

**THE EFFECTIVENESS OF USING MIND MAPPING TECHNIQUE  
TO IMPROVE STUDENTS' READING COMPREHENSION  
IN NARRATIVE TEXT**

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**ENGLISH EDUCATION STUDY PROGRAM  
ARTS AND LANGUAGE EDUCATION DEPARTMENT  
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LAMPUNG UNIVERSITY  
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## **ABSTRACT**

### **THE EFFECTIVENESS OF USING MIND MAPPING TECHNIQUE TO IMPROVE STUDENTS' READING COMPREHENSION IN NARRATIVE TEXT**

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The objectives of this research were to investigate if there was an improvement in students' reading comprehension after the implementation of the mind mapping technique and to find out students' attitudes toward the implementation of the mind mapping technique in teaching reading. The population of this research was the first-year students of SMAN 1 Natar in the academic year 2020/2021. The sample of this research was X science 1 which consisted of 30 students. The data were obtained through a pre-test and a post-test in which the results were analyzed by using *Paired Sample T-Test*.

The first result of the research showed that there was a significant improvement in students' reading comprehension since the t-value was 9.253 with a significance level of 0.00. The result of the post-test score (75.4) was higher than the pre-test score (62.1). In addition, the second result of the research showed that the mean of the questionnaire was 77.73. It means the students' attitude toward the implementation of the technique was positive. The majority of the students agreed that the technique was applied in the teaching reading process.

In brief, it could be concluded that the mind mapping technique enabled the improvement of the students' reading comprehension and showed a positive impact on the students toward the use of the technique in the teaching reading process.

**Keyword:** *reading comprehension, students' attitude, mind mapping technique*

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**By**

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**1613042012**

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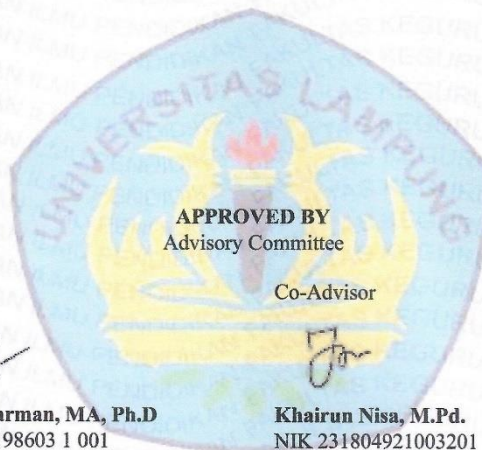
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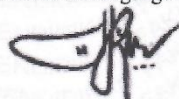
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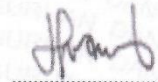
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Menyatakan bahwa skripsi ini adalah hasil karya sendiri. Sepanjang pengetahuan saya, karya ini tidak berisi materi yang di tulis oleh orang lain, kecuali bagian-bagian tertentu yang saya ambil sebagai acuan. Apabila ternyata terbukti bahwa pernyataan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

Bandar Lampung, 28 Desember 2021



membuat pernyataan,

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## **CURRICULUM VITAE**

The writer's name is Muhammad Husaein Jaya Negara. He was born in Bandar Lampung, on February 16<sup>th</sup> 1998. He is the second child of a lovely couple, Drs. Hi. Haryanto H., M.H. and Dra. Hj. Yunidawati. He has one brother namely Muhammad Hasan Baidlawie, M.Pd. He graduated from Amarta Tani Kindergarten School in 2003. Then he continued his study at SD Al-Azhar I Bandar Lampung in 2004 and graduated in 2010. In the same year, he continued his study at SMPN 19 Bandar Lampung. After graduating from Junior High School in 2013, he went to SMAN 1 Natar and graduated in 2016. He continued his study at the University of Lampung in 2016. He was registered as a student of the English Department through SNMPTN from June 2016 to November 2021, he did KKN in Way Tenong, West Lampung and he conducted a teaching practice program (PPL) at SMPN 1 Way Tenong from July to August 2019. He did his research in SMAN 1 Natar in October 2020.

## **DEDICATION**

*By the name of Allah Subhanahu wa Ta'Ala, this script is proudly dedicated to:*

My beloved parents, Drs. Hi. Haryanto H., M.H. and Dra. Hj. Yunidawati

My dearest brother, Muhammad Hasan Baidlawie, M.Pd.

My lecturers at English Department

My beloved friends in English Education Study Program 2016

My almamater, University of Lampung



**MOTTO**

**“Seek Discomfort”**

**(YES Theory)**

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Praise is only for Allah SWT, The Almighty God, for blessing the writer with health and determination to finish this script. This script, entitled “The Effectiveness of Using Mind Mapping Technique to Improve Students’ Reading Comprehension in the Narrative Text” is presented to the Language and Arts Education Department of Teacher Training and Education Faculty of Lampung University as partial fulfilment of the requirements for S-1 degree. It is important to know that the script would never have come into existence without any supports, encouragement, and assistance from several generous people. The writer would like to express his sincere gratitude and respect to:

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The writer believes that his writing is far from perfection. There might be weaknesses in this research; comments, critics and suggestions are needed for better research. Besides, the writer hopes this research would give a positive contribution to educational development, readers and the other researchers.

Bandar Lampung,     November 2021  
The Author,

Muhammad Husaein Jaya Negara  
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## **I. INTRODUCTION**

This chapter deals with an introduction of the beginning of the research, which includes the background of the problem, identification of the problems, formulation of the problems, objectives of the research, uses of the research, scope of the research, and definition of terms.

### **1.1. Background of the Problem**

There are four language skills the students need to learn in English, i.e. listening, speaking, reading, and writing. Those skills are associated and cannot be separated. Therefore, all four skills must be mastered by the learners. Chitra and Thiagarajan (2001) state that mastering language skills will determine students' communicative competence in the target language. In communication itself, there are two macro skills of language, they are receptive and productive skills. Speaking and writing are parts of productive skills for communicating and delivering learners' ideas while listening and reading are parts of receptive skills from which learners receive and understand language as well as gain the meaning of the message (Masduqi, 2016).

As a receptive skill, reading plays an important role in expanding students' knowledge of a language through its important activities (Patel and Jain, 2008). It is not simple because the readers should combine their background knowledge with the information from the text (Anderson, 2008). According to Pang, Angaluki, Elisabeth and Michael (2003) reading consists of two related processes, word recognition, and comprehension; word recognition refers to the process of

perceiving how written symbols correspond to the spoken language and comprehension refers to the process of making sense of words, sentences, and connected text.

According to Suparman (2005), there are two major reasons for reading that is reading for pleasure and reading for gaining information. To gain information from a text, learners need more comprehension for understanding the content of the text. McNamara (2006) states that a reading comprehension strategy is a cognitive or behavioural action that is enacted under particular contextual conditions to improve some aspects of comprehension. For example, when students find a new word in the text that they do not know the meaning of, they start looking at their dictionary to identify the word as an act of action and read the description of the word as a cognitive process in a dictionary. It is in line with Shihab (2011) reading is a sophisticated activity, which includes psychological, linguistic, and sociological aspects. In the reading process, we cannot separate reading from comprehension, because in reading text, we take something from reading and derive meaning from those words.

In line with one of the objectives of teaching English based on Curriculum 13, teachers need to build awareness among the students to know the importance of learning English as a foreign language. The skills to be mastered by students in the reading aspect are in understanding meanings in a variety of written texts, functional text (announcement, greeting card, caution, invitation), and monologue text (narrative text, recount text, report text, descriptive text, procedure text). In this study, the researcher used monologue text that is narrative.

