



## **The Influence of Using Word Search Puzzle on The Vocabulary Mastery of Eighth Grade Students at SMP 25 Bengkulu City**

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### **ABSTRACT**

This study aims to analyze the effect of using the Word Search Puzzle as a learning medium on the vocabulary mastery of eighth-grade students at SMP Negeri 25 Bengkulu City. This research is motivated by the low level of students' vocabulary mastery due to less engaging teaching methods and the limited use of interactive learning media. This study employed a quantitative method with a quasi-experimental design (nonequivalent control group design). The population consisted of all eighth-grade students, with the sample taken from two classes, namely the experimental and control groups, each consisting of 28 students. The research procedure included a pre-test, followed by treatment in the experimental group using Word Search Puzzle, while the control group was taught using conventional methods, and concluded with a post-test. The data obtained were analyzed using statistical tests with the help of SPSS version 27. The results showed a significant improvement in the experimental group compared to the control group. The mean score of the experimental group increased from 55.8 to 84.9, while the control group increased from 49.7 to 72.5. These findings were supported by the results of the t-test, where  $t\text{-count} > t\text{-table}$  ( $6.390 > 2.005$ ) with a significance value of  $< 0.001 < 0.05$ , indicating that the null hypothesis ( $H_0$ ) was rejected and the alternative hypothesis ( $H_a$ ) was accepted. It can be concluded that the Word Search Puzzle has a significant effect on students' vocabulary mastery, with a contribution of 0.431 (43.1%). This media has the potential to be an innovative and effective alternative for increasing English vocabulary mastery among junior high school students.

**Keywords:** Learning Media, Vocabulary Mastery, Word Search Puzzle

### **INTRODUCTION**

Vocabulary mastery constitutes a fundamental component of English language learning, as it underpins the development of other language skills, including reading, writing, speaking, and listening (Ariyani, 2025). In the absence of sufficient lexical competence, students are likely to encounter difficulties in comprehending texts, constructing meaningful sentences, and communicating effectively. However, in practice, a considerable number of junior high school students continue to struggle with achieving optimal vocabulary mastery. This issue is often attributed to the persistent use of conventional instructional methods, such as rote memorization of decontextualized word lists and monotonous practice activities (Ikhsan et al., 2023). Empirically, this condition is also evident among eighth-grade students at SMP Negeri 25 Kota Bengkulu, where the majority of learners demonstrate vocabulary scores below the Minimum Mastery Criterion (Kriteria Ketuntasan Minimum/KKM).

Furthermore, the limited utilization of interactive instructional media contributes to low levels of student motivation and engagement in the learning process. From a theoretical perspective, effective language instruction necessitates the implementation of strategies that foster active student participation and provide meaningful learning experiences. In the context of the digital era and the Merdeka Belajar policy, teachers are increasingly required to integrate technology and innovative media into their instructional practices (Abidah et al., 2023). Therefore, there is a pressing need for alternative learning media that are not only effective but also engaging and aligned with the characteristics of contemporary learners.

Recent studies have indicated that the use of game-based learning media holds significant potential in enhancing students' vocabulary mastery. This is largely due to its ability to create a more interactive, enjoyable, and less monotonous learning environment. A study conducted by (Wahyudi & Kusumawardani, 2024) revealed that the implementation of Word Search Puzzle as a learning medium was effective in improving students' vocabulary achievement while simultaneously increasing their motivation in learning English. This finding suggests that the integration of game elements into instructional practices can yield positive outcomes in both cognitive and affective domains. Similarly, research by (Goumas et al., 2020) demonstrated that Word Search as a learning medium can enhance students' intrinsic motivation and make the learning process more enjoyable. Students tend to be more active and engaged due to the elements of challenge and exploration embedded in the activity. In addition, (Rokhmah et al., 2020) found that the use of Word Search Games can improve student engagement and facilitate vocabulary retention through implicit repetition. Such repetition occurs naturally as students search for and recognize words within the puzzle, thereby reinforcing their memory of the target vocabulary. Nevertheless, the majority of these studies exhibit certain limitations, including a focus on different educational levels (e.g., primary education), the use of various types of games without concentrating on a single specific medium, or the absence of a clearly defined contextual setting. Moreover, there remains a scarcity of research that specifically examines the use of digital-based Word Search Puzzle among junior high school students, particularly within public school contexts characterized by limited facilities.

