

THE EFFECTIVENESS OF USING BAAMBOOZLE DIGITAL GAMES TO IMPROVE STUDENTS' VOCABULARY ACHIEVEMENT IN 8TH GRADE OF JUNIOR HIGH SCHOOL

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Abstract

Vocabulary is a key component of learning English, teachers must use engaging and successful teaching techniques. The Baamboozle game platform is one digital learning resource that can help with vocabulary acquisition. The purpose of this study was to determine whether eighth-grade students at SMP Negeri 4 Adiwerna might improve their vocabulary achievement by playing Baamboozle digital games. Additionally, it looked at whether students who learnt using Baamboozle and those who received traditional education differed significantly in vocabulary achievement. This study used a quasi-experimental research design with a quantitative methodology. The sample contained 60 eighth-grade students from SMP Negeri 4 Adiwerna in the 2025/2026 academic year, with Class VIII D serving as the experimental group and Class VIII F serving as the control group. Pre-tests and post-tests were used to gather data, and SPSS was used to analyze the results using the paired samples t-test, independent samples t-test, normality, and homogeneity tests. Students' vocabulary achievement significantly improved following the treatment, according to the paired samples t-test results, which had a significance value (2-tailed) of 0.000 (<0.05). Additionally, the independent samples t-test revealed a significant difference between the experimental and control groups' post-test scores, with a significance value (2-tailed) of 0.035 (<0.05). Thus, it can be said that Baamboozle digital games are useful for raising students' vocabulary attainment and can be utilized as alternative teaching instrument to provide more interesting and successful vocabulary learning.

Keywords: Baamboozle Digital Games; Vocabulary Achievement;

1 INTRODUCTION

English is an international language and a compulsory subject in Indonesian schools. However, many students still experience difficulties in learning English, particularly in mastering vocabulary. Vocabulary is one of the most important components of language learning because it supports students in understanding and using English effectively. Sulistianingsih et al., (2019) Vocabulary refers to numbers of words, and it is the most essential component of language development. Well-built vocabulary skills can improve students' language learning by answer questions, understand sentences, and also the students will be able to write English language effectively. Students with sufficient vocabulary knowledge can communicate more easily and develop their listening, speaking, reading, and writing skills (Munir, 2016). Similarly, Hariati (2020) explains that vocabulary mastery refers to students' ability to recognize, understand, and use words appropriately in different contexts. Therefore, improving students' vocabulary achievement is an essential goal in English language teaching.

To support vocabulary learning, teachers need to provide learning activities that encourage students to participate actively in the classroom. One way to achieve this is by integrating technology into the learning process. Baamboozle is a web-based educational platform that provides interactive game-based activities for classroom learning (Nabila, 2023). Through its features, students can practice vocabulary in an enjoyable learning environment while increasing their participation and motivation during classroom activities. Wulandari et al. (2024) also emphasize that vocabulary learning becomes more effective when students are actively engaged in meaningful and interactive learning experiences.

Several previous studies have reported that Baamboozle has positive effects on English language learning. However, most of these studies focused on students' perceptions or employed classroom action research and pre-experimental designs. Studies applying a quasi-experimental design to compare Baamboozle with conventional teaching methods are still limited, particularly at the eighth-grade junior high school level. Therefore, this study aims to investigate the effectiveness of using Baamboozle Digital Games to improve

the vocabulary achievement of eighth-grade students at SMP Negeri 4 Adiwerna. The findings are expected to provide evidence on the effectiveness of Baamboozle as an alternative instructional medium for vocabulary learning.

2 METHODOLOGY

The importance of Baamboozle Digital Games in improving students' vocabulary achievement was investigated in this study utilizing quantitative research and a quasi-experimental methodology. Mertler (2022) defines quantitative research as a methodical approach to investigation that uses statistical analysis and numerical data to look at the correlations between variables, test hypotheses, and provide objective answers to research problems. 60 eighth-grade students participated in the study, which was carried out at SMP Negeri 4 Adiwerna during the 2025–2026 school year. Class VIII D served as the experimental group, while Class VIII F served as the control group. 30 multiple-choice questions from a vocabulary pre-test and post-test were used to gather data. While the control group got traditional instruction over the course of eight meetings, the experimental group was instructed utilizing Baamboozle Digital Games. With a significance threshold of 0.05, SPSS was used to analyze the data using paired samples t-test, independent samples t-test, and normality and homogeneity tests.

