

**THE USE OF MIND MAPPING TECHNIQUE TO IMPROVE STUDENTS'
READING COMPREHENSION:
A STUDY CONDUCTED AT SMP NEGERI 4 TOULUAAN**

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Abstract: The research intends to find out whether or not mind mapping technique can improve students' reading comprehension. The study is a pre-experimental design using one group pre-test and post-test design. The research is conducted at SMP Negeri 4 Touluaan and the subject of the study is twenty six students. To collect the data, the writers use an objective test in the form of multiple choice consisted of 10 numbers. Pre-test is given before the treatment. After treatment the students are given post-test. The mean score of the pre-test is 4.23 and the standard deviation is 1.34. Meanwhile, the mean score of post-test is 6.96 and the standard deviation is 1.09. It could be said that the result of post-test is much better or higher than those of pre-test. So, it is concluded that mind mapping technique is effective to be used in improving students' reading comprehension. Teachers of English at junior high school are recommended to use mind technique in teaching reading comprehension to help the students improve understanding of a reading text and make them active in reading activities.

Keywords: *Mind Mapping Technique, Reading comprehension, Descriptive Text, Junior High School.*

Abstrak: Penelitian ini bertujuan untuk mengetahui apakah teknik pemetaan pikiran dapat meningkatkan pemahaman membaca siswa atau tidak. Penelitian ini adalah desain pra-eksperimental menggunakan satu kelompok pra-tes dan desain pasca-tes. Penelitian dilakukan di SMP Negeri 4 Touluaan dan subjek penelitian adalah dua puluh enam siswa. Untuk mengumpulkan data, para penulis menggunakan tes objektif dalam bentuk pilihan ganda yang terdiri dari 10 angka. Pra-tes diberikan sebelum perawatan. Setelah perawatan, para siswa diberikan pasca-tes. Skor rata-rata pra-tes adalah 4,23 dan standar deviasi adalah 1,34. Sementara itu, skor rata-rata pasca-tes adalah 6,96 dan standar deviasi adalah 1,09. Bisa dikatakan bahwa hasil pasca-tes jauh lebih baik atau lebih tinggi daripada pra-tes. Disimpulkan bahwa teknik mind mapping efektif untuk digunakan dalam meningkatkan pemahaman membaca siswa. Guru bahasa Inggris di sekolah menengah pertama direkomendasikan untuk menggunakan teknik pikiran dalam mengajarkan pemahaman membaca untuk membantu siswa meningkatkan pemahaman tentang teks bacaan dan membuat mereka aktif dalam kegiatan membaca.

Kata Kunci: *Teknik Pemetaan Pikiran, Pemahaman membaca, Teks Deskriptif, Sekolah Menengah Pertama.*

INTRODUCTION

English is one of many languages in the world. It is considered important for grouping and developing science, technology, arts and other culture and for the relation with other nation. Most of people in the world use it.

Indonesia has adopted English as a tool of communication to establish relationships with other countries (Liando, 2009). English has been taught in Indonesia school for several decades. Yet, the long years with the attachment to English as a subject served from the elementary school level until university level (Maru, 2009:2). Besides that English is an International language that must be mastered. In order to acquire English well, there are four major skills that should be developed in learning English. Those skills are listening, speaking, reading, and writing. English learning is attached with the competences built out of the materials which emphasize on the use of English as a tool of communication for expressing ideas and knowledge, the habit of reading and understanding (Kemendikbud, 2013 in Maru 2014).

Smith and Robinson (1980: 205) state that reading comprehension means understanding, evaluating, utilizing, of information and idea gained through interaction between the reader and the author. Comprehending reading means understanding what is being read. This indicates that in reading comprehension means trying up together the reader's mind and the writer's intention. The reader does not only read the text but also should be able to understand it.

In fact, many students are difficult to understand and comprehend the English text, including descriptive ones. The

difficulty could be seen in the teaching learning process in the classroom. The difficulties are caused by many factors, such as the lack of vocabulary, lack of grammar knowledge, low interest in reading, and unfamiliar contents of the text. The students should master those aspects so they can comprehend the text and answer the question. By knowing the students difficulties, it helps the teacher to find the appropriate technique to help students improve the ability in reading.

