# MIND MAPPING TECHNIQUE WITH STUDENTS TEAM ACHIVEMENT DIVISION TO INCREASE THE STUDENTS' VOCABULARY ACHIEVEMENT AND INTEREST TO TENTH GRADE STUDENTS AT SMK AKU CINTA INDONESIA METRO

**A Thesis**

**By**

Antika Eviana Sari

**MASTER IN ENGLISH LANGUAGE TEACHING STUDY PROGRAM**
**LANGUAGE AND ARTS EDUCATION DEPARTMENT**
**TEACHER TRAINING AND EDUCATION FACULTY**
**LAMPUNG UNIVERSITY**
**BANDAR LAMPUNG**
**2024**

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**A Thesis**

**Submitted in a Partial Fulfillment of**
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## ABSTRACT

**MIND MAPPING TECHNIQUE WITH STUDENTS TEAM ACHIVEMENT DIVISION TO INCREASE THE STUDENTS' VOCABULARY ACHIEVEMENT AND INTEREST TO TENTH GRADE STUDENTS AT SMK AKU CINTA INDONESIA METRO**

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The present study aimed to find out whether there is a significant difference of students' vocabulary achievement between students who are taught by using mind mapping technique with students team achievement divison and original mind mapping technique, and whether there is an increase in the students' interest of English vocabulary learning through mind mapping technique with students team achievement divison. The subjects of this research were the tenth grade students of SMK Aku Cinta Indonesia Metro. This study a quantitative research. The data were obtained from the pre-test, post-test, and questionnaire. The data were analyzed by using Independent group t-test and Paired sample t-test in SPSS (*Statistical Program for Social Science*). The results show that the students' vocabulary achievement in experimental class increased from 54.07 to 81.87 and there is a significant difference with the sig. (*2 tailed*) of $0.00 < 0.05$. The result of students' vocabulary achievement in control class also increased from 53.40 to 68.73 and there is a significant difference with the sig. (*2 tailed*) of $0.01 < 0.05$. Meanwhile, the result of the significance value of the experimental class and the control class are $0.00 < \alpha = 0.05$. It means that the p value is less than 0.05. This indicates that there is a significant difference in students' vocabulary achievement between the students who were taught using mind mapping technique with students team achievement divison and original mind mapping technique. Furthermore, the results show that students' interest increased from 30.07 to 42.30 with a significance value of $0.00 < \alpha = 0.05$. It can be concluded that H1 is accepted which states that there is an increase in students' interest in learning vocabulary using mind mapping technique with students team achievement divison. In conclusion, learning using digital mind mapping technique has a greater influence on students' vocabulary achievement and it is also able to increase students' interest in English vocabulary.



**Key words:** *Vocabulary, Mind Mapping, Mind Mapping with STAD, Students' Interest*

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## LEMBAR PERNYATAAN

Dengan ini saya menyatakan dengan sebenarnya:

1. Thesis dengan judul "Mind Mapping Technique With Students Team-Achivement Division To Increase The Students' Vocabulary Achievement and Interest To Tenth Grade Students At Smk Aku Cinta Indonesia Metro" adalah hasil karya saya sendiri dan saya tidak melakukan penjiplakan atau pengutipan atas karya penulis lain dengan cara tidak sesuai tata etika ilmiah yang berlaku dalam masyarakat akademik atau yang disebut plagiarisme.

2. Hak intelektual atas karya ilmiah ini diserahkan sepenuhnya kepada Universitas Lampung.

Atas penyataan ini, apabila di kemudian hari ternyata ditemukan adanya ketidakbenaran, saya bersedia menanggung akibat dan sanksi yang diberikan kepada saya, saya bersedia dan sanggup dituntut sesuai hukum yang berlaku.

Bandar Lampung, June 06th 2024
Yang membuat penyataan,


Antika Eviana Sari
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## CURRICULUM VITAE

Antika Eviana Sari was born in Endang Rejo, on October 28th, 1997. She is the daughter of happy family of Mr. Suparudin and Ms. Sri Wahyuni. She lives in Endang Rejo, Seputih Agung Central Lampung.

She began her study at kinder garden at TK LKMD on 2002 – 2003 She took her Elementary School at SD N 03 Endang Rejo, on 2004-2009 and Junior High School at SMP N 1 Seputih Agung, on 2010-2012. After that, in period of 2013-2015 she continued her study at Senior High School at SMA N 1 Seputih Agung.

After she graduated from Senior High School, she continued her study at Institute for Islamic Studies Metro, Education and Teacher Training Faculty, English Education Major and finished in (2019).

Having graduated from bachelor's degree, she decided to level up her education by taking the master's degree English Education Language and Arts Education Department Teacher Training and Education Faculty in Lampung University.

## DEDICATION

From the depths of my heart, this thesis is dedicated to everyone who cares and loves me. I extend my deepest gratitude and dedication to Allah Subhanahu wata'ala, who always supports and guides His servants, and to Nabi Muhammad □, whose teachings illuminate our path from darkness to light. Heartfelt appreciation goes to my beloved parents, Mr. Suparudin and Ms.Sri Wahyuni, for their unwavering support and prayers that have paved the way for my success; may Allah bless your lives abundantly. I would like to express my highest appreciation to my beloved husband Agus Holidin, M.Pd., and my beloved son Arsya Elhasiq Mumtaz, for their continuous support and prayers from the start of the semester to the end. I am grateful to my cherished lecturers in the English Education Study Program at Lampung University, who have not only imparted knowledge but also significantly contributed to my personal growth. Lastly, a special dedication to my beloved students, whose enthusiasm and time amuse me daily.

## MOTTO

This is recommended for those among you who believe in Allah and the Last Day. Whoever fears Allah, surely He will open a way out for him and bestow upon him sustenance from a direction he did not expect.

**(QS Ath-Thalaq: 2-3)**

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This thesis entitled "Mind Mapping Technique With Students Team-Achivement Division To Increase The Students' Vocabulary Achievement And Interest To Tenth Grade Students At Smk Aku Cinta Indonesia Metro" is submitted as compulsory fulfillment of the requirements for master's degree at English Education Study Program, Teacher Training and Education Faculty, Lampung University. With profound gratitude and a heart full of appreciation, the researcher extends her sincere thanks to the individuals who have been instrumental in the completion of this thesis, each playing a unique and significant role:

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Bandar Lampung, 03 Juni 2024

The Researcher

**Antika Eviana Sari**
**NPM. 2223042020**

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# I. INTRODUCTION

This chapter, the researcher explains the background of the research, research of questions, objectives of research, the uses of the research, scope of the research and definition of terms.

## 1.1 Background of the Study

English is one of the international languages spread across the world. This language is very popular in many countries because the people think that English facilitates them communicate with people from other countries. Because of such a reason, people who do not speak English as their first language must learn English in order to compete in this global competition. Every country in the world has English classes. English is taught in Indonesia from junior high school onwards, and in some areas, it is even taught in primary schools. Listening, speaking, reading, and writing are the four language skills that make up English. The goal of the English subject in senior high school, according to K-13 Curriculum, is to: The ability to understand or produce spoken and written texts, which is realized in four skills, is referred to as expression ability. To reach the level of functional literacy, they combine listening, speaking, reading, and writing. Reading is a very important skill for both our lives in general and language learning in particular. For our lives, it enables us to access written worlds of ideas

(Hood et al., 1996, p. 33), feelings, and knowledge of the ages and vision of the future (Alderson, 2000, p. x). It also facilitates us to gain access to science in various fields of study, to sense others' feelings, attitudes, or behaviors, and to know what has happened in the past or what may happen in the future. Reading is an essential part of the learning process since it is a primary learning component.

Further reading is significant since it is frequently regarded as the most important of the four language skills that might improve students' academic knowledge. As a result, reading is always linked to academic achievement since the more students read, the more knowledge they gain.

Then, reading comprehension is widely agreed to be not one but many things (Perfetti and Adolf, 2012). At least, it is decided to use cognitive processes that operate on many different types of knowledge to achieve many different types of reading tasks. Nevertheless, emerging from the apparent ambiguity is a fundamental idea: comprehension comes about when the reader constructs one or more images of the text message.

Reading comprehension among senior high school students is still far from satisfactory, despite the fact that reading skill is given more emphasis in the curriculum. They continue to have difficulty understanding texts and are unmotivated to complete reading assignments. It can be demonstrated that only a small percentage of students receive good grades on their final examination. It is reasonable to conclude that the reading teaching and learning process has failed. This case has been proven by the preliminary study that the researcher conducted in senior high school at SMK Aku Cinta Indonesia Metro. As identified, 1) most

of the students are lazy to reading the text; 2) most of the students feel bored when studied English; 3) most of the students still have less interest, especially in reading the text; 4) the teacher still applies a traditional strategy; and 5) most of the students have low ability in reading comprehension.

