

**THE USE OF MIND MAPPING
TO IMPROVE STUDENTS' VOCABULARY ACHIEVEMENT
AT THE SEVEN GRADE STUDENTS
OF UPTD SMPN SATAP 3 PESAWARAN**

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
2025**

ABSTRACT

THE USE OF MIND MAPPING TO IMPROVE STUDENTS' VOCABULARY ACHIEVEMENT AT THE SEVEN GRADE STUDENTS OF UPTD SMPN SATAP 3 PESAWARAN

By

Delvina Damayanti

This research is aimed to find out whether there is significant improvement in students' vocabulary achievement after the implementation of the mind mapping technique. The researcher employed one-group pre-test and post-test to obtain the data. Then, the purposive sampling was used in this research and the A class was chosen because it had larger number of students than the other class. The mean scores of pre-test and post-test were analyzed by using the Paired Sample T-Test. The scores of students' pre-test and the post-test were compared. The results were calculated by using SPSS 25. It was found that the significance (2-tailed) value obtained was 0.000, and it was higher than the significance level ($0.000 < 0.05$), and the *t-value* was higher than the *t-table* ($18.833 > 2.052$). The N-gain scores of students were found. The minimum score was 22.80%, while the maximum score was 88.23%. After counting all the N-gain scores, it is obtained that the mean gain of the N-gain score is 50.82%, and it was considered that the mind mapping technique is effective. Based on the results, it can be concluded that there was a positive significant difference between both of the pre-test and post-test, and the researcher draws a conclusion that the mind mapping technique in this research is effective in improving students' vocabulary achievement.

Keywords: English vocabulary, vocabulary achievement, mind mapping

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Undergraduate Thesis

**Submitted in a Partial Fulfillment of
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In

**The Language and Arts Education Department
Faculty of Teacher Training and Education**



**ENGLISH EDUCATION STUDY PROGRAM
DEPARTMENT OF LANGUAGE AND ART EDUCATION
FACULTY OF TEACHER TRAINING AND EDUCATION
UNIVERSITY OF LAMPUNG
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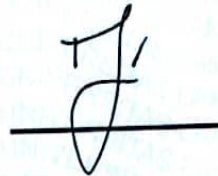
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Menyatakan bahwa skripsi ini adalah karya dari pelaksanaan penelitian saya sendiri. Sepanjang pengetahuan saya, karya ini tidak berisi materi yang ditulis orang lain, kecuali bagian-bagian tertentu yang saya gunakan sebagai acuan. Apabila ternyata terbukti bahwa pernyataan ini tidak benar, maka hal tersebut sepenuhnya merupakan tanggung jawab saya.

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CURRICULUM VITAE

Delvina Damayanti was born on September 24th, 2000 in Kotabumi. She is the third daughter out of the 3 sisters of an amazing couple; the late Darmawan and Eli Yana. She has two sisters, the first older sister named Dia Restiana and the second older sister named Dina Astriana.

She joined TK Negeri Pembina in 2005. Then, she became an elementary student of SDN 03 Tanjung Aman and graduated in 2012. After that, she continued her study at SMPN 1 Gedongtataan. After graduating from junior high school, she went to SMAN 1 Gedong Tataan and graduated in 2018. She studied for 3 years. During her high school years, she joined and became the deputy head of the social society division of the extracullicular of Islamic Spirituality (Rohis).

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DEDICATION

In the name of Allah Subhanahu Wa Ta'ala

The Merciful

The researcher proudly dedicate this work of her beloved parents,

(the late) Darmawan & Eli Yana

her older sisters,

Dia Restiana and Dina Astriana

MOTTO

“It always seems impossible until it’s done”

- Nelson Mandela

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The writer believes that this paper is still far from perfection. Therefore, comments and suggestions are needed for a better research. Besides, it is hoped that this paper can give a positive impact to the readers, other researchers, and also can be a helpful contribution in educational development.

Bandar Lampung, June 10th, 2025

The author,



Delvina Damayanti

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I. INTRODUCTION

This chapter discusses about the background of the study, the research question, the objective of the research, and the definition of terms.

1.1 Background of Study

In learning a language, the essential aspect is vocabulary. Simply, vocabulary is defined as a list of words. There are some experts who explained about the importance of vocabulary in learning a language. Wilkins in Thornbury (2002) stated that without grammar very little can be conveyed, without vocabulary nothing can be conveyed. In other words, vocabulary is the first thing that is very important to be mastered before mastering other language components. Cameron (2001) also states that vocabulary is one of the language components that have an important role in the development of language skills. It means that vocabulary helps language learners to improve their language skills: listening, speaking, reading, and writing.

