintain the original meaning of texts while paraphrasing. Many students feel that QuillBot enhanced features are very important, indicating that the tool's advanced capabilities are highly valued in academic writing. This statement is in line with the interview results, which show that QuillBot eases the writing process by utilizing its automatic features for efficient paraphrasing. It significantly reduces the time required over manual methods by allowing quick fixes through copy-and-paste.

Most students reported reduced writing anxiety due to QuillBot support. This highlights the psychological benefits of using the tool, as it helps alleviate stress associated with academic writing. This finding is supported by Xuyen (2023), who indicated the beneficial impacts of QuillBot on students' anxiety levels and confidence in their ability to paraphrase. The high frequency of QuillBot usage among college students indicates its integral role in academic writing tasks. Students often use QuillBot as a tool to increase their confidence in writing complex tasks.

A significant number of students indicated that using QuillBot has increased their writing confidence. This high level of agreement shows that QuillBot not only improves writing quality but also boosts students' self-assurance in their writing abilities. This is consistent with Kurniati & Fithriani (2022) findings that QuillBot reduces fear and enhances confidence in students' written work. The research is further supported by Syahnaz & Fithriani (2023), who found that students feel more confident about their writing because they can use QuillBot facilities and conveniences, such as quickly paraphrasing without worrying about grammatical structure errors or limited vocabulary knowledge. This finding is in line with the interview results, which showed a significant increase in writing confidence using QuillBot, which provided corrective suggestions, identifying and correcting unclear sentences and incorrect word structures.

Many students observed an improvement in their text organization skills due to QuillBot. This suggests that QuillBot helps students structure their writing more effectively, a crucial skill in academic writing. Marzuki et al. (2023) support this, noting that using QuillBot as a writing assistant produced more coherent, grammatically correct, and well-structured essays compared to those who did not use the tool. However, some students may need more time or practice to notice significant improvements. A majority of students believe their vocabulary has improved through QuillBot use. Jaladara et al. (2023) found that students highly value QuillBot for its ability to save time, expand vocabulary, boost writing talents, and support academic writing assignments. This reflects the tool's effectiveness in introducing new words and phrases to students, enhancing their lexical resources.

Students had mixed responses about QuillBot impact on their grammar. While many students see improvements, a significant portion remains uncertain or does not experience the same benefits. This mixed response could be due to varying levels of initial grammar proficiency and QuillBot occasional limitations in grammar checking. Baron et al. (2023) note that the QuillBot application does not provide solutions when teachers and students cannot check grammar manually. Nabhan (2017) supports this, stating that employing advanced technology for academic English writing might have unfavorable effects, such as malfunctions and inaccurate writing.

A notable portion of students reported using QuillBot more frequently than other writing tools, underscoring its perceived superiority or greater utility. However, some students might use multiple tools or prefer alternatives for specific tasks. Nurhayati (2022) suggests that to ensure high-quality writing, students' academic writing skills in English need to be complemented by proofreading programs like Turnitin, Grammarly, and Mendeley. Nova (2018) adds that Grammarly provides students with feedback, helping them understand the purposes of English academic writing through proofreading.

Many students feel their writing results are better and more accurate when using QuillBot. This high level of agreement suggests that QuillBot effectively enhances the quality and precision of academic writing. Chui (2022) supports this, arguing that QuillBot can detect and correct language elements, contributing to better writing outcomes. In conclusion, this study underscores QuillBot importance as a valuable resource to support students' writing endeavors and demonstrates its potential to foster academic success in English language education.

CONCLUSION AND SUGGESTION

In conclusion, this study aims to reveal the benefits of using QuillBot, especially how it helps increase confidence in writing and makes it easier to help with writing. It also utilizes features that improve writing ability based on their QuillBot experience. The findings have practical implications for educators, highlighting the importance of integrating AI technologies into writing instruction to better prepare students for academic and professional writing tasks. The limitation of this research is that it is conducted in a particular context, Medan City, Indonesia, which may limit the ability to generalize findings in another context. The study highlights the potential of AI-based writing tools, such as QuillBot, to support student writing development and improve learning outcomes in an educational environment.

Future research should address the identified limitations by conducting a more comprehensive investigation into the use and effectiveness of QuillBot across different student populations and academic disciplines. Additionally, a comparative study between QuillBot and other AI-based writing tools could provide valuable insights into the strengths and weaknesses of each. Theoretically, this study contributes to understanding how AI technologies can improve writing instruction and students' learning outcomes. In practice, educators are encouraged to integrate QuillBot and similar AI tools into their writing curriculum to support students' writing development and foster confidence in their writing abilities, thus paving the way for more effective and engaging writing instruction in education. With the limited scope of this study, future researchers are advised to focus their research on other aspects of QuillBot, such as comparing QuillBot with similar AI tools according to output quality, speed, and functionality, which can help evaluate each tool's advantages and disadvantages.

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