

**COMPARATIVE STUDY OF STUDENTS' READING  
COMPREHENSION OF DESCRIPTIVE TEXT  
THROUGH JIGSAW TECHNIQUE AND  
MIND MAPPING TECHNIQUE**

**(Undergraduate Thesis)**

**By**

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**ENGLISH EDUCATION STUDY PROGRAM  
DEPARTEMENT OF LANGUAGE AND ARTS EDUCATION  
UNIVERSITY OF LAMPUNG  
BANDAR LAMPUNG  
2024**

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**A Script**

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**FACULTY OF TEACHER TRAINING AND EDUCATION  
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## ABSTRACT

### COMPARATIVE STUDY OF STUDENTS' READING COMPREHENSION OF DESCRIPTIVE TEXT THROUGH JIGSAW TECHNIQUE AND MIND MAPPING TECHNIQUE

By

Niluh Wayan Asmara Ratih

The objectives of this research were to find out whether there was a significant difference of students' reading comprehension after being taught through Jigsaw and mind mapping techniques, and what aspect of reading that improved significantly after implementing these techniques. This research was a quantitative research which used a pre-test and post test experimental design. The population of this research was the tenth grade students of SMAN 15 Bandar Lampung, there were 273 students as the population and there were 69 students as a sample. Pre-test and post-test were distributed to collect the data. The data were analyzed by using Sign-Test, and U-Whitney Test.

The result of this research showed that  $p$  was higher than 0.05 ( $0.13 > 0.05$ ). Related to the aspect of reading, this research has different increase result in aspect of reading. Vocabulary was the aspect that improved the most after being taught through jigsaw technique, meanwhile main idea was the aspect that improved the most after being taught through mind mapping technique.

According to the result, it can be concluded that jigsaw technique and mind mapping technique improve students' reading score however, there is no significance difference from two classes after taught through jigsaw technique and mind mapping technique. In addition, the two techniques increase different aspect of reading. Jigsaw technique can be used as a reference to teach vocabulary and mind mapping technique can be used as a reference to teach main idea for the students.

**Keywords** : Reading comprehension, Jigsaw Technique, Mind Mapping Technique.

Research Title : COMPARATIVE STUDY OF STUDENTS' READING  
COMPREHENSION OF DESCRIPTIVE TEXT  
THROUGH JIGSAW TECHNIQUE AND MIND  
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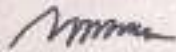
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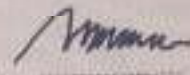


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Menyatakan bahwa skripsi ini adalah hasil karya sendiri. Sepanjang pengetahuan saya, karya ini tidak berisi materi yang ditulis orang lain, kecuali bagian-bagian tertentu yang saya ambil sebagai acuan. Apabila ternyata terbukti bahwa saya pernyataan ini tidak benar, sepenuhnya menjadi tanggung jawab saya.

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## **CURRICULUM VITAE**

The researcher's name is Niluh Wayan Asmara Ratih. She was born on August 26<sup>th</sup> 2001, in Bandar Lampung. She is the oldest child of Nengah Suwirya, S.Pd. and Ida Ayu Made Indrawati. She has two younger brothers the first is I Made Dirgayusa, and the second is I Nyoman Jagat Tirta.

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She continued her education as one of the students in the English Education at the Faculty of Teacher Training and Education at Lampung University in 2020. She was also joining several college organisations, such as UKM Hindu Unila as the secretary of the kaderization group and SEEDS as the finance group member. She carried out Pengenalan Lapangan Persekolahan (PLP) in January 2023 up to February 2023 in SMAN 1 Banjit, Way Kanan, Lampung.

## **MOTTO**

“Knowledge is the king of education. The secret of all secret. It is the purest knowledge,

because it gives direct perception of the self by realization.

It is the perfection of religion. It is everlasting,

and it is joyfully performed”

(Bhagavad Gita IX.II)



## **DEDICATION**

With love and appreciation, this script is proudly dedicated to :

My beloved father Nengah Suwirya, S.Pd., who always inspires and motivates me in every step of my life. My beloved mother Ida Ayu Made Indrawati, who always prays for me and always gives me a hand when I have something to do and when I need someone to talk to.

My dearest brothers :

I Made Dirgayusa, and I Nyoman Jagat Tirta. I wish both of you can reach all of your dreams.

English Department 2020

My almamater, Lampung University

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The Writer,

Niluh Wayan Asmara Ratih

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## **I. INTRODUCTION**

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

### **1.1 Background of the Research**

Language is an important aspect of life. According to Tatipang (2021), learning language is a desire for those who want to make a progress because language is an important aspect of human life. Language plays an important role in human life because, through language, humans can communicate and interact with each other.

In Indonesia, we use Indonesian to communicate and also there are many people who can use foreign language to communicate with each others. One of which is English, which is an international language. Based on Widiyanti (2014), English as an international language is spoken in most international events and it is used as the medium of information flow in science, technology, and culture. English as an international language plays an important role in Indonesia, some of which are

in the fields of science and technology. For example, in Indonesian students are deals with English as one of their subject that is taught in school.

There are four skills of language, including listening, speaking, reading, and writing. Reading is one of the important skill that must be mastered, especially by students, because reading skill plays an important role for students, for example, in the academic field. This is in accordance with Shafi (2018), who states that reading is an English language skills that student has to master as the main goal of learning English besides listening, speaking, and writing. According to Pongsatornpiat (2022), reading skill were also seen as essential for achieving academic goals. By mastering reading skill, students will find it easier to master the subject matter taught at school.