The implementation of Baamboozle Digital Games: In the experimental class, the teacher first introduced the learning objectives and explained the rules of the Baamboozle game. The students were divided into several teams. The teacher displayed the Baamboozle game using a projector, and each team took turns selecting numbered boxes containing vocabulary questions related to the lesson topics, namely Simple Past Tense, Synonyms, and Degrees of Comparison. Students discussed the answers collaboratively before giving their responses. Correct answers earned points, while the game also included interactive features such as bonus points, steal points, swap points, and boom, which increased students' engagement and motivation throughout the learning process. The teacher provided immediate feedback by explaining the correct answers and reinforcing the target vocabulary after each question. Using the same format as the pre-test, both classes finished a post-test at the conclusion of the treatment session. After that, the test results were examined to see if using Baamboozle Digital Games considerably raised students' vocabulary achievement when compared to the conventional teaching approach.

During the first and second sessions, the writer explained the definition, purpose, and usage of regular and irregular verbs in recount narratives of the Simple Past Tense. Students were given examples like finished and written to assist in their understanding and recall of the subject material.

In the third and fourth sessions, the author used descriptive texts to teach Degrees of Comparison and Synonyms. Students were encouraged to construct their own sentences, such as comparing two objects using comparative phrases and identifying terms with comparable meanings, while the ideas were explained with relevant examples.

In the fifth and four sessions marked the beginning of the implementation of Baamboozle Digital Games. Following a review of the earlier materials, the author split the students into groups and went over the rules of the game. Simple Past Tense was the subject of the sixth meeting, while Synonyms and Degrees of Comparison were the emphasis of the fifth. Throughout the exercises, students recorded any new terminology they picked up and collaboratively debated the solutions.

In the seventh and eighth sessions, Baamboozle Digital Games continued to be used to review all learning materials, including Simple Past Tense, Synonyms, and Degrees of Comparison. Students completed various vocabulary tasks, such as identifying synonyms, using comparative forms, and recognizing past-tense verbs. The writer provided feedback and explanations after each activity to strengthen students' understanding and vocabulary mastery.

3 RESULTS

The results of this study show that eighth-grade junior high school students' vocabulary achievement can be improved with Baamboozle Digital Games. The paired samples t-test results, which demonstrate that the significance value (Sig. (2-tailed) = 0.000) is less than the significance level of 0.05, corroborate this conclusion. As a result, there was a significant difference between the students' pre-test and post-test results following their instruction with Baamboozle Digital Games. The majority of the learning process was carried out using traditional teaching techniques, in which the teacher dominated the explanation of the subject. As a result, during the class, students tended to be less engaged, passive, and unmotivated.

3.1 Data Analysis

After conducting the research, the researcher analyzed the data collected from the pre-test and post-test of both the experimental and control groups. The analysis aimed to compare the vocabulary achievement of eighth-grade students at SMP Negeri 4 Adiwerna who learned through Baamboozle digital games with those who received conventional instruction. This chapter presents the results of the data analysis using descriptive statistics, normality and homogeneity tests, as well as paired-samples and independent-samples t-tests.

3.1.1 Descriptive Statistics

Descriptive statistics were used to collect and present the research data. The number of students that participated in the study, which represents the variety of the data examined, is one of the statistics that clearly and methodically describe the dataset. Before doing more analysis, this information is crucial for characterizing the general state of the data. To further illustrate the range and distribution of the students' results, descriptive statistics also include metrics like the minimum and highest scores. These metrics help in locating extreme values that could affect how the study's findings are interpreted.

