

Can Artificial Intelligence (AI) like QuillBot AI Assist Students' Writing Skills? Assisting Learning to Write Texts using AI

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Abstract: At present, it is undeniable that the influence of Artificial Intelligence (AI) in learning English is increasing. AI helps students develop English sentences. This study aims to assist eleventh-grade students' skills in creating hortatory exposition texts using QuillBot AI. It was Classroom Action Research (CAR) using the Kemmis, McTaggart, and Nixon paradigm conducted in two cycles, each consisting of three meetings. Each cycle included planning, acting, observing, and reflecting. The participants of this study were students from XI IPA 2A, consisting of 20 students. The data collection technique employed was a test. Before giving treatment, the students did a pre-test in the form of a writing test. Then, the researcher taught the students using Quillbot AI in several meetings. A paired sample t-test was administered using the SPSS version 25 to analyze the obtained data. The findings revealed that using QuillBot AI in the writing class considerably improved students' writing skills. It was demonstrated by the results of the students' writing test scores. In the pre-test, the students' mean score was 53.55. Then, after utilizing QuillBot AI, the students' mean post-test score was 78.90. In addition, the significance of the difference could also be seen in the acquisition of a sig. (2-tailed) value of 0.000, which meant it was smaller than 0.05. Based on the statistics presented, H_0 was refused, and H_a was approved, indicating that QuillBot AI's usage impacted the students' ability to create hortatory exposition texts.

INTRODUCTION

Writing is a task that students engage in across various subjects, allowing them to convey thoughts, share experiences, narrate stories, and elucidate their perspectives. Nevertheless, writing is frequently seen as one of the most challenging abilities for foreign language learners to acquire. Foreign language students often encounter difficulties when trying to express their thoughts in written form due to the need to be mindful of grammar (Pratama, 2021). Writing involves multiple stages, including organizing and managing thoughts, putting those thoughts

onto paper, and revising and reviewing the written work. When writing, students must consider various elements like grammar, vocabulary, and content.

Additionally, writing comprises several components, including theory, methodology, grammar, structure, and the conceptualization of ideas (Maulidina & Wibowo, 2022). Writing is not an innate skill and cannot be acquired effortlessly (Kartawijaya, 2018). To acquire proficiency in writing, students must actively practice it. These writing exercises enhance students' ability to produce well-structured passages that effectively conveying their thoughts. Writing class differs from everyday writing because it requires individuals to write purposefully, drawing on personal experiences, such as composing diary entries (Kholis, 2018).

In the context of teaching and learning writing, particularly for high school students, there is an expectation that students should have a good grasp of correct writing techniques. However, the reality is that many students face difficulties when it comes to writing, primarily stemming from a lack of ideas (Badriyah et al., 2021). Based on the researchers' observations at the eleventh grade of a Senior High School in Yogyakarta, teachers may play a role in students' disinterest in writing. It is often linked to the effectiveness of the teaching methods employed by teachers. The teaching method used for writing tends to be uninspiring, with a strong focus on the teacher as the central figure and limited interaction for idea-sharing among students and between students and the teacher. Often, teachers only provide basic explanations of the material, which is not conducive to effective writing instruction. This monotonous teaching approach frequently leads to boredom among students during writing lessons, resulting in a lack of proficiency in writing for the majority of them. Many students perceive English writing as particularly challenging due to grammar requirements, which makes getting started difficult. Furthermore, they lack confidence in their writing skills and often resort to using Google and Internet translations to aid in the writing process. The researchers have identified several common issues in students' writing, including grammatical errors, verb usage, prepositions, capitalization, and tense consistency. To address these challenges in student writing, teachers can incorporate technology tools to help students identify and rectify grammatical errors. Writing ability in 11th grade is important for success because this grade prepares students for the necessary skills such as using vocabulary and grammar, improving language ability, and especially assisting them in arranging a paragraph or essay before producing accurate writing in 12th grade (Huy, 2015).

The advancement of technology in education has transformed educators' perspectives regarding the significance of fostering creativity within English teaching and learning. Teachers now have the ability to integrate technology into their English classrooms, enhancing the teaching and learning experience and capturing students' interest in the subject. Technology has proven valuable in helping students improve their language skills, including English. By utilizing technology, students can take charge of their learning processes in ways that may not be achievable through traditional methods, accessing a wealth of information (Ahmadi, 2018). Consequently, students have the opportunity to enhance their language proficiency by utilizing technology to discover language exercises and resources.