Reading comprehension is important to improve English proficiency. However, learning a foreign language as well as improving reading skills in English is not easy. According to Widiyanti (2014), learning a foreign language is more difficult than learning a national language. This is due to several factors, including differences in pronunciation, spelling, and cultural background. Some of these factors are also connected with the difficulties in improving the comprehension to read. In addition, many students think that reading is a boring activity. They have to deal with many generic structures and language features that make them uninterested. Rahmasari (2017) stated that reading is regarded as a difficult skill for learners to master. Most of the students have the assumption that reading English text is a boring activity.

There are several techniques that can be used for teaching reading. For example is Jigsaw technique and mind mapping technique. According to Sumiati (2019), jigsaw is a cooperative technique that is effective in increasing students' awareness of learning and understanding the text, since every student is essential in the learning process. It deals with the cooperative activity in two main groups, they are home groups and expert groups. Through the use of jigsaw technique, it is possible for students to interact more in classroom activity because jigsaw technique is a group work.

Mind mapping Technique is an information processing technique that can be used in a logical and imaginary way to create an image in the brain. Through mind mapping technique, students are expected to be able to learn while being creative in making mind maps, so they will not feel bored while learning. This technique increases the creative concepts and helps to increase students' motivation to study.

Based on the several factors above, the researcher wants to compare the use of jigsaw and mind mapping techniques to improve students' reading comprehension. Jigsaw and mind mapping techniques are interesting and effective learning techniques to improve students' reading comprehension. By comparing the two techniques, the researcher wants to know which technique is better for improving students' reading comprehension.

## **1.2 Research Questions**

Based on the research background above, the researcher concluded two research questions, including :

1. Is there any significant difference in student's reading comprehension after being taught through jigsaw and mind mapping technique?
2. Which aspect of reading is the most increase, between the use of jigsaw and mind mapping techniques?

## **1.3 Objectives**

Based on the research questions above, the researcher conclude the objectives include :

1. To find out whether there is a significant difference in students' reading comprehension after being taught with jigsaw and mind mapping aspects.
2. To find out which aspects of reading have increase the most after being taught through jigsaw and mind mapping technique.

## **1.4 Uses**

Based on the study, the researcher conclude the uses of the research, including :

1. Theoretically, this research is expected to be used as a reference in teaching reading through jigsaw technique and mind mapping technique.
2. Practically, this research is expected to find a good way to teach reading aspects to students with different techniques and adjust according to the conditions or needs of students.

### **1.5 Scope of The Research**

This research was conducted at SMA Negeri 15 Bandar Lampung. This research was focused on the X grade students of SMA Negeri 15 Bandar Lampung. There were several techniques used to improve reading comprehension, such as jigsaw technique, mind mapping, ECOLA, DRTA, and SQ3R. In this study, the researcher compared the use of two techniques, they are jigsaw technique and mind mapping technique. In accordance with merdeka curriculum, the material on phase E were narrative texts, descriptive texts, report texts, and so on. In this study, the researcher focused on learning descriptive text. The researcher also tested aspects of reading, including main ideas, detailed information, references, inferences, and vocabulary, to see which aspects improved after being taught using jigsaw and mind mapping techniques.

### **1.6 Definition of Terms**

According to the research, there were several definition of terms include :

1. Reading comprehension.

Beydarian (2015) stated that reading comprehension is one of the most important ways to learn English and it has a close relationship with an effective writing style.

2. Descriptive text.

Text that describe something. For example is explaining things, humans, animals, plants, and so on by adding adjectives and adverbs.



3. Jigsaw.

According to Namaziandost (2020), jigsaw is a type of cooperative learning that allows students to communicate with each other to fill in missing information and to integrate it with others information.

4. Mind mapping.

Techniques to improve reading comprehension by making a summary in the form of branch keywords from a text or another resource.

## **II. LITERATURE REVIEW**

In literature review, several theories and information are included to help the author in designing the research. In this chapter, the author describes a review of previous research on reading, teaching reading, reading comprehension, aspects of reading, the concept of descriptive text, concepts of jigsaw technique and mind mapping technique, and hypotheses.

### **2.1 Review of the Previous Research of Jigsaw and Mind Mapping**

There are several studies regarding the use of jigsaw and mind mapping as learning techniques, including Barbosa (2020), who stated that the use of jigsaw technique improves students' reading skills since it includes essential features of reading comprehension such as increasing vocabulary words and knowledge of context clues, recalling prior knowledge, sharing correct information, asking relevant questions, and summarising ideas. The use of jigsaw technique not only improves students' reading skills, the use of this technique also improves students' interpersonal skills, motivation, critical thinking, and accountability.

According to Sumiati (2019), there is a significant improvement in students' reading comprehension after being taught through jigsaw technique. The use of jigsaw technique is effective in improving students' reading comprehension. Most

students are actively involved in the teaching and learning process. Students are enthusiastic about discussing and sharing the information by applying jigsaw technique. The use of jigsaw technique in teaching reading comprehension has a great effect on the students' reading comprehension.

According to Namaziandost (2020), jigsaw technique is effective in improving reading comprehension. The implementation of jigsaw technique in teaching and learning can produce positive results because it can immerse students in learning English. The positive effects of using jigsaw technique became obvious after the treatment. Here, it can be claimed that receiving instructions through the use of jigsaw technique can facilitate English learning. Jigsaw technique can make students independent and help them learn how to study in groups.

Hazaymeh (2022) stated that the experimental group of the research where taught using mind mapping techniques has a higher score compared to control group which is taught using traditional teaching. Using visual mind mapping had a positive and significant impact on participants' critical thinking skills and reading abilities.