Based on these considerations, a gap can be identified between previous research findings and current empirical conditions and needs. Empirically, instructional practices at SMP Negeri 25 Kota Bengkulu continue to be dominated by conventional methods and have yet to optimally incorporate game-based learning media. In contrast, both theoretical perspectives and prior empirical studies suggest that game-based learning is effective in enhancing vocabulary mastery. However, there is still limited research that specifically investigates the effect of digital-based Word Search Puzzle on the vocabulary mastery of eighth-grade students in junior high schools, particularly within the constraints of limited facilities and authentic classroom conditions. Therefore, further research that is both contextualized and specific is required to address this gap.

In light of the identified gap, this study formulates the following research question: *Is there a significant Influence of the use of Word Search Puzzle on the vocabulary mastery of eighth-grade students at SMP Negeri 25 Kota Bengkulu?* Accordingly, the objective of this study is to determine the effect of using Word Search Puzzle on improving students' vocabulary mastery. The novelty of this research lies in the implementation of Word Search Puzzle as a simple, accessible, and contextually adapted digital game-based learning media, specifically designed for eighth-grade students at SMP Negeri 25 Kota Bengkulu. This study uniquely focuses on examining the effectiveness of digital-based Word Search Puzzle as the sole intervention medium in enhancing students' vocabulary mastery.

## RESEARCH METHOD

This study employed a quantitative method with a quasi-experimental design, specifically the nonequivalent control group design. Within this framework, two groups were involved: an experimental group, which received treatment through the use of the Word Search Puzzle, and a control group, which was instructed using conventional teaching methods. Both groups were administered a pre-test to determine students' initial abilities, followed by the respective treatments in accordance with the research design, and concluded with a post-test to measure the improvement in learning outcomes after the intervention.

The population of this study comprised all eighth-grade students at SMP Negeri 25 Kota Bengkulu. The sample was selected using purposive sampling, involving two classes with relatively similar characteristics, which were subsequently assigned as the experimental and control groups. Each class consisted of 28 students, resulting in a total sample size of 56 students. The selection of the sample was based on considerations of the students' initial ability equivalence as well as the accessibility and feasibility of conducting the research.

Data collection techniques in this study included tests and documentation. The primary instrument was a multiple-choice vocabulary test administered during both the pre-test and post-test phases. This test was designed to measure students' vocabulary mastery before and after the treatment. Prior to its implementation, the instrument underwent validity and reliability testing to ensure its appropriateness for research use. The validity test aimed to determine the accuracy of each test item in measuring vocabulary ability, while the reliability test was conducted to ensure the consistency of the measurement results. In addition, item analysis was performed, including difficulty level and discrimination index tests, to obtain a high-quality instrument. The difficulty index was used to classify items into easy, moderate, or difficult categories, whereas the discrimination index assessed the ability of each item to differentiate between high-achieving and low-achieving students. Documentation was utilized to collect supporting data, such as student lists and records of classroom conditions during the research process.

The data analysis technique was conducted using statistical analysis with the assistance of SPSS version 27. The data obtained from the pre-test and post-test were analyzed through several stages, including the normality test to determine whether the data were normally distributed, the homogeneity test to assess the equality of variances between groups, and the independent samples t-test to examine whether there was a significant effect of the use of the Word Search Puzzle on students' vocabulary mastery. Furthermore, an F-test (ANCOVA) was conducted to determine the extent of the treatment's effect or contribution to the improvement of students' vocabulary mastery, along with the calculation of effect size. In this study, the effect size was interpreted based on the Partial Eta Squared value obtained from the ANCOVA analysis. This value was then categorized into levels such as small, medium, or large. Therefore, the sequence of data analyses, including the t-test, ANCOVA, and effect size calculation, was comprehensively employed to address the research questions and test the formulated hypotheses.

