

**USING CROSSWORD PUZZLE AS MEDIA TO IMPROVE STUDENTS'  
VOCABULARY ACHIEVEMENT AT SMPN 4 KRUI**

**(Undergraduate Thesis)**

**By**

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**ENGLISH EDUCATION STUDY PROGRAM  
DEPARTMENT OF LANGUAGE AND ARTS EDUCATION  
FACULTY OF TEACHER TRAINING AND EDUCATION  
UNIVERSITY OF LAMPUNG  
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## **ABSTRACT**

### **USING CROSSWORD PUZZLE AS MEDIA TO IMPROVE STUDENTS' VOCABULARY ACHIEVEMENT AT SMPN 4 KRUI**

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This research aimed to determine whether students' vocabulary achievement improved after being taught using crossword puzzles as a learning medium at SMPN 4 Krui. The research used a quantitative approach, and the design employed was a one-group pre-test and post-test. The sample consisted of 28 students from class VII D of SMPN 4 Krui. The instrument used was a vocabulary test. The data were in the form of scores obtained from the pre-test and post-test. The results showed that the students' vocabulary scores increased by 27.51 points, from an average of 51.82 in the pre-test to 79.33 in the post-test. The hypothesis testing using a paired sample t-test revealed that the p-value (0.000) was less than the significance level (0.05). This indicates that crossword puzzles were effective in improving the vocabulary achievement of seventh-grade students. Activities such as recalling words, finding appropriate words by using a dictionary, and discussing with friends through crossword puzzles contributed to this improvement. It can be concluded that using crossword puzzles as a learning medium increased students' vocabulary.

**Keywords:** Crossword Puzzle, Vocabulary, Student Achievement, Junior High School, Teaching Media

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**Submitted in a partial Fulfillment of**

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**In**

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**Faculty of Teacher Training and Education**



**ENGLISH EDUCATION STUDY PROGRAM  
DEPARTMENT OF LANGUAGE AND ARTS EDUCATION  
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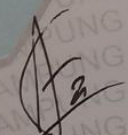
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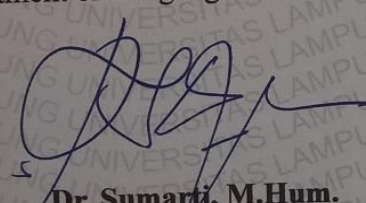
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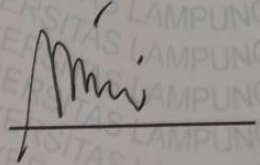
  
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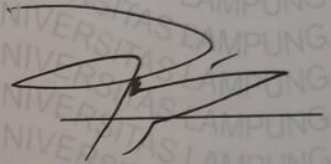
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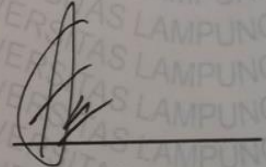
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Menyatakan bahwa skripsi ini adalah karya saya sendiri. Sepanjang pengetahuansaya, karya ini tidak berisi materi yang ditulis orang lain, kecuali bagian-bagian tertentu yang saya ambil sebagai acuan. Apabila ternyata terbukti bahwa pernyataan ini tidak benar, sepenuhnya menjadi tanggung jawab saya.

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## **CURRICULUM VITAE**

Aulia Wati was born in Tanjung Kemala on June 8<sup>th</sup>, 2003. She is the first child of 2 children from her beloved parents, Akhbari and Anita. She has a little brother, Azmi Husin.

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## MOTTO

لَا يُكَلِّفُ اللَّهُ نَفْسًا إِلَّا وُسْعَهَا

“Allah does not charge a soul except [with that within] its capacity.”

-QS. Al-Baqarah:286



## **DEDICATION**

I dedicate this thesis to:

My beloved parents: my late father, Akhbari, my mother, Anita, and my stepfather, Aliansyah. Thank you for all the prayers, love, and moral and material support.

My beloved grandfather and grandmother, Hamzah and Rawani. Thank you for all the love you have shown me since childhood. You have always prayed for me and provided me with the best things they could do.

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Finally, the writer understands that this thesis may still have several areas that require improvement. Therefore, constructive critiques and suggestions are needed in order to improve this thesis.

Bandar Lampung, 23 januari 2025

The Writer,

Aulia Wati

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## **I. INTRODUCTION**

This chapter introduces the research, including several points such as the background, research questions, objectives, uses of the research, scope of the research, and definition of terms.

### **1.1 Background**

Vocabulary is a key aspect of language. It is the fundamental way to make sentences and express thoughts and meanings; it is a key requirement of language communication. In Indonesia, English is learned as a foreign language. Indonesian students learn English from elementary school up to university. However, many students have difficulties understanding English as a foreign language.

Vocabulary is the core component of language proficiency and provides a lot of the basis for how well learners read, write, listen, and speak. Because of that, students need to learn about vocabulary, especially knowing vocabulary first and understanding the meaning of words before continuing to the next level. This follows what was stated by Sitompul & Harahap (2020), vocabulary is short, practical information about the meaning and how to use language. Since the English vocabulary contains hundreds of thousands of words, teachers and students are challenged to learn as many as possible. Supported by Nurweni & Komariah 2023, that English words in a complete set of official English course books for seventh-grade Indonesian students have 1,312 tokens, word types, and word families containing the lowest and 992-word families.