English language learners still have difficulties in mastering vocabulary. First, it is difficult for them to remember the words. They often forget about the new words they have learned. Second, they do not repeat the words and use it in order to make them remember the words longer. Therefore, they can forget the words easily. Third, there is no interesting way that can attract students' attention in learning vocabulary. Teacher may use the same technique that is monotonous, so that it can make students feel bored.

There are many researchers who found the students' difficulties in the aspect of vocabulary. Othman (2018) found that students have difficulties in remembering

vocabulary and using vocabulary in speech or writing. Similarly, Mamura (2011) also found that the students had difficulties in discovering the meaning of words and the application of the words. In teaching vocabulary, a language teacher must implement a good technique to be applied to his class in an attempt to make students improving their vocabulary.

One of the good techniques to teach vocabulary is Mind Mapping. Mind Mapping is a teaching technique developed by Tony Buzan in 1970. According to Buzan (2006), Mind Maps harnesses the full range of cortical skills – word, image, number, logic, rhythm, color, and spatial awareness – in a single, uniquely powerful technique. In other words, mind mapping is a technique that uses key ideas to help someone in understanding new information.

There are many researchers who have used Mind Mapping to improve students vocabulary achievement. Jones et.al (2012) in Sirait, Pangaribuan, and Tarigan (2018) states that mind mapping helps students learn information by forcing them to organize, add images and color to it. It can help students to create a visual image to increase their learning. Bahadori & Gorjian, (2016) in Othman (2018) also found that mind maps help develop students' ability to comprehend the meaning of a text. Based on the findings from Sirait, Pangaribuan, and Tarigan in 2018, it was found that there are significant improvements in the responses of students after being taught by using Mind Mapping. It can improve their learning behavior and enthusiasm in learning vocabulary.

In the school that the researcher observed, it is also found that many students have difficulty in understanding vocabulary. They have lack of vocabulary. The researcher assumed that it is because of the monotonous technique using in teaching English at school. There are some reasons why the researcher choose mind mapping in this research. First, the researcher thinks that mind mapping is an attractive way for students. Second, mind mapping can help students to

remember the words easily in a short time. It is expected that the students also can improve their vocabulary achievement. Third, mind mapping also can help the teacher to present many English words in interesting ways. Therefore, the researcher tries to prove the effectiveness of mind mapping in improving students' vocabulary achievement in the school.

1.2 Research Question

Is there any significant improvement in students' vocabulary achievement after they are being taught by using Mind Mapping?

1.3 Objective

To find out whether there is any significant improvement in students' vocabulary achievement after they are being taught by using Mind Mapping.

1.4 Definition of Terms

There are some definitions of key terms in this research. They are as follows:

1. Mind Mapping

Mind mapping is a learning technique that has a function to help the brain map the information in an interesting way.

2. Vocabulary Achievement

Vocabulary achievement is the ability of students in comprehending words and implementing them into their four language skills.

II. LITERATURE REVIEW

In chapter two, there are some discussions about the previous researches, the concept of vocabulary, definition of vocabulary, types of vocabulary, words classifications, the concept of mind mapping, parts of mind mapping, steps in making mind mapping, teaching vocabulary through mind mapping, and the hypothesis.

2.1 Previous Research

Mind Mapping is one of teaching techniques that is widely known in the field of education. This technique is considered as an interesting technique to teach English. Therefore, many teachers use it to improve students' English ability, such as four main skills: listening, speaking, reading and writing, including vocabulary achievement. Not only teachers, but also researchers are interesting with this technique.

Many researchers have proven the superiority of Mind Mapping Technique in teaching English, particularly in the field of vocabulary. Yugafiati and Priscila (2019) with their research, "The Use of Mind Mapping to Improve Student's Vocabulary" in 2019 have proven that mind mapping can help students in improving new vocabularies and motivation in learning vocabulary. They also found that the implementation of mind map enables students to gain some new vocabulary. On the other hand, mind mapping also can develop drawing skill and teach students to make a note orderly. More than that, it also can develop student's drawing skill and student's ability in making a note sortly. Another research comes from Sirait, Pangaribuan, and Tarigan (2018) who found that the teacher's technique used in teaching vocabulary was not

interesting or monotonous. It made the students lazy to learn vocabulary. In other words, a language teacher must make a fun learning process in a class.