The narrative text deals with a story that presents a set of experiences of world life. It is in line with Anderson & Anderson (2003) narrative text, which is a type of text that tells a story that has a purpose to present a view of the world that entertains the reader. It is not only entertaining the readers but also conveys the moral value of the story to the readers.

Contrastingly, after conducting a pre-observation at SMAN 1 Natar, the researcher noticed some problems in the comprehension of students' reading, they were lacking in motivation and could not find their method in learning English. The teacher explained that most of them weren't reading the text effectively to fully comprehend it. The teacher did not use any specific technique so that the students could not actively participate in the teaching-learning process. The last was the lack of conclusion by the students, which is another issue with reading comprehension at SMAN 1 Natar. This was because most of them did not know the context of the entire text. The teacher said that there was no improvement in his students before and after the implementation of Curriculum 13. Besides, there was no researcher conducting research using the Mind Mapping technique. Therefore, the researcher was interested in conducting research using the Mind Mapping technique to solve those problems.

Besides that, based on the researcher's pre-observation, the key of the students did not understand the lesson well because most of them just read a text quickly to answer the provided questions that are given by the teacher. As a result, the students did not comprehend the text optimally. It implies that the teacher did not implement

an effective technique to make the students more active and to encourage them to increase their reading comprehension ability.

Destiana (2019) states that every student likes and dislikes reading texts, those factors make the student do not like English because they do not understand the meaning of sentences, especially in narrative texts. because the text is so long it makes students bored and lazy to read the text and sometimes the teacher in the school does not use the right technique to read the text so students find it difficult to read the text effectively.

Thus, to solve those problems mentioned, the teachers need an appropriate technique to facilitate the students in reading. There are some strategies of teaching reading which can improve students' reading skills, but not all of the strategies can be appropriate to the learners' needs. By using good strategies, the teacher can perform well in the teaching-learning process and simultaneously be able to achieve the target. In this study, the researcher applies a technique to help students in their reading comprehension using the mind mapping technique. Mind mapping orders many keywords in every branch. The keywords in the branches could suggest a new idea or topic make the learners' comprehend text easily. In other words, it helps students to associate ideas, think creatively, and make connections in a sentence. Buzan (2007) says that by using mind mapping, people could represent ideas into visualization and graphic forms where one idea is connected to another idea by using branches. Besides, he also says that by using mind mapping, it is easy for people to put information into their memory.

According to Buzan (2008), mind mapping is the alternative thinking of brains toward linear thinking. Mind mapping is a powerful graphic technique and becomes a universal key to unlock the potential of the entire brain, the left and right brain potentials. Buzan (2003) argues that students can learn in an interesting way using a certain technique which is called Mind Mapping. In the usage of mind mapping, students not only use their left side of the brain to identify words but at the same time, they also use the right side of the brain in learning the language.

Mind mapping is a diagram that has functions as a way to organize ideas and represent words, tasks or another link that arranges a central keyword by branches and typically it contains words, colours, short phrases and pictures (Buzan, 2006). Buzan also says that mind mapping is a primary tool used for stimulating thought that shows ideas that are generated around a central theme and how they are interlinked. He also says that the education system primarily focuses on the left and right brain strengths which includes the use of language, logic, numbers, sequence, looks at detail, linear, symbolic representation and judgmental characteristics.

Moreover, numerous previous researchers found that the mind mapping technique could improve students' reading comprehension ability and the results were varied. Patria (2013) says that the mind mapping technique was effective to increase the students' reading comprehension in narrative text. Kusmaningrum (2016) shows that there is a significant improvement in students' reading comprehension and writing achievements and there is also significant differences in reading comprehension and writing achievements between the students who were taught by

using mind-mapping and those who were not. The students also show positive feedback about the use of mind-mapping. In conclusion, mind-mapping improve the students' reading and writing achievement.

As a result, the researcher decides to investigate the effectiveness of students' reading comprehension ability after the implementation of the mind mapping technique and to find out students' attitudes towards learning English after the implementation of the technique. Based on the explanation above, the researcher is interested in conducting a research entitled "The effectiveness of using mind mapping technique to improve students' reading comprehension in the narrative text".

### **1.2. Formulation of the Problems**

Based on the explanation of the background, the following research questions are formulated:

1. Is there any improvement in students' reading comprehension ability in the narrative text after the implementation of the mind mapping technique?
2. What is the students' attitudes toward the implementation of the mind mapping technique?

### **1.3. Objectives of the Research**

Based on the research questions, the objectives of the research are as follows:

1. To find out whether there is an improvement in students' reading comprehension after the implementation of the mind mapping technique.
2. To find out students' attitudes toward the implementation of the mind mapping technique.



#### **1.4. Uses of the Research**

Theoretically, the result of this research can be used as a reference to support those who want to research the English teaching process by using the mind mapping technique, especially in teaching a narrative text. This research might be useful for supporting the theory of mind mapping techniques in helping the readers to comprehend reading text better. Furthermore, this research is also practically beneficial for English teachers as a consideration to establish an alternative technique to improve the teaching and learning quality, especially in a narrative text. Furthermore, the findings of this research are hoped to inspire students to improve their comprehension in reading.

#### **1.5. Scope of the Research**

This research is quantitative in nature. Based on the background, this research focuses on improving the students' reading comprehension after the implementation of mind mapping techniques and finding students' attitudes toward learning English after the implementation of mind mapping techniques. There are many kinds of texts that the students should achieve such as descriptive, narrative, recount, report, procedure, etc. However, this research is limited to a narrative text based on the syllabus of the first grade of senior high school and to measure students' understanding of the main idea, finding supporting detail, identifying references, making inferences, and understanding vocabulary. The first-grade students of SMAN 1 Natar are chosen as the subjects of this research. The increase of students' reading comprehension was measured by a set of pre-test and post-test in the form of multiple-choice tests. Therefore, it also finds out students' attitudes in terms of cognitive, affective, and conative (Mothersbaugh and Hawkins, 2016).

Those three components show students' beliefs, emotions, and also behaviours toward the mind mapping technique. The components are transformed into a questionnaire and delivered to the students in the classroom.

### **1.6. Definition of Terms**

Here are the definitions of terms that are used in the research:

#### **1. Reading**

According to Grellet (2004), reading is a constant process of guessing, and what one brings to the next is often more important than what one finds in it. In reading, the students should be taught to use what they know to understand unknown elements.

#### **2. Reading Comprehension**

Reading comprehension is the act of combining the information in a passage with prior knowledge to construct meaning. In addition, reading comprehension can be defined as a thinking process through which readers become aware of an idea, understand it in terms of their experiential background, and interpret it concerning their own needs and purposes (Khoiriyah, 2010).

#### **3. Mind Mapping Technique**

Mind mapping is a highly effective way of getting information in and out of your brain. The mind map is a creative and logical means of note-taking and note-making that literary maps out your ideas (Buzan, 2006).

#### **4. Narrative Text**

The narrative text is a piece of text which tells a story and, in doing so, entertains or informs the reader. The series of events in the story depends on the writer in

writing a narrative text but the climax of the story usually happen in the middle of the story (Anderson & Anderson, 2003).

## 5. Attitude

According to Ajzen (2005), an attitude is a disposition to respond favourably or unfavourably to an object, person, institution, or event. Attitude influences someone's choice of an object.