Technology can play a supportive role in enhancing one of the language skills, namely writing. While writing allows all students to express their thoughts, ideas, and experiences to readers, some individuals may struggle to convey their messages effectively in written form (Nurfiryalianti et al., 2014). This difficulty often comes from students' lack of confidence in their writing abilities, often due to deficiencies in grammar or vocabulary. To address these challenges in student writing, the researchers employed technology as a helpful tool for identifying and rectifying grammatical errors in their compositions. Specifically, the technology used was an artificial intelligence-based paraphrasing tool.

Artificial intelligence (AI) represents a technology that aims to integrate human-like thinking and problem-solving capabilities into machines. The goal is for these machines to mimic human thought processes and behaviors. AI encompasses the field of science and engineering dedicated to creating intelligent machines, particularly advanced computer programs (McCarthy, 2004). It involves enabling digital, computer-controlled robots to perform tasks typically associated with intelligent beings. One practical application of AI is QuillBot, which offers an AI-powered suite of tools. QuillBot is an online platform that provides functionalities like sentence paraphrasing, grammar checking, and summarizing lengthy text passages. It serves as a free online resource for enhancing the clarity and professionalism of written content by rephrasing sentences and phrases, detecting and preventing plagiarism, and condensing extensive text sections (Nurmayanti & Suryadi, 2023). QuillBot boasts a range of features, including sentence paraphrasing, grammar checking, plagiarism detection, co-research assistance, summarization, citation generation, and translation.

Given the array of functions offered by this tool, including its paraphrasing and grammar-checking features, the researcher considers it highly beneficial for supporting students in their

writing endeavors. It improves students' grasp of grammar by identifying and rectifying grammatical errors. The grammar checker feature is particularly valuable for composing text and aiding in language acquisition (Mozgovoy, 2011). Furthermore, its user-friendly and easily accessible checking mechanism allows it to be utilized conveniently at any time and from any location, including within educational settings, to assist students in their writing tasks, particularly when working on hortatory exposition texts.

This research focuses on hortatory exposition text, a specific type of monologue text outlined in the Curriculum 2013, which eleventh-grade students study in writing tasks. Hortatory exposition text is deemed important for senior high school students to master. Artificial Intelligence (AI) has the potential to enhance and augment various skills across different domains. AI can provide personalized learning experiences by analyzing students' strengths and weaknesses, adapting the curriculum, and recommending resources. It enhances their learning skills. Utilizing QuillBot AI to improve proficiency in writing hortatory exposition holds significance as it can capture students' interest. This approach seeks to alleviate boredom from monotonous teaching methods and aims to make teaching hortatory exposition text more engaging and effective. The researchers hypothesize that employing QuillBot AI to enhance students' skills in writing hortatory exposition will pique their interest and enthusiasm for the subject. Given these considerations, the researchers have opted to leverage QuillBot AI to facilitate and simplify the process of writing hortatory exposition for students.

LITERATURE REVIEW

The Nature of Writing

Writing is a skill that enables writers to effectively convey their thoughts and ideas through written communication, facilitating mental exchange through written messages (Knoch et al., 2016). It implies that writing represents an individual's ability to articulate their ideas in written form. Furthermore, writing is a vital skill that should be cultivated among students, especially those learning English as a foreign language in Indonesia. It is a fundamental English skill for accomplishing various academic objectives, including essays, letters, articles, journals, and more (Toba et al., 2019). However, writing is time-consuming as it entails several internal stages that require substantial time and effort.

A writer's writing process involves generating ideas, structuring and developing them, translating them onto paper, revising and refining the written content, and ultimately sharing the finished work (Oshima & Hogue 2006). Consequently, drawing from these theories, it can be concluded that writing serves as a means of communication through which thoughts are presented with clarity and appropriate written formatting, achieved through multiple writing actions.

Writers assume distinct roles and objectives in conveying their written content to their audience. Regardless of the writers' writing, their intentions should be lucid and well-defined. Writing serves two primary purposes: informative and persuasive. The first purpose is informative writing, which offers fresh knowledge on a particular subject. Typically, informative writing elucidates and offers factual information regarding events, processes, objects, places, and incidents. The second purpose is persuasive writing, which endeavors to sway readers' opinions or alter their perspectives to align with the writer's viewpoint. Writers must substantiate their arguments with sufficient evidence and authentic data to convince readers to embrace their stance. Examples of persuasive writing include hortatory exposition texts and position papers (Whitaker, 2009).