Table 1. Descriptive Statistics.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest Experimental	30	30	80	58.20	13.499
Post-test Experimental	30	53	100	76.67	12.338
Pretest Control	30	36	86	58.30	14.295
Post-test Control	30	46	90	69.40	13.637
Valid N (listwise)	30				

According to the descriptive statistics table above, the experimental group's post-test scores varied from 53 to 100, with 53 representing the lowest score and 100 representing the highest. The group obtained a mean post-test score of 76.67. Compared with the control group, these results indicate that students in the experimental class achieved better vocabulary performance after learning through Baamboozle Digital Games.

The control group obtained pre-test scores ranging from 36 to 86, with a mean score of 58.30. These findings indicate that the students in the control group had a comparable level of vocabulary achievement to those in the experimental group before the treatment. After being taught using conventional teaching method, the students improved their post-test performance. Their mean score increased to 69.40, the minimum score rose to 46, and the maximum score reached 90. Although the students in the control group demonstrated better vocabulary achievement after the treatment, their improvement remained lower than that of the experimental group, which learned through Baamboozle digital games.

Overall, the descriptive statistical analysis shows that both groups' vocabulary achievement increased. However, the experimental group's mean score increased more, suggesting that Baamboozle Digital Games were more successful than the conventional approach in improving students' vocabulary achievement.

3.1.2 Normality Test

To determine if the data from the experimental and control groups were consistently distributed, a normality test was performed. Further studies, such as the homogeneity test and other parametric statistical tests, might be performed if the significance value (Sig.) was larger than 0.05, which was considered as proof that the data followed a normal distribution. On the other hand, the data were not normally distributed if the significance value (Sig.) was less than 0.05.

Table 2. Normality Test.

		Tests of Normality					
class		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
score	Pretest	.148	30	.093	.952	30	.194
	Experimental						
	Post-test	.122	30	.200*	.973	30	.628
	Experimental						
	Pretest Control	.131	30	.200*	.942	30	.105
	Post-test Control	.104	30	.200*	.943	30	.106

The Kolmogorov-Smirnov test shows that the experimental group obtained a significance value of 0.093 on the pre-test, whereas the control group obtained a significance value of 0.200. Because both significance values are higher than the 0.05 significance level, the researcher concluded that the pre-test data in both groups are normally distributed.

The writer can proceed with additional statistical methods, such as the homogeneity test and parametric hypothesis testing, such as the independent samples t-test, once the normal data distribution has been confirmed. For parametric tests to provide precise statistical inference, the data must be regularly distributed. When this condition is satisfied, the analysis's findings can be regarded as legitimate and trustworthy as the sample's characteristics accurately reflect the population.

Therefore, the pre-test data of both the experimental and control groups satisfy the assumption of normality based on the findings of the Kolmogorov-Smirnov normality test. Because the statistical techniques used are acceptable and the results are reliable, this finding offers a solid foundation for carrying out further statistical analyses and supports the validity of the conclusions gathered from the study.

3.1.3 Homogeneity Test

The homogeneity of the data was determined based on the significance value obtained from Levene's Test. The data were considered homogeneous because all significance values exceeded the 0.05 criterion. The homogeneity test revealed a significance value of 0.454 based on the mean, which was higher than 0.05. Similarly, the significance values based on the median (0.456), the median with adjusted degrees of freedom (0.456), and the trimmed mean (0.467) also exceeded the required level. Therefore, the data were confirmed to satisfy the assumption of homogeneity.

Table 3. Homogeneity Test.

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Score	Based on Mean	.567	1	58	.454
	Based on Median	.563	1	58	.456
	Based on Median and with adjusted df	.563	1	57.893	.456
	Based on trimmed mean	.537	1	58	.467

These findings show that the experimental and control groups' variances are homogeneous. As a result, the data satisfy the homogeneity of variance assumption and are suitable for additional parametric statistical analysis to evaluate the research hypothesis, especially the independent sample t-test.