Another research comes from Sahrawi (2013) with his research, he has proven that teaching vocabulary by using mind mapping can improve student's vocabulary and enhance student's creativity in expressing their ideas. In the field of improving students' motivation, a research from Setianingsih, Rosihan, and Pardani (2018) showed the improvement in students' motivation after being taught by using mind mapping.

The previous studies have shown the effectiveness of using mind mapping to teach vocabulary. There are many benefits of mind mapping that can help students to improve their vocabulary in an interesting way. Therefore, the researcher also proves this technique by using mind mapping to teach vocabulary to the students.

2.2 The Concept of Vocabulary

Vocabulary is an important part of a language. It can be simply defined as a list of words. In Oxford Learners Dictionary, Manser (1995) defined vocabulary as the total number of words in a language, all words known by a person or used in a particular book, subject, or a list of words with their meanings. Based on the explanation above, we can conclude that vocabulary is the total number of words in a particular language that a person knows or uses.

In communication, vocabulary plays an important role because it is the basic aspect that someone must comprehend. Vocabulary consists of list of words that are used in language skills. Therefore, without mastering vocabulary, it is difficult for language learners to improve the other aspect, particularly language skills. Language learners must master vocabulary first in attempt to

improve their abilities of four language skills; listening, speaking, reading, and writing.

The students who have low vocabulary levels face many problems in teaching and learning activities, particularly in developing their language skills. For example, students have difficulties in making a text in writing skill. In reading skill, it is difficult to understand some words. In speaking skill, it can be difficult to speak and express their ideas without using appropriate vocabulary lists. Meanwhile, in listening skill, they have difficulties in understanding what the speakers are saying.

Dellar and Hocking in Thornbury (2002) state that the most improvement in English is if we learn more words and expressions. It means that if someone wants to see the biggest improvement in English, he or she must learn vocabulary and expressions, or in this case, the most improvement in learning English is if the students learn more about vocabulary.

2.2.1 Definition of Vocabulary

According to Hornby (2006), vocabulary is list of words that are used when people talks about particular subject in particular language. In line with Hornby, Neuman and Drawyer in Bintz (2011) stated that vocabulary as the words that someone must know to communicate effectively to each other. Based on their thoughts, it be concluded that vocabulary is words that are used in the field of communication with other people.

Another definition comes from Richards and Renandya (2002). They stated that vocabulary is a core component of language proficiency and provides much of the basis for how well students speak, listen, read and write. In other words, vocabulary is the essential part of language

proficiency and it provides the basis of the student's language skills in listening, speaking, reading, and writing.

2.2.2 Types of Vocabulary

According to Harmer (2001), vocabulary is divided into two types, namely active vocabulary and passive vocabulary. Active vocabulary is a type of vocabulary which has been thought or learned and is expected to be used by students. Meanwhile, passive vocabulary is a type of vocabulary that can be recognized by students but probably they cannot produce.

2.2.3 Words Classifications

Hatch and Brown (1995) classify words based on their functional content. This is called parts of speech. There are some types of part of speech, such as nouns, verbs, adjectives, adverbs, conjunctions, prepositions, pronouns, articles and demonstratives.

1. Nouns

Nouns are one type of part of speech that has some functions in a sentence in being the head of words or a subject and being an object at the end of a sentence. There are some types of nouns:

- a. **Common Nouns:** list of nouns that is used in signifying something in common, e.g. *house, day, girl, boy, etc.*
- b. **Proper Nouns:** list of nouns that is used in signifying something in specific, e.g. personal names, nationalities, religions, geographic units, and time units.
- c. **Concrete Nouns:** list of nouns that is classified as physical objects, e.g. *cat, fragrant, and wood.*
- d. **Abstract Nouns:** list of nouns that is not classified as physical objects, e.g. *love, sadness, and happiness.*

- e. **Countable Nouns:** list of nouns that can be counted one by one directly, such as *book*, which means ‘one book’.
- f. **Uncountable Nouns:** list of nouns that must be measured by using tools, such as a *teaspoon of salt*.

2. Verbs

Verbs are one type of part of speech which indicates what a subject does or show an activity of a subject in a sentence. A verb is usually written after noun (subject) in a sentence. There are some types of verbs:

- a. **Action Verbs:** list of verbs that has a function in showing a direct action or activity that is done by subject in a sentence, such as *sing, write, dance, and read*.
- b. **Transitive Verbs:** list of verbs that cannot be stand without direct object, for example: “He *kicks* the ball.”
- c. **Intransitive Verbs:** list of verbs that can be stand without direct object, for example: “She *runs*.”
- d. **Main Verbs:** list of verbs that has a function to show an action of subject in a sentence.
- e. **Helping Verbs:** list of verbs that have function in helping the main verbs to describe what the subject does.
- f. **Linking Verbs:** list of verbs that has a function to link a subject and an object in a sentence, such as *is, am, are, was, and were*.