Five aspects that demand careful attention from writers while writing, as outlined by Byrne in 1993, are elaborated as follows: (1) Content, the term "content" pertains to the substance or subject matter of a piece of writing. Exceptional writing aligns the title seamlessly with its content. Effective content should be relevant, comprehensible, original, coherent, and so forth; (2) Organization, this aspect reveals the writer's grasp of how thoughts are structured. Writers must demonstrate the ability to arrange sentences into coherent and interconnected paragraphs. Achieving this requires skill in employing various linking phrases to unite and sustain the flow of paragraphs; (3) Vocabulary, in the realm of writing, selecting the most appropriate words to convey ideas concisely and clearly is of paramount importance. Maintaining consistency in vocabulary usage is critical, as researchers must fully grasp the significance of relevant terms to their subjects; (4) Grammar delves into the morphology, encompassing word forms and structures, as well as syntax, involving sentence construction. Proficiency in grammar is essential to crafting well-structured paragraphs, encompassing the use of tenses and understanding sentence structure. The eight parts of speech—verbs, nouns, pronouns, adjectives, adverbs, prepositions, conjunctions, and interjections—constitute the foundations of grammar; and (5) Mechanics, under the "Mechanics" umbrella, elements such as capitalization, punctuation, and accurate spelling come into play. Punctuation significantly

impacts how sentences convey meaning, and placing it incorrectly can alter the intended message. Accurate spelling is equally vital. To conclude, writers should emphasize these five fundamental components of proficient writing in order to produce compelling content. Mastery of these skills results in more engaging and understandable literature for readers.

Learning how to write by actively engaging in the act of writing is an integral aspect of the writing process. In writing instruction, the emphasis is placed on the writing process rather than the outcome. To produce high-quality writing, writers must navigate through various phases of the writing process. It means that a series of stages must be adhered to when crafting a text. Constructing a paragraph entails more than just stringing words together; it involves executing multiple tasks to ensure that the generated content aligns with the correct progression of the writing process. As delineated by Langan in 2006, the stages of the writing process are as follows: (1) Prewriting, the initial phase, offers writers the opportunity to explore new ideas. Prewriting encompasses any method that assists writers in generating or structuring their thoughts before embarking on the writing process; (2) Drafting is a step in which writers put their ideas into written form, organize them into a logical sequence, and construct supporting points for their topic; (3) Revising, during the revising stage, writers critically evaluate and amend their draft to determine whether the content and structure they've created are appropriate; and (4) Editing and Proofreading, in this phase, writers engage in activities aimed at rectifying spelling, grammatical, and punctuation errors. Additionally, they make adjustments to terms that are used incorrectly or inappropriately.

Hortatory Exposition Text

A text results from a social exchange of meanings (Halliday & Hasan, 1989). Indeed, a text is any finished act of communication, such as a street greeting, television advertising, a novel or a film, and so on (Knapp & Watkins, 2005). Hortatory exposition text is a form of written or spoken literature designed to guide its audience or readers on what actions should be taken or avoided. Its purpose is to persuade the audience or readers regarding specific actions that should or should not be undertaken. Compelling arguments should be supported and culminated in a proposal to bolster the central argument effectively and influence the reader's perspective. This paragraph aims to strengthen the clarification provided, necessitating the inclusion of substantial arguments as the core rationale for the presented idea.

Furthermore, hortatory exposition is categorized as an argumentative text since it articulates the writer's standpoint on a particular issue or concern, aiming to capture the reader's attention (Irwan et al., 2018). Based on the given definition, it can be concluded that a hortatory exposition is a form of writing that communicates ideas and arguments related to the topic while also furnishing various supporting details in an endeavor to sway the readers. A hortatory exposition text is crafted to convince or persuade the reader towards a specific action or viewpoint. Its primary objective is to inspire the audience by offering compelling arguments, rationales, and evidence that endorse a recommended action or proposal. The hortatory exposition text is designed to impact the reader's convictions, attitudes, or conduct concerning a particular subject or matter. It strives to steer the reader in the direction of embracing the writer's standpoint and subsequently taking appropriate action. This text genre emphasizes highlighting the merits, positive consequences, and benefits associated with adhering to the suggested course of action.

Quillbot AI

QuillBot AI is an advanced paraphrasing tool leveraging cutting-edge artificial intelligence to rephrase content effectively. The primary aim of this tool is to restructure sentences and replace words with their synonyms, all while maintaining the original content's intended meaning. Its inception traces back to 2017, founded by three computer science students: Rohit Gupta, Anil Jason, and David Silin. Since its inception, they have consistently enhanced the product's quality and introduced new features. Beyond its paraphrasing capabilities, QuillBot offers a summarization and grammar-checking tool within a single platform. QuillBot boasts some valuable features, including (1) Standard Mode, which focuses on making the text appear and sound as natural as possible while ensuring that the original meaning remains intact, and (2) Fluency Mode, which emphasizes proper English grammar and employs a more natural font style. This mode makes slight modifications to the text while preserving its intended meaning.