Vocabulary is the basis of all skills in English. All skills require the mastery of vocabularies. So, to increase the four skills, we must possess substantial amount of vocabulary. As Mukoroli (2011) defined, "vocabulary as the entire stock of words belonging to a branch of knowledge or known by an individual." Having substantial mastery of vocabulary, contributes significantly to the achievement of the subjects in the class. Mastering vocabulary helps learners understand reading materials, understand other speaking, giving responses, listening and writing materials. In other words, students can communicate fluently. No one can speak English if they have limited vocabulary and without a proportional amount of vocabulary any one will get trouble in the process of learning English.

According to Nation (2006), one way to determine vocabulary learning objectives in an English learning program is to look at the vocabulary size of native speakers. It is estimated that educated native English speakers know about 20.000 word families, or about 32.000 vocabulary items, excluding proper names. Ana Siyanova argued that this figure is a very ambitious and somewhat unrealistic goal for any L2 learning program. Thus, it has been proposed that the vocabulary size of highly educated non-native English speakers is around 8000-9000 word families (Nation, 2006) less than half of that of native English speakers.

Nurweni and Read (1999) investigated the English vocabulary knowledge of 324 first-year students in the context of Indonesian EFL. They found that after six years of formal English teaching, on average, students knew 1,226 English words (986 words, or just under 50%, from the Public Service List and 240 words, or 30%, from University Glossary. Furthermore, Webb and Chang (2012) who investigated the vocabulary knowledge of 166 EFL students in Taiwan over a five-year period. They measure students' vocabulary learning progress using the Vocabulary Level Test. The authors found that those with less knowledge of English learned significantly fewer words (some learned as few as 18 words in a year), while students with greater exposure learned as many as 430 words in one year. Perhaps, most disappointingly, the study revealed that after nine years of teaching English, less than half of all learners master the words in the first 1000 word families. Even more disappointing, only 16% of students mastered the words in the second 1000 words group. In general, studies have shown that English vocabulary knowledge and learning rate in the EFL context is far from what is considered mastering. Given that L2 English learners are estimated to need 8000-9000 words (Nation, 2006).

The importance of learning vocabulary encourages researcher to find effective ways of mastering vocabulary in learning English. Many students think that to be able to speak English they must know the meaning and they have difficulty memorizing vocabulary. These facts make their interest in English even less. Teaching vocabulary is a challenge for teachers to help students in mastering vocabulary so they are able to develop their English skills. As Singer et al (2003: 39) stated, "Teaching is helping learners to acquire new knowledge or skills.

Teaching consists, mainly, of telling, showing, guiding the learner in performance tasks, and then measuring the results." So, teachers need to know what things they can use to help their students develop vocabulary. Teaching English vocabulary requires a variety of learning methods that can help students be more attractive in receiving lessons in class. In other words, learning variations can prevent students from boredom and are able to create students' interest in English vocabulary learning.

In the English teaching and learning process, it has been discovered that the technique used in teaching reading is the traditional one, which only focuses on cognitive aspects such as translation and vocabulary without taking affective and psychomotor factors into account. Students' motivation and participation in the teaching and learning process will be harmed as a result of this. It is the cause of the students' poor reading comprehension abilities. In light of this, it is necessary to employ appropriate reading teaching techniques in order to improve students' reading comprehension abilities.

Considering the conditions above, the writer is interested in applying the Mind Mapping with Student Teams-Achievement (STAD) model (Slavin, 1989; 1995). One of the effective techniques offered by English reading experts is mind mapping. It was popular. Previous findings show that both mind mapping and student team-achievement division have their own benefits for teaching reading comprehension. by Tony Buzan, who has written extensively on maximizing one's mental abilities, growing memory, and accelerating learning. Mind mapping, according to Murley, is a nonlinear visual outline of complex knowledge that can

help with imagination, planning, efficiency, and memory (Diane Murley, Mind Mapping Complex Information, 2007, p. 175).Mind maps graphically represent ideas in a relational sense, with the main topic in the middle, major subtopics on branches radiating from the main topic, and sub-subtopics surrounding each subtopic, and so on.

According to Buzan, mind mapping is an innovative thought technique that reflects the brain's way of working. It allows the brain to use all of its images and associations in a radial and internal pattern. It is the easiest way to position information that goes out of the brain (Tony Buzan, Mind Map: Buku Pintar, Jakarta: PT Gramedia Pustaka Utama, 2005, p. 103). On one hand, STAD can improve reading comprehension (Slavin, 1995; Jhonson et al., 2000; Wichadee, 2005; Norman, 2005; Jalilifar, 2010) and achievement (Jhonson et al., 2000). Student Team Achievement division (STAD) is one of Slavin's basic methods of cooperative learning (Roy Killen, 1996) in Anto et al (2013). He states STAD is better and easier ways for teacher teach the student in the group because in the group the student more active and they can share their knowledge each other in solving the problems. Student Team Achievement Division (STAD) is a cooperative teaching method which developed by Slavin (1978) in Tohamba (2017) as part of a student learning approach program along with other cooperative methods such as Teams-Games Tournaments, Jigsaw II, and Team Assisted Individualization. Besides that, this technique can also increase students' self-esteem and motivate the students to learn more. Gross (1991, p. 56) in Yusuf et al (2015), mentioned that STAD is a technique in the teaching learning process that is effective to increase students motivation and enthusiasm, and it can develop

their responsibility in their own group". It is considered a good model because as one the CL techniques, it can raise students' motivation in learning by exchanging and sharing information, reinforcing each other, giving feedback and having the responsibility for their tasks in group work.

Considering the benefits of Mind Mapping and STAD above, this study attempts to shed light on the effects of Mind Mapping with STAD on students' vocabulary achievement in reading comprehension levels.

### 1.2 Research Questions

Based on the purposes of the research above, this study attempts to answer the following research questions:

1. Is there any significant difference of students' vocabulary achievement between students taught through bŷ using mind mapping technique with STAD and original mind mapping technique?
2. Is there any significant increase of students' interest in English vocabulary learning through mind mapping technique with STAD?

### 1.3 Objectives

Based on the research question above, the objective of this research are as follows

1. To find out wheter there is any significant difference of students' vocabulary achievement between students taught through by using mind mapping technique with STAD and original mind mapping technique.
2. To find out wheter there is any significant increase of students' interest in English vocabulary learning through mind mapping technique with STAD.

### 1.4 The Uses of Research

This research was expected to have some benefits both theoretically and practically as follows:

1. Theoratically

   a. The result of the research is expected to help the students activate their prior knowledge, monitor their comprehension, and reflect on what they have learned from the text.

   b. The results of the research are expected to enrich theories and can be a reference for future studies related to mind mapping with STAD in especially improving students' achievement of vocabulary learning.

2. Practically

   a. The result of the research can be used as a reference for teachers or students in teaching especially improving students' achievement of vocabulary learning.

   b. The result of the research can be used guide the teacher that using mind mapping technique with STAD is useful in increasing students' interest in English vocabulary.

### 1.5 Scope of the Research

This research was limited to mind mapping technique with STAD in teaching and increasing students' achievement of vocabulary. In this study, researcher as teacher used tests and questionnaires to obtain data. There are two tests in teaching vocabulary achievement: the pre-test as the test before Mind Mapping with STAD were conducted, and the post-test as the test after it was

conducted. Pre-test and post-test are objective tests in multiple-choice forms with five options for each question (a, b, c, d, and e). This quantitative research was focused on digital mind mapping as a technique to find out whether the modification is able to help increasing students' interest in English vocabulary learning and students' achievement of vocabulary.

**1.6 Definition Of The Terms**

There are some terms used by the researcher to make clear and to avoid misunderstanding. They are clarified as follows:

a. Vocabulary

   The general definition of vocabulary as knowledge of words and their meanings. Vocabulary can also be defined as a list of words arranged alphabetically with their definitions.

b. Mind Mapping Technique

   Mind mapping is a powerful graphic technique that provides a universal key to unlocking the potential of the brain. So, it can facilitate the students to develop ideas and concepts; it could help the students to write more organized important points; and it could help the students to grow critical thinking.

c. Student Team Achievement Division (STAD) in this study refers to the cooperative learning models consisting of class presentations, teams, quizzes, individual improvement, and team recognition (Slavin, 1995, p. 71).

d. Students' Interest

Students' interest is students' awareness, desire and attention to material that is associated with a strong feeling to understand it.