3. Adjectives

Adjectives are one type of part of speech that has a function to describe personalities of someone or conditions of something. Examples of adjectives are *sad, happy, smart, long, tall, etc*.

4. Adverbs

Adverbs are a type of part of speech that has a function to explain the other adverb, verb and adjective. There are five types of adverbs:

- a. **Adverbs of Frequency:** list of adverbs that is used to show how frequent an action is done, for example *always, never, usually*.
- b. **Adverbs of Degree:** list of adverbs that is used to explain the degree of the other adverb, verb and adjective in a sentence. Example of adverbs of degree is “He opened the can *so easily*” (adverb *so* explains adverb *easily*).
- c. **Adverbs of Manner:** list of adverbs that is used to show how a subject in a sentence does something, for example *carefully, totally, easily, etc*).
- d. **Adverbs of Place:** list of adverbs that is used to explain the place where an event occurs in a sentence, for example *there, everywhere, here, etc*.
- e. **Adverbs of Time:** list of adverbs that is used to explain the time of the occurrence of an event in a sentence, for example *tomorrow, now, yesterday, two years ago, etc*.

5. Conjunctions

Conjunctions are one type of part of speech that is used to link a word, phrase, or clause with another clause in a sentence. There are three types of conjunctions:

- a. **Coordinating Conjunctions:** list of conjunctions that is used to link the elements of sentence in the same class, such as word with word, noun with noun. There are seven elements of coordinating conjunctions: *for, and, nor, but, or, yet* and *so*.
- b. **Subordinating Conjunctions:** list of conjunctions that is used to link subordinate clause with main clause, for example *unless, because, although, if, and until*.

- c. **Correlative Conjunctions:** list of conjunctions that is used in pair to show the relation between words, phrases, or clauses, for example *not only...but also...*, *both...and...*

6. Prepositions

Prepositions are one type of part of speech that has a function to link a word to a noun in a sentence. Commonly, there are three types of prepositions:

- a. **Prepositions of Place:** list of prepositions that is used to where an event happens. Examples of this preposition are *in*, *on*, *at*, *above*, *under*, *between*, *beside*, and *outside*.
- b. **Prepositions of Time:** list of prepositions that is used to show when an event happens. Some examples of prepositions of time are *in* (followed by year), *on* (followed by day), *at* (followed by hour), *for*, *before*, and *after*.
- c. **Prepositions of Direction:** list of prepositions that is used to show the direction of something in a sentence, for example: “Mr. Billy will take you *to the school*.”

7. Pronouns

Pronouns are one type of part of speech that is used to replace noun in order to avoid repetition in a sentence. There are many types of pronouns, some of them are explained below:

- a. **Personal Pronouns:** list of pronouns that is used to replace people in a sentence. There are three types of personal pronouns: *the first person* (I, We), *the second person* (You), and *the third person* (They, She, He, and It).
- b. **Possessive Personal Pronouns:** list of pronouns that has a function to show ownership of something. Some examples of possessive personal pronouns are *mine*, *yours*, and *theirs*

- c. **Subjective Pronouns:** list of pronouns that has a function as a subject in a sentence. Some examples of subjective pronouns are *I, you, we, they, she, he, and it.*
- d. **Objective Pronouns:** list of pronouns that has a function as an object in a sentence. Some examples of objective pronouns are *me, you, us, them, her, him, and it.*

8. Articles

Articles are one type of part of speech that is used to start a word. In English, articles are divided into three types as below.

a. Zero Article

Zero Article means there is no article used in a sentence. This type of article can be used when someone talks about something in common, and when someone talks about the name of place.

b. Indefinite Articles

Indefinite articles consist of articles *a* and *an*. These articles are used for countable nouns, such as *a pen, a cat, an apple, an elephant, etc.*

c. Definite Article

Definite article consists of article *the*. It is used to start the name of geographic areas, and to start a noun when listener knows what the speaker means.

Based on the curriculum, the topic of seventh grade is descriptive text. Therefore, in this research, the researcher focused only on three types of word classifications; nouns, verbs, and adjectives to be implement in the mind mapping and to see the improvement of vocabulary achievement in students.

2.3 The Concept of Mind Mapping

Mind mapping is a stimulating technique of linking key concepts by using lines, pictures, colors, and symbols. It is developed by Tony Buzan, a human potential development expert, in 1974. Mind map is widely known by language teachers and researchers. It has been used for years. People recognize mind maps as an interesting technique. It also simple but has complex parts of ideas.