Some studies have been done to determine students' difficulties in mastering vocabulary. A survey by Salawazo et al., (2020) entitled "An Analysis of Students' Vocabulary in Learning Vocabulary" revealed that students' vocabulary difficulties in learning English were due to the words. The other result showed that the students

forgot the vocabulary they had learned. This happened when most students did not pay attention to studying English seriously.

Research examining students' challenges in learning English, particularly when acquiring vocabulary, is essential. The present research motivates the researchers to research the same topic. Teachers are expected to create various teaching strategies and correct methods to increase the students' interest and motivation in learning vocabulary. A great teaching strategy is essential to make the teaching and learning process in the class enjoyable. According to Thornbury (2006) one excellent strategy for teaching language is using games. Games can motivate learners to learn more vocabulary. In this research, the researcher used a crossword puzzle as a teaching strategy for vocabulary.

A crossword puzzle is a game that can be used effectively to teach vocabulary. Sitompul & Harahap (2020) states that crossword puzzles are word games containing horizontal and descending questions in boxes. Each square includes letters to arrange a particular word or phrase and clues leading to specific answers. Moreover, Sabiqoh (2016) argues that a crossword puzzle is a game that makes the teaching-learning process attractive and gives students many opportunities to practice and repeat sentence patterns and vocabulary. Then, crossword puzzles can develop students' brains by helping them memorize new words. In addition, the students felt energized when learning vocabulary because they were not required to memorize the words monotonously. However, they will memorize the words with the correct spelling, use the context and the pattern, and enjoy the game.

This problem also occurred at SMPN 4 Krui. Based on the researcher observation and interview with the English teacher at SMPN 4 Krui, one of the problems in English is the students' vocabulary ability. The lack of student vocabulary causes it. Besides that, the researcher found that the ability of students to comprehend the meaning of vocabulary is low. The students also have difficulty using vocabulary in sentences. It makes the students feel lazy about learning English well.

In this case, the researcher has an idea to improve their vocabulary using a crossword puzzle as a medium. According to Sadiyah et al. (2019), the crossword

puzzle game is efficacious in improving students' vocabulary achievement. This means that crossword puzzle games can help students increase their vocabulary. Using crossword puzzles, the students will learn new words and enjoy the word game while learning the language.

There are some studies that used a crossword puzzle to improve students' vocabulary, for instance, the research conducted by Silalahi et al. (2019), this journal states that using crossword puzzles can positively affect students' vocabulary mastery. Another research was conducted by Tegu & Hadiwijaya (2022), the findings showed that studying vocabulary using crossword puzzle games is one of the most effective strategies for improving students' achievement in learning vocabulary. Third, research by Bella & Rahayu (2023), in this research defines that using crossword puzzles can improve the students' vocabulary achievement.

Based on the explanation above, the researcher finds that the crossword puzzle is a good strategy for improving students' vocabulary. Students' vocabulary achievement has improved by including crossword puzzles in the teaching-learning process. So, the researcher wants to implement the same way or technique to teach vocabulary to first-grade students of SMPN 4 Krui. The researcher assumes that by using this technique, students can memorize the vocabulary more efficiently, and using crossword puzzles, can make the students pay attention more and focus on the learning process. Given this context, the researcher shows interest in conducting a research titled "Using Crossword Puzzle as Media to Improve Students' Vocabulary Achievement at SMPN 4 Krui" in the Teaching and Learning process.

## **1.2 Research Question**

The focus of this research is to determine the improvement in students' vocabulary understanding using crossword puzzles. Based on the research background, the researcher formulated the problem research question, including:



- 1) Is there any significant improvement in students' vocabulary achievement of SMPN 4 Krui after the students are taught by using crossword puzzles as media?

### **1.3 Objective**

Based on the research question above, the researcher formulates the objective of this study as follows:

- 1) To find out whether there is a significant increase in students' vocabulary achievement after they are taught using crossword puzzles as media at SMPN 4 Krui.

### **1.4 Uses**

About the objectives of the research, the findings of the research may be helpful both theoretically and practically as follows:

#### **1. Theoretical:**

This research is expected to be used as a reference for learning about using crossword puzzles as a teaching medium to improve students' vocabulary achievement.

#### **2. Practical:**

This research is expected to inform English teachers' decisions to use crossword puzzles in teaching-learning activities to improve students' vocabulary achievement.

### **1.5 Scope**

This research was conducted at SMPN 4 KRUI toward seventh-grade students. The focus of this research is to investigate the improvement in students' vocabulary achievements after the students are taught using crossword puzzles.

### **1.6 Definition of Terms**

Based on the topic of the research, there are several definitions of terms that are related to the topic of the study, namely:

### 1. Vocabulary

Vocabulary is the words students are expected to understand, recognize, and effectively use in their language learning process. Specifically, this research focuses on content words, including nouns, verbs, adjectives, and adverbs.