As the study has elaborated on the points above, in brief, this study already has a strong background in conducting the research. Still, this study needs a review of theories concerning the research topics and the conceptual framework underlying the study, as the next is present.

# II. LITERATURE REVIEW

Literature review discusses the theories that are used in this research. These theories are of such as review of the previous research, the concept of vocabulary, descriptive text, mind mapping technique, Student Team-Achievement Divisions (STAD), the concept of students' interest in learning, theoretical assumption, and hypothesis.

## 2.1. Review of Previous Research

The researcher realizes that this research is not the first or the newest study on mind mapping. There are several researchers who had already conducted their studies on this issue. The first research has been conducted by Heidari and Karimi (2015). The research about "The Effect of Mind Mapping on Vocabulary Learning and Retention". The researchers have explored the effects of mind mapping on vocabulary learning and retention. they randomly assigned participants and divided them into two groups, experimental (mind mapping group) and control. Before the treatment, the researchers gave a pre-test of vocabulary given to the group. For the experimental group, vocabulary was taught with various mind mapping options such as colors, symbols, keywords, designs, pictures, and pieces. Meanwhile, the control group was taught through traditional techniques such as translating to L1 and providing

synonyms and antonyms. Then, the researchers gave the posttest they had made to the group. After that, the researchers found several pedagogical implications for language learners, language teachers, and syllabus designers. They argue it provides some useful insights for the learner about possible alternative ways to learn vocabulary. Then, language teachers need to gain a better understanding of alternative vocabulary teaching techniques that can facilitate long- term retention and are able to influence students' minds. Furthermore, material design is needed to present vocabulary items through techniques that can encourage students' vocabulary retention.

The second research has been conducted by Sudibyo (2022). The research about "The Use of Digital Mind Mapping with STAD to Improve EFL Student's Ability In Reading Narrative Paragraph" This study aimed to see if there is an improvement in reading narrative paragraphs taught before and after using digital mind mapping. This study used a quantitative approach, with a pre-experimental research design. The test was an instrument used in research, there are two types of tests, namely pretest and posttest. The pretest is a measure of some of the attributes or characteristics that are assessed in the experiment before the group receives the treatment, and the posttest is a measure of some of the qualities or aspects considered for the experimental participants after the treatment. The subjects of the research were class VIII students, totaling 20 students in one of the junior high schools in Madiun. The reason the researcher conducted research at the school is because the school has used technology during the teaching and learning process. So, it strongly supported the use of digital mind mapping in English lessons. Based on

the results, the post-test average value was higher than the pre-test average measured using Statistics 18 software. The two-way significance shown is 0.000, which means that the significance level of the results was at a sufficient standard level (0.005). The alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. Shows that the use of digital mind mapping is effective in improving students' narrative paragraph reading skills.

The last of previous study entitled “The Students’ Interest on the Use of Vocabulary Self Collection Strategy in Learning English Vocabulary” has been done by Ali (2017). The study aimed to investigate and describe the students’ perceptions on the use of vocabulary self-collection strategy in learning English vocabulary. The researcher used a descriptive research model consisting of 37 subjects. Data were collected using a questionnaire, which is a rating scale distributed after 8 treatment meetings, and includes 15 positives and closed statements about the use of vocabulary self-collecting strategy in vocabulary learning in the classroom. The researcher has calculated the questionnaire data as a percentage of each answer. He used a formula where the number of frequencies were multiplied by 100% then divided by the number of respondents. This study obtained the highest average score of 56.6% students agree, 35.5% students strongly agree, 6.7% students are unsure, 0.7% students disagree, and 0.2% strongly disagree to statements in the questionnaire. Based on the results, researcher assumed that vocabulary self-collection strategy is one of interesting strategies in learning vocabulary.

Based on the previous studies above which is the background of this research about “Mind Mapping Technique with STAD to Increase the

Students' Interest and Achievement of Vocabulary". The objectives of the research are to find out Is there any significant difference of students' vocabulary achievement between students taught through by using mind mapping technique original and mind mapping technique with STAD and to find out Is there an increase of students' interest in English vocabulary learning through mind mapping technique with STAD.

## 2.2 The Concept of Vocabulary

Vocabulary is basic skills in learning and mastering English. According to Tnanh Huyen & Thi Thu Nga (2003) cited by Asyiah (2017), vocabulary as a language element that links the four language skills including listening, speaking, reading, and writing in learning a foreign language. Hornby (1995) defined vocabulary in three senses that cover a) the total number of the words which make up a language; b) all the words known to a person or used in a particular book, subject, etc; and c) a list of words with their meaning. The importance of vocabulary was also noted by Richards and Renandya (2002) believing that vocabulary plays crucial part in one's foreign language learning and language proficiency that can affect how well learners speak, listen, read and write. Furthermore, Kim and Kim (2012: 4) claimed, "vocabulary is the base of communication in that language. Therefore, it is critical to try out various and different teaching style that cheers students to acquire vocabulary easily without negative emotion about it."

As Ghazal (2007: 84) states that vocabulary learning is one of the major challenges foreign language learners face during the process of learning a language. He also said that the central of language is vocabulary. Having

adequate vocabulary helps person to express in composition vividly, precisely, and without repeating the compositions. One cannot communicate each other without knowing words meaning. Words are used to express ideas, emotions and desires to other people. In short, vocabularies are tools of effective communication. Vocabulary help people to communicate and understand among others. According to Mukoroli (2011: 6), "vocabulary is a set of words that are the basic building blocks used in the generation and understanding of sentences". However, other expert Akbari (2008: 54), "without vocabulary speakers cannot convey meaning and communicate with each other in a particular language."

There are several aspects of vocabulary that should be mastered by students as proposed by Ur (1996: 60-62) cited by Yugafiati and Priscila (2019). They are as follows:

1. Pronunciation and Spelling; the students have to know what a word sounds like (its pronoun) and what it looks like (its spelling).
2. Grammar; the grammatical rules should be understood by student when they learn a set of new words.
3. Meaning; the meaning of words is primarily what is refers to in the real world, its denotation. A less obvious component of the meaning of an item it is connotation: the association, or positive or negative feeling it evokes, which may not be indicated in a dictionary definition. A more sub aspect of meaning that often needs to be taught is whether particular item is the appropriate one to use in a certain context or not.

From several definitions above, it can be understood that vocabulary

is one of the items that have to be mastered first by the students in learning English, because no one can speak English if they have limited vocabulary and without a proportional amount of vocabulary any one will get trouble in the process of learning English.

### 2.2.1 Vocabulary Teaching

Teaching refers to a job or profession of someone who educates. Teaching means involving and directing students in problem solving. Meanwhile, in a general sense, teaching is a system of actions intended to encourage learning. So, teaching is actually an act of a teacher himself but the way in teaching from one teacher to another is certainly different. It depends on the knowledge and pedagogical skills of the teacher.

Vocabulary is knowledge of words and their meanings. Stahl (2005) said that vocabulary knowledge is knowledge of a word, not only talking about the meaning of the word, but also talking about how the word fits into the context of a sentence. According to Graves (2000), there are four components of an effective vocabulary program:

1. Extensive or extensive self-reading to expand word knowledge,
2. Instructions in certain words to improve understanding of texts containing those words,
3. Instruction in independent word learning strategies, and
4. Word awareness and word game activities to motivate and enhance learning.

Richards (1976) and Nation (2001) made a list of things that learners need to know about a word. This includes:

1. What is the meaning of the words.
2. Oral and written form.
3. What "word parts" does it have (e.g., each prefix, suffix, and "root" form).
4. Its grammatical behavior (e.g., word class, typical grammatical pattern in which it occurs).
5. Its collocations.
6. Its list.
7. What associations does it have (for example, words that are similar or opposite meaning).
8. What connotations it has.
9. Its frequency.

In teaching vocabulary, teachers also need to have knowledge of how many words native speakers know to assess the number of words students need to learn. According to Carten, (2007) cited by Nation (2006), native speakers vary between 12,000 and 20,000 depending on their level of education. University-level native speakers know about 20,000 word families, excluding phrases and expressions. Meanwhile, current student dictionaries such as the Cambridge Dictionary of American English include more than 40,000 frequently used words and phrases. This figure is a challenge for most English learners, and even for native speakers. He also explains that another way to determine the number of words a learner need is to count how many different words are used in the average spoken or written text. Because some high-frequency words are repeated, it is said that the learner can understand most of

the text with a relatively small vocabulary. For example, a student who knows 2,000 words most frequently should be able to understand nearly 80 percent of the words in the text on average, and knowledge of 5,000 words increases the learner's comprehension to 88.7 percent. For spoken language, about 1,800 words make up more than 80 percent of the spoken corpus.

