

The Application of Educational Game “Word Search” in Improving Students’ Vocabulary of The Fifth Grade Students of SD Negeri 5 Pagaram

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ABSTRACT

This study examined the effectiveness of the Word Search game in improving vocabulary mastery among fifth-grade students at SD Negeri 5 Pagaram. A quasi-experimental design with pre-test and post-test control groups was used, involving two purposively selected classes. The experimental group received vocabulary instruction through the Word Search game, while the control group was taught using conventional strategies. Vocabulary tests were administered to both groups, and the results were analyzed using paired and independent sample t-tests at a 0.05 significance level. The paired sample t-test for the experimental group showed a t-obtained value of 15.063, exceeding the t-table value of 2.074 ($p = 0.000$), indicating a significant improvement between pre-test and post-test scores. The independent sample t-test revealed a t-obtained value of 5.552, greater than the t-table value of 2.021 ($p = 0.000$), confirming a significant difference between the experimental and control groups. These findings demonstrate that the Word Search game is an effective medium for enhancing vocabulary mastery. Its engaging and interactive format increased motivation, provided repeated exposure to target words, and promoted collaborative learning. The study suggests that integrating educational games into language instruction can enrich learning outcomes and foster a more enjoyable, student-centered classroom environment.



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Introduction

Vocabulary plays a central role in acquiring a second language. It forms the foundation of communication, enabling learners to understand, interpret, and

convey meaning through spoken and written language. Without sufficient vocabulary, students face significant challenges in processing language input and producing coherent output. As emphasized by Schmitt and Meara (2018), vocabulary is not merely a component of language learning—it is the backbone of communication. It supports learners in reading comprehension, listening accuracy, oral fluency, and written expression.

In the context of English as a foreign language (EFL) learning, particularly in elementary school settings, vocabulary acquisition becomes even more crucial. Young learners are at the formative stage of language development, where vocabulary serves as the building block for understanding more complex grammatical structures. Koivisto and Hamari (2019) define vocabulary as the collection of terms that individuals must master in order to communicate effectively, both in receptive (reading, listening) and productive (speaking, writing) language skills.

Despite its importance, vocabulary mastery remains a persistent challenge in language learning environments, especially for elementary school students. Many students exhibit low retention of vocabulary, inconsistent recall, and limited use of newly introduced words. This can be attributed to several factors, including monotonous teaching strategies, lack of reinforcement activities, and minimal student engagement. Often, traditional vocabulary instruction relies heavily on rote memorization, list-learning, and translation, which fail to provide meaningful context or active learner involvement.

Observations conducted at SD Negeri 5 Pagaram support these claims. During a preliminary investigation in early 2025, it was found that vocabulary proficiency among fifth-grade students varied widely. Some students could retain up to 90% of the words taught in a single lesson, while others forgot vocabulary shortly after instruction. According to their English teacher, this inconsistency stemmed from limited motivation and lack of variety in instructional techniques. Students expressed boredom with repetitive learning and struggled to find personal relevance in the vocabulary being taught.

Research supports the notion that traditional vocabulary teaching methods are often insufficient for long-term retention. Prasetyawan (2016) highlights that unvaried instruction reduces student interest and engagement, which in turn lowers vocabulary acquisition. Thornbury (2002) similarly criticizes vocabulary instruction that focuses exclusively on recognition rather than actual usage. For students to acquire vocabulary meaningfully, they need to interact with the language in diverse and engaging ways.

To overcome these obstacles, language educators have explored the use of educational games as an alternative instructional method. Game-based learning offers a playful, interactive environment in which students can explore, practice, and retain new vocabulary. Hamari et al. (2016) found that integrating game elements

into educational settings increases student motivation, fosters a sense of achievement, and maintains engagement even with challenging content. Games offer learners a safe space to make mistakes, experiment with language, and receive immediate feedback—all crucial elements for effective vocabulary acquisition.

Dichev and Dicheva (2017) add that gamification—using game elements such as points, levels, and rewards—stimulates learners' intrinsic motivation and sustains focus. These features encourage students to immerse themselves in learning tasks without the stress commonly associated with tests or exams. Furthermore, Fox and Hanus (2015) argue that games trigger emotional responses that enhance memory retention and cognitive engagement.