## RESULT AND DISCUSSION

### RESULT

Based on the results of the analysis, it was found that there was an increase in the mean scores in both groups. However, the improvement observed in the experimental group was higher than that of the control group. The mean pre-test score in the experimental group was 55.8, which increased to 84.9 in the post-test. Meanwhile, in the control group, the mean score improved from 49.7 to 72.5. This indicates that the use of the Word Search Puzzle had a greater impact on enhancing students' vocabulary mastery. Prior to conducting the

hypothesis testing, prerequisite analyses were performed, namely the tests of normality and homogeneity.

### 1. Normality Test

**Tabel 1. Normality Test Experiment Class**  
**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Pre Test Experiment	.136	28	.200*	.963	28	.416
Post Test Experiment	.114	28	.200*	.958	28	.313

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Tabel 2. Normality Test Control Class**  
**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Pre Test Control	.103	28	.200*	.978	28	.791
Post Test Control	.155	28	.083	.960	28	.340

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the results of the Shapiro–Wilk test, the significance values for the experimental class were 0.416 (pre-test) and 0.313 (post-test), while in the control class the significance values were 0.791 (pre-test) and 0.340 (post-test), all of which are greater than 0.05. Therefore, it can be concluded that the data are normally distributed and meet the assumptions required for subsequent statistical analysis.

### 2. Homogeneity Test

**Table 3. Test of Homogeneity of Variances Pre-Test**  
**Test of Homogeneity of Variance**

			Levene	df1	df2	Sig.
			Statistic			
Hasil Pre Test	Based on Mean		.738	1	54	.394
	Based on Median		.764	1	54	.386
	Based on Median and with adjusted df		.764	1	53.517	.386
	Based on trimmed mean		.735	1	54	.395

**Table 4. Test of Homogeneity of Variance Post-Test**  
**Test of Homogeneity of Variance**

			Levene	df1	df2	Sig.
			Statistic			
Hasil Post Test	Based on Mean		.002	1	54	.962
	Based on Median		.009	1	54	.926
	Based on Median and with adjusted df		.009	1	50.825	.926
	Based on trimmed mean		.011	1	54	.918

Based on the results of the homogeneity test, the significance value for the pre-test was 0.394 ( $> 0.05$ ) and for the post-test was 0.962 ( $> 0.05$ ). This indicates that the variance of the data in both the experimental and control groups is homogeneous, or that the two groups have an equal level of variability. Therefore, the data meet the assumption of homogeneity and are appropriate for further statistical analysis.

## 3. T-Test

**Table 5. Independent Sample Test**

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Hasil Post Test	Equal variances assumed	.002	.962	6.390	54	<.001	12.393	1.940	8.504	16.281
	Equal variances not assumed			6.390	53.459	<.001	12.393	1.940	8.503	16.282

The calculated t-value was 6.390, which is greater than the t-table value of 2.005, with a significance value of  $< 0.05$  (i.e.,  $< 0.001$ ). This indicates that there is a statistically significant difference between the post-test scores of the two groups. Therefore, the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted. Accordingly, the use of the Word Search Puzzle has a significant effect on students' vocabulary mastery.

## 4. F-Test

**Table 6. The Result Test of Between Subject Effect Tests of Between-Subjects Effects**

Dependent Variable: Posttest						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2150.161 <sup>a</sup>	1	2150.161	40.828	<.001	.431
Intercept	347445.018	1	347445.018	6597.472	<.001	.992
Group	2150.161	1	2150.161	40.828	<.001	.431
Error	2843.821	54	52.663			
Total	352439.000	56				
Corrected Total	4993.982	55				

a. R Squared = .431 (Adjusted R Squared = .420)

Based on the results of the F-test, the Partial Eta Squared value was 0.431, indicating a moderate effect (43.1%). The obtained F-value of 40.828 is greater than the F-table value of 4.02, with a significance level of  $< 0.05$ . This demonstrates that the use of the Word Search Puzzle has a statistically significant effect on students' vocabulary mastery.

**DISCUSSION**

Based on the data analysis of eighth-grade students at SMPN 25 Kota Bengkulu, there is a significant effect on students' vocabulary mastery when they are taught using the Word Search Puzzle. The findings indicate that students in the experimental group who were taught using the Word Search Puzzle experienced a significantly greater improvement in vocabulary mastery compared to those in the control group who were taught using conventional methods. The mean score of the experimental group increased substantially after the treatment, suggesting that the use of the Word Search Puzzle as a learning medium makes a positive contribution to enhancing students' vocabulary mastery.