### 2. Vocabulary Achievement

Vocabulary achievement in this research refers to the degree of success that seventh-grade students demonstrate in acquiring vocabulary related to descriptive texts after using crossword puzzles. It is measured through pre-test and post-test comparisons that assess the students' knowledge of content words (nouns, verbs, adjectives, and adverbs).

### 3. Teaching Vocabulary

Teaching vocabulary is a process of giving the material about vocabulary to learners. According to Susanto (2017), teaching vocabulary is considered one of the most discussed parts of teaching English as a foreign language.

### 4. Crossword Puzzle

The crossword puzzle is a puzzle in the form of boxes containing words/numbers, and one letter/number in each box, which can be used to learn vocabulary. (Dhand, 2008).

In this chapter, the researcher discusses the background of the research, research questions, objectives, uses of the research, scope of the study, and definition of terms. The explanation uses the main problem as the main reason the researcher conducts the research.

## **II. LITERATURE REVIEW**

In the literature review, several theories and information are included to assist the researcher in designing the research. In this chapter, the researcher mentions several previous studies related to the study and describes the definition of vocabulary, teaching vocabulary, media in teaching, the definition of crossword puzzles, advantages and disadvantages of crossword puzzles, crossword puzzles as media, theoretical assumption, and the hypothesis.

### **2.1 Previous Research**

Some research studies that compare the implications of crossword puzzles on students' vocabulary achievement have been identified. The researcher had read some studies that are relevant to her research. In every single one, the crossword puzzle was used as a medium for learning English, especially in vocabulary achievement. For instance, the study by Sadiyah *et al.* (2019) discussed the effect of crossword puzzle games on students' vocabulary mastery. This research's quantitative approach has used pre-experimental methodology and a one-group pre-test post-test design. The data is collected using the pretest and posttest as instruments. The results show that the mean score of the pre-test was 41.83, and the post-test was 75.67 after the students received treatment using a crossword puzzle. Teaching English vocabulary using a crossword puzzle effectively improved students' vocabulary in seventh grade.

Another previous study was conducted by Tegu & Hadiwijaya (2022), the research was about the effectiveness of Crossword Puzzle Games on the Students' Vocabulary in seventh grade in SMPN I Nangaroro in the academic year 2019/2020. The objective of this research is to find out the effectiveness of or not using crossword puzzle games toward Students' vocabulary achievement in seventh grade

in SMPN I Nangaroro. The sample of this research was seventh-grade students of SMPN I Nangaroro. They were VII-C as the experimental class, which consisted of 20 students. This study showed that the students' pre-test mean score in the experimental class was 53.5, while the post-test mean score was 76.5. The study found that using crossword puzzle games to learn vocabulary is an effective and successful way to improve students' achievement in learning language.

In line with the previous study, Bella & Rahayu (2023) the researcher wanted to teach the students fun vocabulary through crossword games. This research was done in 3 cycles. The subject was one class of eleventh-grade students, which consisted of 28 students. The instruments were observation, tests, and questionnaires. According to the data analysis, the second cycle's scores are higher than the first. From 17% in the pre-test to 75% in post-test 1, there was an improvement of about 58%. Post-test 2, the students passed 85%. Observation showed that students became more engaged when crossword games were used, and their activities dominated the learning process. As much as 92% of students gave a positive opinion about crossword games, saying that crossword was fun, engaging, and easy for students to study vocabulary. Therefore, teaching the English language using crossword puzzle games could improve the students' vocabulary achievement.

Regarding the previous research above, it can be concluded that these researches have similarities and differences. The research similarities are discussed, such as how to improve students' vocabulary using a crossword puzzle and a word cross game. In contrast, the differences in the research are the research design. The researcher makes a difference from the previous study. The research used crossword puzzles as media to teach vocabulary to seventh-grade students in SMPN 4 Krui. The research design of this research is a paired sample test design with a quantitative approach. The research takes one group pretest and posttest.

## 2.2 Vocabulary

### 1. Definition of Vocabulary

Vocabulary is the primary component of English learning. Vocabulary learning is necessary for learners to improve many words and use the vocabulary in any need, especially in academics. Vocabulary is an essential thing in language building, we can express anything easily by mastering vocabulary. According to Hornby (2006) vocabulary refers to all the words a person knows or uses and all the words in a specific language.

There are some definitions of vocabulary according to the experts. Hatch and Brown (1995) defined vocabulary as a list or set of words for a particular language, that an individual speaker of a language might use. Meanwhile, According to Celce-Murcia (2001), vocabulary learning is central to language acquisition, whether the language is first, second, or foreign. In addition, a student who has a strong understanding of the vocabulary has less difficulty than those with a limited vocabulary.

Finally, from the definition above, the researcher can conclude that vocabulary is a list of words students must master to communicate in a particular language. Furthermore, vocabulary refers to all the words in a specific language that an individual knows or uses to communicate effectively.