Mind mapping is a tool for enhancing learning and thinking. Buzan and Buzan (2002:82) state that mind mapping is creative technique which let the students to get success in remembering ideas or comprehending written information. Marton & Booth (1997) state that mind mapping is a visual representation of hierarchical information that includes a central idea surrounded by connected branches of associated topics. Using mind mapping assists students comprehend English text much easier because mind mapping uses sensory visual reminders in a pattern of related ideas (Deporter & Hernacki, 1992:152).

Mind mapping can enhance students get ideas and therefore students are able to relate information in the text and stored information in their memory. Mind mapping can make the students remember easily and the colors can make the students more interested in teaching learning process. The mind mapping helps to organize the information into a form that is easily assimilated and remembered.

REVIEW OF LITERATURE

Reading

Reading is one of human activities in life, it is also very important in learning

activities. Blachowick & Olge (2008:15) say that reading is the process by which people gain information and ideas from books, newspaper, manuals, letter, contracts, advertisements and a host of other material

Lambe (2011) assumes that reading is an activity and process that is done by reader to understand written texts and it can make students getting ability, information and comprehension. The statements above shows, there is relationship among how the human's brain work to thinking, knowledge, language and content of the written text, in reading process to find out the ideas of content of the text. It is activity that can show how far readers know the meaning of the text or the content of the material.

According to Patel and Jain (2008: 117 - 123) there are some types of reading such as Intensive Reading, Extensive Reading, Aloud Reading and Silent Reading.

a. Intensive Reading

Intensive reading is related to further in language learning under the teacher's guidance. Intensive reading will provide a basic for explaining difficulties of structure and for extending knowledge of vocabulary and idioms. Intensive reading material will be the basis for classroom activity. It will not only be read but will be discussed in detail in the target language, sometimes analyzed and used as a basis for writing exercise

b. Extensive Reading

Material of Extensive reading will be selected at a lower level of difficulty than that for Intensive reading. The purpose of Extensive will be to train the students to read directly and fluently in the target language for enjoyment, without the aid of the teacher.

c. Aloud Reading

Aloud reading also play important role in teaching of English. Aloud reading is basic form of classroom organization and discipline. Teacher should know that the training of Reading aloud must be given at primary level because it is the base of word pronunciation.

d. Silent Reading

Silent reading is a very important skill in teaching of English. This reading should be employed to increase reading ability among learners. Silent reading is done to acquire a lot of information.

Reading Comprehension

Reading comprehension is an activity of reading that involves the understanding of the meaning from the content of the text. Maru, Nihta Liando and Kalangi (2019:2) show that reading comprehension is a multifaceted interaction because to read means to understand or to comprehend meaning from printed words or material. Miller (2008) stated reading comprehension as the ability to comprehend or to get meaning from any kind of written materials.

Similarly, Grellet (1999:30) states that reading comprehension means understanding a written text to extract the required information from it as efficiently as possible. The understanding in reading the contents of the text is an activity to procedure an idea or conclusion from the written text.

Reading is an astoundingly complex cognitive process. According to Nuttall (1982), there are five aspect of reading which can be explained below:

1. Determining Main Idea

Main idea is the most important piece of information the author wants to know about the concept of a paragraph.

Determining main idea is a skill to grasp and find the main point of a passage by summarizing its passage and looking for repetition of ideas/words.

2. Finding the Specific Information or Part of Text

It means by looking for the information which relevant to what goal in mind and try to ignore the irrelevant one.

3. Finding References

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 we interpret and determine one linguistics expression to another. There are two types of references: cataphoric and anaphoric references. A cataphoric reference refers to what cataphoric reference we would need to look ahead in the text. On the other hand, an anaphoric reference unit refers to another unit that was introduced earlier in the text. To understand the unit referred to by an anaphoric reference we would need to look back in the text.

4. Finding Inference

Inference is a good guess or conclusion drawn based on the logic of passage. Finding inference means the reader imply the sentences or passages understand and conclude it logically.