Tatipang (2021) stated that there was good progress when mind mapping or treatment was given to students. The post-test value has a higher value compared to the pre-test value after being given treatment. Thus, researchers conclude that mind mapping technique was an effective technique to increase students' reading comprehension. The researcher also concluded that students can enjoy the

learning process because of the application of the mind-mapping technique. With this technique, learning becomes more fun. Mind mapping can also be used to solve students' problems with reading skills and improve students' reading skills.

Based on the results of several studies, it can be concluded that jigsaw and mind mapping techniques are techniques that can be used in teaching reading. The use of jigsaw and mind mapping techniques is equally effective in improving English language skills and creating fun learning activities. Therefore, the researcher wants to compare the use of jigsaw and mind mapping techniques to see which technique can improve the ability to read descriptive text.

## **2.2 Reading**

Reading is a process of understanding words, through reading the reader can find out the information contained in the text. According to Dadara (2021), reading is a process that takes place between the text and the reader's processing strategies and background knowledge.

According to Ghina (2020), reading is the process of dealing with a text that is written in books, newspapers, magazines, and websites. There are lots of reading materials that can be used as reading media, for example, novels, comics, short stories, newspapers, magazines, articles, and so on. Media in the form of written text can improve reading skills.

Beydarian (2015) stated that reading is considered one of the more complex skills in the EFL context. Reading is one of the important aspects of language that must be mastered by English, a foreign language. To be able to understand written material, learners need to use congenital strategies and have sufficient vocabulary. Through reading activities, EFL students will understand a lot of foreign vocabulary and improve their English-speaking skills.

Based on some of the expert opinions above, the researcher concluded that reading is a process of understanding written text that requires expertise or background knowledge to obtain information. Reading is very important in the field of education, including improving English skills and obtaining information and knowledge.

### **2.3 Reading Comprehension**

According to Beydarian (2015), reading comprehension is one of the most important ways to learn English, and it has a close relationship with an effective writing style. Reading comprehension allows students to be able to master foreign languages, especially English. Through reading comprehension, the ability to understand and analyse written text will increase.

Harris (2007) stated that reading comprehension is the process of constructing meaning by coordinating a number of complex processes that include reading words, word and world knowledge, and fluency. Reading comprehension is a multicomponent, highly complex process that involves many interactions between

readers and what they bring to the text, as well as variables related to the text itself.

Sumiati (2019) stated that reading comprehension is the interaction of information between readers drawing information from a text and readers' expectations or information about a text that has already been read. Reading comprehension is the activity or process of how students can understand and get information or content from the text.

Based on some of the expert research above, it can be concluded that reading comprehension is an important process in learning a language, which includes activities to analyse the contents of written texts to be able to understand the information contained in the texts.

#### **2.4 Teaching Reading**

Widiyanti (2014) pointed out that teaching reading is the use of several techniques in order to make students interested and increase their ability to read English and which helps students to get explanations and information easily. In teaching reading comprehension, there are some techniques used by teachers in teaching reading, they are surveys or skimming, reading, recalling, questioning, reviewing.

Malekzadeh (2015) stated that teaching reading comprehension is a series of activities that have several stages including choosing a text, describing the strategy, modeling the strategy, practicing independently, and reflecting. Teaching reading is related to reading comprehension and can be said to be a long process.

In teaching reading, the teacher must have teaching strategies. According to Naomi (2006), teaching strategies are educational strategies that can be defined as a plan method, or a series of educational activities designed to achieve a particular goal. Teaching strategy is a teacher's plan in teaching and learning process to achieve which have planned. In other words, teaching strategies are approaches to teaching students.

From the opinions of these experts, it can be concluded that teaching reading is a series of activities that have been planned using a variety of teaching techniques that aim to improve students' ability to read written text in English.

## **2.5 Aspect of reading**

According to Nuttall (1996), there are five aspects in reading comprehension. There are identifying main ideas, finding specific information, determining references, making inferences, and understanding vocabulary.

### **1. Identifying main idea**

Identifying the main idea is a process to analyze the most important thought of a paragraph which tells the reader what is the text about.

### **2. Finding specific information**

Finding specific information refers to find facts or descriptions of something mentioned in the text. General information is normally vague and represents a broad description of something.

### 3. Determining reference

Determining reference allow a writer to create cohesion throughout a text. They constitute a large group of mostly "pronouns" and "noun phrases," less frequently other parts of speech.

### 4. Making inference

Making inference is the process of reading the entire contents of the written text, then making conclusions that cover the entire contents of the written text.

### 5. Vocabulary

Vocabulary is the knowledge of words and word meanings. For example is the use of antonym and synonym in order to learn about vocabulary.

## **2.6 Descriptive text**

Zainuddin (2015) pointed out that descriptive text is a text that presents information about something specifically. The purpose of descriptive text is to describe a particular person, thing, or place specifically. For example, describing animals The generic structure of descriptive text includes identification, introducing a particular person, thing, or place, description, describing physical appearance, quality, behaviour, etc.

According to Asrifan (2018), descriptive text is a text that describes something, situation, etc. or writes about the way people, places, or things appear. Descriptive writing, according to Anderson and Anderson (2003), describes a specific person, place, or thing. It indicates that a person, place, or thing is the focus of a



descriptive text. Additionally, they argued that descriptive text should only describe a subject's features, excluding any personal comments.

Descriptive text has a generic structure. According to Zainuddin (2015), the generic structures of descriptive text are identification, introducing a particular person, thing, or place, and description, describing physical appearance, quality, behaviour, and many more.

## **2.7 Jigsaw**

Aronson (2000) stated that jigsaw is a specific type of group learning experience where in each student must cooperate with his or her peers to achieve his or her individual goals. Similar with jigsaw puzzle, each piece of student's part is essential for the production and full understanding of the final product. If each student's part is essential, then each student is essential.