Among various educational games, the Word Search game has been particularly effective in vocabulary instruction. Word Search involves identifying words hidden in a grid, arranged horizontally, vertically, or diagonally. The visual and spatial elements of the game promote pattern recognition, spelling awareness, and lexical retention. According to Sun (2019), repeated exposure to vocabulary in the form of a Word Search enhances word familiarity and encourages deep processing. The cognitive effort required to locate and recognize words reinforces both form and meaning.

Word Search games can also be aligned with specific language themes or topics. Teachers can design puzzles based on classroom content—such as parts of the body, adjectives, school objects, or daily activities—making the learning process contextually relevant. This integration of content and gameplay improves the semantic connection between vocabulary items and their real-world usage.

Moreover, Word Search games provide a low-anxiety environment that benefits learners with different proficiency levels. Rixon (2013) explains that language games reduce tension in the classroom and build confidence, especially for students who are typically hesitant to participate. The non-threatening nature of the game makes it easier for students to take linguistic risks and use new vocabulary without fear of making mistakes. Lai and Hwang (2016) further demonstrate that digital versions of Word Search enhance student engagement and create opportunities for self-paced learning.

From a sociocultural perspective, the interactive nature of Word Search aligns with Vygotsky's (1978) theory of social development. According to this theory, learning occurs most effectively through social interaction and collaboration. When students work in pairs or groups to solve a Word Search puzzle, they engage in peer-to-peer communication, share strategies, and support each other's learning. This collaborative dimension encourages students to articulate their thinking and internalize new vocabulary more effectively.

In addition, the use of Word Search encourages autonomous learning. Fitria (2023) notes that this game promotes independent exploration, decision-making, and problem-solving, as students must identify patterns and recall previously

learned words without explicit guidance. This autonomy fosters a sense of ownership and personal responsibility for learning.

Despite its benefits, the Word Search game is not without limitations. Thornbury (2002) criticizes such activities for focusing more on form than on usage, potentially resulting in superficial learning. Similarly, Richards and Renandya (2002) argue that creating and solving puzzles may be time-consuming, taking away time that could be spent on communicative practice. Sert and Walsh (2013) caution that students may become overly dependent on game-based methods and neglect more structured vocabulary learning techniques. Therefore, it is essential that games like Word Search are used as a supplement—not a replacement—for broader instructional goals.

Previous studies have affirmed the positive impact of Word Search games on vocabulary acquisition. For example, Sun (2019) demonstrated that students exposed to Word Search activities performed better in vocabulary retention tests than those taught using traditional methods. Hidayat (2016) found that students with low motivation levels benefited significantly from word games, showing increased participation and improved vocabulary test scores. Lube and Nuraeni (2020) confirmed that thematic Word Search games facilitated contextual understanding and improved vocabulary recognition.

While these studies support the effectiveness of Word Search in vocabulary instruction, few have focused specifically on its application in Indonesian elementary schools, particularly at the fifth-grade level. This creates an opportunity to explore its pedagogical value in a local context.

The present study was conducted to examine whether there is a significant difference in vocabulary mastery between fifth-grade students of SD Negeri 5 Pagaralam who were taught using the Word Search game and those who were not. This study builds upon the premise that educational games can enhance students' motivation and vocabulary acquisition, especially in early education. By implementing a quasi-experimental design with pre-test and post-test control groups, this study aims to provide empirical evidence on the effectiveness of the Word Search game as a teaching tool in vocabulary instruction.

METHOD

Research Design

Using a quasi-experimental design with a pre-test and post-test control group format, this study used a quantitative approach. The purpose of the design was to ascertain how well the Word Search game enhanced students' vocabulary mastery. Participants included two fifth-grade classes from SD Negeri 5 Pagaralam. One class acted as the control group and was instructed using traditional methods, while the other class was the experimental group and was taught using the Word Search game.