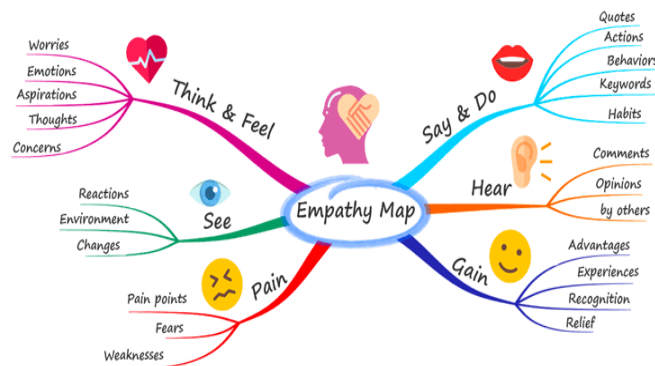


Figure 2.1. Example of Mind Mapping

Buzan stated that mind mapping is a powerful graphic technique that provides a universal key to unlock the potential of the brain. In other words, mind mapping consists of keys/ideas from someone's mind. The ideas of the mind are converted into lines, pictures, colors, and symbols like the process of the human brain. Those help students to understand a concept easily states that educators consider mind map as a great technique to sort the ideas of the students. Educators, or in this case are the teachers, have used mind map to help them explaining about how to sort the ideas to the students.

In teaching and learning activities, mind mapping allows the students to categorize their ideas into groups. It starts with a concept, then they can put the main branches of mind mapping to present the main points of their thought. After that, they can combine them by using symbols, pictures and interesting colours. Those activities help them to stimulate their brain.

This technique is considered as an interesting technique in teaching and learning activities, because it consists of ideas that are linked by using lines and pictures. It can attract student's attention. While putting attention to the teacher, they develop their thinking skill. When they are trying to make their mind map, they put their ideas in there. Indirectly, by using lines and pictures, they also develop their creativity.

2.3.1 Parts of Mind Mapping

Mind mapping is divided into some parts. According to Windura (2008) there are six parts of Mind Mapping:

1. Central Image

Central image is an essential image or figure that always has position in the middle of the paper. It has function in mind mapping to describe the main idea. There are several functions of central images: activate students' right brain, strengthen students' memory, and liven up the learning atmosphere in the classroom.

2. Key Word

Key word is a word that has function as a leader of the sentence. It is very essential and a strong word that can help students to trigger the brain to remember the information.

3. Basic Ordering Ideas

Basic ordering ideas can be defined as the branches that contain sort information. They are made as headings for the topic of mind mapping.

4. Branches

Branches are made to connect the central image to the ideas that are written in the form of words or pictures. They also should be curvy and in the same length as the words or pictures above them.

5. Pictures

Pictures are made related to the topic of mind mapping itself. They are often used in mind mapping to attract students' attention and have a function to strengthen a key word that has been written before.

6. Colors

Colors are used on the pictures made in mind mapping. The use of colors can encourage students' creativity and help them in memorization. Adding some colors in the branches and images can make mind map easier to comprehend and remember.

2.3.2 The Steps of Making Mind Mapping

Buzan (2006) explains the steps of how to make mind mapping. There are four essential steps in making mind mapping as below:

1. The first step is drawing a picture in the middle part of the paper as a central image. It is used in attempt to describe the main idea of the topic that is developed.
2. The second step is drawing curve lines around the central image. It has a function as the main branches of the topic.
3. The third step is drawing pictures in every branch. The teacher draws a picture or a symbol in every main branch tip to show the keywords.

4. The four step is creating second branches that are made to present ideas related to the main branches. At the tips of second branches, the teacher also draws pictures and symbols.

In many researches, the researchers also ask the students to color the pictures they had created. This step can make the mind mapping more interesting for the students.

2.4 Teaching Vocabulary through Mind Mapping

Teaching vocabulary is important to language learners in order to improve their vocabulary achievement. Thornbury (2002) states that teaching words is a crucial aspect of learning a language as languages are based on words. Words in this statement are vocabulary lists. Mind mapping can be used in some activities, such as learning English vocabulary. Many teachers have used mind mapping to help the students understand English vocabulary.

According to Rivers in Thornbury (2002), vocabulary cannot be taught; it can be presented, explained, included in all kinds of activities and experienced in all manner of association, but it is ultimately it is learned by the individual. His statement means that to master vocabulary, students must learn it individually by following and experiencing some activities. Mind mapping is one kind of technique that is believed that it can be used by the teacher in teaching vocabulary, because it contains the essential idea and encourages conveniently memorizing vocabulary.