## **II. LITERATURE REVIEW**

This chapter discusses several points related to the theories used in this study, such as review of previous studies, review of related literature, aspects of reading, teaching reading, narrative text, mind mapping technique, teaching reading using mind mapping techniques, procedures of mind mapping techniques in teaching reading, the concept of students' attitude to mind mapping techniques, advantages and disadvantages of mind mapping techniques, theoretical assumption, and hypothesis. The terms above are explained in the following points.

### **2.1 Review of Previous Studies**

Buran and Filyukov (2015) found out that the mind mapping technique can be successfully implemented in the language classroom, providing a creative and available tool for students, educators, and researchers.

Malekzadeh and Bayat (2015) showed that the experimental group who were taught using the mind mapping technique obtained better achievement in the reading comprehension than the control group who were not taught by mind mapping. The technique applied during the treatment highly contributed to the success of the experimental group as compared to the control group.

Hallen and Sangeetha (2015) found out that the mind map method could be of much help to the teacher to teach English more effectively. They believe that the same technique may bring positive results if applied in the teaching of other branches of other English subjects.

Although the technique is the same, there is a difference in implementing the technique. In the previous studies, the researchers uses the mind mapping technique to describe the meaningful, powerful and effective tool, used to encourage technical students to apply mind mapping techniques in the language classroom. Moreover, the technique is also used in enhancing the students' comprehension in reading instruction text, while in this study, the researcher uses the mind mapping technique to improve students' reading comprehension in narrative text.

In addition, Fakeye (2010) states that attitude is considered as one of the most influencing factors that impact students' learning processes. As a result, the findings revealed that there is a significant relationship between attitude and achievement.

Karahan (2007) says that language attitudes let learners have a positive orientation towards learning English. In conclusion, attitudes play a crucial role in students' success or failure in the language learning processes.

In line with the previous research, the researcher implements mind mapping techniques to senior high school in the narrative text. The researcher conducts quantitative research to investigate whether mind mapping techniques can improve students' ability in reading comprehension and qualitative research to find out students' attitudes after the implementation of mind mapping techniques.

## **2.2 Concept of Reading**

In English, students must be able to master several aspects of language skills. Reading is one of four skills in the language. Based on the Regulation of the Ministry of Education and Culture of the Republic of Indonesia No. 64 of 2013

states that senior high school students must have the ability to master basic English learning skills such as listening, speaking, reading and writing. Reading is one of the language skills that use critical thinking of the learners. By reading a text, the learners can get a lot of important information. Some experts define reading differently. For example, Grellet (2004) reading is a constant process of guessing, and what one brings to the text is often more important than one finds in it. It means that in reading, the students should be taught to use what they know to understand unknown elements, whether these are ideas or simple words.

Meanwhile, Afflerbach (2007) states that reading is a dynamic and complex process that involves skill, strategies, and prior knowledge. Another definition of reading is from Joyce (2006) says that reading is an active skill, where the reader interacts with the text, and to some extent the writer. It is an interaction between the reader and the writer who has tried to convey a message to its readers. Therefore, in this process, the readers should be provided with instructional opportunities that allow them to successfully derive the meaning intended by the writer.

Readers need actively to engage the text to understand the intended message of the author (Anjomshoaa and Anjomshoaa, 2012). Therefore, by reading actively, the readers bring their background knowledge, emotion, and experience to construct their idea in understanding the meaning of the text. While reading, the readers will try to construct the writer's idea, feelings and imagine the visual images during reading the text. By employing the appropriate strategies, the students can understand texts more efficiently and not waste too much time and

energy to comprehend the text. Neufeld (2005) states that comprehension is the process of constructing a supportable understanding of a text. It refers to the ability in interpreting the words, understanding the meaning and the relationship between ideas conveyed in a text. In other words, when the readers read a text, they need to comprehend what the writer tells about and grasp the meaning from the writer's idea in a text.

Based on the explanation above, it can be stated that reading is the ability to learn the meaning and the information from the written text. In addition, reading is related to extracting and constructing meaning through interaction and involvement with written language. It means that reading and comprehension cannot be separated, because we cannot comprehend the text if we have not read the text before. In short, reading comprehension is the readers' ability to get meaning and information from the text.

### **2.3 Aspects of Reading**

In teaching reading, several aspects should be measured to know whether the students can achieve the goal of reading or not. Suparman (2012) states that five reading skills should be mastered by the reader to comprehend the text deeply. They are the main idea, supporting detail, inference, reference, and vocabulary. Those aspects were explained as follows:

#### **1. Main idea**

Determining the main idea of a paragraph is a skill to grasp and find the main point of the passage in each paragraph where the keyword is repeated in the supporting details.

## 2. Supporting Detail

Identifying supporting detail means that we should look for the information that is relevant to the goal in mind and ignore the irrelevant ones.

## 3. Vocabulary

In reading comprehension, the readers should be able to understand vocabulary.

It means that the readers have to comprehend the word meaning to understand the text deeper.

## 4. Inference

The inference is a good guess or conclusion drawn based on the logic of the passage. Drawing inference means that the readers imply the sentences' meaning, then, state it logically. It is the logical connection the reader draws between what he knows and what he does not know.

## 5. Reference

Reference is the intentional use of one thing to indicate something else in which one provides the information necessary to interpret the other. Finding reference means interpreting and determining one linguistic expression to another.

Therefore, reading comprehension involves respectively identifying the main idea, identifying specific information, making inferences, understanding vocabulary and determining references.



An example of a text is as follows:

### **My Horrible Experience**

Let me remind you of my experience during an earthquake last week. When the earthquake happened, I was in my car. I was driving home from my vacation to Bali.

Suddenly my car lurched to one side, to the left. I thought I got a flat tire. I did not know that it was an earthquake. I knew it was an earthquake when I saw some telephone and electricity poles falling to the ground, like matchsticks.

Then I saw a lot of rocks tumbling across the road. I was trapped by the rock. Even I could not move my car at all. There were rocks everywhere. There was nothing I could do but leave the car and walk a long way to my house, in the town.

When I reached my town, I was so surprised that there was almost nothing left. The earthquake made a lot of damage to my town. Although nothing was left, I thanked God that nobody was seriously injured.

*([britishcourse.com/contoh-recount-text-my-horrible-experience-besertaterjemahannya.php](http://britishcourse.com/contoh-recount-text-my-horrible-experience-besertaterjemahannya.php))*

**Main idea** : Experience during an earthquake.

**Specific Information** : When the earthquake happened, I was in my car. I was driving home from my vacation to Bali. Suddenly my car lurched to one side, to the left. I thought I got a flat tire. I did not know that it was an earthquake. I knew it was an earthquake when I saw some telephone and electricity poles falling to the ground, like matchsticks. Then I saw a lot of rocks tumbling across the road. I was trapped by the rock. Even I could not move my car at all. There were rocks everywhere. There was nothing I could do but leave the car and walk a long way to my house, in the town. When I reached my town, I was so surprised that there was almost nothing left. The earthquake made a lot of damage to my town. Although

nothing was left, I thanked God that nobody was seriously injured.

**Reference** : *my experience*, refers to the authors' experience.

*my car* refers to the authors' car.