The two classes were chosen using purposive sampling in accordance with standards like having the same English teacher and comparable levels of English proficiency. A vocabulary pre-test was administered to both groups prior to the intervention, and a post-test was administered following the conclusion of the intervention.

Instruments and Procedures

Three different kinds of tools were used to evaluate vocabulary mastery: word search puzzles, matching exercises, and multiple-choice questions. These tools were developed in accordance with the fifth-grade English curriculum's themes, which cover subjects like body parts, adjectives, comparative and superlative forms, months, everyday activities, and school-related items. Students' vocabulary mastery in the pre-test and post-test was analyzed using Arikunto's scoring system. The formula for scoring was the number of correct questions multiplied by one hundred and then divided by the total number of questions.

$$X = \frac{CA}{NI} \times 100$$

X = Students individual scores
CA = Number of correct answers
NI = Number of test items

In categorizing the students' presentation, the researcher used the range of the students' score from Arikunto (2013)

Percentage of The Vocabulary Mastery	Grade	Level of students' Vocabulary Mastery
80-100	A	Very Good
70-79	B	Good
60-69	C	Fair
50-59	D	Poor
0-49	E	Very Poor

Before beginning any treatment, the pre-test was given to both groups to gauge their initial level of vocabulary proficiency. The post-test was used to assess learning outcomes following a sequence of instructional sessions. After the instrument was validated through expert review and tryouts, Cronbach's Alpha was used to measure its internal consistency. The reliability score of .922 indicated high reliability.

Reliability Statistics	
Cronbach's Alpha	N of Items
.922	35

For the experimental group, the teaching process included presenting Word Search games, having the group locate vocabulary items, and then doing follow-up exercises like practicing pronunciation, spelling, and creating contextual sentences. On the other hand, the control group was taught vocabulary through textbook exercises, translation, and direct explanation—all without the use of game-based media.

Data Analysis Procedures

SPSS version 25 was used to analyze the test results that were gathered. To ascertain the significance of change following treatment, the experimental group's pre-test and post-test scores were compared using a paired sample t-test. The post-test results of the experimental and control groups were then compared using an independent sample t-test to see if there was a statistically significant difference in vocabulary mastery between the two. The threshold for hypothesis testing was established at a significance level of 0.05.

FINDINGS

Based on the results of the vocabulary tests administered to both the experimental and control classes, it was found that the students in both groups initially demonstrated low levels of vocabulary mastery. In the **pre-test**, the **experimental class** recorded a lowest score of **39** and a highest score of **67**, with a **mean score of 44.20**. Meanwhile, the **control class** had a lowest score of **41** and a highest score of **65**, with a **mean score of 43.05**. The majority of students in both classes fell into the "very poor" category, with **65.2%** in the experimental class and **83.3%** in the control class, showing that both groups had comparable proficiency levels before the intervention.

Table 1. Summary of Findings

Variable	Level of Vocabulary achievement	Experiment				Control			
		Pretest		Posttest		Pretest		Posttest	
		Freq (%)	Mean	Freq (%)	Mean	Freq (%)	Mean	Freq (%)	Mean
Voc	Very Good	-	-	12	84.01	-	-	1	80.00
				52.2%				4.2%	

Good	-	-	6	74.23	-	-	4	71.40
			26.1%				16.7%	
Fair	1	40.67	4	63.55	-	-	11	64.11
	4.3%		17.4%				45.8%	
Poor	7	53.82	1	57.10	4	52.10	7	55.45
	30.4%		4.3%		16.7%		2.9%	
Very Poor	15	39.95	-	-	20	41.24	1	48.50
	65.2				83.3%		4.2%	
Total	23	44.20	23	76.73	24	43.05	24	62.81
	100.0		100.0		100.0		100.0	
	%		%		%		%	

In the table 1, the result showed there was a significant difference emerged between the two groups in the post-test. The experimental class, which received vocabulary instruction through the Word Search game, showed remarkable improvement. The lowest score increased to 57, the highest reached 88, and the mean score rose to 76.73. The majority of students—52.2%—were categorized as having “very good” vocabulary mastery, and none remained in the “very poor” category, indicating a considerable positive shift.