According to Sumiati (2019), jigsaw is a cooperative technique that is effective in increasing students' awareness of learning and understanding the text since everyone is essential in the learning process. It deals with the cooperative activity in two main groups they are home group and expert group. In jigsaw technique, students are expected to gain their understanding by discussing in both an expert group and home group. Through this technique, students gain more understanding and have the probability of making the right inference by experiencing discussion in two groups.

According to Aronson (2008), the teaching procedures in classroom by Jigsaw might be sequenced as follows :

1. Students are divided into 5 or 6 people in a jigsaw group.
2. One student should be appointed as the group leader.
3. Each student is assigned one segment to learn. Students should only have direct access to their own segment.
4. Students should be given time to read over their segment at least twice to become familiar with it. Students do not need to memorise it.
5. Temporary expert groups should be formed in which one student from each Jigsaw group joins other students assigned to the same segment. Students in this expert group should be given time to discuss the main points of their segment and rehearse the presentation that they are going to make for their jigsaw group.
6. Students come back to their jigsaw group.
7. Students present their segment to the group. Other members are encouraged to ask questions for clarification.
8. The teacher needs to observe the process from group to group. Intervene if any group is having trouble, such as a member being dominating or disruptive.
9. A quiz on the material should be given at the end so students realise that the sessions are not just for fun and games, but that they really count.

## 2.8 Mind Mapping

Malekzadeh (2015) stated that mind mapping is a technique used to assist students in organising and structuring their thoughts by conceptually mapping concepts or words. Visual frameworks used to portray structural knowledge, such as figures, graphs, or charts, are included in mind maps. They have an impact on students' ability to communicate information because they can simplify difficult ideas into relatable, easy representations, allowing students to get a deeper understanding of the material being studied.

According to Gavens (2020), mind mapping is viewed as an instrument that primarily facilitates the development of knowledge understanding through the learners' generated active interaction. By creating a map, students can increase their understanding of a subject through a visually appealing description. This arrangement emphasizes

Buzan (2000) stated that mind mapping is an application that gives us meaningful information to understand in a simple way. Mind mapping technique can be used in a logical and imaginary way to create an image in the brain. In mind mapping technique, first the main idea is specified, and then the linear view is explained. It is also useful for individuals and groups, where it can have more effect than a written review. The seven steps to make a mind map are :

1. Starting in the centre of a blank page, turned sideways.
2. Using an image for the central idea.
3. Using colours throughout.

4. Connecting the main branches to the central image, and connect the second and third-level branches to the first and second levels.
5. Making the branches curved rather than straight-lined.
6. Using one key word per line.
7. Using images throughout.

There are several types of mind mapping, there are circle map, flow map, bubble map, double bubble map, multi flow map, tree map, bridge map, brace map, fishbone map.

1. Circle map

Circle map is an efficient type of mind mapping for displaying and specifying the details of any concept. Circle maps are often used to understand different types of single-themed symbolizations, images, and descriptions.

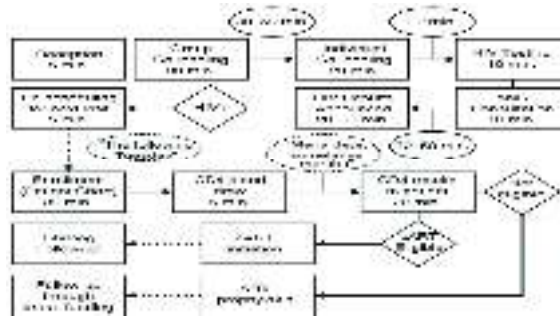


Picture 1. Circle map

2. Flow map

Flow map is an effective type of mind mapping for formulating a coherent sequence of multiple data sets and procedures. This type of

mind mapping is used by some people in scientific studies because it is efficient for representing the various concepts.



Picture 2. Flow map

### 3. Bubble map

This type of mind mapping is used to clarify concepts or ideas as briefly as possible. Bubble maps tend to use adjectives to describe any kind of phenomenon or topic.



Picture 3. Bubble map

#### 4. Double bubble map

Double bubble map is used to compare two things and also to differentiate two different concepts.



Picture 4. Double bubble map

#### 5. Multi flow map

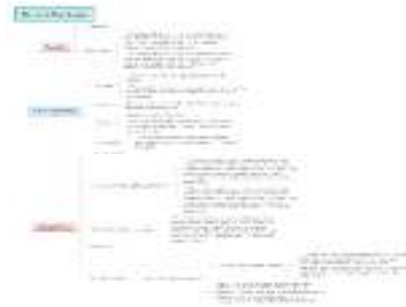
Multi flow map is a type of mind mapping that is used to map goals, impacts, ideas, concepts of certain topics. This map can quickly take aim regarding a concept as well as how it affects its surroundings.



Picture 5. Multi flow map

## 6. Tree Map

This type of map is useful for categorizing all data. A tree map efficiently displays and categorizes all the steps and details regarding a concept.



Picture 6. Tree map

## 7. Bridge map

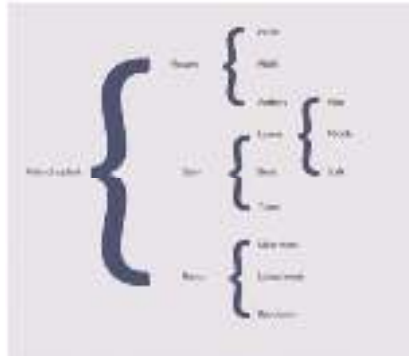
This type of mind map is also efficient in defining two different concepts and showing what kind of relationship and connectivity they have between them and what kind of information is similar in the two concepts.