**Inference** : My horrible experience during the earthquake.

**Vocabulary** : the word *horrible* has the same meaning as *terrible*.

## 2.4 Teaching Reading

Hedge (2003) states that any reading component of an English language teaching may include a set of learning goals for:

- a) The ability to read a wide range of texts in English. This is the long-range goal most teachers seek to develop through independent readers outside the EFL/ESL classroom.
- b) Building knowledge of a language will facilitate reading ability.
- c) Building schematic knowledge.
- d) The ability to adapt the reading technique according to reading purpose.
- e) Developing an awareness of the structure of written texts in English.
- f) Taking a critical stance on the contents of the texts.

It is important to build up students' ability to adapt to the reading technique according to reading purpose (i.e. mind mapping technique) as a goal in teaching reading. Alyousef (2006) says that in teaching reading, contemporary reading tasks, unlike the traditional materials, involve three-phase procedures: pre-; while; and post-reading stages. The pre-reading stage helps in activating the relevant schema. For example, the teacher can ask students some questions that arouse their

interest while previewing the text. The aim of the while-reading stage (or interactive process) is to develop students' ability in tackling texts by developing their linguistic and schematic knowledge. Post-reading includes activities, which enhance learning comprehension using matching exercises, close exercises, cut-up sentences, and comprehension questions.

Teaching reading aims to develop students' skills so that they can read the texts effectively and efficiently. To be able to do so the readers should have particular purposes in their mind before they interact with the texts. Effective and efficient reading is always purposeful and tends to focus mainly on the purpose of the activity. Then the purpose of reading is implemented into the development of different reading techniques: mind mapping, skimming, scanning. These can be real when the students read and interact with various types of texts.

In short, in teaching reading the teacher should provide a technique to the students to anticipate the different types of reading texts. Therefore, the reading technique should be matched with a reading purpose to read efficiently and effectively. Suparman (2005) states that there are two major reasons for reading that is reading for pleasure and reading for information (to find out something or to do something with the information readers get). Applying mind mapping as the technique in teaching reading means the students can get the main idea of the text easier and specific information quickly by the keywords.

The researcher assumes that in teaching reading, appropriate and possible the technique should be applied based on the purpose of reading to get the comprehension. They used reading techniques to make their reading effective and

efficient. Mind mapping is one of the reading techniques that may be applied by Senior High School students in their reading various types of text (narrative, descriptive, and fairy tale texts).

## **2.5 Narrative Text**

There are many kinds of text that students have to be learned. One of them is narrative text. The narrative has character, setting, and action. The characters, the setting, and the problem of the narrative are usually introduced in the beginning. The problem reaches its high point in the middle. The ending resolves the problem (Anderson & Anderson, 2003). One way to understand the narrative text is by identifying the generic structure of the text. The narrative text is not just entertaining but also conveys the moral value of the text to the readers. There are three main parts of the narrative text (Anderson & Anderson, 2003). The generic structure of the narrative text is drawn as follows:

### **1. Orientation**

The readers are introduced to the main characters and possibly some minor characters. Some indications of where the actions are located and when the event is taking place are generally given in this paragraph.

### **2. Complication**

This is where the problems in the story develop. The complication consists of serious events in which something unexpected happens.

### **3. Resolution**

Resolution is when the problem finds a way to be resolved.

In addition, to make a good narrative text, some language features always follow the writing of narrative text which includes:

- a) Using the simple past tense
- b) Using adverbs of time, e.g. Once upon a time, one day, etc.
- c) Using the time conjunction, e.g. when, then, suddenly, etc.
- d) Focus on specific character, e.g. Malin Kundang, Samosir, Bawang Merah and Bawang Putih, etc.
- e) Using action verbs, e.g. lived, killed, walked, etc.
- f) Using direct speech, e.g. “You, a fish kid, you are so greedy!

According to the explanation above, the narrative text has three generic structures (orientation, complication, and resolution) and there are language features that have already been mentioned earlier, it can be stated that is a good narrative text.

## **2.6 Mind Mapping Techniques**

Mind mapping is one of several similar techniques developed by learning researchers in the 1960s. It was popularized by Tony Buzan, who has written extensively on maximizing one mental skill, increasing memory, and accelerating learning.

Mind mapping is a technique for handling complex information. Murley (2007) defines mind mapping as a visual outline of complex information that can aid creativity, organization, productivity, and memory. Mind maps graphically show ideas in a relational context, with the main topic at the centre of the map, major subtopic on branches radiating from the main topic, and sub-subtopic around each subtopic, etc. Buzan (2005) states that mind mapping is a creative thinking tool

reflecting the brain's way to work. It enables the brain to use all its images and association in the pattern of radial and brain internally. It is the easiest way to place information that goes out from the brain. Mind mapping is a way to write creatively and effectively. It will map our ideas literally.

Based on the statement above, it can be said that mind mapping is a creative thinking tool that reflects the natural work of the brain. Research result shows that the brain does not save the information in a row nerve cell rather submit it in the nerve cells that have many branches. At a glance, those are seen as the branches of the tree. Thus, if the information is stored like the way of our brain works, the information is saved successfully and finally, it makes the learning process run smoothly. In addition, our brain most effectively remembers something using images and associations. Sugiyanto (2007) adds that the brain fixes the information in the forms of pictures, symbols, shapes, music, and emotion. Brain stores the information with pattern and association like a tree with its branches and twigs. The brain does not save the information word-by-word or column-by-column in a row of the sentence as we produce in spoken language. To remember what we have learned shortly, we should imitate the way our brain works in the form of mind mapping. Thus, the providing and comprehending process of the learning content in the mapping concept is close to the natural operation in thinking.

Michalko in Buzan (2005) proposes that mind mapping is an alternative completely thinking of the brain to linear thinking. Mind mapping reaches out in every direction and grasps many kinds of thought from every point of view. Wycoff (2003) defines mind mapping as one of the effective skills in the creative thinking process. Mind

mapping resembles outlining but visually it is more interesting and involves both fragments of the brain.

In short, mind mapping is a powerful graphic technique that provides a universal key to unlock the potential of the brain. It uses the full range of cortical skills (word, image, number, logic, rhythm, colour, and spatial awareness) in a single, uniquely powerful manner. It is an image-centred diagram that represents semantics or other connections between portions of information. By presenting these connections in a radial, non-linear graphical manner, encourages a brainstorming approach to any given organizational task, eliminating the hurdle of initially establishing an intrinsically appropriate or relevant conceptual framework to work within. The uniform graphic formulation of the semantic structure of information on the method gathering knowledge may aid the recall of memories.

## **2.7 Teaching Reading Using Mind Mapping Techniques**

According to Brown (2000) teaching is an activity to show or help someone to learn how to do something, give instructions, guide in the study of something, provide with the knowledge, cause to know, understand the knowledge and give new knowledge. Students' background knowledge can influence their reading comprehension ability. Because of that, the purpose of teaching reading is to help the students to increase their reading comprehension ability. The teacher needs to provide the material which is suitable for the student's interests. Therefore, to achieve the purpose of teaching reading, the researcher decides to choose the mind mapping technique that can guide the students to find the main ideas and specific information. In addition, it helps the students to increase their vocabulary. The mind

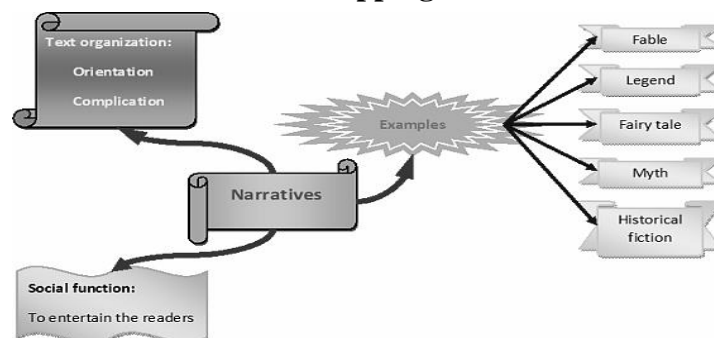
mapping technique would be helpful for students who have weaknesses in comprehending text.