3.1.4 T-test

A paired sample t-test was employed to examine the effect of Baamboozle Digital Games on students's vocabulary achievement by comparing the pre-test and post-test scores within each group. The independent sample t-test was conducted to determine whether a significant difference in vocabulary achievement existed between the experimental and control groups. The detailed results of the analysis are presented in the table below:

Table 4. Paired Samples Test

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PretestPosttest	-	14.9475	2.7290	-	-	-	29	.000
	Experimental	18.4667	7	4	24.04818	12.88515	6.7	67	
Pair 2	PretestControl	-	8.90699	1.6261	-	-	-	29	.000
		11.1000		9	14.42592	7.77408	6.8	26	
	PosttestControl								

The independent samples t-test analysis showed a significant difference between the experimental and control groups, with a significance value of 0.035 ($p < 0.05$). This result indicates that the implementation of Baamboozle Digital Games had a significant effect on students' vocabulary achievement. The group statistics also revealed that the experimental group achieved a higher mean post-test score (76.67) compared to the control group (69.40). These findings indicate that students who learned through Baamboozle Digital Games demonstrated better vocabulary achievement than those who received conventional instruction.

The effectiveness of Baamboozle Digital Games in this study is related to its ability to provide interactive learning activities that encourage students' active participation. Digital game-based learning can create an enjoyable learning environment and provide opportunities for students to practice vocabulary more engagingly. This finding is supported by Wulandari et al. (2024), who found that Baamboozle could support English learning activities by providing interactive and interesting learning experiences. Furthermore, Prastiwi and Lestari (2025) stated that digital game-based learning can create a more enjoyable classroom atmosphere and contribute to students' learning achievement.

Although several previous studies have investigated the use of digital games and Baamboozle in improving students' vocabulary mastery, research gaps still remain. Vasya et al. (2025) focused on describing the implementation of Baamboozle and students' perceptions through a qualitative case study without examining its effectiveness statistically. In contrast, this study employed a quantitative experimental design to measure the effectiveness of Baamboozle Digital Games through statistical analysis by comparing the vocabulary achievement of students in the experimental and control groups.

Therefore, the findings of this study provide empirical evidence that Baamboozle Digital Games can be an effective alternative learning medium for improving students' vocabulary achievement. The use of this digital game not only increases students' engagement in learning activities but also contributes to better vocabulary learning outcomes.

4 CONCLUSIONS

Based on the findings of this study, it can be concluded that the implementation of Baamboozle Digital Games significantly influenced students' vocabulary achievement. The results of the independent samples t-test showed a significance value of 0.035 ($p < 0.05$), indicating a significant difference in vocabulary achievement between the experimental and control groups. In addition, the experimental group achieved a higher mean post-test score (76.67) compared to the control group (69.40), which demonstrates that students who learned through Baamboozle Digital Games experienced better learning outcomes. The paired samples t-test results also revealed that both groups showed significant improvement after the learning process. However, the increase in the experimental group was higher than that of the control group. This finding indicates that conventional teaching methods can still contribute to vocabulary improvement, but the integration of Baamboozle Digital Games provides a more engaging and interactive learning experience that supports students in developing their vocabulary knowledge more effectively.

The effectiveness of Baamboozle Digital Games is supported by its interactive features, which encourage students to actively participate, practice vocabulary repeatedly, and receive immediate responses during learning activities. The use of digital games creates a more enjoyable classroom atmosphere and helps students become more involved in the learning process. Therefore, Baamboozle Digital Games can be considered an alternative instructional medium for enhancing vocabulary learning among junior high school students. Furthermore, the results of this study confirm that the null hypothesis (H_0), stating that Baamboozle Digital Games do not significantly affect students' vocabulary achievement, is rejected, while the alternative hypothesis (H_1) is accepted. This research contributes to previous studies by providing empirical evidence regarding the effectiveness of Baamboozle Digital Games in improving eighth-grade students' vocabulary achievement through a quasi-experimental approach. Specifically, this study highlights the use of Baamboozle in supporting vocabulary learning related to simple past tense, degree of comparison, and synonyms.

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