In teaching vocabulary to students, a language teacher needs to apply a good and appropriate technique is to make students be able to mastering vocabulary. One popular technique of teaching vocabulary is using Mind Map. The mind mapping technique is widely used by teachers to teach their students because it is very interesting to the students. By implementing mind mapping in the class, students not only put their ideas into mind mapping but also can share them with their friends. Indirectly, they also can implement their knowledge of new

vocabulary lists in four language skills. For example, in listening skill, they are be able to comprehend the meaning of what the speakers are saying. In speaking skill, it can help them to speak and share their thoughts by using new vocabulary. In reading skill, they are able to comprehend a higher level of vocabulary. In writing skill, they are able to use new vocabulary lists.

Based on the importance of mind mapping above, the researcher can conclude that mind mapping is considered as a right decision of teaching English to be implement to the subject that is examined by the researcher.

2.5 Hypothesis

In this research, the researcher draws hypothesis to prove the answer of the research question.

H_0 = There is no significant improvement in teaching vocabulary by using Mind Mapping Technique.

H_1 = There is significant improvement in teaching vocabulary by using Mind Mapping Technique.

III. METHODOLOGY

In chapter three, there are some discussions about the research design, variables of the research, population and sample of the research, research instruments, research procedures, scoring system, validity and reliability of the test, and hypothesis testing.

3.1 Research Design

This study used pretest-posttest design. Pretest-posttest design is an experiment which provides participants with the same assessment measures before and after treatment to determine any changes that can be connected to the treatment. Simply, this design is used to compare the test before and after treatment by measuring the result of the test.

In using this design, the researcher distributed the pretest before applying the treatment to the subjects. After distributing the pretest, the next step was applying the treatment, and then conducting posttest to see the changes from both instruments before and after doing the treatment.

The design can be seen as below:

Graph 3.1 The Illustration of One-Group Pre-Test and Post-Test

Pre-test	Treatment	Post-test
O₁	X	O₂

Remarks:

O₁: Pre-test before treatment

O₂: Post-test after treatment

3.2 Variables of the Research

Variable in a research can be defined as something (person, thing, and phenomenon) that the researcher is trying to measure or observe. According to Creswell (2014), a variable is a characteristic or attribute of an individual or an organization that can be measured or observed and it varies among individuals or organization studied.

There are two variables; independent and dependent variables. Independent variable is a type of variable that affects another variable, or the variable that is being measured. Meanwhile, dependent variable is a type of variable that is affected by independent variable, or the variable that is being manipulated. In this research, the variables used were mind mapping vocabulary achievement.

3.3 Population and Sample of The Research

This research was conducted in UPTD SMPN Satap 3 Pesawaran, Lampung. It was located on Sinarjati Street, Tegineneng, District of Pesawaran, Province of Lampung. The population in this research was the entire 7th grade students of A class and B class. The A class consisted of 28 students, and the B class consisted of 26 students.

The technique sampling using in this research was purposive sampling technique, because the researcher chose a larger number of students in class to represent all students and obtain the high quality result. The subject of this research was the 7th A grade students of UPTD SMPN Satap 3 Pesawaran, Lampung. The total number of students in 7th A class was 28 students, consisted of 15 males and 13 females.

3.4 Research Instrument

Instrument in a research can be defined as a tool to help the researcher in measuring the result of the test. Sugiyono (2017) states that the instrument is a tool that is used to measure the observed phenomenon, which considered as research variables. The instrument for collecting the data in this study was a test instrument. The test instrument was conducted by using vocabulary test in the form of multiple choices. The data of the test instrument was served in numeric data.

The data of this study was analyzed by using quantitative data. Quantitative data is an approach that is widely using numbers, starting from the data collection, interpretation, and the result of the test (Arikunto, 2013). In this research, the data was conducted by using written test in the form of multiple choices to measure student's vocabulary achievement.

This study used vocabulary test to measure students' vocabulary achievement. The questions were based on the topic in syllabus, and in form of multiple choices which consisted of 30 questions with 4 choices of each question. There were two times of tests that were given to students. The researcher gave pre-test and post-test. The pre-test was given to the students to check their knowledge in English vocabulary before applying mind mapping technique. Meanwhile, the post-test was given to the students to identify their English vocabulary knowledge after applying mind mapping technique.