Picture 7. Bridge map

## 8. Brace map

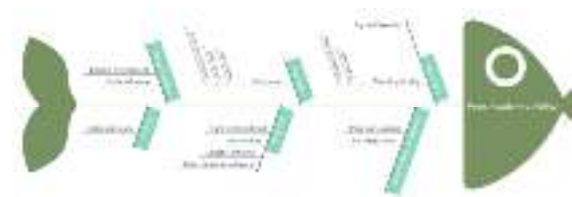
This type of Map can easily analyze and evaluate part of the information provided to them.



Picture 8. Brace map

### 9. Fishbone map

This type of mind map is looks like a fish, which is why it is called a fishbone map. A fishbone map can be a visual way to see the origin and effects of a problem to consider possible causes.



Picture 9. Fishbone map

## 2.9 Teaching Procedures

There are two technique that were used in this research. They were jigsaw technique and mind mapping technique. Each technique has their own treatment and procedure as follows :



### **2.9.1 Jigsaw Treatment**

Jigsaw is one of the branches of cooperative learning. By using jigsaw technique in learning activities, students work in groups. The teaching procedures were divided into three sections. There are pre-activities, while-activities, and post-activities.

In the pre-activities section, the teacher asks students to do their routine, after that, the teacher conveys the rules during the learning activities; the teacher motivates students; the teacher explores student knowledge related to the material; and the teacher conveys learning objectives.

In while activity, students were taught about descriptive text. Students were taught about the structure of descriptive text, language features of descriptive text, main ideas, detailed information about descriptive text, and vocabulary. After that, students were directed to carry out group activities using jigsaw technique. Students are divided into several groups known as home groups. The teacher gave students one paragraph of the text, and then students discussed their parts of each text in the home group. After that, students were directed to discuss their text in an expert group. After that, the students were back to their home group to answer the questions that were prepared by the teacher.

In post-activities, both the teacher and students concluded about the learning activities and material. After that, the activity followed by reflecting on the learning process.

### **2.9.2 Mind Map Treatment**

Mind mapping is a technique in teaching that allows students to be creative in the learning process. In conducting mind mapping treatment, researchers divide the teaching process into three stages: pre-activities, activities, and post-activities.

In the pre-activities section, the teacher asked the students to do their routine; after that, the teacher conveyed the rules during the learning activities; the teacher motivated students; the teacher explored student knowledge related to the material; and the teacher conveyed learning objectives.

In the learning activity, students were taught about descriptive text. Students were taught about the structure of descriptive text, language features of descriptive text, main ideas, detailed information about descriptive text, and vocabulary. After that, the teacher explained the procedure for making mind maps, which was popularised by Tony Buzan. After that, the students were divided into several groups consisting of several students, and then the teacher distributed descriptive texts to each group for analysis. Students analyse the structure of the text, language features, main ideas, and detailed information contained in the descriptive text. After that, the students created a mind map. After creating mind mapping, the students did some question-and-answer sessions. After that, students were instructed to do the assignment that was given by the teacher.

In the post-activities section, both the teacher and students conclude about the learning activities and the material and do a reflection about the learning activity.

## **2.10 Advantages and Disadvantages**

There are several advantages and disadvantages of Jigsaw technique and mind mapping technique, as follows :

### **2.10.1 Advantages and Disadvantages of Jigsaw**

According to Namaziandost (2020), there are several advantages to jigsaw technique. First, students maintain an active role at the centre of the learning. The practice is based on the assumption that meaningful interaction among peers encourages knowledge-building and that teachers can provide more timely and personalised guidance and feedback during in-class activities. Second, jigsaw technique encourages cooperative learning among students, and this cooperation can lead to successful and meaningful learning. Third, jigsaw technique puts the responsibility of learning on the learners' shoulders and places the teacher in the role of the "facilitator," who works with the students to guide them through their individual learning experiences. Barbosa (2020), jigsaw technique improves students' interpersonal skills, motivation, and critical thinking.

On the other hand, jigsaw technique also has disadvantages. According to Namaziandost (2020), jigsaw technique has three main disadvantages, such as the fact that it is a time-consuming activity. The students need to spend their time in two groups by only learning a text. There are some students who feel confused during a jigsaw activity. There are some students who are unable to handle their reading material in jigsaw activity.

### **2.10.2 Advantages and Disadvantages of Mind Mapping.**

According to Parikh (2016), there are many advantages to using Buzan mind maps in studies, including the fact that mind mapping can be done by preparing notes from textbooks. This technique is economical, it does not cost a lot to do it. Buzan mind maps involve the use of both the left and right brain. Through mind mapping techniques, students are able to memorise better, and also, mind mapping increases creativity.

Apart from that, there are also disadvantages of mind mapping technique, including the fact that mind mapping cannot be digitally stored other than as a scanned document, the map size is limited, and the preference of the user for mind mapping software advantages. Nurlaila (2013) stated that, the disadvantage of mind mapping was that the students took a long time to finish their writing because they focused more on listing down their ideas from their maps than on the structure of their writing.

### **2.11 Theoretical Assumptions**

Based on the literature review, the researcher assumed that reading is an important aspect and requires expertise to master it. This study assumed that jigsaw and mind mapping techniques are interesting and effective techniques for learning to read. By using this technique, students do not feel bored when learning to read.