Moreover, the teacher used some steps in this technique to guide the students on how to make a mind map. Buzan in Davies (2010) make several recommendations when making a mind map as follows:

- 1) Place an image or topic in the centre of the paperwork.
- 2) Use images, symbols, codes, and dimensions throughout your Mind Map.
- 3) Select keywords and print using upper or lower case letters.
- 4) Each word/image is alone and sitting on its line.
- 5) Connect the lines starting from the central image. The central lines are thicker, organic and flowing, becoming thinner as they radiate out from the centre.
- 6) Make the lines the same length as the word/image.
- 7) Use colours or footnotes—your code—throughout the Mind Map.
- 8) Develop your style of Mind Mapping.
- 9) Use emphasis and show associations in your Mind Map.
- 10) Keep the Mind Map clear by using radial hierarchy, numerical order or outlines to embrace your branches.

To make it clear, here is an example of a mind map:

**Picture 2.1. Mind Mapping in Narrative Text**



[linggris.files.wordpress.com/2010/07/072210\\_0655\\_narratives1.png?w=564&h=354](http://linggris.files.wordpress.com/2010/07/072210_0655_narratives1.png?w=564&h=354)



In line with the statement above, the researcher assumes that improving learners' reading comprehension requires an appropriate technique. Mind mapping is an effective technique that presents and rearranges ideas that come to the mind. By using mind mapping, the learners' quickly identify and understand the structure of a subject and also see the way that pieces of information fit together, as well as recording the raw facts contained in normal notes.

## **2.8 Procedures of Mind Mapping Techniques in Teaching Reading**

According to Lu and Sun (2016), there are some processes in teaching reading through mind mapping techniques that are divided into three stages. The following stages are:

### **Pre-Reading**

In this step, the teacher was asked the student to read the whole text while explaining the concept of the mind mapping technique. This step aims to build up students background knowledge about the reading material and explain the advantages of using the mind mapping technique to motivate the students in their learning process.

### **While-Reading**

After reading the whole text, the teacher asked the students to analyze the generic structure of the text material. And then the teacher guided the students to arrange the branches of mind mapping which consisted of the generic structure of the text. Meanwhile, the next task had to answer multiple choices which are consisted of the aspects of reading.

### **After-Reading**

In the last step, to strengthen students' understanding of the text, after-reading tasks are necessary. The teacher examines the students by asking them some questions to check how far their understanding of the text is. It is done by asking them questions related to the text to review the material.

According to the explanation above, the procedure in teaching reading through mind mapping techniques has three steps. The first step introduces the text material and concept of the technique, then another step in while reading activity is the implementation of mind mapping in the teaching-learning process. As a result, the last step is to recall what the students get and know their understanding of the text.

### **2.9 Concept of Students' Attitude to Mind Mapping Techniques**

Attitude changes can describe a person's attitude to an object that might change such as environment or situation. Ajzen (2005) states that attitude is a disposition for attitudes that support or do not support an object, person, or event. Mothersbaugh and Hawkins (2016) show that attitude has three components:

1. The component of cognition relates to beliefs, ideas, or concepts. Cognitive is related to someone's knowledge, skills, and information about something. This attitude appears when there is a change in what is understood or perceived by the public.
2. The component of affection that concerns someone's emotions. Affective attitude is related to the emotion and value of someone towards something. This attitude arises when there is a change in what people like about something.

3. The component of conative is a tendency to behave. Attitude is related to real behaviour, activities, or habits. In other words, this attitude shows the intention of attitude that is the tendency to act towards an object.

Finding out students' attitudes toward the implementation of mind mapping techniques is also useful for teachers. Therefore, in this study, the researcher gave the students a questionnaire of attitude by using a close-ended questionnaire that had a Likert Scale. Fakeye (2010) states that there is a relationship between students' attitudes and achievement. In other words, the effectiveness of teaching can give an impact on the students' achievement and attitude. Therefore, students' attitudes are needed for the teacher to know the effectiveness of mind mapping techniques.

### **2.10 Advantages and Disadvantages of Mind Mapping Techniques**

According to Buzan (2005), the advantages of mind mapping techniques are as follows:

- 1) They automatically inspire interest in the students, thus making them more receptive and cooperative in the classroom.
- 2) They make lessons and presentations more spontaneous, creative, and enjoyable, both for the teacher and the students.
- 3) Rather than remaining relatively rigid as the years go by, the teacher's notes of rapid change and development, the teacher needs to be able to alter and add to teaching notes quickly and easily.
- 4) Because Mind Map presents only relevant material in a clear and memorable form, the students and gets better marks in examinations.

- 5) Unlike liner text, Mind Map shows not just the facts but the relationship between facts, thus giving the students a deeper understanding subject.
- 6) The physical volume of lecture notes is dramatically reduced.

Therefore, Davies (2010) states that there are some disadvantages of mind mapping in teaching reading, they are as follows:

- 1) A disadvantage of Mind Map is that the types of links being made are limited to simple associations.
- 2) Absence of clear links between ideas is a constraint. Mind Map has been said to be idiosyncratic in terms of their design, often hard for others to read, representing only hierarchical relationship (in the radial form), inconsistent in terms of the level of detail, often too complex and missing the big picture.

## **2.11 Theoretical Assumption**

Reading plays an important role in all aspects of life, especially in the field of education. Reading is very important to be mastered by students. In teaching reading comprehension, several strategies can help teachers to achieve the goals of the teaching and learning process. In this study, the researcher chooses mind mapping in teaching reading comprehension. This technique is considered to have several steps that can direct students to understand and construct concepts in the reading texts. In this technique there are three steps, these steps are used as a guide for students in the learning process. The researcher assumes that this technique could help the students in building effective ways to achieve goals in reading and easily understand the reading text.

Therefore, the researcher assumes that mind mapping techniques can be used in teaching reading comprehension to improve students' increase their reading comprehension in terms of identifying the main idea and specific information, determining references, making inferences and understanding vocabulary.

## **2.12 Hypothesis**

Based on the theoretical assumption above, the researcher formulated the hypotheses in this research as follows:

1. **H<sub>0</sub>**: There is no improvement in students' reading comprehension after being taught through the mind mapping technique.
2. **H<sub>1</sub>**: There is an improvement in students' reading comprehension after being taught through the mind mapping technique.

### **III. METHODS OF THE RESEARCH**

This chapter focus on the methods used in this study such as the research design, population and sample, variables, data collecting technique, data collecting procedures, instruments, scoring system, data treatment, data analysis and hypothesis testing.

#### **3.1 Design of the Research**

This research was used as a quantitative method based on the experimental class. The researcher investigated whether there is an improvement in students' reading comprehension ability by using the mind mapping technique and finding out students' attitudes after the implementation mind mapping technique.