3.5 Research Procedures

In conducting this research, the researcher used the steps as follows:

1. Determining the Research Problems

The problem of this research was found in teaching and learning process. In learning English, students had some difficulties in understanding and

implementing the English words. In the case of the seventh-grade students at UPTD SMPN Satap 3 Pesawaran, some of them had struggle in the vocabulary knowledge.

2. Determining the Population and Sample

The population of this research was all seventh grade students of UPTD SMPN Satap 3 Pesawaran. There were two classes, those were 7th A class and 7th B class. To get the sample, the researcher used purposive sampling technique and chose 7th A class with total number of students were 28 consisted of 15 males and 13 females.

3. Determining the Research Instrument and the Topic

The instrument of this research was vocabulary test. The researcher chose descriptive text as the content because the seventh grade students' of Junior High School had to master this kind of text based on the syllabus of Junior High School.

4. Conducting the Try-out Test

Try-out test was conducted to find out whether the test was reliable or not. The researcher conducted a try out to the B class, consisted of 26 students in seven-grade at the UPTD SMPN Satap 3 Pesawaran. Based on the result, all items in the try out test was valid and reliable in Cronbach's Alpha with score of 0.749. Therefore, there was no elimination and the try out test was used to be the pre-test and the post-test.

5. Administering the Pre-Test

The researcher gave the pre-test of vocabulary in the form of multiple-choices. This test was used for evaluating the students' vocabulary achievement before being taught by using Mind Mapping. The researcher gave instruction to the students to finish the test in 60 minutes.

6. Implementing the Mind Mapping Technique

After giving the pre-test to the students, the researcher implemented the Mind-Mapping technique to the students by following the lesson plans that had been arranged. There were 4 times treatments to A class.

7. Administering the Post Test

The researcher gave the post-test of vocabulary in the form of multiple-choices to evaluate the students' vocabulary achievement after being taught by using Mind Mapping. The researcher gave instruction to the students to finish the test in 60 minutes.

8. Collecting the Data

After administering all of the tests, the data from both pre-test and post-test were collected to be analyzed by the researcher using N-Gain Score Testing.

9. After collecting the data from the pre-test and post-test, the researcher counted the score from both of the vocabulary tests that has been answered by students.

10. Analyzing the Result of the Test

The researcher calculated the score of students' vocabulary test in learning English and determined the category of students' vocabulary achievement. Then, the score was calculated by using SPSS 25.

3.6 Scoring System

In try-out test, the researcher prepared 30 questions in the form of multiple choices. Students chose one correct answer of each item by marking to one of four options: A, B, C, and D. The correct answer was marked one (1) point and the wrong answer is marked zero (0) point. Therefore, the overall raw score from the correct answer was 30 points. After that, the score of vocabulary test was calculated by using the formula as follows:

$$S = \frac{r}{n} \times 100$$

Where: r = obtained score n = total items

After scoring the results of pre-test and post-test, the researcher counted the increase of the post-test result by using the formula of N-gain score testing:

$$g = \frac{(Post\text{-}test\ Score - Pre\text{-}test\ Score)}{(100 - Pre\text{-}test\ Score)}$$

Where: g = gain

The category of N-Gain score testing is used to determine the effectiveness of the teaching method using in the research. It shows at the table as below:

Table 3.1 Category of N-Gain Score Effectiveness

Percentage (%)	Categories
<40	Ineffective
40 - 55	Less effective
56 - 75	Adequate
>76	Effective

3.7 Validity and Reliability

3.7.1 Validity

The indicator of a good instrument in a research is if it is valid and reliable. According to Arikunto (2006), validity is a measurement which shows the level of validation of the instrument. Validity is one of the characteristics of a good assessment that has function to measure whether the test has a good validity. The test has to be analyzed by using content and construct validity. A test can be considered as valid in content validity if every item in the test is appropriate and represent the material that is measured. Meanwhile, to determine whether a test is valid in construct validity, every test items must have been written based on the theory of what is being tested. There are two types of validity:

3.7.1.1 Content Validity

Content validity is a type of validity that is related to the appropriateness of the test that is used in a research, and it also must represent the material that is measured. Setiyadi (2018) stated that content validity related with how far the test based on the curriculum.

The vocabulary test using in this research represented the material that is measured and based on the 2013 curriculum. The lesson plans and the topic also in line with the indicators in syllabus. Then, it can be concluded that the instrument of vocabulary test had content validity.

Based on the try-out test result, it was found that there was no elimination in the test items. Therefore, the researcher used the entire try-out test as the pre-test and the post-test in this research.