This study believes that there will be significant differences in students' reading achievement after students learn through jigsaw and mind mapping techniques. Jigsaw technique is better than mind mapping technique because, in the process,

the students discuss the descriptive text in the home group and in the expert group, so students who are taught with jigsaw technique will be able to understand the descriptive text better than students who are taught with mind mapping technique. There are aspects of reading comprehension that will improve after being taught these two techniques, especially determining main ideas, finding specific information, and making inferences. This is because in the process of these two techniques, students will be asked to understand the information contained in the text and share it.

### **2.12 Hypothesis**

Based on the theoretical assumption above, the researcher formulated the hypothesis for research question number one as follows :

1. there is a significant difference of students' reading comprehension after being taught by jigsaw and mind mapping technique.
2. there are aspects of reading which improves more significant after the students are taught through jigsaw technique and mind mapping technique.

These are the explanation about some theories related to the research. The theories will be used as a references to conduct the research.

### III. RESEARCH METHODS

This chapter discusses the following topics such as research design, population and sample, variables, data collection techniques, research procedures, data treatment, data analysis, and hypothesis testing.

#### 3.1 Research Design

In this research, the researcher conducted quantitative research. This study applied two groups pretest-posttest design of pre-experimental design. This research compared students' reading achievement between jigsaw technique and mind mapping technique. This research was conducted in two classes. Before conducted the research, the researcher applied pre-test to the students. Then, after the pre-test the researcher applied the treatments. Then, after the treatment the students were given a post-test for both classes. The research design illustrated as follows :

G1 T1 X1 T2

G2 T1 X2 T2

(Setiyadi, 2018)

Notes:

G1 : The class was taught through jigsaw technique.

G2 : The class was taught through mind mapping technique

X1 : Treatment through jigsaw technique

X2 : Treatment through mind mapping technique

T1 : Pre-test for students' reading achievement before the treatment is given

T2 : Post-test for students' reading achievement after the treatment is given

### **3.2 Variables**

There were two independent variables and one dependent variable in this research, they were :

1. Independent variable :

- a. Jigsaw technique as the independent variable (X) because this variable affect the dependent variable.
- b. Mind mapping as the second independent variable (X) because this variable is observed to determine the effect of the independent variable.

2. Dependent variable :

Reading comprehension was the dependent variable (Y), because this variable was observe and measured to determine the effect of the independent variable.

### **3.3 Population and Sample**

The population of this research was students in tenth grade of SMA Negeri 15 Bandar Lampung the number of population were 273 students. The researcher used two classes as an experimental class. The first class was X6 which consisted of 35 students, in this class jigsaw technique was conducted in teaching reading. The second class was X8 which consisted of 34 students, in this class researcher used mind mapping technique in teaching reading.

### **3.4 Instrument of the Research**

Data have an important role for the research. In this research, the researcher collected some significant data by doing experimental teaching. To collect the data, the researcher used the instrument. The instrument of this research was the objective reading test. The objective reading test which selected was a multiple-choice test. The multiple choice test used for the pre-test and post-test.

#### **1. Pre-Test**

The test was given to the students in the form of multiple choices that consist of 30 questions item. Each question have five alternative answers (A, B, C, D, E), one was the correct answer and the four others were distracters. The time allocation for pre-test was 60 minutes.

#### **2. Post-Test**

The post test was given to the students after the treatment to find out student's reading achievement after being taught using jigsaw technique and mind mapping technique. The pre-test was consisted of 30 multiple choice questions, with the allocation time was 60 minutes.



### **3.4.1 An Analysis of Research's Instrument**

To prove whether the test of reading has good quality, it must be tried out first. The test will be concluded as good quality if it has good validity, reliability, level of difficulty, and discrimination power.

#### **3.4.1.1 Validity**

Setiyadi (2018) stated that validity is a measuring tool indicating the extent to which the measuring instrument measures. The test considered to be valid if the test can accurately measure the quality of a test. In this research, the researcher used content validity, and construct validity to measure whether the test have good validity. Two types of validity that will be used in the research were :

##### **a. Content Validity**

According to Setiyadi (2018), content validity concerns whether the test are a good reflection of the materials that need to be tested. In this research, try-out test, pre-test, and post-test was conducted in multiple choice form. To get content validity of the reading comprehension test, the researcher adopted the material based on the objectives in Alur Tujuan Pembelajaran (ATP) Kurikulum Merdeka for X grade of senior high school in the first semester. In line with the the Alur Tujuan Pembelajaran (ATP) for the X grade of senior high school in the first semester, students are able to read and respond to various kinds of texts (description, exposition, recount, narrative) to get information by reasoning critically. According to the Alur Tujuan Pembelajaran (ATP), it means the test was valid.

## b. Construct Validity

In this research, researcher taught reading skill and also aspect of reading to the students. Construct validity was measured by evaluating all item in reading test. Therefore, the test contained questions related to aspects of reading including identifying main ideas, references, inferences, supporting details, and vocabulary. The test was compared to the table of specification to know whether the test has good reflection of what will be taught. If the items on the test have measured students' reading comprehension, this instrument was fulfilled construct validity.

### 3.4.1.2 Try-out of the Instrument

Try-out test was used to determine the quality of the data collecting instrument of the research, such as reliability, validity, level of difficulty, and discrimination power. The try-out test conducted in the first meeting in the try-out class. The try-out consisted of 60 questions of multiple choices. The students will be required to finish the test within 90 minutes. Test can be specified good if it is reliable and valid. The composition of the try-out test items are shown in the table below.