QuillBot is a Natural Language Processing tool harnessing the power of artificial intelligence and language processing technology to assist users in writing, summarization, and text enhancement. The primary objective of QuillBot is to aid writers and users in producing more refined and impactful written content. The available tools within QuillBot are: (1) Paraphrasing, among its core features, QuillBot excels at sentence transformation. Users can input sentences or text they wish to rephrase, and QuillBot will generate alternative versions

that retain the original meaning. This functionality proves especially valuable in mitigating plagiarism and simplifying writing tasks. Paraphrasing involves expressing the core ideas from a section of a book or research source in our own words while maintaining the original concept intact (Trivette, 2020); (2) Summarization, QuillBot is proficient at summarizing lengthy texts. By inputting articles, essays, or other documents, users can receive concise summaries that encapsulate the key points while saving time and facilitating a rapid comprehension of the content's essence; (3) Word Choice, QuillBot aids in selecting appropriate words and enhances writing style. It enhances the clarity, richness, and robustness of one's writing; (4) Grammar Checking, QuillBot possesses the ability to identify and rectify grammar issues, encompassing checks for grammatical correctness, punctuation, spelling, and common errors. Consequently, it facilitates the production of well-structured writing devoid of grammatical flaws; (5) Fluency Improvement, QuillBot can enhance the fluency and flow of written content. It can refine text to render it more natural and reader-friendly; and (6) Translation, QuillBot even offers translation capabilities, allowing users to translate text from one language to another. While automatic translation may not always be flawless, QuillBot can provide a general sense of the translated text.

Teaching Writing Using Quillbot AI

The steps in teaching writing using QuillBot AI are elaborated as follows: (1) Step 1: the instructor introduces the students to the concept of QuillBot AI, providing a comprehensive explanation of all its available features. The aim is to convey to students how QuillBot can serve as a valuable tool in addressing their writing challenges; (2) Step 2: students are tasked with composing a simple hortatory exposition text, selecting from a list of topics encompassing a thesis, supporting arguments, and a recommendation; (3) Step 3: the instructor guides students in utilizing QuillBot AI effectively; and (4) Step 4: upon completing their texts, students are instructed to employ QuillBot AI to review their writing and identify any errors. They are then directed to capture screenshots of their results, providing tangible evidence of their progress in writing.

METHODS

In this study, the researchers employed Classroom Action Research (CAR) based on Kemmis et al. (2014) paradigm consisting of two cycles, each comprising three meetings. Each

cycle encompassed four stages: planning, acting, observing, and reflecting. Classroom action research aims to improve the quality of action in the context of a social issue by integrating the participation and cooperation of practitioners, researchers, and laypeople (Mulyasa, 2009). It was a way to discover what works best in our classroom to identify a classroom solution and increase students' learning (Mettetal, 2001). The researchers conducted a preliminary study before beginning the classroom action research cycles. This preliminary study involved various activities, including interviews with the English teacher, classroom observations to identify field-specific issues, administering pre-questionnaires, and conducting pre-tests with the students. The primary goal of this preliminary study was to assess students' challenges and gather insights into the current difficulties faced by both teachers and students in the teaching and learning process, particularly in the context of writing classes. These initial findings served as a foundation for addressing and resolving these issues through the subsequent action research cycles. This study was conducted at Senior High School in Yogyakarta. The population of this study was the eleventh-grade students consisting of 100 students divided into three classes: XI IPA 1, XI IPA 2, and XI IPS 1. This study was only done in the XI IPA 2A, chosen by cluster random sampling. There were 20 students in this class, with ten male and ten female students in the 2022-2023 academic years. The instrument used for this study was a test. The writing test contained an essay about a hortatory exposition text. In analyzing the data, the researchers used descriptive and inferential statistics in the form of T-TEST using SPSS version 25.