The results of the t-test revealed that the calculated t-value was 6.390, while the t-table value was 2.005, with a significance value (2-tailed) of  $< 0.001 < 0.05$ . This indicates that the

null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted. Therefore, it can be concluded that there is a significant effect of the use of the Word Search Puzzle on students' vocabulary mastery. Following the normality test conducted using SPSS version 27, it was found that the pre-test and post-test data in both the experimental and control groups were normally distributed. This is evidenced by the significance values exceeding 0.05, namely 0.416 for the experimental group pre-test and 0.791 for the control group pre-test, as well as 0.313 for the experimental group post-test and 0.340 for the control group post-test. Therefore, it can be concluded that all data in this study are normally distributed. Furthermore, based on the results of the homogeneity test, the data in both the experimental and control groups were categorized as homogeneous. This is indicated by the significance values of 0.394 for the pre-test and 0.962 for the post-test, both of which are greater than 0.05. Thus, it can be concluded that the data have equal variances or are homogeneous.

In addition, the findings of this study are consistent with previous research. (Wahyudi & Kusumawardani, 2024) found that the Word Search Puzzle is effective in improving vocabulary mastery as well as student participation. Meanwhile, (Goumas et al., 2020) demonstrated that Word Search games can enhance students' learning motivation and help them retain vocabulary over a longer period of time. Based on the above discussion, it can be concluded that the use of the Word Search Puzzle has a positive and significant effect on students' vocabulary mastery. This media is effective in enhancing vocabulary through active engagement, repetition, and increased learning motivation. Therefore, the Word Search Puzzle can be considered an innovative and effective instructional medium, particularly for vocabulary learning at the junior high school level.

## CONCLUSION

Based on the findings of the study, it can be stated that the use of the Word Search Puzzle has a significant effect on students' vocabulary mastery. This is evidenced by the difference in the mean post-test scores between the experimental and control groups, in which the experimental group achieved a mean score of 84.9, higher than that of the control group, which reached only 72.5. The results of statistical analyses, including the normality test, homogeneity test, t-test, and F-test, indicate that this improvement did not occur by chance, but rather as a result of the treatment administered. Therefore, the use of the Word Search Puzzle can be considered effective as an instructional media for enhancing students' vocabulary mastery.

The t-test results showed that the calculated t-value was 6.390, while the t-table value was 2.005, with a significance value (2-tailed) of  $< 0.001 < 0.05$ . Furthermore, the results of the F-test (ANCOVA) analysis reinforce the finding that the treatment applied to the experimental group made a positive contribution to the improvement of students' vocabulary mastery. The Partial Eta Squared value of 0.431 indicates a moderate effect size (43.1%). In addition, the obtained F-value of 40.828 is greater than the F-table value of 4.02 at a 5% significance level with 54 degrees of freedom (df), and the significance value is  $< 0.05$ . This indicates that the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted. Based on the overall results of the analysis, it can be concluded that the use of the Word Search Puzzle in classroom instruction has a significant and positive effect on students' vocabulary mastery.

However, this study is subject to several limitations. First, the research was conducted in only one school with a limited sample size, thus the findings may not be generalizable to a broader population. Second, the relatively short duration of the study may affect the accuracy in measuring the long-term improvement of students' vocabulary mastery. Third, limitations in learning facilities, particularly in the use of digital-based media, also posed challenges

during the implementation of the study. Therefore, the findings of this research should be interpreted with caution and should not be overgeneralized.

### SUGGESTION

Based on the findings of the study, the researcher proposes several recommendations as follows:

1. For teachers, it is recommended to utilize the Word Search Puzzle as an alternative medium in vocabulary instruction and to integrate it with other teaching methods in order to achieve more optimal learning outcomes.
2. For students, it is expected that they make use of the Word Search Puzzle independently outside classroom hours to enhance their understanding and mastery of vocabulary.
3. For schools, it is suggested to support the implementation of technology-based instructional media in order to facilitate more innovative learning practices.
4. For future researchers, it is recommended to extend the study by employing a larger sample size, a longer research duration, or combining it with other methods to obtain more comprehensive results.

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