**Table 1. Specification of Try Out**

No.	Reading Aspects	Item Number	Numbers of Item	Percentage of Items
1.	Identifying the main idea	4, 10, 15, 17, 24, 30, 32, 37, 45, 50, 55, 59.	12	20%
2.	Finding detail information	1, 6, 11, 16, 21, 26, 34, 36, 43, 46, 54, 60.	12	20%
3.	Finding inferences	5, 9, 12, 18, 22, 27, 35, 38, 41, 48, 52, 57.	12	20%
4.	Finding references	2, 8, 13, 19, 25, 29, 31, 39, 44, 47, 51, 58.	12	20%
5.	Understanding vocabulary	3,7, 14, 20, 23, 28, 33, 40, 42, 49, 53, 56.	12	20%
TOTAL		60 items	60 items	100%

(Nutall, 1982)

### 3.4.1.3 Reliability

Reliability was the consistency of measurements or how far that measurement can be measured by similar subjects at a different time but showing a consistent result. A test was not a good parameter unless the test is suitable or constant. The reliability of the test in this research can be determined by using the split-half technique. The technique used in order to estimate the reliability of the test to measure the coefficient on the reliability in the first and second half group, the researcher used the following formula :

$$r_x = \frac{n \sum x - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y^2 - (\sum y)^2)}}$$

#### Notes :

$r_{xy}$  : Coefficient of reliability between odd and even number items.

$x$  : Total numbers of the odd number.

$y$  : Total numbers of the even number.

$\sum x$  : Total score of the odd number items.

$\sum y$  : Total score of the even number of items.

$\sum xy$  : Total score of the odd and even number items.

(Lado, 1997)

Therefore, to know about the efficiency of their correlation as whole the researcher used Spearman Brown's formula and here is the formula :

$$r_k = \frac{2r_1}{1 + r_1}$$

**Where :**

$r_k$  = full test reliability

$r_1$  = half test reliability

**The criteria of reliability are :**

0.80 – 1.00 = very high

0.60 – 0.79 = high

0.40 – 0.59 = average

0.20 – 0.39 = low

0.00 – 0.19 = very low

(Hatch and Farhady, 1982)

#### **3.4.1.4 Level of difficulty**

The level of difficulty relates to the difficulty or ease of the test items based on the responses from the students doing the assignment. The level of difficulty is the percentage of students who can answer questions correctly. To determine the level of difficulty, researcher use the following formula :

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

**Notes :**

LD : Level of difficulty.

R : The number of students who answer correctly.

N : The number of students who joined the test.

**The criteria are :**

<0.30 : Difficult

0.30-0.70 : Average

>0.70 : Easy

(Shohamy, 1985)

### **3.4.1.5 Discrimination Power**

The purpose of discrimination power was to determine between the low and high level students on the test. The higher students are students who can answer questions correctly and the lower students are students who cannot answer questions correctly. To find out discrimination power, the researcher used the following formula :

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

(Heaton, 1975)

**Notes :**

DP : Discrimination Power

U : The proportion of upper group students.

L : The proportion of lower group students.

N : The total number of students.

**The criteria of discrimination power are :**

0.00 – 0.19 : poor

0.20 – 0.39 : satisfactory

0.40 – 0.69 : good

0.70 – 1.00 : excellent

- (negative) : bad items, must be omitted

#### **3.4.1.6 Normality Test**

To measure the result of pre-test and post-test was normally distributed. Researcher used SPSS 22 for Windows to analyze the data in order to find the value. The hypotheses of the normality test as follows :

$H_0$  : The distribution of the data is not normal

$H_1$  : The distribution of the data is normal.

The level of significance used was 0.05.  $H_1$  is accepted if the result of the normality test higher than 0.05.

#### **3.4.1.7 Homogeneity Test**

The homogeneity testing was intended to test whether the variance of the data in the experimental class 1 and experimental class 2 is equal or not. The data is statically compared through SPSS 22 (Independent T-Test). And the hypotheses for the homogeneity test are :

$H_0$  : the data is not homogeneous.

$H_1$  : the data is homogeneous.

### 3.4.2 Data Collections

In this study, researcher used tests as a data collecting method and also treatments.

The test used to collect the required data by carrying out the following steps :

#### 1. Pre-test

The pre-test was given to students at the beginning of the meeting. The pre-test was given to the students in the form of multiple choice questions. The pre-test was used to determine student data in the form of abilities before being given treatment.

#### 2. Post-test

Post-test was conducted at the end of the meeting. The post-test given in the form of multiple choice questions which is the same as the pre-test questions, but the researcher was changed the order of the questions. Post-test given to the students in order to determine the ability of students after given the treatment.

### 3.5 Scoring System

Arikunto's formula (1997) was used in order to calculate the score of pre-test and post-test. Student's score of pre-test and post-test is calculated by using the formula as follows :

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

**Notes :**

S : The score of the test

R : The total number of right answer

N : The total number of items on the test

**3.6 Data Analysis**

In order to find out the students' progress in comprehending the text, the researcher analyzed the data using some steps as follows :

1. Scoring the pre-test and post-test.
2. Tabulated the results of the test and calculate the scores of the pre-test and post-test.
3. Draw a conclusion from the tabulate results of the pre-test and post-test by comparing the gain score from the two classes which statistically analyzed using Mann Whitney U Test compute through SPSS 22.
4. Make a conclusion from the tabulate result of the aspect of reading in pre-test and post-test which statistically analyzed using Sign Test through SPSS 22.

In analyze the data, the researcher conducted four steps, starting from scoring the pre-test and post-test until make a conclusion.

**3.7 Research Procedures**

In collecting the data, the researcher carried out the following procedures which can describe as follows :

1. Determining the population and sample of the research.



The population of this research was the tenth grade students of SMA Negeri 15 Bandar Lampung. The sample of this research were two classes of tenth grade of SMA Negeri 15 Bandar Lampung. They were, X6 as the experimental class 1, and X8 as the experimental class 2.