FINDINGS

Classroom Action Research Implementation

Planning

During this phase, the researchers collaborated with the English teacher to strategize the action plan to address the identified issues. In this context, QuillBot AI was chosen as the tool to enhance students' writing skills. Discussions were held with the English teacher to determine the topic and material sources for the teaching and learning process. Several instruments were devised by the researchers for this endeavor. Firstly, a lesson plan (a) was crafted, aligning it with the existing syllabus while incorporating QuillBot AI into teaching and learning activities. The purpose of this lesson plan was to provide structure and guidance for classroom instruction. Secondly, the choice of materials (b) was based on considerations from both the English teacher and the researchers. Both collectively opted for hortatory

exposition text, given that it was part of the XI IPA 2A grade curriculum. The materials covered various aspects, including definition, purpose, generic structure, examples, and language features. The third instrument (c) was the utilization of QuillBot AI as a central element during the English teaching and learning process. QuillBot AI was the primary medium to enhance students' writing skills, particularly in composing hortatory exposition texts. Lastly, a post-test 1 (d) was prepared to select themes for students' writing tests in hortatory exposition texts. Post-test 1 was designed to collect data and assess whether there was an observable improvement in students' scores from the pre-test to the post-test phase following the integration of QuillBot AI.

Acting

In this phase, the researchers initiated the first cycle of action, which took place on June 25th, July 2nd, and 5th, 2023. The researchers executed the teaching and learning process in accordance with the pre-established lesson plan. The subsequent sections provided a detailed account of the activities and the practical implementation of teaching and learning during each session:

Meeting 1

The researchers began by familiarizing the students with the teaching and learning tools utilized throughout the learning process (see Figure 1). The researchers introduced QuillBot AI, providing a concise history of its development and elucidating its role in the writing learning process. A step-by-step demonstration was conducted to illustrate how to log in and navigate QuillBot AI effectively, covering the entire process from initiation to completion.

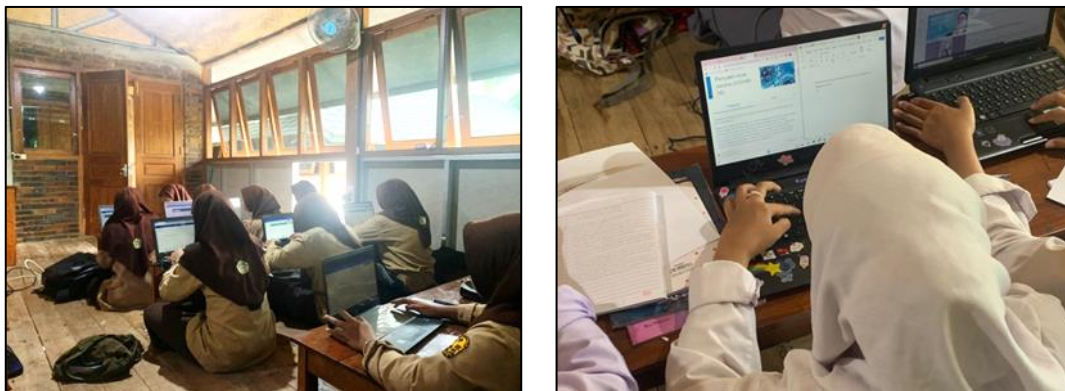


Figure 1. Introducing QuillBot AI

Furthermore, the researchers explained the writing features offered by QuillBot AI, emphasizing their potential benefits for students in their writing endeavors. Lastly, the researchers reviewed the material about hortatory exposition text, specifically focusing on the prevailing writing challenges identified in the pre-test the students undertook.

Meeting 2

In the second session, the researchers presented a video to the students, highlighting the perils associated with online gaming. Subsequently, students were tasked with crafting a hortatory exposition text, as seen in Figure 2. To aid them in organizing their thoughts, the researchers encouraged students to create a writing outline. Following this, the students were guided in structuring their hortatory exposition text according to the established generic structure, encompassing the thesis, arguments, and recommendation. In this instance, the students were instructed to compose two arguments related to the theme. As a result, they produced two paragraphs, each comprising a thesis statement and the first argument. The remaining paragraphs were deferred for the subsequent session. Upon completing these two paragraphs, students were directed to employ QuillBot AI to review their writing. However, before revising any errors in their work, students were required to capture screenshots of their writing. These screenshots served as a means to assess whether there had been any notable improvements in students' writing during the implementation of QuillBot AI.



Figure 2. Students crafted a hortatory exposition text

Meeting 3

During this session, the researchers delved into the topic of the simple present tense and elucidated its application within paragraph construction. To reinforce this understanding, the researchers assigned various exercises related to tense usage, with each student required to provide answers on the whiteboard. Subsequently, students worked on their ongoing writing

tasks from the previous session, focusing on crafting the second argument and presenting their recommendations for the theme. Upon completion, students were instructed to input their work into QuillBot AI for a final review, focusing on sentence structure and grammar. In the last segment of the session, students were tasked with analyzing and rectifying any errors in their writing. They were encouraged to reflect on their writing outcomes and identify improvement areas for forthcoming sessions.