### 2. Types of Vocabulary

Hatch & Brown (1995) mention there are two types of vocabulary. The first is receptive vocabulary, also called passive vocabulary, and the second is productive vocabulary, called active vocabulary. Receptive vocabulary refers to vocabulary that native speakers and international students can know and understand but is rarely used. Meanwhile, productive vocabulary is used actively in speaking or writing. Listening vocabulary is generally more prominent than speaking vocabulary while reading vocabulary is more significant than writing vocabulary. From this statement, it can be concluded that four units can represent vocabulary.



This includes reading vocabulary, listening vocabulary, vocabulary, pronunciation vocabulary, and writing vocabulary.

In addition, according to Beare (2018), each word in English belongs to one of the eight parts of speech. Each word is also either a content word or a function word. They are explained as follows with examples:

a. Content word

Content words refer to information and the meaning of words. They are usually nouns, verbs, adjectives, and adverbs.

1. Adjective: It refers to or describes an object, person, place, or thing, i.e., kind, evil, intelligent, beautiful, ugly, etc.
2. Adverb: It tells us how, where, or when something happens, i.e., slowly, carefully, sometimes, honestly, etc.
3. Noun: It refers to a person, place, or thing, such as Maria, a teacher, a book, etc.
4. Verb: It refers to the words that denote action, such as walk, read, eat, run, and smile.

b. Function Word

Function words are essential for understanding but add little meaning beyond defining the relationship between two words. Function words include auxiliary verbs, prepositions, articles, conjunctions, and pronouns.

1. Auxiliary verb: It refers to help with conjugating tense, i.e., do, be, have.
2. Prepositions: Show relationships in time and space, i.e., in, at, under, and between.
3. Articles: used to indicate specific or non-specific nouns. i.e., a, an, the.
4. Conjunctions: words that connect. i.e., and, but, for.
5. Pronouns: refer to other nouns. i.e., I, you, him, us.

### **2.3 Aspect of Vocabulary**

Students must know the aspects of vocabulary when learning English. According to Lado, who cited Manda et al. (2022), some elements of vocabulary have to be known, such as word meaning, word spelling, word pronunciation, word classes, and word use.

1. Meaning

The students must know the meaning of the word so that it can make it easier for the students to use it.

2. Spelling

Spelling is necessary in learning English because it can help students with reading activities. Spelling may have different acceptable written forms for the exact words within the same variety of English since they belong to different varieties, as happens with many British or American terms (Nation, 2001).

3. Pronunciation

Pronunciation is how a particular person pronounces words in the language. (Hornby, 2006). Some words only have one pronunciation, but sometimes a word has two or more pronunciations.

4. Word classes

Word classes are categories of words, such as verbs, adverbs, nouns, prepositions, and adjectives.

5. Word use

Word use is a word, phrase, or concept employed in a language.

Based on the vocabulary aspect above, the researcher focused on meaning, word classes, and word use. This aspect was chosen following the material in class using crossword puzzles.

## **2.4 Vocabulary Achievement**

Vocabulary achievement refers to a person's achievement in expanding and using their vocabulary in a language. According to Wijayanti (2016) achievement refers to the amount or level of learning students obtain. It was further explained that achievement is related to tests used to determine how successfully students achieve course objectives.

Vocabulary can be interpreted as a group of words that students master after the teaching and learning process. Learning and understanding new words is a fundamental part of vocabulary development. This involves understanding the meaning, pronunciation, and contextual use of words.

This theory aligns with vocabulary as an indicator for determining students' vocabulary achievements. According to Lado (1972), vocabulary consists of meaning, spelling, pronunciation, word classes, and word use. A student has achieved or mastered vocabulary if they understand the meaning of words, know how to spell and pronounce them, and can use these words contextually.

## **2.5 Teaching Vocabulary**

Teaching vocabulary is an important technique for improving students' English proficiency and is essential to success during vocabulary learning. Students who lack vocabulary will have difficulty learning and communicating in English.

In vocabulary teaching, to be successful, teachers need to identify student difficulties. Teachers can find the right way to help students learn vocabulary from these difficulties. According to Alfaini & Ma'rifatulloh (2023), there are several principles that teachers need to pay attention to, namely:

1. Objectives: Before the teacher begins teaching and learning vocabulary activities, several objectives must be understood, such as how much vocabulary students must master and what vocabulary will be taught. For example, Mr. Andrew is an English teacher in class 7. Today, he is teaching about his favorite food. He has prepared material about that and made a list of what students must learn in class.
2. Quantity: The teacher may decide on the amount of vocabulary to be taught and also choose how many words the student has learned. Example: Mrs. Ann will teach an English class to 7th-grade students about animals. He stipulated that the students must master 30 types of animals after the teaching and learning process.
3. Need: The teacher must be concerned with the vocabulary words chosen to teach the students because they must be related to the teaching goals. The teacher has to carefully select the words the students will learn based on their grades; the words should be easy enough for the students to remember.
4. Frequent exposure and repetition: Teachers should ensure students have memorized the newly taught word by repeating it before moving on to a new

Word. After the teaching and learning process, the teacher needs to check students' understanding of the words they have learned. The teacher can proceed to the following material if the students understand and remember the words.

5. Presentation of situations: According to the problem, students should learn the words in any appropriate situation. Word choices can be presented in various ways based on formal and informal situations, and how closely we know the person to adapt the material presented.

