The effectiveness of Memrise application on student's English writing in junior high school

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A B S T R A C T

Indonesian students face various challenges in writing English, especially when composing descriptive texts due to limited vocabulary and low motivation. This study aims at test the effectiveness of the Memrise application in improving students' writing skills in descriptive texts. This study was conducted at SMP Namira, Probolinggo City using a quasi-experimental design with a nonequivalent control group design. This study involved two classes: an experimental class, which used the Memrise application in learning, and a control class, which used quasi-experimental methods. The results showed that the use of Memrise helped students improving their vocabulary, sentence structure, and writing organization. After conducting validity, reliability, normality, and homogeneity tests, it was found that the data met statistical requirements. Hypothesis testing showed that there was a significant difference in students' writing achievement between the experimental and control groups, concluding that Memrise was effective in improving writing performance. Based on these findings, it is recommended for English teachers to utilize the Memrise application as a learning medium to support students' vocabulary and writing development. Future researchers are encouraged to explore the use of Memrise in other English language skills or different educational level.

1. INTRODUCTION

Writing is one of the fundamental skills in English language learning that enables learners to convey information, express ideas, and communicate effectively in written form. However, for many Indonesian junior high school students, writing in English poses significant challenges. These include limited vocabulary, difficulty with grammar and sentence structure, and low motivation(Aryuntini et al., 2018; Mustaidah et al., 2025; Nalliveettil & Mahasneh, 2017). In particular, composing descriptive texts, texts that require detailed explanation of a person, place, or object, demands a good mastery of vocabulary and organization.

The situation is similar at SMP Namira Kota Probolinggo, where students reportedly have a low ability in writing due to limited exposure to English, minimal classroom hours (only two hours per week), and a lack of motivation. Teachers noted that students often find English difficult and are reluctant to complete writing tasks. This indicates an urgent need for innovative and engaging teaching strategies to support student learning.

One effective approach to improve students' engagement and learning outcomes is the integration of educational media. Research by Lubis et al. (2023) suggests that the use of learning

media can significantly enhance student motivation and improve writing performance. Ulum et al.(2024) add that media serves as an essential complement to teacher-centered instruction, especially when technology is integrated. In line with this, previous research has shown that creative media, such as poetry-based instruction, can significantly improve EFL students' motivation and writing performance by encouraging more expressive idea development in written form Sholihin et al. (2023). Among various available applications, Memrise stands out as a vocabulary-learning platform that uses spaced repetition, mnemonic devices, and game-like activities to aid memorization and learner engagement.

Memrise is a digital language-learning platform developed in 2010 by Ed Cooke, Ben Whately, and Greg Detre, a neuroscientist from Princeton University. It provides vocabulary learning through multimedia features such as images, pronunciation videos, and mnemonic aids that help users connect words with visual cues(Łuczak, 2017). The application is based on the principles of spaced repetition and mnemonic learning, which emphasize repeated exposure at strategic intervals to strengthen long-term memory. In addition, Memrise employs gamification elements—points, leaderboards, and progress tracking—that enhance user motivation and engagement(Loewen et al., 2019). From a pedagogical perspective, Memrise serves as a learner-centered tool that supports autonomous and technology-integrated learning, complementing traditional classroom instruction.

Memrise has been shown to improve vocabulary mastery among students in different contexts. For example, Taebenu and Katemba (2021) demonstrated that Memrise, combined with Google Classroom, significantly improved students' vocabulary scores. Similarly, Nuralisah and Kareviati (2020) reported positive results in vocabulary learning using Memrise with seventh-grade students. Santri (2020) also found that Memrise effectively enhanced vocabulary retention in high school learners. However, these studies focus solely on vocabulary acquisition and do not address whether Memrise contributes to broader language skills such as writing.

To address this gap, the present study investigates the effectiveness of Memrise in improving students' English writing skills specifically in producing descriptive texts. The research scope is intentionally limited to a specific group of students to ensure a more controlled and focused investigation. The participants consist only of male students from SMP Namira Kota Probolinggo, which allows the research to maintain consistency in classroom dynamics and learning conditions. This clarification is essential to define the boundaries of the study and to avoid overgeneralizing the findings beyond the selected group. This research adopts a quasi-experimental method involving pre-tests and post-tests to compare the performance of students who use Memrise against those who follow conventional instruction. The novelty of this study lies in applying Memrise beyond vocabulary learning and into the context of writing development. The findings are expected to offer practical implications for integrating digital applications into classroom instruction to support students' writing abilities in junior high school.