Observing

The researchers meticulously observed the classroom's teaching and learning dynamics during this phase. This observation included assessing the classroom conditions, the level of student engagement, and any encountered challenges. In the initial meeting, the researchers systematically delivered the lesson in accordance with the established plan. However, efforts to fully engage students in the learning process were not entirely successful. The classroom atmosphere remained manageable during the first meeting, although some students contributed to a noisy and less conducive environment. There was a lack of enthusiasm among certain students when it came to learning writing using QuillBot AI. Nonetheless, there were also motivated students, albeit somewhat hesitant, to ask questions or participate in discussions.

Moving to the second meeting, the researchers introduced QuillBot AI again and initiated its integration into the writing class. The researchers provided comprehensive explanations pertaining to hortatory exposition text. However, the activity level in the teaching and learning process remained somewhat subdued. Some students displayed reluctance to complete their tasks, particularly when it involved writing. Additionally, a few students struggled to grasp the intricacies of QuillBot AI during the explanation.

In the third meeting of the first cycle, students appeared more focused and actively engaged in the writing-learning process. Many students were eager to seek clarification on issues related to their writing errors while using QuillBot AI. During this meeting, the researchers observed a significant improvement in students' attitudes toward one another. It was evident as students began assisting their peers in using QuillBot AI to review their writing. Furthermore, students demonstrated a serious approach when asked to reflect on their writing results from the current session compared to their previous work, following the utilization of QuillBot AI.

Reflecting

Based on the observations from the first meeting to the post-test 1, the researchers assessed the outcomes achieved in the initial cycle. Evidently, several issues persisted, preventing students from meeting the minimum passing score (KKM). The analysis of students' writing in post-test 1 revealed persistent challenges. Students continued to struggle with the organization of complex sentences. Furthermore, grammatical errors were prevalent, particularly in using simple present tense, passive sentences, and adjective clauses. The results indicated that using passive sentences, particularly, posed difficulties for students.

In light of these reflections, the researchers concluded that the first cycle of Classroom Action Research had not yielded satisfactory results in enhancing students' writing proficiency. It could be characterized as unsuccessful, given that 75% of students failed to achieve the target score or pass the minimum mastery criterion (KKM). Consequently, the researchers opted to proceed with the second research cycle.

Descriptive and Inferential Statistic

Table 1. The result of the post-test

| No | Name | C | O | V | G | M | Total Score |
|-----|------|----|----|----|----|---|-------------|
| 1. | A | 20 | 15 | 17 | 20 | 3 | 75 |
| 2. | B | 20 | 15 | 17 | 20 | 3 | 75 |
| 3. | C | 25 | 17 | 19 | 17 | 4 | 82 |
| 4. | D | 26 | 18 | 17 | 18 | 4 | 83 |
| 5. | E | 17 | 17 | 15 | 18 | 4 | 71 |
| 6. | F | 26 | 18 | 18 | 18 | 3 | 83 |
| 7. | G | 23 | 14 | 20 | 18 | 4 | 79 |
| 8. | H | 20 | 15 | 15 | 21 | 4 | 75 |
| 9. | I | 16 | 13 | 14 | 17 | 3 | 63 |
| 10. | J | 26 | 17 | 17 | 20 | 4 | 84 |
| 11. | K | 25 | 17 | 17 | 20 | 4 | 83 |
| 12. | L | 19 | 15 | 17 | 17 | 3 | 86 |
| 13. | M | 25 | 10 | 18 | 17 | 3 | 73 |
| 14. | N | 22 | 15 | 17 | 20 | 4 | 78 |
| 15. | O | 22 | 17 | 17 | 21 | 4 | 81 |
| 16. | P | 26 | 18 | 17 | 21 | 4 | 86 |
| 17. | Q | 25 | 17 | 17 | 21 | 4 | 84 |
| 18. | R | 27 | 18 | 17 | 20 | 4 | 78 |
| 19. | S | 25 | 17 | 17 | 21 | 4 | 84 |
| 20. | T | 17 | 17 | 17 | 20 | 4 | 75 |

Based on the values in Table 1, the data is calculated using SPSS. The result of the post-test calculation can be seen in the table below:

Table 2. The result of the post-test value calculation

| Nominal | Description |
|---------|--------------------|
| 78.90 | Mean |
| 80 | Median |
| 75 | Mode |
| 5.875 | Standard Deviation |
| 23 | Range |
| 63 | Minimum |
| 86 | Maximum |

According to Table 2, the average post-test score is 78.90, with a median value of 80, a mode value of 75, a standard deviation of 5.875, a range of 23, a lowest score of 63, and a maximum score of 86.