He also concluded that there were two lessons to be learned. First, it is important to identify what the 2,000 to 5,000 vocabulary items are most often and to give them priority in teaching. Second, students need to be independent learners. It is impossible for teachers to discuss in class a large number of vocabulary items that students need to use or understand. However, teachers can find effective vocabulary learning strategies to help students in their learning.

In conclusion, teaching vocabulary is the teacher's effort to help students' master vocabulary which includes pronunciation, writing, and meaning. It must be in accordance with the abilities of students. This is the reason why teachers need to find suitable teaching techniques and strategies.

### 2.2.2 Types of Vocabulary

Vocabulary is words that have meaning. Word is the smallest part of language that has meaning and class of words. It has several grouped forms such as nouns, verbs, adjectives, and adverbs.

**1. Nouns**

Nouns are words that identify or name people, places, or things. The words like cat, book, table, girl, and plane are all nouns. There are many

kinds of nouns, including:

a. Common and Proper Nouns

Common noun is a noun that identifies a common person, place, or thing. They mention or identify what is common among others. For examples: boy, girl, city, country, chair, table, etc. Proper nouns are used to identify people, places, or things that are truly unique and they are signified by capital letters. For example: Indonesia, Justin, Vaseline, Pepsi, etc.

b. Noun of Address

Nouns of address are used in direct speech to identify the person or group being directly spoken to, or to get that person's attention. For example: "Can I have some money, Mom?" "Sorry, Mr. President, I didn't see you there."

c. Concrete and Abstract Nouns

Concrete nouns name people, places, animals, or things that are physically tangible that is, they can be seen or touched, or have some physical properties. For example: house, cake, book, rock, people, etc. Abstract nouns name intangible things, such as concepts, ideas, feelings, characteristics, attributes, etc. For example: love, hate, happiness, sadness, spirit, emotion, etc.

d. Countable and Uncountable Nouns

Countable nouns (also known as count nouns) are nouns that can be considered as individual, separable items, which means that we are able to count them with numbers one, two, five, 15, 100, and so on. We can also

use them with the indefinite articles a and an (which signify a single person or thing) or with the plural form of the noun. For Example: Singular: car, potato, army, knife, etc. Plural: cars, potatoes, armies, knives, etc.

Uncountable nouns (also known as non-count or mass nouns), which cannot be separated and counted as individual units or elements. Uncountable nouns cannot take an indefinite article (a/an), nor can they be made plural. For example: tea, coffee, powder, water, sugar, etc.

e. Collective nouns

Collective nouns are nouns that refer to a collection or group of multiple people, animals, or things. However, even though collective nouns refer to multiple individuals, they still function as singular nouns in a sentence. This is because they still are technically referring to one thing: the group as a whole. For example: group, team, set, organization, etc.

f. Attributive Nouns (Noun Adjuncts)

Attributive nouns, also called noun adjuncts, are nouns that are used to modify other nouns. For examples: toy soldier, hair band, Teddy bear, etc.

g. Compound Nouns

Compound noun is a noun composed of two or more words working together as a single unit to name a person, place, or thing. For examples: dinning room, backpack, policeman, etc.

h. Nominalization (Creating Nouns)

Nominalization refers to the creation of a noun from verbs or adjectives. When nouns are created from other parts of speech, it is usually

through the use of suffixes. For example: actor, happiness, difficulty, leader, etc.

**2. Verbs**

Verbs are words that describe the actions or states of being of people, animals, places, or things. Verbs function as the root of what's called the predicate, which is required (along with a subject) to form a complete sentence; therefore, every sentence must include at least one verb. Verbs include action words like run, walk, write, or sing, as well as words describing states of being, such as be, seem, feel, or sound.

**3. Adjectives**

Adjectives are words that modify (add description to) nouns and (occasionally) pronouns. They can be a part of either the subject or the predicate. Common adjectives are red, blue, fast, slow, big, tall, and wide.

**4. Adverbs**

Adverbs are words that modify verbs, adjectives, other adverbs, or even entire clauses. Depending on what they modify (and how), adverbs can appear anywhere in the sentence. Adverbs are commonly formed from adjectives by adding "-ly" to the end, as in slowly, quickly, widely, beautifully, or commonly. Adverb of place like in the class, in the café, in the market, etc. Adverb of time like on Monday, at 05.00 o'clock, today, yesterday, tomorrow.

Based on the explanation above, this type of vocabulary is used when collecting vocabulary in the application of digital mind mapping techniques. Understanding part of speech knowledge can help students in preparation of words in a sentence.

## 2.3. The Concept of Mind Mapping Technique

Mind mapping was introduced and developed in the 1960s by Tony Buzan, an English psychologist. Mind mapping is a diagram that has functions as a way to organize ideas and represent words, tasks, or other links that arrange a central keyword by branches, and typically it contains words, colors, short phrases, and pictures. The definition of mind mapping will be explained as follows:

### 2.3.1. The Definition of Mind Mapping

According to Buzan (2009:4), cited by Sahrawi (2013), "mind mapping is an easy way to place information in the brain and take information out of the brain. Mind mapping is a creative and effective way to write and will map your mind in a simple way." Mind mapping works by taking information from several sources and then displaying it as keywords in a bright, colorful manner. A key, central idea is placed in the center of a page and is often surrounded by a memorable picture. When students use mind mapping in daily basic learning, they will find that their lives become more productive, fulfilled, and successful in every subject. There are no limits to the number of thoughts, ideas, and connections that the brain can make, which means that there are no limits to the different ways to use mind mapping to help.

According to Al-Jarf (2011: 4), “a mind map is a graphic organizer in which the major categories radiate from a central idea and sub-categories are represented as branches of larger branches.” Teachers can use it to enhance learning. It is helpful for visual learners as an illustrative tool that assists with managing thought, directing learning, and making connections. It enables students to better organize, prioritize, and integrate the material presented in a course.

Mind mapping has the potential to express the brain, and the human brain can make an infinite number of associations. However, other experts Jones et al. (2012), cited by Sahrawi (2013), stated, “Mind mapping helps students learn information by forcing them to organize it and add images and color to it. It allows students to create a visual image to enhance their learning.

There are three ways that mind maps can help in teaching, such as writing notes, updating notes, and reminding. They explain that before the initial teaching session of a new topic, the mind map will allow notes to be made of key text and paper very quickly. After reading the key information, students summarized all that information on multiple sheets of paper instead of copying paragraphs of text verbatim. Taking this information from multiple sources and condensing it into several pages of main topics and keywords allows for the consolidation of work. Using both sides of the brain and mapping information allows students to see how information is related. Conversely, if students are given a topic with several main headings to follow, they can use each of these main headings as a central idea, allowing

them to map out the information and ensuring all the key information is present.

Based on the definitions above, mind mapping is the process of categorizing subtopics using key words from the main topic to facilitate understanding of the material. In general, humans pay more attention to beautiful visuals and organized forms. Therefore, the use of appropriate colors, images, and groupings is also needed for long-term memorization.

### 2.3.2. The Benefit of Mind Mapping

Benefits of using mind mapping are explained by Michalko (2011) and cited by Wahyu (2019). Mind mapping will help us in some cases, such as:

1. Activates the whole brain,
2. Allows focus on the subject,
3. Gives a clear picture of both the details and the big picture,
4. It requires concentrating on the subject, which helps get the information about it transferred from short-term memory to long-term memory.

By using the mind mapping technique, it can open up students' creativity, which will make it easier for them to find ideas to express in writing. It also gives the students a complete picture of what they are going to write, which results in better writing organization.

### 2.3.3 The Steps of Mind Mapping

According to Buzan (2003:10), cited by Sillahi (2016), applying mind mapping is easy. There are five steps to the mind map, as follows:

1. Use a blank sheet of unlined paper and some colored Make sure the paper is placed sideways.

2. Draw a picture in the middle of the page that sums up your main subject. The picture represents your main topic.

3. Draw some thick, curved, connected lines coming away from the picture in the middle of the page, one for each of the main ideas you have central branches represent your main subtopic.

4. Name each of these ideas, and if you want, draw a little picture of each. This uses both sides of the brain. Words are underlined throughout a mind map. This is because they are keywords, and the underlining, as in normal notes, shows their

5. From each of these ideas, you can draw other connected lines spreading like the branches of a tree and your thoughts on each of these ideas. These additional branches represent the details.

### 2.3.4. The Advantages of Mind Mapping

There are nine advantages of applying mind map in learning process as propose by Tee et al. (2014) as follows:

1. Preparing notes from textbooks;
2. The Buzan mind map principles are easy and interesting to follow;
3. It is economical;
4. Buzan mind map involve the use of both left and right brain;
5. It is among the easiest and most famous thinking tool;

6. students are able to memorize better;
7. Students can play their daily routine with mind map;
8. Revision is quick and effective;
9. Students will appreciate own product (mind map);
10. It increases the creativity;
11. Parents and teachers are able to monitor the students' performance.