2. Selecting the material.

In this research the researcher chooses several aspects of reading as material there are determining the main idea, specific information, references, inferences, and vocabulary.

3. Administering the Tryout-test

The try out test was conducted before the pre-test to measure the test . The try-out test was in multiple choice form.

4. Administering the Pre-test.

The pre-test was conducted to find out the students' reading comprehension abilities before the students were taught using jigsaw technique and mind mapping technique. The pre-test was in multiple choice form.

5. Conducting the treatment.

The treatment was given to the students after pre-test. In this section, the researcher was taught descriptive text through jigsaw technique and mind mapping technique. The treatment was given three times to the students.

6. Administering Post-Test

Post-test was distributed to students to find out students abilities after the treatment. The test was in form of multiple choice.

## 7. Analyzing the data

This stage was carried out to find out the difference in improvement between students who taught with jigsaw technique and mind mapping technique.

### 3.8 Hypothesis Testing

Hypothesis testing was used to prove the hypothesis in this research was accepted or not. The researcher used SPSS 22 to find out the significant improvement of treatment effect. The hypothesis was approved if two tailed significance was lower than 0.05. In order to answer the research question number one, an independent sample t-test was used in this research. The formulation of the hypothesis could be seen as follows :

- $H_0$  was accepted if the two tailed significance was higher than 0.05.  
If  $H_0$  was accepted and  $p > 0.05$ , it meant that there was no significant difference in student's reading achievement among students taught through jigsaw and students taught through mind mapping techniques.
- $H_1$  was accepted if the two tailed significance was lower than 0.05.  
If  $H_1$  was accepted it meant that there was a significant difference in student's reading achievement among those who are taught through jigsaw and those who are taught using mind mapping techniques.

The researcher also analyzed what aspect of reading skills that improved the most after being taught through jigsaw technique and mind mapping technique. researcher used Sign Test to analyze the data. The formulation of the hypothesis could be seen as follows :

- $H_0$  was accepted if the two-tailed significance was higher than 0.05.  
If  $H_0$  was accepted it means that there is no aspect of reading which improves significantly after the students are taught through Jigsaw Technique and Mind Mapping Technique.
- $H_1$  was accepted if the two-tailed significance was lower than 0.05.  
If  $H_1$  was accepted it means that there are aspects of reading which improve significant after the students are taught through jigsaw technique and mind mapping technique.

## CHAPTER V

### CONCLUSIONS AND SUGGESTIONS

#### 5.1 Conclusions

Based on the previous chapter, this chapter conclude the results of the research.

The results will be explained as follows :

1. There is an increase on students' pre-test and post-test score after students being taught through jigsaw technique and mind mapping technique, but jigsaw technique and mind mapping technique were not significantly improve students' reading comprehension. Meanwhile the mean of gain value in mind mapping class was higher than mean of gain value in jigsaw technique. Based on the mean value, it can be concluded that students who were taught through mind mapping technique seem more improve significantly compare those who were taught through jigsaw technique.
2. Related to the aspect of reading, aspect that had a significant increase when taught through jigsaw technique were main idea, reference, supporting detail, and vocabulary. The aspect that has the most significant improvement is vocabulary and the aspect that improved when taught through mind mapping technique was main idea, supporting detail, and vocabulary. The aspect that has the most significant improvement after

students taught through mind mapping technique is main idea. Mind mapping technique was better than jigsaw technique in improving reading comprehension, meanwhile jigsaw technique has more aspect of reading that improve compared to aspects that improve when taught through mind mapping technique. Vocabulary considering as the most improved aspect in jigsaw class because in the learning process students learn a lot of vocabulary to be able understand the content of a text, meanwhile the aspect that is most improved in mind mapping class was main idea by considering in the learning process through mind mapping technique students have to identifying main idea from each paragraph to make the first branch in their mind mapping.

## **5.2 Suggestions**

Based on the results and conclusions, researchers recommend suggestions for the teacher and also for the further researchers, including :

### **1. For the teachers :**

- Teachers can use jigsaw and mind mapping techniques in form of group learning activities for teaching reading skills, because both technique can improve students' reading comprehension.
- Related to the research result of reading aspects, teacher can use jigsaw technique as reference to teach vocabulary, and mind mapping technique can be used as a reference to teach main idea.

- Jigsaw technique has more complex procedures compared to mind mapping technique, teachers must be able to understand the procedures of using jigsaw technique and mind mapping technique well, in order to conducted effective and conducive learning. Mind mapping technique can be the solution if teacher does not have a lot of time to conduct the learning activity.
- One of the disadvantage of collaborative learning is students do not actively participate in group work activity. It would be better if the teacher directly divides the members of the group in order to equalize the number of students who get high score and low score, so students can learn from each other.
- Based on the limitation in the first meeting of teaching and learning activity, where the class situation was not conducive, teacher can ask the incumbent teacher to be present in the first meeting in order to inform the students that there will be another teacher who will replace them temporarily. This aims to ensure that students will be more conducive in learning activity.

## **2. For further researchers :**

- In this research, researcher used quantitative method where the result of this research was analyzed in form of statistical data. It would be better if the researchers can add a questionnaire to see students' perceptions regarding the use of jigsaw techniques and mind mapping techniques to strengthen research results.

- Researcher can write the limitations or the difficulties during the implementations of the treatment and make the solution in order to minimalize the difficulties.
- The aim of this research was to find out whether there was an improvement in students' reading comprehension especially in descriptive text. It would be better if researchers could examine the reading comprehension in other texts that is related to the syllabus such as narrative text, report text, exposition text, or recount text.

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