2. METHOD

2.1. Research Design

This study investigated the impact of utilizing the Memrise application on students' writing abilities by applying a quasi-experimental research design. The researcher employed experimental research as a form of quantitative methodology. According to Khotari (2004), quantitative research is fundamentally concerned with measuring quantities or amounts. In other words, this study aims to assess the extent or level of the observed subjects.

The researcher involved two classes in this study. The first class, serving as the experimental group, received special treatment through the use of the Memrise application for writing instruction. In contrast, the second class, which functioned as the control group, did not receive any treatment. The research was conducted using a quasi-experimental design, specifically the Nonequivalent Control Group Design type. A quasi-experiment is a research method that places participants into groups based on their own choices or the researcher's decisions, rather than random selection, to test the effectiveness of a treatment or intervention under real-world conditions(Maciejewski, 2020). This type of research is used when it is difficult to randomly assign students to different groups(Indrasari et al., 2018). By comparing the two groups, the researcher was able to understand how effective Memrise was in helping students on their writing skills. The following was an explanation of this research design according to (Sugiono, 2016).

Table 1. Formula of Quasi Experimental (Nonequivalent Control Group Design)

Classes	Pre-test	Treatment	Post-test
Experimental Class	O_1	X	O_2
Control Class	O_1		O_2

O_1 : Pre-Test
O_2 : Post-Test
X : Treatment

Based on the academic equality of students, the researcher chose a class from the design that had been written above. The aim of this study was to examine whether the use of the Memrise application had an impact on the experimental class. This treatment carried out five times including pretest and posttest in the experimental class with various lesson plans and the Memrise application. In control class the researcher delivered the material as usual without applying any treatment using the Memrise application. The control class consisted of 29 students and the experimental class consisted of 30 students. Based on this plan, the researcher aimed to determine whether the use of the Memrise application had a significant positive impact on the writing skills of eighth-grade students at SMP Namira Kota Probolinggo.

The researcher compared the post-test results of both the experimental and control groups. This study aimed to identify whether there was a difference in writing performance between the control group, which did not use the Memrise application, and the experimental group, which utilized it for writing practice.

2.2. Subject of Study

The population of this study consisted of eighth-grade students at SMP Namira Kota Probolinggo. Participants were selected using purposive sampling based on academic equivalence, as identified through teacher interviews and classroom observations(Amin et al., 2023; Etikan et al., 2015). Two classes were chosen: one as the experimental group using the Memrise application, and the other as the control group receiving traditional instruction. To maintain consistency with the school's gender-segregated policy, only male classes were selected. This decision was also supported by findings that, while female students perceived technology as beneficial, they reported less enjoyment in learning with technology compared to their male counterparts(Yau & Cheng, 2012).

2.3. Research Instrument

Tools or instruments were needed to achieve research objectives, so researcher must prepare the required instruments according to the desired objectives(Sukendra & Atmaja, 2023). The data in this study were collected using an English writing test that focused on descriptive text. Two types of tests were administered: a pre-test and a post-test. In each test, students were required to

write a composition based on a given topic. Each test was allocated 2 x 40 minutes (one session) for writing the descriptive text. The composition took the form of a short essay followed by six related questions. This number is considered sufficient to measure students' writing skills comprehensively. Essay tests generally consist of 5 to 10 questions that are completed in about 80 to 120 minutes, and are designed to assess students' ability to organize and develop ideas in writing.

The instrument used in this study was an essay test for the pre-test and post-test with different topics but still measuring the same competency, namely the ability to write descriptive texts. The difference in questions is intended to avoid the effect of familiarity on the questions. Pre-tests and post-tests can be carried out in different situations as long as they still aim to measure the development of participants' knowledge of the material being taught(Latimier et al., 2019). Although the pre-test and post-test had different sets of questions, both were aimed at assessing students' writing skills and determining their final scores.