From the above principle, teachers must recognize their students, their needs, and how they should teach excitingly. Students' different ages mean that they have different needs and interests. In teaching vocabulary, teachers must be able to choose the words given to students by the curriculum and teaching objectives.

## **2.6 Media in Teaching**

Media plays a significant role in teaching, providing diverse tools and resources to enhance the learning experience. Apart from that, Naz & Akbar (2008) stated that teaching and learning are processes influenced by various factors, including using media or learning aids. They also noted that media conveys messages or information to students to achieve effective teaching in the teaching and learning process.

In implementing learning activities, several types of media can be used; here are some types of media:

### **1. Visual Media**

Visual media such as pictures, maps, miniatures, graphs, crossword puzzles, and posters can be seen and touched.

### **2. Audio Media**

Audio media is media that can be listened to. People are used to listening to and understanding spoken texts, for example, on radio, cassettes, and tape recorders.

### **3. Audio Visual**

Audio-visual media, such as TV and films, can be watched and listened to. Based on the explanation above, researchers used visual media, namely crossword puzzles. Using crossword puzzles as media in teaching and learning must attract

students' attention and make teaching and learning activities more exciting and compelling.

## **2.7 Crossword Puzzle**

A crossword puzzle can help students improve their cognitive ability to recall unfamiliar words. The puzzle requires filling the empty squares with letters to form words while following the directions on how to play. (Nurdin et al., 2019)

According to Harry Dhand (2008), a crossword puzzle is one letter/number for each square in a puzzle with sets of squares to be filled in with words or numbers. The numbers in the squares represent the term's synonyms or definitions. In response to the clues, letters/words are fitted into a pattern of numbered squares.

For example:

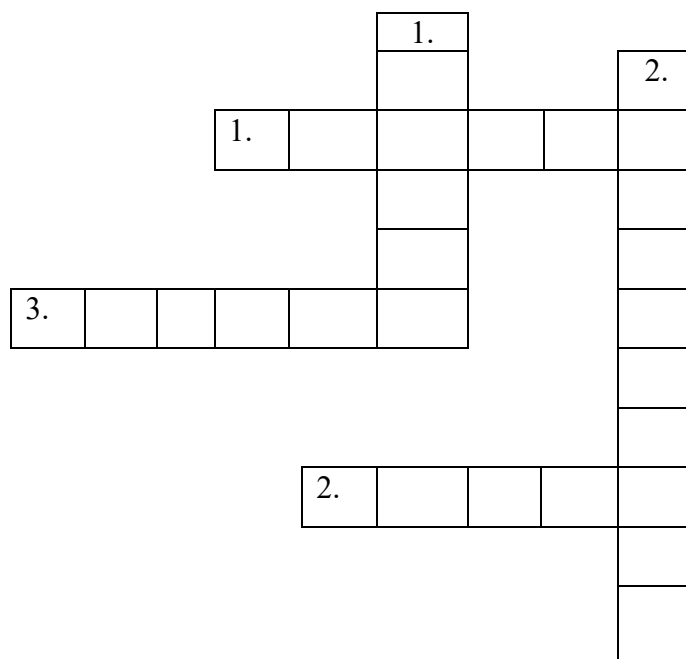
Fill the box with family members; here are some instructions

Cross:

1. Female parent
2. The brother of one's mother/father or the husband of one's aunt
3. A girl/woman who has the same parents as you

Down:

1. male parents
2. the mother from the father/mother's



In short, there are many types of puzzle games, such as crossword puzzles. The researcher used crossword puzzles designed to improve the English language teaching and learning process, especially vocabulary teaching and learning.

#### 2.7.1 Teaching Vocabulary Using Crossword Puzzle

Using crossword puzzles to teach vocabulary can be an effective strategy for increasing vocabulary achievement. Here are some structured activities to maximize learning outcomes:

##### 1. Set a Clear Learning Objective

Clearly define the vocabulary objective that the student will achieve through crossword activities.

##### 2. Pre-teaching Vocabulary:

Before presenting the crossword puzzle, introduce the selected vocabulary to students. Discuss its meaning, usage, and other relevant information that may aid understanding.

##### 3. Crossword Puzzle Creation:

Develop a crossword puzzle that includes the target vocabulary words. Make sure to include both across and down clues for each word. Design clues that challenge students to recall the meanings and applications of the words.

#### 4. Independent Work:

Have students work on the crossword puzzle individually. This encourages independent thinking and problem-solving skills.

#### 5. Peer Collaboration:

After individual work, allow students to collaborate with peers to complete the puzzle. This promotes discussion and peer-to-peer learning.

#### 6. Feedback and Discussion:

Provide feedback on completed crossword puzzles, discussing correct and incorrect answers: Emphasize understanding and proper usage. Please encourage students to explain the reasoning behind their answers, fostering a deeper understanding of the vocabulary.

### 2.8 Advantages and Disadvantages

In this research, the researcher used a crossword puzzle to teach vocabulary. Crossword puzzles can have advantages and disadvantages in teaching and learning vocabulary.