## 2.4. Definition of Student Teams-Achievement Divisions (STAD)

Student Team Achievement Divisions (STAD) is a type of cooperative learning that is very simple". It is also the best method for beginner for teacher who is not implementing a cooperative approach yet. Zumrotul (2016) Students Teams Achievement Division (STAD) is one of the cooperative learning that ask the learner to work in group. The learner should work in a group and solve the problem together with their group. So, the teaching learning process in the Students Teams Achievement Division (STAD) is focus on the learners or students. In Students Teams Achievement Division (STAD), students are assigned to four- or five member learning teams. The teams are composed of high, average, and low achiever, and of boys and girls of different racial or ethnic backgrounds. Thus, each team is a microcosm of the entire class. Students Teams Achievement Division (STAD) is designed for meeting well-defined instructional objectives. Because of the nature of content for which Students Teams Achievement Division (STAD) is appropriate, many teachers use a direct instruction model for the presentation of new materials. Students Teams Achievement Division (STAD) each group will show the best in learning, after their presentation material like teacher do. They will answer

some questions from their understanding.

Purpose of Using Student Team Achievement Divisions (STAD) Method This Method will help students:

1). To motivate the students in order to support and assist each other in mastering the skills taught by the teacher.

2). Train the responsibility of the students individually or in groups.

3). The cooperative learning will form or guide the attitudes of students in order to form the ideal behavior in social life.

4). To increase empathy among students through communication and interaction with other groups.

5). Train the students' ability to argue Very useful for low-ability students to improve their abilities According to Slavin (2005:11) each team receives one of three recognition awards, depending on the average number of points earned by them.

From the description above, we know that STAD is a good method for the teachers who are new to the cooperative approach. And it uses in individual quizzes at the end of class.

The main idea behind STAD is to motivate students, encourage them, and improve each other's skills as presented by the teacher. If the students want their team to get team rewards, they must help their teammates learn the material, encourage their teammates to do their best, and express the idea that learning is important, valuable, and fun.

### 2.4.1. Components of Students Team Achievement Division (STAD) Method

According to Slavin (1995:71-73) Student Teams-Achievement Divisions (STAD) consists of five major components, as follows:

1. Class Presentation

   The teacher presents the material to the whole group using a verbal presentation or text. Material in Student Teams-Achievement Divisions (STAD) is initially introduced in a class presentation. Class presentations in Student Teams-Achievement Divisions (STAD) differ from usual teaching only in that they must be clear. In this way, students realize they must pay careful attention during the class presentation because doing so will help them do well on the quizzes, and their quiz scores determine their team scores.

2. Teams Study

   Students are assigned to four or five-member learning teams. The team members should represent a cross-section of the class in terms of academic performance, gender, and ethnicity. Team members work together to study worksheets or other study devices to master the academic material, which consists of problems and information to be mastered. Then help each other learn the material in team discussions.

   The major function of the team is to make sure that all the team members are learning, and more specifically, to prepare its members to do well on the quizzes. After the teacher presents the material, the team meets to study worksheets or other materials. Most often, the study involves students discussing problems together, comparing answers, and correcting any misconceptions if teammates make mistakes.

3. Quizzes

After the team practices, the students assess individual quizzes that include many questions. The students may not help one another during the quizzes.

4. Individual Improvement Scores

The idea behind the individual improvement scores is to give each student a performance goal that can be attained if she or he works harder and performs better than in the past. Any student can contribute maximum points to his or her team in this scoring system, but no student can do so without doing his or her best work. Each student is given a "base" score, derived from the student's average past performance on similar quizzes. Students earn points for their teams based on the degree to which their quiz scores exceed their base scores.

5. Team Recognition

Certificates or rewards are given to groups whose average scores on the test are higher than their base scoring, according to Ornstein and Lasley (2000:12). 325) Team rewards are given based on the performance of their team as a "good", "great," or "super" team.

### 2.4.2. Step of Students Team Achievement Division (STAD) Method

The process of using Student Team Achievement Divisions (STAD) Method in the classroom deals with the presentation and schedule of activities as the implementation of the Student Team Achievement Divisions (STAD)

Method. Before using Student Team Achievement Divisions (STAD) Method, it needs some preparations in order to make the learning process run successfully. The preparations are as follows: a. Materials Student Team Achievement Divisions (STAD) can be used with curriculum material specifically design for students team learning or it can be used with material adopted from text books or other published source or with teacher b. Assigning Students to Teams Student Team Achievement Divisions (STAD) represents a cross section of the class. A good team in the class is four to five persons that re-half male and half female. c. Determining Initial Base Score Base score represent student average score on the past quizzes. d. Team Building Before starting any cooperative learning program, the writer started off with one or more team building exercises just to give members a chance to do something funny and to get to know one another. e. Schedule of Activities Student Team Achievement Divisions (STAD) consists of a regular cycle instructional activities, as follows: 28 1) Teaching It means that the teacher present the lesson. The presentation should cover: opening, development, and guide practice and assessment respectively. 2) Team Study Team study (half a class period) Main Idea (Students study in their teams) Material needs (the worksheet and answer sheet for every team) 3) Test Students take individual quizzes or other assessments (such as essays or performances). The teacher gives students adequate time to complete it. The students must do work individually on the quiz. At this point they must show what they have learned as individuals 4) Team Recognition According to (Yunita, 2017) in Dini Deswarni (2018) stated that factors that influenced students improvement by

using STAD are collaboration in group, media, material that increases students' knowledge, activeness, self-confidence, and willingness to learn. Then, reward that is given to the best group also the factor that makes them more diligent to develop their ability. The last factor is 29 teacher's role as facilitator and source of information in learning. The teacher gives clear explanation and instruction for the students, more help and attention to the slow learners, increases students motivation, and as partner in learning. According to Ornstein and Lasley (2000:325) Team reward are given based on the performance of their team as a "good", "great" or "super" team. In conclusion, the writer can found definition of Student Teams Achievement Divisions (STAD) is one of the simplest of all cooperative learning method. It is a good model to begin with for teachers who are new to cooperative approach. So that it will be useful to help students in learning.

### 2.4.3. Preperation of Student Teams-Achievement Division (STAD).

The preparation of applying Student Teams-Achievement Divisions (STAD) Slavin (1995: 73–75) mentions the steps prepared by the teacher before the implementation of Student Teams-Achievement Divisions (STAD) as follows:

1. Material

   Material can be made by the teacher by adapting textbooks or other published sources. It covers a lesson plan, a work sheet, an answer sheet, and a quiz for each unit of the lesson plan.

2. Assigning Students to Teams

Students are assigned to four or five-member teams. Four-person teams in a class represent different backgrounds, such as sex and performance (high performer, average performer, and low performer). The teacher does not let students choose their own teams because they will tend to choose others like themselves. The achievement level is based on the students' pre-test scores. The table below shows the procedure for selecting the group.

3. Determining Initial Base Scores

It can be done by using the students' average scores on past quizzes or by using the students' final grades from the previous year's test.

4. Team Building

Before starting any cooperative program, it is a good idea to start off with one or more team-building exercises just to give team members a chance to create a team logo, banner, and song.

Student Teams-Achievement Divisions (STAD) emphasize mastering the materials through student centers. Students are active, and the teacher is a facilitator who guides students. Student-centered means that the students mostly dominate the class by producing a productive talk about their teammates' opinions. The group members should be active in doing the activity, such as helping each other, having communicative interactions between students, or sharing knowledge.

## 2.5. The Concept of Students' Interest in Learning

This section describes the theory of student interest in learning which includes definitions of student interest according to experts, indicators of student interest in learning, and efforts to increase interest in learning.

### 2.5.1 The Definition of Students' Interest in Learning

According to Tambunan (2018), interest is a person's awareness, desire and attention to a particular object that is associated with it and it is associated with strong feelings. Interest is an interest in an activity carried out through active participation. He said that a teacher as a motivator has a role in providing stimulation and encouragement to increase student interest in learning. He also wrote down several characteristics of students who already have an interest in learning, namely they prefer and enjoy learning, they are active in activities both in class and outside of class, they are also more interested in solving problems related to the subjects they enjoy, and have great attention in the learning. In Oxford Advance Learner's Dictionary, the word of interest can be defined in many meanings, as follow:

a) desire to learn or know about something more.

b) quality that attracts attention or curiosity.

c) activity or subject which you enjoy doing or learning. According to other experts, such as Klassen (2014) cited by Ricardo and Meilani (2017) who defined learning interest as a desire and intentional involvement in cognitive activities that play an important part in the learning process, determine what part is chosen to learn, and how well a learner learns the information provided. Furthermore, Marimba (1980, in Kpolovie, Joe, & Okoto, 2014) argues that

interest in learning is the tendency of the soul of students to get something because they have felt interesting things in learning and are generally characterized by feelings of pleasure.