On the other hand, the control class, which was taught using conventional methods, demonstrated only modest gains. The lowest score improved slightly to 48, the highest score to 80, and the mean score rose to 62.81. Although this reflects a degree of improvement, it was not as substantial as that observed in the experimental class. Additionally, a large proportion of students in the control class still remained in the “poor” and “fair” categories, suggesting that the traditional method was less effective in enhancing students’ vocabulary mastery.

To find out whether was significant progress in students’ vocabulary before and after treatment, the result of students SD Negeri 5 PagarAlam in pre-test and post-test were compared by the researcher, paired sample t-test was used.

Table 2. The Result of Paired Sample t-test

Variable	Mean Pretest	Mean Posttest	Mean Differences	T	df	Sig. (2-tailed)
Vocabulary	44.20	76.73	31.67	15.063	22	.000

Note: df (degrees of freedom) = 23 – 1 = 22

The results of the paired sample t-test for the experimental group showed a t-obtained value of 15.063, with a significance level of 0.000, indicating a statistically significant difference between the pre- and post-test scores. The independent sample t-test comparing the post-test scores of the experimental and control groups yielded a t-obtained value of 5.552, also with a significance level of 0.000. These findings confirm that the use of the Word Search game had a significant and positive effect on students’ vocabulary mastery.

Table 3. The Result of Independent t-test

Score_Posttest	Class	N	Mean	t-obtained	df	Sig (2-tailed)
Vocabulary	Experiment	23	76.73	5.552	45	.000
	Control	24	62.81			

To further determine whether the use of the Word Search game had a different effect compared to conventional methods, the post-test results of the experimental and control classes were analyzed using an independent sample t-test. The results showed that the mean score of the experimental class was 76.73, while the control class obtained a lower mean score of 62.81. The t-obtained value was 5.552 with a significance level of 0.000, which was lower than 0.05. This indicates that there was a statistically significant difference in vocabulary mastery between the two groups. Since the t-obtained (5.552) exceeded the critical t-table value of 2.021 at the 0.05 significance level, the null hypothesis (H0) was rejected and the alternative hypothesis (Ha) was accepted. Therefore, it can be concluded that the application of the Word Search game was more effective than traditional teaching methods in improving students' vocabulary mastery.

DISCUSSION

The findings of this study indicate that the use of the Word Search game had a significant positive impact on the vocabulary mastery of fifth-grade students at SD Negeri 5 Pagaralam. The experimental group, which received vocabulary instruction through the Word Search game, showed substantial improvement in their post-test scores compared to their pre-test performance. In contrast, the control group, which was taught using conventional methods, demonstrated only minimal progress. These results suggest that game-based learning, particularly through Word Search, is more effective in enhancing vocabulary acquisition among elementary school students.

The improvement in the experimental group's vocabulary mastery can be attributed to several factors. First, the Word Search game provided a more engaging and interactive learning experience. Unlike traditional memorization techniques, Word Search requires students to actively search for, recognize, and recall vocabulary items within a meaningful and enjoyable context. This process not only reinforces word recognition but also supports long-term retention. The enjoyment and motivation generated by the game likely contributed to the students' willingness to participate and focus during vocabulary instruction.

Second, the Word Search game offers repetitive exposure to target vocabulary, which is essential for vocabulary retention. According to Nation (2001), repeated encounters with a word in various contexts help learners to remember and use it accurately. In this study, the Word Search activities allowed students to encounter

vocabulary items multiple times, thereby deepening their familiarity with word forms and meanings.

Third, the collaborative nature of the game encouraged peer learning and communication. Students often worked in pairs or groups to complete the Word Search, discussing word meanings and helping each other locate items. This interaction aligns with Vygotsky's (1978) theory of social development, which posits that learning is most effective when it occurs through social interaction and scaffolding. In the process of playing, students not only reviewed vocabulary but also practiced spelling, pronunciation, and contextual usage.

These findings are consistent with previous research that supports the effectiveness of educational games in vocabulary instruction. Sun (2019) found that Word Search games improve vocabulary retention and learner engagement. Hidayat (2016) reported that games stimulate motivation among students who might otherwise struggle with language learning. Similarly, Fitria (2023) concluded that word-based games foster both cognitive and affective engagement in the classroom, which are essential components for effective language learning.