#### 2.8.1 Advantages

1. Crossword puzzles are engaging and enjoyable for students. Their game-like nature can motivate learners to participate actively in vocabulary learning.
2. Solving crossword puzzles requires active participation and critical thinking, promoting deeper cognitive engagement with the vocabulary words
3. Crossword puzzles can be used as a collaborative learning activity, encouraging teamwork and peer-to-peer interaction.

#### 2.8.2 Disadvantages

1. The problem with crossword puzzles is that only some of an object's characteristics can be given because the teacher has to replace one word with another.

Based on the explanation above, the researcher concludes that crossword puzzles have advantages and disadvantages as a vocabulary learning medium.

## **2.9 Theoretical Assumption**

Based on the previous theory, this research investigated whether using crossword puzzles as a medium in language teaching can improve students' vocabulary achievement in the first grade of junior high school.

Teaching vocabulary for junior high school level language learning is very important. The researcher assumes that teaching vocabulary through crossword puzzles will be more effective and fun because crossword puzzles guide students in learning words by playing word games. By using a crossword puzzle, students will pay more attention to learning new vocabulary and increase their vocabulary. It is hoped that using crosswords will reduce students' difficulties in learning English vocabulary and that the objectives of teaching and learning activities can be achieved.

## **2.10 Hypothesis**

Referring to the background of the problem, the researcher formulated the following hypothesis:

H1: There is a significant improvement in students' vocabulary achievement after the students are taught using crossword puzzles.



### **III. METHOD**

This chapter discusses research design, population and sample, variables, research instruments, research procedures, data analysis, and hypothesis testing.

#### **3.1 Research Design**

In this research, the researcher used a quantitative approach. This research applied a group pretest-posttest design of a pre-experimental design. This design exposed causal relationships by involving one group of subjects without a control group. This research compared students' vocabulary achievement in terms of meaning after being taught using crossword puzzles. This research is conducted in one class to carry out the research. Before conducting research, the researcher applied a pre-test to students. Then, after the pre-test, the researcher gave the treatment, and after the treatment, the students were given a post-test for a class. According to Setiyadi (2018), the research design is represented as follows.

**T1 X T2**

Notes:

T1     Pre-test

X       Treatment

T2     Pos-test

#### **3.2 Population and Sample**

The population of this research is the seventh-grade students at SMPN 4 Krui in the academic year 2024/2025. As for the sample, class VII D, which consists of 28 students, was selected due to certain considerations. The researcher selected the sample using random sampling. The researcher also conducted a Try-Out test in a different class, which was carried out in class VII E, which consists of 28 students.

### **3.3 Variables**

This research has two variables: the dependent variable and the independent variable. The dependent variable (Y) is the primary variable that is interesting for the researcher to observe to determine the influence of the independent variable. Meanwhile, the independent variable (X) is a variable that influences the dependent variable. In this research, the researcher considered student achievement in vocabulary as the dependent variable because this variable was observed and measured to determine the influence of the independent variable. The researcher also used crossword puzzles as an independent variable because this variable affects the dependent variable.

### **3.4 Research Instrument**

Research instruments have an essential role in research. Instruments are necessary tools for obtaining data for research. To get appropriate data, the researcher used a type of instrument in this research: a vocabulary test. This test measures students' vocabulary achievements before and after treatment. The vocabulary test is used as a pre-test and post-test. The test is in the form of multiple choices that consist of 35 items. Each question has four alternative answers (A, B, C, D), one is the correct answer and the three others are distracters.

#### **3.4.1 Validity and Reliability**

The quality of the instrument is said to be good if the test has good validity and reliability. The researcher conducted the try-out test with 50 questions to measure the quality of the test. In this research, the researcher used the result of the try-out test to measure the validity, reliability, level of difficulties, and discrimination power.

##### **1. Validity**

Setiyadi (2018) states that an instrument's validity shows the extent to which it measures something that should be measured. The researcher emphasized content

validity and construct validity to measure whether the test has proficient validity. There are numerous ways to assess the test's validity in this research, including:

a. Content Validity

According to Setiyadi (2018), content validity is related to all the items in a measuring instrument. It concerns whether the tests accurately reflect the materials that need to be tested.

This research used a vocabulary test that is supposed to be comprehended by the first-grade students of Junior High School. The researcher used the syllabus from the phase D teaching module relating to the student's needs (the syllabus can be seen in Appendix 1).

b. Construct Validity

Shohamy (1985) stated that construct validity is concerned with whether the test is actually in line with the theory of what it means to know the vocabulary. It means the test items should test the students' vocabulary knowledge. If all items measure the vocabulary knowledge, the instrument has fulfilled the aspect of construct validity. In this research, the researcher measured the vocabulary in the test based on content words, such as noun, verb, adjective, and adverb. The construct validity can be measured by evaluating all the items that are related to the vocabulary. In this research, the instrument refers to several sources, such as 7th-grade English books, the Merdeka Curriculum module, and previous research instruments. Expert judgment was done to make sure the test items were able to measure students' content word vocabulary knowledge. Therefore, it has fulfilled the construct validity.