According to Sari (2009) cited by Ricardo and Meilani (2017), the effectiveness of learning behavior is influenced by motivation, interest, effort, and evaluation. So, interest in learning can make a major contribution to the success of students in understanding a material. Sardiman (2011) also believes that the learning process will run smoothly if it is accompanied by interest. This is also reinforced by Burke's (1995) statement about interest in learning that is the main factor in determining student learning activities.

Based on the definitions above, it can be concluded that students' learning interest is a form of strong desire for student that arise accompanied by feelings of pleasure in learning something as a whole to get perfection. For example, someone who is interested in painting. They will study it until they really master the art and can create a work of value. Likewise, interest in learning language. They have to master the vocabularies until they can speak the language and also master the original accent to sound almost perfect.

### 2.5.2 Indicator of Students' Interest in Learning

Silvia (2008) cited by Triarisanti and Purnawarman (2019) argued that high interest in learning is expected to help students get high learning outcomes. She also adds that there are several indicators that show student interest in learning, including interest in reading, attention in learning, student activity in learning, and knowledge.

Hidi & Renninger (2006) suggest that high learning interest greatly affects the way students learn, for example a student who wants to get good learning outcomes, will study seriously and focus on the lesson. Thus, it can affect the process of successful teaching and learning activities. He also added that in essence, interest in learning causes direct attention, facilitates concentration, prevents distractions, strengthens attachment to subject matter, and reduces learning boredom.

According to Safari (2003) cited by Ricardo and Meilani (2017), there are several indicators used to measure student interest in learning, namely attention, interest, pleasure, and involvement. Meanwhile, according to Slameto (2010) students who have an interest in learning are usually characterized by a feeling of pleasure to learn, participation or involvement, and an attentive attitude. In addition, Dan & Tod (2014) cited by Ricardo and Meilani (2017) revealed that students who have an interest in learning have their own feelings such as:

1. Positive feelings when learning,
2. there is enjoyment/comfort when learning, and
3. the ability and capacity to make decisions related to their learning.

Ricardo and Melina (2017) managed to explain as a whole that indicators of interest in learning include feelings of interest and pleasure in learning, active participation, tendency to pay attention and great concentration, positive feelings and increased willingness to learn, comfort. while learning, and has the capacity to make decisions related to the learning process he is undergoing.

Based on the explanations of the experts above, it can be concluded that

students who have a feeling of pleasure and comfortable to learn, pay attention to learn, have a good interest in learning, participate or have involvement in the learning process, and gain knowledge are indicators that will be used to identify students' interest in learning.

### 2.5.3. Efforts to Increase Interest in Learning

Tambunan (2017) explained that to increase students' interest in learning there are several things that teachers can do, namely conveying learning objectives that are in accordance with the intellectual level of students, because students' understanding of learning objectives can generate interest in learning. Furthermore, explaining the subject matter needs to be done with a good approach, because many lessons are not successful because the learning process is not good. Teachers can design better learning because learning design affects the progress of student achievement. Another thing that is important for students' interest in learning is that teachers must make students enjoy their learning because fun is important in learning and there is a relationship between learning pleasure and learning achievement.

Meanwhile, according to Renninger (2007) and Wellington (1990), there are several ways to increase student interest in learning:

1. Building an informal learning environment.
2. Creating an active learning environment.
3. Implementing cooperative learning.

Another opinion was conveyed by de Vargas, et al., (2016) who said that the use of modern learning methodologies in providing material can stimulate better interest in learning.

Based on the explanation above, a teacher has an important role in fostering students' interest in learning through teacher creativity in creating an atmosphere that is interesting, active, and involves students in the process of teaching and learning activities. These are the main factors that underline this research. In this study, the authors hope that digital mind mapping can increase students' interest in learning English.

## 2.6. Theoretical Assumption

As many experts have studied, Vocabulary is a basic skill in mastering several other English skills, such as writing, reading, listening, and speaking. In this case, students' interest in learning English is equally important in mastering English skills, especially vocabulary. Lack of student interest can affect the level of understanding that students will receive. Therefore, the teacher's role in increasing students' interest in learning English is very necessary. This research applied a learning method, namely the mind mapping technique with STAD. Mind mapping technique with STAD is a technique of presenting a learning framework, usually having a big theme placed in the middle as the main theme and branches containing important points from the material. Generally, this technique provides attractive visual with many colors so the students are interested in paying attention.

In this case, researcher needs a learning technique that can increase students' interest and achievement in vocabulary mastery. The researcher modified mind mapping technique with STAD. It can also be applied by the

teacher to make the class active. In this way, the teacher can involve students in the process of learning English because students need something fun and easy to get new vocabularies.

## 2.7. Hyphothesis

Based on theories and the assumptions above, the researcher prose hypothesis in this research:

1. There is a significant difference of students' vocabulary achievement between students taught through by using mind mapping technique with STAD and mind mapping technique original.
2. There is a significant increase od students' interest in English vocabulary learning through mind mapping technique with STAD.

Briefly, this is the expected language in this chapter that is about reading, aspects of reading, teaching reading, descriptive text, mind mapping, Student Team-Achievement Divisions (STAD), procedures of mind mapping, procedures of Student Team-Achievement Divisions (STAD), advantages and disadvantages of mind mapping, students' problems, students' perceptions, previous research, theoretical assumptions, and hypotheses.

# III. RESEARCH METHOD

This chapter presented the method used in this research and they are, research design, population and sample, data collecting technique, scoring system, research procedure, and data analysis.

## 3.1. Research Design

The researcher used quantitative research. It was used to find out Is there any significant difference of students' vocabulary achievement between students taught through by using mind mapping technique original and mind mapping technique with STAD and to find out Is there an increase of students' interest in English vocabulary learning through mind mapping technique with STAD. Furthermore, the researcher used control class pre-test and post-test design in conducting the research. In this design, one class was an experimental class that was taught mind mapping technique with STAD while the other class was a control class that was taught with original mind mapping technique. The class was selected nurse asisten and hospitality. The researcher conducted the initial data collection time (T1) in the form of a pre-test before treatment (X) and conducted the final data collection time (T2) in the form of a post-test after treatment in the two classes. A pre-test was given to students to determine their interest and vocabulary achievement before they were given treatment, then a

post-test was given to students to see their interest and vocabulary achievement after they were given treatment. This pattern was formulated (Setiyadi, 2013):

**K1: T1 X T2**

**K2: T1 O T2**

**K1: Class 1 (Experimental Group)**

**K2: Class 2 (Control group)**

**T1: Pre-test**

**T2: Post-test**

**X: Treatment ( mind mapping technique with STAD )**

**O: Treatment (original mind mapping technique)**

**Notes: This pattern was formulated (Setiyadi, 2013).**

This research will be conduct in five meetings in each group with the presentation as follow :

1. The first meeting is for pre – test
2. The second to fourth is for the treatments
3. The Fifth meeting is for the post – test.

The researcher used this design because the pre-test (TI) is a test that will measure the students' ability in the first In the beginning, the students were given a standard test that appeared to be a good measure of their score before being given treatments. After conducting the pre-test, the researcher gives the results (X) to the students. Eventually, at the end of the treatment, the researcher gives a pot-test (T2) to measure the difference score before and after treatment.

## 3.2. Data Source

### 3.2.1. Population and Sample

This research was undertaken at a SMK AKU CINTA INDONESIA in Metro City, Lampung Province. This site made the research more feasible and suitable in terms of time, mobility, and skills (McMillan and Schumacher 2001, p. 432). Firstly, it was located in the same town as the researcher. This could ease the researcher's time and cost of running the study. Secondly, based on the researcher's previous observation, the English teacher had the necessary skill to implement the teaching procedures. Thirdly, the researcher had good access to the site since he was one of the teaching personnel on the site. There are two courses in tenth grade, namely nursing asisten and hospitality. The researcher took students of nursing asisten and hospitality as a research sample. The classes have 30 students in each class, This study used nursing asisten class as the experimental class, hospitality class as the control class. The tenth grades students were selected because they have studied English at least in junior high school and they have a chance to be part of the research which is expected to help in increasing students' interest and also students' vocabulary.