To investigate whether there is an improvement in students' reading comprehension ability, the researcher used the One-Group Pre-Test Post-Test design. Quantitative research is a kind of research in which data tend to use statistics as a measure in deciding conclusions (Hatch & Farhady, 1982). In order to support the first research question, the attitudes questionnaire was implemented after the treatment. The questionnaire was distributed at the end of the meeting. The questionnaire consisted of ten statements and was divided into three components (cognitive, affective, and conative).

In this study, the researcher conducted the pre-test to measure students' ability in comprehending the text before the treatment. After giving the pre-test, the treatment was conducted three times. To know the result, the researcher gave a post-test to

measure students' ability in comprehending the text after the treatment. Then, the researcher compared the result of the pre-test and post-test.

**T1      X      T2**

Note:

**T1** : Pre-test

**X** : Treatment (Mind Mapping technique)

**T2** : Post-test

(Setiyadi, 2006)

### **3.2 Setting**

This research was conducted at the first-grade students of SMAN 1 Natar. The researcher took two classes, X Science 1 as the experimental class and X Science 2 for tryout class. As the sample, X Science 1 consists of 30 students. Both classes are taught by the same teacher and had the same problem.

### **3.3 Population and Sample**

The population of this research were the students of SMAN 1 Natar in the academic year 2020/2021. There are 11 classes in the first year of SMAN 1 Natar, six others for students majoring in science and five classes for students majoring in social. The total number of students for the first grade is 350 students. In determining the sample, the researcher used purposive sampling. Purposive sampling is used with the aim that the individual or selected case can represent a case that can answer the research problem (Setiyadi, 2018). The teacher selected X science 2 as the try-out class and X science 1 as the experimental class.

### **3.4 Variables**

This research consists of the following variables:

1. Students' comprehension in reading is a dependent variable or symbolized as a letter (Y). Students' comprehension in reading can be measured by investigating whether there was an influence from independent variables or not.
2. Mind mapping technique as an independent variable or symbolized as a letter (X). The mind mapping technique is a variable that can influence the dependent variable and give an effect to the students' output.

### **3.5 Instruments of the Research**

In this study, the researcher collected the data by doing experimental teaching. The data was obtained by using a try-out test, pre-test, post-test, and questionnaire. In collecting the appropriate data, the researcher used reading tests in the form of multiple-choice questions, treatments as instruments, and questionnaires to support the first data.

#### **3.5.1 Developing Instruments**

In order to prove whether the reading test had good quality, it must be tried out first. It could be stated as good quality if it had good validity, reliability, level of difficulty and discrimination power.

##### **3.5.1.1 Test**

Validity refers to the extent to which the test measures what is intended to measure. The quality of the test can be said to be valid if it is measured properly. There are four types of validity namely face validity, content validity, construct validity,



predictive validity, and concurrent validity. In order to measure whether the instruments have good validity, this research used two kinds of validity as follows:

a. Content Validity

According to Setiyadi (2018), content validity is intended to analyze whether the items as a whole have represented the material to be measured. If a measuring instrument has represented all ideas related to the material to be measured, the measurement tool has fulfilled the aspects of content validity. To fulfil the aspects, the researcher should pay attention to the test items whether the test represented the curriculum that is used by the school.

b. Construct Validity

Construct validity is a concern with whether the test is actually in line with the theory of what it means to know the language (Shohamy, 1985). It means the test items should test the students' ability in reading comprehension. Concerning the construct validity, Nuttal (1985) states that reading contains five aspects of reading comprehension such as identifying the main idea, identifying specific information, determining reference, making inferences and understanding vocabulary. According to (Hatch & Farhady, 1982), construct validity measures whether the construction has already referred to the theories, meaning that the test construction has already in line with the objectives of learning.

### **3.5.1.2 Validity of the Questionnaire**

The type of questionnaire in this research was a close-ended questionnaire that used Likert Scale multiple-choice questions. The respondent was required to complete the questionnaire by choosing to agree or disagree. The questionnaire could be stated that is valid if the instrument could be used to measure what should be

measured (Sugiyono, 2016). The researcher analyzed the validity of the questionnaire using *Pearson Correlation*. The questionnaire could be stated that it is valid if the sig. 2 tailed  $< 0.05$ .

### 3.5.1.3 Reliability of the Test

According to (Hatch and Farhady, 1982) reliability refers to the extent to which the test is consistent in its score and gives us an indication of how accurate the test score is. To complete the reliability aspects which concerns the consistency of measurement of research to measure the same research subjects in a different time and gives consistent results. In line with Setiyadi (2006) how far it can measure the subject at a separated time, but it shows the same result relatively. The data gaining is described using a quantitative method. To measure the coefficient of the reliability between odd and even groups, this research used the Pearson Product Moment formula.

$$r_{xy} = \frac{N(\sum xy) - (\sum x)(\sum y)}{\sqrt{[N\sum x^2 - (\sum x)^2][N\sum y^2 - (\sum y)^2]}}$$

Where:

**rx<sub>y</sub>** : coefficient of reliability between odd and even numbers item

**x** : odd number

**y** : even number

**$\sum x^2$**  : total score of odd number items

**$\sum y^2$**  : total score of even number items

**$\sum xy$**  : total score of odd and even number

a. Reliability of half test of try-out test:

$$r_{xy} = \frac{30(5744) - (413)(408)}{\sqrt{[30(5819) - (413)^2][30(5732) - (408)^2]}}$$

$$r_{xy} = \frac{(172320) - (168504)}{\sqrt{[174570 - 170569][171960 - 166464]}}$$

$$r_{xy} = \frac{3816}{\sqrt{21881469}}$$

$$r_{xy} = \frac{3816}{4677,67} = 0.81$$

After getting the reliability of half test, the researcher used Spearman Bowns Prophecy formula (Hatch and Farhady, 1982) to determine the reliability of the whole test as follows:

$$rk = \frac{2r_{xy}}{1 + r_{xy}}$$

Where:

**rk** : the reliability of the whole tests

**rxy** : the reliability of half tests

The criteria of reliability as follows:

0.90 – 1.00 : high

0.50 – 0.89 : moderate

0.00– 0.49 : low

(Hatch and Farhady, 1982)

b. Reliability of the whole test of try-out test:

$$r_{k=} \frac{2(0.81)}{1 + 0.81}$$

$$r_{k=} \frac{1.62}{1.81}$$

$$r_{k=} 0.89$$

Based on the criteria of reliability, it was found that the test items have moderate reliability that is 0.89.

#### 3.5.1.4 Reliability of the Questionnaire

To measure the reliability of the questionnaire, the researcher used Cronbach's Alpha formula as follows:

$$rx = \left( \frac{n}{n-1} \right) \left( 1 - \frac{\sum a_i^2}{a_t^2} \right)$$

Where:

$rx$  : the reliability of the questionnaire

$n$  : total of questions

$\sum a_i^2$  : total of score items

$a_t^2$  : total of variants

The criteria of reliability are as follows:

0.800 to 1.00 : very high reliability

0.600 to 0.800 : high reliability

0.400 to 0.600 : moderate reliability

0.200 to 0.400 : low reliability

0.000 to 0.200 : very low reliability

(Kimberlin and Wasterstein, 2008)

#### 3.5.1.5 Level of Difficulty

The level of difficulty is related to the ease and difficulty of the items based on the students' point of view who take the test. It is important since test items are too easy and all of the students can answer them correctly or the test item are too difficult and all of the students cannot answer them. If this situation happens, it shows that the items of the test are not working well. The level of difficulty describes the ease and difficulty of the items to the students (Heaton, 1975).

$$LD = \frac{U + L}{N}$$

Where:

**LD** : level of difficulty

**U** : the number of the upper group who answer correctly

**L** : the number of the lower group who answer correctly

**N** : the total number of students in upper and lower groups

The criteria are as follows:

<0.03 : difficult

0.03 – 0.07 : average

> 0.07 : easy

(Shohamy, 1985)

### 3.5.1.6 Discrimination Power

Discrimination power refers to the extent to which the items can differentiate between the high and low-level students on the test. Discrimination power is used to differentiate between the students who have high ability and those who have low ability.