The researcher made the vocabulary test based on the junior high school curriculum and the vocabulary range was taken randomly using systematic random sampling. The distribution of test items for the vocabulary test is described below:

**Table 1. Specification of the Vocabulary Test**

No.	Word Type	Item Number	Total	Percentage
1.	Noun	1,2,4,5,7,9,12,13,19,22,29,35,44,49,50.	15	15%
2.	Verb	8,18,20,21,23,2,26,27,28,30,38,40,41,43,47.	15	15%
3.	Adjective	3,6,10,11,14,15,16,17,24,31,32,33,34,36,37,39,42,45,46,48.	20	40%
<b>TOTAL</b>		<b>50 Items</b>		100%

This research deals with descriptive text and focuses on content words of vocabulary: nouns, verbs, and adjectives. According to Table 1, the total vocabulary test is 50, consisting of 15 items of nouns, 15 items of verbs, and 20 items of adjectives. Based on the result of the try-out test, the total number of questions that the researcher took for the pre-test and post-test is 35.

## 2. Reliability

Reliability refers to the extent to which a test is consistent in its scores and indicates the accuracy of the test scores (Hatch & Farhady, 1982). In other words, reliability refers to the consistency of the measure. In this study, the researcher analyzed the reliability of the test and the research scoring system. A test is considered reliable if it shows consistent results. In this research, the researcher gave the try-out test before giving the pre-test. The test contained 50 multiple-choice questions related to nouns, verbs, and adjectives. To measure the reliability of the Try-Out test, the researcher used SPSS 26 with the Guttman Split-Half Coefficient. The technique was used to estimate the reliability of the test to measure the coefficient on the reliability in the first and second-half groups. According to Fraenkel et al. (2012),

the score is considered reliable whenever the reliability coefficient of the test score is at least 0.70 or higher.

The result of the try-out reliability test in this research is described in Table 2.

**Table 2. Reliability of Try-Out**

Reliability Statistics			
Cronbach's Alpha	Part 1	Value	.897
		N of Items	25 <sup>a</sup>
	Part 2	Value	.687
		N of Items	25 <sup>b</sup>
	Total N of Items		50
Correlation Between Forms			.815
Spearman-Brown Coefficient	Equal Length		.898
	Unequal Length		.898
Guttman Split-Half Coefficient			.855

Based on the reliability test result in Table 2, the Guttman Split-Half Coefficient value was 0.855, which is higher than 0.70. Therefore, the instrument can be used for data collection measurements.

### 3.4.2 Level of Difficulty

Level of difficulty was used to classify test items into difficult and easy test items. As Shohamy (1985), argues the level of difficulty is how easy or difficult the item is taken from the point of view of the students who take the test. This is important because the items should not be difficult or easy for the students. According to Shohamy (1985), to check the level of difficulty, the research used the following formula:

$$LD = \frac{R}{N}$$

Notes

LD : Level of Difficulty

R : The Number of students who answer correctly

N : The Number of students following the test

The criteria are:

<0.30 : Difficult

0.30-0.70 : Average

>0.70 : Easy

The researcher utilized a Microsoft Excel formula to determine each item's difficulty level. As a result, three categories exist for difficulty levels: easy, average, and challenging. All results of the level of difficulty calculation can be seen in Appendix (10). Based on the result, it was found that there were two easy items and 48 questions in the average index, with 15 items having poor discrimination power.

### 3.4.3 Discrimination Power

Discrimination power concerns how the items can differentiate students with high and low ability in the test. According to Shohamy (1985), to observe the differentiated power of the test, the research used the formula as follows:

$$DP = \frac{U - L}{\frac{1}{2} N}$$

Notes

DP : Discrimination Power

U : The total of the correct answer of the higher group

L : The total of the correct answer of the lower group

N : Total number of students

The criteria are:

Negative : Bad

0.00-0.20 : Poor

0.21-0.40 : Satisfactory

0.41-0.70 : Good

0.71-1.00 : Excellent

The four discrimination power criteria are poor, satisfactory, good, and excellent. According to the discrimination power calculation (Appendix 10), 15 poor, 28 satisfactory, and seven good items were included. As indicated by the discrimination power table, 15 items were omitted. The researcher administered 35 out of 50 items in the pre-test and post-test.

Based on the explanation above regarding the level of difficulty and discrimination power, it can be concluded that 15 questions needed to be removed due to their poor quality. Additionally, 14 items were identified as having average levels. Thus, the items must be dropped because they have poor discrimination power. Furthermore, 35 questions, divided into 28 with satisfactory and 7 with good criteria, could be administered for vocabulary tests to conduct pretest and posttest.

### **3.5 Data Collections**

The researcher collected tests and treatments as a data collection method in this research. The test used to collect the required data by carrying out the following steps:

#### **1. Pre-test**

The pre-test was conducted for students at the beginning of the meeting. The pre-test was conducted on students in the form of multiple-choice questions. The pre-test determines student data in the form of ability before treatment.

#### **2. Pos-test**

After treatment, the post-test was administered to students at the end of the meeting. The post-test was given to students in the form of multiple-choice questions and was used to determine student data in the form of abilities after treatment.