## 3.3. Research Instrument

There are two instruments that were used in this research as follows:

### 3.3.1. Vocabulary Test

This study used two classes, namely the experimental class and the control class. The researcher used pretest and posttest as test items, where both questions must have good validity and reliability.

**a. Validity**

Validity is a tool used to measure and develop research instruments (Risya, 2019). According Ary et al., (2010) and his friends, the focus of current views on validity is not on the instrument itself but also on the interpretation and meaning of the scores obtained from the instrument. That means a test was valid, if it measures accurately what it is intended to measure. Therefore, this research was conducted to measure students' achievement and interest of vocabulary.

**1. Content Validity**

Content validity is the extent to which a test measures a representative sample of the subject matter content. In order to comply with the content validity, the test items of the instrument are designed in order to see whether they have represented the materials that are measured or not. The researcher chooses two basic competencies of 2013 English curriculum and syllabus which learners are learned by the tenth-grade students of the vocational high school. The basic competencies are as follows; 3.4) to comprehend the social function, text structures, and linguistics elements in descriptive text related to the description of people, tourism places, and historical building contextually and 4.4) to arrange oral and written descriptive text simply and shortly about people, tourism place, and historical building contextually.

**2. Construct Validity**

If a test has construct validity, it is able to measure certain specific characteristics according to behavioral theory and language learning (Heaton,

1991). It checks whether the test really fits the theory. The related vocabulary test aims to measure students' vocabulary achievement. In addition, vocabulary tests are limited to content words that have been mentioned by several researchers in word division (Carter, 1998; Read, 2000; Thornbury, 2002; Katamba, 2005; and Crystal, 2008) namely nouns, verbs, adjectives, and adverbs. While the meaning of words, synonyms and antonyms follows an expert Ur (1996: 60) who states that there are several items that need to be taught in teaching vocabulary, including those previously mentioned.

**Table 3.1 Distribution of the Vocabulary Aspects of Pre-test and Post-test after Validity**

| No | Aspect | Item Number | | | |
|---|---|---|---|---|---|
| | | Pre-test | Total | Post-test | Total |
| 1 | word content nouns, verbs, adjectives, adverbs | 1,2,9,12,13,16,17 3,4,19,20,31,32 24,25,37,38,45,46,47 5,6,11,21,22,48 | 26 | 1,2,10,18,19,20,33 21,22,30,34,44,45 3,7,8,16,17,36,38 29,32,35,37,42,46 | 26 |
| 2 | Word meanings | 8,10,27,28,29,33,34, 39,40,41 | 10 | 5,6,9,11,12,25,26, 47,48,49 | 10 |
| 3 | synonyms | 7,14,26,35,42,43,49 | 7 | 4,13,14,24,31,39,40 | 7 |
| 4 | Antonyms | 15,18,23,30,36,44,50 | 7 | 15,23,27,28,41,43,50 | 7 |
| **Total** | | | 50 | | 50 |

To assess the validity used inter-rater. It was consulted with several experts to ask their opinion about the instruments that have been made. The inter-rater were teachers at SMK Aku Cinta Indonesia Metro. Based on their decisions, the instrument tested is valid vocabulary. That means the test item measures what it is expected to measure.

**b. Reliability**

Reliability is consistency of a measuring instrument, or the extent to which the measuring instrument can measure the same subject at different times and shows relatively the same results (Setiyadi, 2013). According to Hatch and Farhady (1982), reliability refers to the extent to which a test produces consistent results when administered under the same conditions. The concept of reliability comes from the idea that no measurement is perfect even if we go to the same scale there is always something to conclude. The researcher used SPSS 25 calculation to estimate the reliability of the vocabulary test**.**

| | |
|---|---|
| The criteria of reliability are:<br>1. > 0.90 Very highly reliable<br>2. 0.80-0.90 Highly reliable<br>3. 0.70-0.79 Reliable<br>4. 0.60-0.69 Minimally reliable<br>5. <0.60 Unacceptably low reliability. | (Cohen, et al., 2007) |

**Table 3.2 The Pre-Test Result of Reliability**

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| .895 | 50 |

**Table 3.3 The Post-Test Result of Reliability**

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| .914 | 50 |

From the table above, it can be drawn a conclusion that the result obtained in the SPSS (*Statistical Package for Social Science*) by used Cronbach Alpha, the result of reliability in the pre-test is 0.895 which means it has high reliability while in the post-test is 0.914 which means it has very high reliability.

**c. Discrimination Power**

The discrimination index of an item indicates the extent to which the item discriminates between the testes, separating the more able testes from the less able. The index of discrimination (D) tells whether those students who performed well on the whole test tended to do well or badly on each item in the test. It is calculated by using the formula:

$$D = \frac{\text{Correct U} - \text{Correct L}}{n}$$ ( Heaton, 1991 )

Where,

D : discrimination power

U : the proportion of "high group" students getting the item correct

L : the proportion of "low group" students getting the item correct

n : total number of students in each group

The criteria are:

1. 0.20 : poor

2. 0.21- 0.40 : satisfactory

3. 0.41- 0.70 : good

4. 0.71- 1.00 : excellent

(Negative) : bad items (should be omitted)

(Heaton, 1991 as cited in Putri et al., 2015)

**d. Level of Difficulty**

The index of difficulty of an item simply shows how easy or difficult the particular item proved in the test. The index of difficulty is generally expressed as the fraction (or percentage) of the students who answered the item correctly. It is calculated by using the formula:

$$FV = \frac{\text{Correct U} + \text{Correct L}}{2n}$$ (Heaton, 1991)

Where,

FV : level of difficulty

U : the proportion of upper group students who answer correctly

L : the proportion of lower group students who answer correctly

n : the total number of students who take the test

The criteria are:

1. <0.30 : difficult

2. 0.31- 0.70 : average

3. >0.71 : easy

(Shohamy, 1985 as cited in Putri et al., 2015)

**3.3.2. Questionnaire**

The questionnaire is conducted to find out whether digital mind mapping method could increase students' interest in vocabulary learning. So,

some questions were made and must be answered by students before and after they are given the treatment. The questionnaire is in Indonesian to minimize misinterpretation from students and it is close-ended type with four options using a Likert scale starting with strong agree to strongly disagree on each item of the statement. The following are indicators of students' interest as the basis of the questionnaire statement.

**Table 3.4 Indicators of Students' Interest Questionnaire**

| INDICATORS | STATEMENTS |
|---|---|
| have a feeling of pleasure and comfortable to learn | 1,2,3,4 |
| pay attention to learn | 7,9 |
| have a good interest in learning | 5,6 |
| participate or have involvement in the learning process | 10 |
| gain knowledge | 8 |

The questionnaire used in this research was Likert scale questionnaire. The criteria for the questionnaire must have good validity and reliability requirements.

**a. Validity**

The validity of questionnaire was measured to find out if the components were already suitable and related to the relevant theories of students' interest. For face validity, it would be previously checked by the advisor to see whether the items in the questionnaire were clear, readable, and understandable to be responded by the learners. For construct validity, the questionnaire used to test students' interest was the adaptation of the previous

questionnaires by Wigfield and Cambria (2010), Ali (2017), Ricardo and Meilani (2017), and Triarisanti and Purnawarman (2019). Their questionnaires had been used as a significant predictor of students' interest. In this case, the questionnaire was prepared based on indicators of student interest, including: have a feeling of pleasure and comfortable to learn, pay attention to learn, have a good interest in learning, participate or have involvement in the learning process, and gain knowledge. The researcher had adopted 10 items as the questionnaires.

**b. Reliability**

The researcher used Cronbach's Alpha to measure the internal consistency of the questionnaire items by using SPSS 25 computer program. Furthermore, to determine the reliability of the questionnaire, Cohen et al., (2007) proving following guideline:

**Tabel 3.5 reliability of the questionnaire, Cohen et al., (2007)**

| **Alpha value** | **Descriptions** |
|---|---|
| >0.90 | Very highly reliable |
| 0.80-0.90 | Highly Reliable |
| 0.70-0.79 | Reliable |
| 0.60-0.69 | Minimally reliable |
| <0.60 | Unacceptably low reliability |

**Table 3.6 The Questionnaire Result of Reliability**

| **Reliability Statistics** | |
|---|---|
| Cronbach's Alpha | N of Items |
| .726 | 10 |

From the criteria, it can be drawn a conclusion that the result obtained in the SPSS (*Statistical Package for Social Science*) by used Cronbach Alpha, the reliability of the questionnaire has reliable because the result of reliability was 0.726. The researcher concluded that the degree of the level of reliability of the instrument was reliable.