Normality Test

A normality test was conducted using the Kolmogorov-Smirnov formula within the SPSS program to determine whether the data follows a normal distribution. If the calculated significance value is greater than 0.05, the data is considered to be normally distributed. Conversely, if the calculated significance value is less than 0.05, the data is deemed to deviate from a normal distribution (Widana & Muliani, 2020). The outcome of the normality test is presented in the table below:

Table 3. Normality test result

| Data | Kolmogorov-Smirnov | | | Description |
|-----------|--------------------|----|-------|-------------|
| | Statistic | Df | Sig. | |
| Pre-test | 0.157 | 20 | 0.200 | Normal |
| Post-Test | 0.157 | 20 | 0.200 | Normal |

According to Table 3, the value of Sig. on the pre-test is 0.200, and the value of Sig. on the post-test is 0.200. These findings showed that the pre-test and post-test values are larger than 0.05. It can be concluded that the data is normally distributed.

Homogeneity Test

Homogeneity of variance was assessed to determine if the samples selected from the population exhibited significant differences among themselves. To examine the Levene test, the researchers employed analysis of covariance within SPSS Program version 25. In this context, the assessment of variance similarity was based on two criteria: (1) if the significance value or probability was less than 0.05, the variances were considered non-identical or non-

homogeneous, and (2) if the significance value was greater than 0.05, the variances were deemed identical or homogeneous.

Table 4. Homogeneity test result

| Data | Levene | Sig. | Description |
|-----------|--------|-------|-------------|
| Post-test | 3.374 | 0.060 | Homogeneous |

From Table 4, the Levene value of the post-test result was 3.374, while the Sig. value on the post-test value was 0.060. It can be concluded from the data that the result indicated the Sig. value > 0.05 . So, the data was homogeneous.

Paired Sample T-Test

In this study, the hypothesis was tested using a paired sample t-test. This test examined whether a significant difference exists in the average scores of writing hortatory exposition texts between two sets of paired data. The outcomes of this analysis aimed to demonstrate whether the utilization of QuillBot AI impacted eleventh-grade students' writing ability in crafting hortatory exposition texts.

The paired sample t-test analysis was conducted using the SPSS program. The formulation of the research hypothesis and decision-making guidelines for the paired sample t-test are elucidated below:

Table 5. Paired sample t-test result

| | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|--------------------|-------------------|-----------------------|---------------------------------------|-----------|---------|----|--------------------|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval Difference | | | | |
| | | | | Lower | Upper | | | |
| Pair 1 Pre- test Post- Test | -25.35000 | 8.29251 | 1.85426 | -29.23102 | -21.46898 | -13.671 | 19 | 0.000 |

As indicated in Table 5, the Sig. (2-tailed) value is 0.000. When the Sig. (2-tailed) value is less than 0.05, H_0 is rejected, and H_a is accepted. It leads to the conclusion that there is an average discrepancy between the pre-test and post-test results, signifying the impact of using QuillBot AI on enhancing the writing ability of eleventh-grade students in crafting hortatory exposition texts. Moreover, the paired sample t-test output table also details the "Mean Paired Differences," which is -25.35000. This value represents the distinction between the average pre-test and post-test learning outcomes, calculated as $53.55 - 79.20 = -25.35000$. The

difference falls within the range of -29.23102 to -21.46898 (95% Confidence Interval Difference of Lower and Upper).

DISCUSSION

Evaluating students' writing scores was crucial for this research. Consequently, the researchers solely employed a test as the data collection tool. The chosen test format was a writing test designed for hortatory exposition texts.

The decision to employ hortatory exposition texts was driven by their alignment with the curriculum for eleventh-grade students. The test required students to adhere to the generic structure of a hortatory exposition text, encompassing thesis statements, argumentation, and recommendations. The topic assigned by the teacher for the writing test revolved around health, specifically whether wearing masks could effectively prevent the spread of the COVID-19 virus. Students were tasked with watching an instructional video in Indonesian, following which they could commence writing their hortatory exposition texts based on their acquired knowledge. Regarding data collection, the researchers opted to exclusively employ the test as the data-gathering instrument, as the primary objective was to assess students' written responses. Data analysis encompassed two distinct techniques: descriptive statistics and inferential statistics. Descriptive statistics computed students' hortatory exposition text scores' mean, median, mode, standard deviation, and minimum and maximum values. On the other hand, inferential statistics were employed to identify significant differences.