#### **3. Scoring System**

The scoring system evaluates student tests after being given a pre-test and post-test. To know student scores on the pre-test and post-test, the researcher used the formula as follows:

$$S = \frac{R}{N} \times 100$$

Notes

- S : The score of the test
- R : The total number of correct answers
- N : The total number of items on the test

### 3.6 Data Analysis

In knowing students' progress in vocabulary achievement, the researcher analyzed the data using the following steps:

1. Scoring the pre-test and post-test.
2. Calculating the mean of the pre-test and post-test
3. Conclusions were drawn from analyzing data using SPSS (Statistical Program for Social Science) with paired samples. A t-test analysis was conducted to determine whether there was a significant difference in students' vocabulary achievement after treatment.

The researcher analyzed the data in three steps: scoring the pre-test and post-test, and concluding with a conclusion.

### 3.7 Research Procedure

In collecting data, the researcher carried out several procedures, which can be described as follows:

1. Determining the research population and sample.

The population of this research is the students of SMPN 4 Krui. The sample of this research is two classes of seventh-grade students of SMPN 4 Krui.

2. Choosing the materials

In this research, the researcher chooses several types of Vocabulary as material for determining the verb, nouns, and adjectives.

3. Administering the Tryout-test



The try-out test was carried out before the pre-test to measure whether the tests used in this research are appropriate and can be applied to collect the data. The try-out test is in the form of multiple choices.

#### 4. Administering the Pre-test

The pre-test was conducted to determine the students' vocabulary achievement before the students were taught using crossword puzzles as media. The pre-test is in the form of multiple choice.

#### 5. Conducting the treatment

After giving a pre-test to students, the researcher carried out treatment. In this section, the researcher provides the primary material describing the school using crossword puzzles as a medium.

#### 6. Administering the Post-test

The post-test was given to students to determine student achievement after the students were taught using crossword puzzles as media. The test was used in the form of multiple choices.

#### 7. Analyzing the data

In this section, the researcher analyzed the data obtained from students' pre-test and post-test using the Statistical Package for Social Sciences (SPSS) software program. This analysis aimed to determine the means of pre-test and post-test scores and assess the significance of the difference.

#### 8. Drawing Conclusion

After completing the data analysis, the researcher moved on to drawing conclusions based on the statistical findings. By interpreting the descriptive statistics and identifying trends or significant changes in vocabulary achievement, the researcher could determine the effectiveness of the crossword puzzle as media. This step involved assessing whether the students showed measurable improvement and if

the teaching media had a positive impact on their vocabulary learning. These findings were then summarized to guide future teaching strategies and the potential application of crossword puzzle in vocabulary instruction.

### **3.8 Hypothesis Testing**

After collecting the data, the researcher analyzed the data using a one-group pre-test and post-test to determine whether there was a significant improvement in students' vocabulary achievement after being taught using the crossword puzzle. The researcher used a paired sample t-test to examine whether there was a substantial improvement in students' vocabulary achievement after treatment. The hypothesis can be seen as follows:

H1: There is a significant improvement in students' vocabulary achievement after the students are taught using crossword puzzles.

In short, those are the explanations of this chapter, which cover topics such as research design, population and sample, variables, research instrument, research procedures, data analysis, and hypothesis testing.

## **V CONCLUSIONS AND SUGGESTIONS**

This chapter explains the conclusions based on the research results and some suggestions for English teachers and other researchers.

### **5.1 Conclusions**

After the researcher conducted research and obtained data at SMPN 4 Krui, which had been analyzed in the previous chapter, it can be concluded that using crossword puzzles as media can improve students' vocabulary achievement, as seen in the improvement in students' vocabulary scores in the pretest and posttest, which was 27.51, from 51.82 in the pretest to 79.33 in the posttest. After applying the t-test formula, the result shows that H1 was accepted because the hypothesis testing with paired sample t-test showed a p-value (0.000) less than the significant level (0.05). Thus, it can be concluded that the treatments using crossword puzzles as media in teaching vocabulary were carried out successfully. Using crossword puzzles as media could improve students' vocabulary achievement. In addition, crossword puzzles can be used to make students enjoy the teaching and learning process. The medium was easy to apply, and students loved it. It can be concluded that crossword puzzles as a media improved students' vocabulary for teaching and learning.

### **5.2 Suggestions**

In light of the findings of the research, the researcher provides the following suggestions:

#### **5.2.1 Suggestion for English Teacher**

1. The researcher suggests that English teachers use crossword puzzles to teach vocabulary to students. Using crossword puzzles can increase

students' vocabulary achievement and motivate them to improve their vocabulary with new words.

### **5.2.2 Suggestion for Further Researcher**

1. The researcher used crossword puzzles as media for the first grade of junior high school. The researcher suggests that further researchers can use diverse words based on other kinds of themes at different levels of students, such as senior high school.
2. The researcher has a higher standard deviation, so the distribution of scores is not balanced. The researcher suggests that further researchers should be more selective and careful in preparing research instruments and conducting validity and reliability tests to ensure the instrument is ready for use and suitable for research participants. Also, the further researchers should consider creating a more valid and reliable instrument to get better results in pretests and posttests, especially to get a more even distribution of scores.

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