### 3.4. Data Collecting Technique

In collecting data, the researcher used some techniques as following here:

#### 3.4.1. Pretest

The pre-test was administered for students to measure before having treatment of teaching vocabulary by using digital mind mapping technique for the experimental class and original mind mapping technique for the control class. This is done to determine students' competence in vocabulary. The type of pre-test was a vocabulary test in which the researcher applies a multiple choice test with 50 questions.

#### 3.4.2. Posttest

The post-test was administered for the students after doing treatment of teaching vocabulary by using digital mind mapping technique for the experimental class and original mind mapping technique for the control class. The form and material in the post-test were the same with the pre-test.

#### 3.4.3. Distributing the Questionnaire sheet

It was distributed in the class to determine the students' interest in vocabulary learning during the teaching vocabulary by using digital mind mapping technique.

### 3.5. Scoring System

The students' scores of the tests were calculated by using formula as follows:

$$S = \frac{N \ x \ 100 \ (maximal \ score)}{R}$$

Where,

S : the score of the test

R : the total of the right answers

N : the total items

### 3.6. Research Procedure

The researcher used the following procedures in order to collect the data:

3.6.1. The researcher determined research problems. The main concern of this research are, first, to find out Is there any significant difference of students' vocabulary achievement between students taught through by using mind mapping technique original and mind mapping technique with STAD. Second, to find out Is there an increase of students' interest in English vocabulary learning through mind mapping technique with STAD.

3.6.2. The researcher determined population and sample. The population took the tenth grade students' of SMK Aku Cinta Indonesia Metro. The sample was two classes the Nursing Asistent and Hospitality class. The research used Nursing Asistent class as the experimental class and Hospitality class as the control class.

3.6.3. The researcher chose a text taken from the form of Descriptive Text and used vocabularies contained in the text (including verbs, nouns, adjectives, and adverbs). The topic of the material described a sheet work.

3.6.4. Preparring the research instrument in the form of vocabulary test and students' interest questionnaire.

3.6.5. After that, the researcher conducted try out of the instruments in a class outside the sample to measure the consistency and validity of the instrument.

3.6.6. The researcher conducted research process in the experimental class and control class in the form of pretest, treatment with techniques and posttest.

3.6.7. Furthermore, the researcher analyzed research results to answer the research questions.

## 3.7. Data Analysis

Analyzing data was a very necessary step in this research. Setiyadi (2006) says that data analysis is the process of organizing the data in order to gain regularity of the pattern and form of the research. In this research, several analyzes were done by researcher which involve the following analysis:

### 3.7.1. Normality

In this research, normality test used to know whether the data in the experimental class and in the control class are normally distributed or not. To find out the normality, the researcher used the Shapiro-Wilk test with SPSS 25 (Statistical Package for Social Science). The hypothesis for testing normality is:

H0: The data are not normally distributed.

H1: The data are normally distributed.

While the criteria of acceptance or rejection of hypotheses for normality test are as follows:

H0 is accepted if alpha level is lower than 0.05 ($p<0.05$).

H1 is accepted if alpha level is higher than 0.05 ($p>0.05$).

**Table 3.6 Result of the Normality Tests**

| Tests of Normality | | | | | | |
|---|---|---|---|---|---|---|
| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
| | Statistic | Df | Sig. | Statistic | df | Sig. |
| Experiment | .152 | 30 | .075 | .877 | 30 | .002 |
| Control | .153 | 30 | .071 | .900 | 30 | .008 |
| a. Lilliefors Significance Correction | | | | | | |

Based on the table, it can be seen that *Sig*. (P-value) for experimental class was 0.075 and *Sig*. (P-value) for control class was 0.071. It means that the data in the experimental class and control class have normal distribution because the p values are higher than 0.05.

### 3.7.2. Homogeneity

After the normality test, the researcher determined the homogeneity test. In this research, homogeneity test used to determine whether the data in experimental class and control class are homogenous or not. In this case, the researcher used statistical computation by using SPSS 25 (*Statistical Package for Social Science*) for homogeneity test. The test of homogeneity used Levene statistic

test. The hypotheses for the homogeneity tests are formulated as follows:

H0: the variances of the data are not homogenous

H1: the variances of the data are homogenous

While the criteria of acceptance or rejection of hypotheses for homogeneity test are as follows:

H0 : is accepted if alpha level is lower than 0.05 ($p<0.05$).

H1: is accepted if alpha level is higher than 0.05 ($p>0.05$).

**Table 3.7 Result of the Homogeneity Test**

| Test of Homogeneity of Variances | | | | | |
|---|---|---|---|---|---|
| | | Levene Statistic | df1 | df2 | Sig. |
| Hasil belajar | Based on Mean | 2.014 | 1 | 58 | .161 |
| | Based on Median | 1.270 | 1 | 58 | .264 |
| | Based on Median and with adjusted df | 1.270 | 1 | 56.865 | .265 |
| | Based on trimmed mean | 1.915 | 1 | 58 | .172 |

Based on the results obtained in the homogeneity test variance in the column, it can be seen that the p values in experimental and control class are 0.172. It means that the data variance is homogeneous because the p values are higher than 0.05. It indicated that students of experimental class and control class have the same ability.

### 3.7.3. Hypothesis Testing

The hypothesis testing was used to prove whether the hypothesis proposed in this research is accepted or not. In the effort to measure the hypothesis, independent group t test and paired sample t test of SPSS was used in this research. The hypothesis testing was stated as follow:

**H0** : There is no significant difference of students' vocabulary achievement between students who are taught by using digital mind mapping technique and original mind mapping technique.

**H1** : There is a significant difference of students' vocabulary achievement between students who are taught by using digital mind mapping technique and original mind mapping technique.

Essentially, all the hypotheses above were accepted or rejected based on the criteria of data analysis interpretations. If the probability value or Sig (2-tailed) < 0.05, H1 is accepted. On the contrary, if the probability value or Sig (2-tailed) > 0.05, H0 is accepted.

### 3.7.4. N-Gain Test

The data analysis used to determine an increase students' interest in learning English using *normal Gain test*. N-Gain is to find the difference between the pretest and posttest scores. The *normal Gain test* was done using the *normal Gain* formula, with the following formulation:

$$N - Gain = \frac{Posttest\ score - Pretest\ score}{Maximum\ score - Pretest\ score}$$

with the following acquisition categorize:

High N-Gain : score $G \geq 0.70$

Average N-Gain : score $0.30 \leq G < 0.30$

Low N-Gain : score $G < 0.30$

(Wardani and Mitarlis, 2019)

and following the effectiveness category of the n-gain percent score:

Not effective : score

< 40 Less of effective : score 40 – 55

Effective enough : score 56 – 75 Effective : score > 76

(Wardani and Mitarlis, 2019)

# V. CONCLUSIONS AND SUGGESTION

This chapter deals with conclusions and suggestion based on the results and discussions of the research.

## 5.1. Conclusions

Based on the findings on the previous chapter, the tesearcher comes to these following conclusions. The objectives of this research are to investigate (1) the significant difference of students' vocabulary achievement between students who are taught by using mind mapping technique with STAD and original mind mapping technique, (2) the increase of students' interest in English vocabulary learning through mind mapping technique with STAD. By referring to the discussion of the research findings in the previous chapter, the researcher comes to the following conclusions:

1. The independent group t-test analysis shows that there is a statistically significant difference in vocabulary achievement between the students being taught with mind mapping techniques with STAD. It indicates that the mind mapping technique with STAD has a greater influence on result of students' vocabulary achievement than teaching using the original mind mapping technique.

2. The next result show that students have an increase in their interest of learning vocabulary using mind mapping technique with STAD. It is due mind mapping with STAD is a new learning technique has their vocational suitability. In addition, it also gives students the freedom to be creative to help improve their creativity.

## 5.2 Sugestions

Given the conclusions above, the following suggestions are put forward for teachers and further research:

### 5.2.1. For the Teachers

a. The teachers are suggested to provide instructions that are easily understood by students when applying learning with mind mapping technique with STAD.

b. The teachers are suggested to provide feedback on student performance. It can help increase their confidence and interest in learning.

### 5.2.2.For the Further Research

a. The researcher used mind mapping technique with STAD to determine the students' achievement and interest of vocabulary. Future research, can do this technique on different aspects of English.

b. The researcher tested the difference in the application of mind mapping technique with STAD and Original Mind Mapping Technique on the students' achievement of vocabulary in the tenth grade, the further

research can compare the students' achievement of vocabulary with more variety by combining other technique or using different grade level.

Briefly, those are the conclusion of the research finding and suggestions for the students to be better in Reading class, English teachers who want to implement mind mapping technique with STAD in teaching reading, and for further researchers who want to investigate the reseach about this strategy.

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