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

Where:

**DP** : discrimination power

**U** : the number of students from the upper who answer correctly

**L** : the number of students from the lower who answer correctly

**N** : the number of the students

The criteria are:

DP: 0.00 - 0.19 : Poor items

DP: 0.20 - 0.39 : Satisfactory items

DP: 0.40 - 0.69 : Good items

DP: 0.70 - 1.00 : Excellent items

DP: - (Negative) : Bad items, should be omitted

(Heaton, 1975)

### **3.5.1.7 Normality Test**

This normality test is used to find out whether the test in the experimental class was distributed normally or not. The researcher used the One-Sample Kolmogorov-Smirnov Test on SPSS 16.0 for windows to calculate it. The hypothesis for the normality test is as follows:

1. Asymp. Sig (2-tailed)  $> 0.05$ , the data is distributed normally.
2. Asymp. Sig. (2-tailed)  $< 0.05$ , the data is not distributed normally.

In this research, the researcher used the level of significance 0.05.

### **3.5.1.8 Try Out of the Instrument**

The try out is used to determine the quality of the data collecting instruments of the research, such as; validity, reliability, level of difficulty, and discrimination power.

It consisted of 40 questions of multiple choice and the time allocation was 60 minutes. The class that was selected for the try out class was X science 2. The test could be specified well if it had good reliability, validity, and also the test is not difficult. The composition of the test items is presented in the table below.

**Table 3.2. Specification of Tryout Test**

No.	Sub-Skills of Reading	Item Number	Total	Percentage
1.	Identifying main idea	1, 6, 13, 16, 21, 26, 31, 36	8	20 %
2.	Identifying specific information	2, 7, 15, 17, 22, 27, 32, 37	8	20 %
3.	Making inference	4, 10, 11, 18, 23, 30, 34, 39	8	20 %
4.	Determining reference	5, 9, 14, 20, 25, 29, 35, 40	8	20 %
5.	Understanding vocabulary	3, 8, 12, 19, 24, 28, 33, 38	8	20 %
Total		40		100 %

Before the pre-test is conducted, the researcher administered a try-out test on October 2020 in X science 2 SMAN 1 Natar. The class consisted of 30 students. The students were given 40 items of multiple-choice which consisted of five options (A, B, C, D, E). The time allocation was given for about 60 minutes to finish the try-out test.

### 3.5.1.9 The Result of the Try-out Test

After conducting the tryout test, the result can be seen in the table as follows:

**Table 3.3. Result of Try-out Test**

Criteria	Items	Decision
Bad	1,6, 16, 19, 24, 25, 31, 33	Dropped
Poor	22, 32	Dropped
Satisfactory	2, 3, 4, 5, 8, 9, 11, 12, 13, 14, 15, 17, 18, 20, 21, 23, 26, 27, 28, 29, 30, 34, 35, 36, 37, 38, 39, 40	Administered
Good	7, 10	Administered

Based on Table 3.2 above, eight items had negative discrimination (bad) and two items were poor and should be dropped. Based on the try-out test related to the criteria level of difficulty, the try-out test consisted of 23 items that were average,

and 17 items were considered easy. Discrimination power of the items showed that there were eight bad items and two poor items that should be dropped and there were 28 satisfactory items and two items which were good and should be administered.

Meanwhile, to discover the reliability of the test, the researcher was used the Split-Half technique to find the reliability of the half-test and to measure the coefficient of the reliability between odd and even groups. The result of computation by using the Split-Half technique showed that the reliability of the half-test ( $r_{xy}$ ) was 0.81. After getting the result of the half-test, the researcher used Spearman Brown's Prophecy formula to determine the reliability of the whole test. It was found that the result ( $r_k$ ) was 0.89. It could be stated that the test had moderate reliability in the range 0.50-0.89 (Hatch and Farhady, 1982).

### **3.5.2 Data Collection**

In this study, the researcher used the test as a data collecting method and also treatments. The test is used to collect the needed data by conducting some techniques as follows:

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

The pre-test was conducted before the treatment of teaching reading comprehension through the mind mapping technique in narrative text. The purpose of the pre-test is to see students' reading comprehension before the treatment. There are 30 items of multiple-choice which each of them has five alternative options (A, B, C, D, E). The test was conducted within 60 minutes. The distribution of test was presented as follows:



**Table 3.4. Specification of the Pre-test**

No.	Sub-Skills of Reading	Item Number	Total	Percentage
1.	Identifying main idea	11, 17, 19, 26	4	13.3 %
2.	Identifying specific information	1, 5, 13, 14, 20, 27	6	20 %
3.	Making inference	3, 8, 9, 15, 18, 23, 24, 29	8	26.7 %
4.	Determining reference	4, 7, 12, 16, 22, 25, 30	7	23.3 %
5.	Understanding vocabulary	2, 6, 10, 21, 28	5	16.7 %
Total		30		100 %

## 2. Post-test

The post-test was given to the students after the treatments to investigate the score of the students' reading comprehension after the implementation of the mind mapping technique. The result of the post-test compared with the result of the pre-test. The test consists of 30 items of multiple choices of comprehension questions which each of which has five options (A, B, C, D, E). The students were required to finish the test within 60 minutes. The distribution of test was presented as follows:

**Table 3.5. Specification of the Post-test**

No.	Sub-Skills of Reading	Item Number	Total	Percentage
1.	Identifying main idea	1, 14, 23, 26	4	13.3 %
2.	Identifying specific information	3, 7, 11, 15, 25, 27	6	20 %
3.	Making inference	2, 6, 9, 12, 17, 16, 21, 30	8	26.7 %
4.	Determining reference	5, 10, 13, 18, 20, 24, 29	7	23.3 %
5.	Understanding vocabulary	4, 8, 16, 22, 28	5	16.7 %
Total		30		100 %

### 3. Questionnaire

The questionnaire was distributed in the experimental class to find out students' attitudes after the mind mapping technique is implemented in the class. It consists of statements related to the purpose of the research. In order to make it easier to understand by the students, the questionnaire is written in Bahasa Indonesia. There were 10 statements related to the three components. Those are cognitive, affective, and conative. Cognitive was given in three statements, affective was given in four statements, and conative was given in three statements.

The questionnaire was given at the end of the research after giving the post-test. The questionnaire was made by Kiptiah (2015) and it is modified to make it proper with the research. The following table is the specification of the students' attitude questionnaire.