However, while the experimental group showed remarkable progress, the control group's improvement was relatively limited. This suggests that traditional teaching methods, though still beneficial to some extent, may not be sufficient for maximizing students' vocabulary development. Repetition and textbook exercises, while useful, lack the dynamic interaction that games provide. As a result, students may not feel motivated to fully engage with the learning material.

The statistical data further support the conclusion that the Word Search game significantly affected students' vocabulary achievement. The paired sample t-test for the experimental group yielded a t-obtained value of 15.063 ($p = 0.000$), indicating a highly significant difference between the pre-test and post-test scores. Meanwhile, the independent sample t-test showed a t-obtained value of 5.552 ($p = 0.000$), confirming a significant difference between the experimental and control groups in the post-test performance. These results provide strong empirical evidence that incorporating Word Search into vocabulary instruction can lead to meaningful academic gains.

Despite the success of this study, it is important to recognize certain limitations. The sample size was relatively small and limited to a single school in a specific region. Therefore, while the findings are promising, they may not be generalizable to all educational contexts. Additionally, the treatment was conducted over a relatively short period. Longitudinal studies would be beneficial to assess the long-term impact of Word Search games on vocabulary retention and overall language development.

Moreover, while the Word Search game proved effective, it is not a one-size-fits-all solution. Teachers must ensure that games are well-integrated into the curriculum and aligned with learning objectives. Games should be used as complementary tools, not as replacements for comprehensive instruction. A balanced approach that includes both

interactive activities and structured language exercises will likely yield the best outcomes.

In conclusion, the discussion highlights the clear benefits of using Word Search games in vocabulary instruction. This approach not only enhances students' vocabulary mastery but also promotes a more enjoyable and collaborative learning environment. The findings of this study contribute to the growing body of research advocating for the integration of game-based learning in English language education, especially at the primary school level.

Beyond the immediate benefits of game-based vocabulary learning, these findings also resonate with broader discussions on student engagement in language learning. Studies emphasize that learners, particularly from younger generations, expect interactive and engaging classroom practices tailored to their digital-era learning preferences (Sari, 2024). For instance, gamification has been highlighted as an effective way to sustain motivation and participation, making learning experiences feel less like rote tasks and more like interactive challenges. The success of the Word Search game in this study is aligned with these principles, as it integrates fun, competition, and collaboration—factors that are increasingly recognized as essential for maintaining student focus and enthusiasm in the classroom.

In addition, the role of feedback and adaptive strategies in language learning cannot be overlooked. Research on instructional innovations such as reciprocal questioning and interactive AI-based tools has shown that immediate feedback and opportunities for active participation significantly boost learners' comprehension and retention (Sari et al., 2024; Hastomo et al., 2025). Similarly, the repetitive yet dynamic exposure offered by the Word Search game parallels these strategies, as it allows students to practice vocabulary in an enjoyable, low-anxiety environment. Such approaches encourage learners not only to memorize new words but also to develop confidence in applying them, which is a critical step in long-term language acquisition.

CONCLUSION

This study concluded that the application of the Word Search educational game had a significant and positive effect on the vocabulary mastery of fifth-grade students at SD Negeri 5 Pagaralam. The students who were taught using the Word Search game showed a marked improvement in their post-test vocabulary scores compared to their pre-test performance. In contrast, students in the control class, who were taught using conventional methods, demonstrated only minimal progress.

The use of the Word Search game helped students to engage more actively in the learning process. It created a low-anxiety environment, increased motivation, and allowed for repeated exposure to vocabulary in an enjoyable context. The collaborative aspect of the game also fostered peer learning and supported students in internalizing new vocabulary more effectively. Statistical evidence from the paired and independent sample t-tests confirmed the significance of these results.

In essence, the findings of this research support the integration of educational games—specifically Word Search—as a valuable tool in vocabulary instruction for young learners. It enhances not only students' vocabulary retention but also their enthusiasm and confidence in learning English.

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