Table 3.2 The Specification of Content Words in Try-Out Test

No.	Content Words	Number of items	Total
1.	Nouns	1, 3, 8, 9, 13, 16, 18, 21, 23, 26, 27, 28	12
2.	Adjectives	7, 10, 11, 12, 14, 17, 19, 20, 22, 30	10
3.	Verbs	2, 4, 5, 6, 15, 24, 25, 29	8
Total			30

3.7.1.2 Construct Validity

Construct validity is a type of validity that determines whether a test is written based on the theory of what is being tested. In language learning, a teacher

must master the theory of language skills, such as reading, writing, listening, and speaking before assessing the ability of students.

In this research, the theory being tested was vocabulary test. Therefore, the test items must be considered with the aspects of vocabulary. Moreover, the researcher used the aspect of vocabulary such as word family. Also, the Inter-rater validity was conducted from two teachers as raters, and the result was all the test items were suitable. Then, this can be concluded that the instrument of vocabulary test had construct validity.

3.8 Reliability

In a research, an instrument has to be reliable. Reliability is defined as the consistency of an instrument. It is important to measure the extent to which the instrument can measure the same subject at different times but still relatively shows the same results. Statistically, the level of reliability in a research is described in correlation calculations by finding the coefficient in range of 0 to 1. The researcher must ensure that the coefficient is close to 1 to get the high level of reliability.

In this study, to check the reliability of the vocabulary test, the researcher used Cronbach's Alpha formula. It was used to measure the internal consistency of reliability of a test where it only has two answers: right or wrong. Cronbach's Alpha formula is presented.

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}}$$

α = Cronbach's Alpha value

N = Number of items

$\bar{c}$ = Average inter-item covariance among items

$\bar{v}$ = Average variance

3.8.1 The Result of Try-Out Test

The result of try-out test was measured by using Cronbach's Alpha formula. It is shown as below:

Table 3.3 Reliability of the Try-Out Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.749	30

The table above shows the result of the reliability tested by using Cronbach's Alpha formula in SPSS. The value of Cronbach's Alpha was 0.749. The testing criteria of Cronbach's Alpha mentioned that if the value is equal or higher than 0.70, the test is reliable. Based on the criteria, the vocabulary test used in this research was considered as reliable. Therefore, this test was used in pre-test and post-test.

3.9 Normality Test

The normality test is used to identify whether the distribution of the data in the research is normal. If the data is considered as normal, then the researcher can analyze the data by using the parametric t-test. Otherwise, if the data is not normal, then the researcher should analyze the data by using the non-parametric t-test.

In this research, the data was analyzed by using the *Kolmogorov-Smirov* method. It is one of the methods using to find out the distribution of the two data groups, calculating by using the SPSS 25 program.

3.10 Hypothesis Testing

To prove the hypothesis in this research, the data was calculated by using SPSS 25 (*Statistical Package for Social Science*) to obtain the effective of mind mapping technique in teaching vocabulary and to prove whether there is significant improvement or not in teaching vocabulary by using mind mapping technique. The formula of Hypothesis Testing is as below:

- H_0 = There is no significant improvement in teaching vocabulary by using Mind Mapping Technique.
- H_1 = There is significant improvement in teaching vocabulary by using Mind Mapping Technique.

V. CONCLUSIONS AND SUGGESTIONS

In this chapter, the researcher draws the conclusions and lists some suggestions summarized from the research result analyzed in previous chapter.

5.1 Conclusions

This study is aimed to investigate whether the mind mapping technique implemented to the students is effective to improve their vocabulary achievement. The researcher found that there is a significant increase in students' score of pre-test and post-test. This happened because the mind mapping technique implemented in teaching and learning process was interesting to students in understanding the Descriptive Text as the topic chosen in this research. This technique helps them in developing their ability to write the text more easily with the help of mind mapping technique.

Therefore, based on the results found in scoring the result of the test, and also how the students understand the material presented by using the mind mapping technique, the researcher draws a conclusion that the mind mapping technique in this research is effective in improving students' vocabulary achievement.

5.2 Suggestions

Based on the conclusions provided above, the researcher lists some suggestions as follows:

1. The researcher suggests other researcher who wants to conduct the same research to explain more clearly to the students about the material that will be implemented to them, so that they will not ask too much and they can understand about the material.
2. The researcher recommends the other researcher and the teacher to make sure that the students follow all the teaching and learning process in conducive environment because it can affect the result of the study.
3. Based on the discussion of this study, the researcher suggests the teacher to observe and use an interesting technique in teaching language in attempt to take more of the students' attention so that they are not getting bored in teaching and learning process.

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