The pre-test was administered prior to the implementation of the treatment, while the post-test was given afterward. These tests were designed based on the curriculum framework for eighth-grade junior high school students (Ministry of National Education, 2006). The assessment instruments were developed by referring to the Standard Competencies and Basic Competencies outlined in the School-Based Curriculum for the second semester of Grade VIII. The content specifically corresponds to the English curriculum for eighth-grade students in the second semester. The researcher used a scoring rubric adapted from Anderson (2005) to grade the students' writing test. The categories for evaluating writing are presented in appendix VI Rubric Score

2.4. Data Collection

The data collection in this study was carried out in three stages: pre-test, treatment, and post-test. In the pre-test, students in both the experimental and control groups were given a descriptive writing task about a male family member. This initial test was designed to assess students' baseline writing skills, including vocabulary usage, sentence structure, and content organization. The task was aligned with the curriculum and intended to provide a measurable starting point for later comparison.

During the treatment phase, the experimental group received instruction using the Memrise application over three sessions. The app introduced students to vocabulary related to family, which was then applied to writing descriptive paragraphs. Learning activities included guided vocabulary practice, group collaboration, and individual writing tasks. Meanwhile, the control group received the same material through conventional teaching without Memrise. After the intervention, a post-test was administered using a different prompt—this time about a female family member—to evaluate any improvements in descriptive writing skills. The students' performance was assessed using a rubric adapted from Anderson (2005), ensuring consistency and validity in scoring(Sukendra & Atmaja, 2023).

3. RESULTS AND DISCUSSION

The results of the pre-test and post-test for both the experimental and control groups are presented in Table 1. These results illustrate the differences in writing comprehension performance before and after the intervention.

Table 2. Result of Quasi Experimental (Nonequivalent Control Group Design)

Group	Pre-test Average	Post-test Average	Difference
Experimental	54.10	65.63	11.53
Control	53.07	84.80	31.27

The data shows that both the experimental and control groups experienced an increase in average scores from the pre-test to the post-test. However, the control group demonstrated a significantly larger improvement (31.27 points) compared to the experimental group (11.53 points). This suggests that the intervention or condition applied to the control group may have been more effective in enhancing performance than the one used with the experimental group.

A normality test was performed on the pre-test and post-test data of students' writing abilities in this study. The purpose of the normality test was to determine if the collected data follows a normal distribution. The test was carried out using IBM SPSS 26 Statistics for Windows, with the Shapiro-Wilk method applied, as the sample size was less than 50. The data is considered normally distributed if the significance value exceeds 0.05. This section will present the results of the normality test, ensuring that the data in this study aligns with the assumption of normal distribution. Below are the results of the normality test:

Table 3. The results of the normality test

Tests of Normality

	KELAS	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig
HASIL	PRE-CONT	.101	29	.200*	.976	29	
	POST-CONT	.155	29	.071	.934	29	
	PRE-EKS	.084	30	.200*	.977	30	
	POST-EKS	.160	30	.048	.940	30	

According to the table, the probabilities or Sig. (Shapiro-Wilk) values for the two classes are as follows: 0.740 for the pre-test control class, 0.071 for the post-test control class, 0.747 for the pre-test experimental class, and 0.092 for the post-test experimental class. Since the Sig. values are greater than α (0.05), we reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). This indicates that all the data collected follows a normal distribution.

Homogeneity test is used to determine whether the data obtained has similarities or not. This test is conducted to analyze posttest data on students' writing ability between the experimental class and the control class. Data is said to be homogeneous if the significance value is more than 0.05. This test is carried out with the help of IBM SPSS 26 Statistics for Windows software to ensure that the data from both groups have similar variances, so that they can be compared objectively. The following are the results of the homogeneity test that has been carried out in this study:

Table 4. The results of the homogeneity test

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
HASIL	Based on Mean	11.023	3	114	.000
	Based on Median	9.965	3	114	.000
	Based on Median and with adjusted df	9.965	3	90.691	.000
	Based on trimmed mean	11.082	3	114	.000

According to the homogeneity test results, if the significance value is less than 0.05, it indicates that the data is not homogeneous, whereas a significance value greater than 0.05 suggests that the data is homogeneous. In the homogeneity test shown in the table above, the significance value for Based on Mean is 0.00. Since this value is less than 0.05, it can be concluded that the data is non-homogeneous.