Following the data collection phase, the researchers conducted an analysis employing the paired sample t-test utilizing the SPSS program version 25. The results of this analysis indicated that the utilization of QuillBot AI had a discernible impact on students' performance in writing hortatory exposition texts. The mean or average values of pre-test and post-test scores were presented in the table below for reference.

Table 6. Students' pre-test and post-test average scores comparison

| Description | Students' Score | |
|-------------|-----------------|-----------|
| | Pre-test | Post-Test |
| Mean | 53.55 | 78.90 |
| Median | 51 | 80 |
| Mode | 51 | 75 |
| Minimum | 45 | 63 |
| Maximum | 68 | 86 |

Table 6 illustrates a distinct disparity between the average pre-test outcomes, with a mean score of 53.55, and the post-test, with a mean score of 78.90. This finding aligned with the result of the paired sample t-test, demonstrating significant distinctions in the pre-test and post-test values for writing hortatory exposition texts.

Table 5 reveals that the probability score is 0.000, lower than the 5% significance level (0.05) for a two-tailed test. Consequently, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. It implies a significant difference between the pre-test and post-test scores, signifying an improvement in student achievement in writing. This enhancement can be attributed to using QuillBot AI as a media tool combined with a problem-based learning approach.

The use of QuillBot AI as a media tool in conjunction with a problem-based learning approach can lead to a multifaceted enhancement in the educational context. Firstly, QuillBot AI's capacity to assist with paraphrasing and improving written content can be particularly valuable in a problem-based learning environment. Students are frequently required to document their problem-solving processes, and clear and coherent communication is essential. QuillBot can help students express their ideas more effectively, ensuring that their solutions and thought processes are articulated so that peers and instructors can easily understand. The real magic happens in the synergy between QuillBot AI and problem-based learning. As students grapple with real-world problems and collaborate on solutions, they can use QuillBot AI to refine their written explanations and reports. This combination improves their problem-solving skills and hones their communication and writing skills, which are crucial in conveying their ideas effectively to others. The results align with previous research by Nurmayanti and Suryadi (2023) at the University of Riau, Riau, which also concluded that QuillBot AI was highly effective in enhancing students' writing abilities. Furthermore, similar outcomes were reported in the research by Kurniati & Fithriani (2022), which found that post-graduate students responded positively to using Quillbot to improve their writing quality, noting several benefits, including enhanced attitudes toward writing, user-friendly writing features, and language development support.

In summary, QuillBot AI has the potential to significantly enhance students' writing skills, particularly in the context of hortatory exposition texts. By offering improved word suggestions, modifying sentences, and enhancing sentence structure, QuillBot AI can help students become better writers. QuillBot AI provides various writing enhancement tools that can assist students at multiple stages of the writing process. These tools include grammar and

spelling checks, style suggestions, and vocabulary enhancements. Using these features, students can identify and correct errors and refine their writing to make it more precise and coherent. One of QuillBot's notable features is its ability to paraphrase and rewrite text. It is particularly useful for students who may struggle with expressing ideas in their own words or want to avoid plagiarism. QuillBot can help them rephrase sentences and paragraphs while retaining the original meaning, thus promoting originality and better writing skills. These findings underscore the effectiveness of QuillBot AI as a tool for writing classes, especially for hortatory exposition texts, where students are required to present clear arguments. This approach stands in contrast to traditional teacher-centered techniques, where students may lack motivation and interest in writing activities. Based on the research findings and analysis, it is highly recommended to incorporate QuillBot AI to improve the writing abilities of eleventh-grade students, particularly in class XI IPA 2A.

CONCLUSION

In summary, the description and discussion of the results indicate a significant improvement in students' ability to write hortatory exposition texts. It is evident from the increase in average scores, with the pre-test averaging 53.55 and the post-test averaging 78.90. The statistical significance is supported by a Sig. (2-tailed) value of 0.000, indicating that when the Sig. score is < 0.05 , there is a treatment effect. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted.

Consequently, it can be concluded that there is an average difference between pre-test and post-test learning outcomes, demonstrating the effectiveness of using QuillBot AI to enhance the writing ability of students in class XI IPA 2A, particularly in writing hortatory exposition texts. QuillBot AI has proven to be a valuable tool in helping students improve their writing skills. QuillBot AI contributes to a notable enhancement in students' writing abilities by providing enhanced word suggestions and modifying sentences while improving sentence structure. This positive impact is further supported by feedback from both teachers and students who expressed positive responses to the use of QuillBot AI, emphasizing its role in enhancing students' abilities and confidence in writing. Based on the results, it can be confidently concluded that QuillBot AI is an effective AI tool for improving students' writing skills.

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