**Table 3.6. Specification of Students' Attitude Questionnaire**

Variable	Number of Items	Scale				
		strongly disagree	disagree	cannot decide	agree	strongly agree
Cognitive	1,2,3	strongly disagree	disagree	cannot decide	agree	strongly agree
Affective	4,5,6,7	strongly disagree	disagree	cannot decide	agree	strongly agree
Conative	8,9,10	strongly disagree	disagree	cannot decide	agree	strongly agree

### 3.6 Scoring System

The scoring system was used in this research by dividing the right answer by total items timed 100. In scoring the students result of the pre-test and post-test, the formula by Arikunto (2000) is employed:

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

Where:

**S** : the score of the test

**R** : the total of the right answer

**N** : the total items

### 3.7 Data Analysis

After collecting the data, the researcher processed and analyzed them. The data are analyzed based on each kind of instrument below:

#### 3.7.1 Data Analysis of the Test

The researcher analyzed the score of pre-test and post-test to know the students' progress in reading comprehension by using the mind mapping technique. The students' score was computed by doing two activities, such as; scoring the pre-test and the post-test and drawing conclusions.

Tabulating the result of the test and calculating the mean of pre-test and the post-test. The mean was calculated by applying the following formula:

$$M = \frac{\sum X}{N}$$

Where:

**M** : mean (average score)

**X** : the total students score

**N** : total number of students

(Hatch and Farhady, 1982)

Making conclusions from the results of the tabulation of the tests given, namely by analyzing data statistics using Paired Sample T-Test to test whether student improvement gain is clear or not, where the significance is determined by  $p < 0.05$ .

Then used as data from one sample (Hatch and Farhady, 1982). To be able to know whether students get any progress, are formulated as follows:

$$I = X_2 - X_1$$

Where:

**I** : improvement in students' reading comprehension achievements

**X<sub>2</sub>** : average post-test score

**X<sub>1</sub>** : average score of the pre-test

(Hatch and Farhady, 1982)

### **3.7.2 Data Analysis of the Questionnaire**

The result of the questionnaire was analyzed descriptively. Setiyadi (2018) states that in analyzing the questionnaire, the researcher used description analysis since the researcher uses her idea and interpretation towards the data. To investigate the students' attitude toward the implementation of the mind mapping technique, the researcher examined the data by using the following steps:

1. Tabulating the students' answers from the questionnaire using the Likert Scale.
2. Calculating the percentage of each statement of the questionnaire.
3. Calculating the mean score to know the result of the questionnaire.
4. Describing the students' attitude after the implementation of the mind mapping technique.

### **3.7.3 Rating Scale of the Questionnaire**

The rating scale had a function to find out the results of the questionnaire. The researcher analyzed the mean of the questionnaire to know students' attitudes toward the implementation of the mind mapping technique in teaching reading. The criteria are as follows:

Scale	Criteria
81-100	Strongly Agree
61-80	Agree
41-60	Neutral
21-40	Disagree
0-20	Strongly Disagree

(Sugiyono, 2012)

### 3.7.4 The Percentage of the Questionnaire

The researcher used a percentage to find out students' answers to the questionnaire.

The percentage was calculated by applying the following formula:

$$P = \frac{f}{n} \times 100\%$$

Where:

**P** : Percentage

**f** : Frequency of each answer

**n** : The number of ideal scores

(Sugiyono, 2012)

### 3.8 Research Procedures

There were several procedures of this research that the researcher did to gain the data to answer the research question. The procedure that the researcher used was as follows:

#### 1. Selecting and determining the population and sample

The researcher chose one of several classes in the selected school of the first-grade students as the research sample. The chosen class was selected as an experimental class.

## 2. Arranging the teaching material

The teaching material was arranged based on the curriculum of the first grade of SMAN 1 Natar. The material emphasized their reading ability in narrative text.

## 3. Administering try-out test

The try-out test was administered to identify the quality of the test before it was used to obtain the data for the research. The test included multiple choices that consist of 40 items with four alternative options a, b, c d and e. There were one correct answer and four distracters.

## 4. Giving a pre-test

The pre-test was given to investigate the ability of the students in reading skills before the treatment. The pre-test was given in multiple-choices forms with the option a, b, c, d, and e. The test was conducted in 60 minutes.

## 5. Conducting treatments

The researcher taught the sample of the research by using the mind mapping technique in narrative text. The treatment was conducted in three meetings. The researcher took 90 minutes for each treatment of the meeting. While conducting treatments, the researcher observed the activities of teaching and learning by using the mind mapping technique.

## 6. Conducting a post-test

The post-test was administered after the implementation of treatments. The purpose of the post-test is to investigate the score between pre-test and post-test to know the improvement of the students' ability by applying the mind mapping

technique. The students were given the questions in multiple-choice forms. The test was conducted in 60 minutes.

#### 7. Administering the questionnaire

The questionnaire was given to the students to find out the students' attitude after the implementation of the mind mapping technique by using narrative text. The questionnaire consisted of 10 statements from cognitive, affective, and conative components.

#### 8. Analyzing the data

After conducting the post-test, the data was analyzed by using Paired Samples T-Test on the SPSS program and the result was used to test the researcher's hypothesis. Besides, the researcher analyzed the result of the questionnaire related to the students' attitudes after the implementation of the mind mapping technique.

### **3.9 Hypothesis Testing**

After collecting the data, the researcher analyzed the data to investigate whether there was an improvement in students' reading comprehension ability in the narrative text after the implementation of the mind mapping technique. The researcher used Paired Sample T-Test to determine whether the hypothesis was accepted or rejected. The researcher analyzed at a significance level of 0.05 in which the probability of error in the hypothesis is only about 5%. The hypothesis is drawn as follows:

**H<sub>0</sub>** : There is no significant improvement in students' reading ability after the implementation of the mind mapping technique.

**H<sub>1</sub>** : There is a significant improvement in students' reading ability after the implementation of the mind mapping technique.

The criteria for accepting the hypothesis are as follows:

**H<sub>0</sub>** will be accepted if the alpha level is higher than 0.05 ( $\alpha > 0.05$ )

**H<sub>1</sub>** will be accepted if the alpha level is lower than 0.05 ( $\alpha < 0.05$ )



## **IV. CONCLUSIONS AND SUGGESTIONS**

This chapter presents the conclusions and suggestions for the English teachers who want to try to implement the mind mapping technique in reading comprehension and other researchers who want to conduct similar research.

### **5.1 Conclusions**

Based on the result of data analysis and discussions which have been elaborated to answer the research question presented in the first chapter, the researcher concludes as follows:

1. There is a significant improvement in students' reading comprehension after the implementation of the mind mapping technique. It can be seen from the result of the hypothesis that the significance level is lower than alpha ( $0.00 < 0.05$ ). It can be concluded that the use of the mind mapping technique improved students' reading comprehension.
2. Students' attitude toward the implementation of the mind mapping technique in teaching reading comprehension is positive. The majority of students agree if the technique is applied. They seem to enjoy the learning process.

### **5.2 Suggestions**

Regarding the several conclusions above, the researcher would like to propose some suggestions as follows:

1. Suggestions for the teacher
  - a. It is suggested to apply the mind mapping technique as an alternative technique in teaching reading because it can help the students comprehend the text easier. Students should preview the text at home.
  - b. The teacher also has to make clear instructions to control the class, to make sure that the students can follow the instructions and focus on the material.
  - c. The teacher can apply other kinds of text like descriptive text, recount text, report text, etc.
2. Suggestions for the further researcher:
  - a. The further researcher may conduct this technique more than three meetings to get more accurate results of data. A longer frequency of the treatment day is needed to get a better finding.
  - b. The researcher suggests adding another proper method of data collection like the interview to make the result of the data more informative.
  - c. The researcher suggests other researchers apply different kinds of text and find out the effect of using mind mapping technique in other skills such as reading, listening and speaking.

This chapter has elaborated on the conclusions and suggestions of the research.

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