After confirming that the data is normally distributed but not homogeneous for students' writing abilities, the analysis proceeded with a nonparametric test. In the final step, the researcher examined the data to assess whether there was a significant difference between the class using the Memrise application and the class not using it. To replace the Independent Sample T-Test, the Mann-Whitney U test was utilized. This test was conducted using IBM SPSS 26 Statistics for Windows software to compare the post-test results of the experimental class and the control class. The results of the Mann-Whitney U test related to students' writing ability are presented in the following table:

Table 5. The results of Statistics Test

Test Statisticsª

	HASIL
Mann-Whitney U	.000
Wilcoxon W	465.000
Z	-6.669
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: KELAS

The results of the Mann-Whitney U test shown in the table indicate a significance value of 0.000. Since the significance value is less than 0.05, it can be concluded that H1 is accepted and H0 is rejected. Therefore, it can be concluded that the use of the Memrise application is effective in improving students' writing skills at SMP Namira Kota Probolinggo.

The findings of this study demonstrate that the Memrise application has a notable impact on enhancing students' writing skills in descriptive texts. This is evident from the difference in the average scores of students in the experimental class after using the Memrise application, in contrast to the control class, which followed traditional teaching methods. This study provides a new contribution, different from previous studies by Taebenu & Katemba(2021), Nuralisah & Kareviati(2020) and Santri (2020) which focused more on vocabulary mastery. This study expands the function of Memrise not only as a medium for introducing vocabulary, but also as a tool that supports writing productivity.

This is evidenced by the increase in the average score of students in the experimental class after being given treatment in the form of learning using the Memrise application, compared to the control class which only used conventional methods. The experimental class recorded an increase in scores from 53.07 to 84.80, while the control class only increased from 54.10 to 66.52. This difference shows that the use of digital media in the writing learning process provides more effective results than traditional methods. The increase in writing performance is closely linked to vocabulary mastery, which plays a fundamental role in students' writing development. As stated by Farooq (2012) without a sufficient vocabulary base, students struggle to express ideas effectively in writing. Therefore, the Memrise application, by reinforcing vocabulary in a structured and engaging way, supports students not only in learning new words but also in using them to build coherent, varied, and well-organized descriptive texts—demonstrating its effectiveness in improving junior high school students' English writing.

Post-test results showed significant differences in students' writing performance, as measured by a scoring rubric adapted from Anderson (2005) which assessed six main aspects:

ideas and development, organization, vocabulary, sentence structure, capitalization and punctuation, and spelling. The most significant gains were found in vocabulary and ideas and development, indicating that Memrise use effectively on students' word choice and their ability to elaborate on topics with clearer and more developed ideas. Students also demonstrated better organization in structuring their paragraphs, and improvements in sentence structure were evident through fewer grammatical errors and greater variation in sentence length. In addition, the number of errors in mechanics such as punctuation, capitalization, and spelling decreased, indicating greater attention to writing conventions

Overall, the results of this study indicate that the integration of technology into writing learning, especially through the use of Memrise, can improve the effectiveness of learning. This application not only helps students enrich their vocabulary, but also encourages them to build better sentence structures and more coherent writing. In addition, students also showed increased confidence in writing because the learning process was fun and not boring. Although challenges such as internet access, time constraints, and variations in technological abilities among students still need to be considered, this study proves that digital-based learning can be an effective strategy to improve students' writing skills in the modern era.

4. CONCLUSION

The results of the research indicate that the use of the Memrise application has a positive and significant effect. In other words, the application has an impact on improving the writing skills of eighth-grade students at SMP NAMIRA Kota Probolinggo. The average post-test score in the experimental class was 84.80, while in the control class, it was 66.52 This significant difference indicates that the interactive features of Memrise, such as vocabulary repetition, engaging exercises, and structured learning, contribute to students' ability to construct well-organized descriptive texts. Furthermore, the N-Gain test results demonstrated that students in the experimental class achieved a higher level of improvement compared to those in the control class. This suggests that the Memrise application effectively supports the enhancement of students' vocabulary, sentence structuring, and overall writing skills.

Based on the results, it is recommended that students make consistent use of digital learning tools like Memrise to enhance their vocabulary and sentence construction in writing. Teachers are encouraged to integrate Memrise into classroom instruction, particularly in teaching descriptive texts, to support more engaging and effective learning. For future researchers, it is suggested to explore the application of Memrise in teaching other types of writing, such as narrative or argumentative texts, and to investigate its integration with other digital platforms to further enrich language learning experiences.

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