5. Guessing Meaning of Vocabulary (Difficult Word)

It is unlikely that we know every word in a text and even if we think that we have seen every word before, it is unlikely we have seen a particular word in its present context. Guessing meaning of vocabulary (difficult word) refers to comprehend what the unfamiliar words mean by seeing its synonym related to the text. Besides that, we can also try to guess the meaning of the vocabulary

(difficult word) by comprehending one or two previous sentences in the text.

Mind Mapping Technique

According to Buzan (2006), mind mapping is a diagram that has functions to organize ideas and represent words, tasks, or another links that arranged a central keyword by branches and typically it contains words, colors, short phrase and picture. Rustler (2012) states that mind mapping is a visual technique for structuring and organizing thoughts and ideas. Mind mapping is a primary tool used for stimulating thought that shows ideas which are generated around a central theme and how they are interlinked. Visualization involves a sequence of graphic elements like colors, symbols, picture and spatial arrangement of branches.

The Purposes of Mind Mapping

Buzan (2013:6) explains there are several specific purposes of mind mapping:

1. Mind mapping activates whole brain
2. Mind mapping fixes the mental tangled
3. Mind mapping lets the students focus on main explanation
4. Mind mapping helps to show the relationship between the separated information parts
5. Mind mapping gives clear description wholly and specifically
6. Mind mapping lets the students to group the concept and compare it.

Descriptive Text

Descriptive text is a text which a person or thing is like. Anderson and Anderson (2003:26) say that descriptive text is a describes particular person, place, or things. It means that descriptive text is one of the text type which describes parts and characteristics of the person or something that will be describe in detail. Kane

(2000:352) is defined like in the following sentence: Description is about sensory experience-how something looks, sounds, and tastes.

RESEARCH METHODOLOGY

Research Design

In conducting this research, the quantitative research is used through pre-experimental design with one group pre-test and post-test design. The pre-test is a test given to the students before treatment. Then post-test is the test given to the students after treatment to find out the students' achievement after teaching then using mind mapping technique.

According to Hatch and Farhady (1982:20), One group pre-test and post-test design similar to the one shot case study. There are two tests, T₁ is the pre-test and T₂ is the post-test.

Subject of study

The subject of this study is the eight grade students (class VIII^A) SMP Negeri 4 Touluaan that consists of 26 students.

Data Collection

The data are collected by using test: those are pre-test and post-test. Pre-test is given to see the students' ability in comprehending the reading text before teaching them using mind mapping technique and the post test is given to know the students' achievement in comprehending the reading text after teaching them using mind mapping technique. The items test consist of ten items in the form of multiple choices. The writers give one point in each correct point. So, the total score for all correct answers is ten.

Research Procedures

The procedures used in collecting the data are below:

1. Choosing one class (VIII^A) as the sample of the research
2. Making the schedule and lesson plan in teaching and learning process based on curriculum.
3. Giving pre-test to students before treatment
4. Giving treatment by teaching the students using mind mapping process, with the following steps:
 - a. Present material on the descriptive text using the mind mapping technique
 - b. Explains the mind mapping technique by showing a picture or photo that relates to the descriptive text
 - c. Explain by using only a color key word for each line
5. Giving post-test to students
6. Takes conclusions from the students.

Data Analysis

In analyzing the obtained data, the writers use mean score formula:

$$\bar{X} = \frac{\sum x}{n}$$

(Moore, 1983:251)

Where :

\bar{X} = Mean score of students

$\sum x$ = Sums of X

N = Total number of students

Standard deviation is calculated using raw score method:

$$s = \sqrt{\frac{\sum x^2}{N} - (\bar{X})^2}$$

(Moore, 1983:251)

Where:

\bar{X} = Mean Score

$\sum x$ = Sums of X
 N = Total number of students

24	2	5
25	4	6
26	3	6

FINDINGS AND DISCUSSION

Presentation of Data

To find out the answer of the research question in the previous 3.3, data are representing the subject to improve reading comprehension used mind mapping technique. In collecting the data, the writers use ten items multiple-choices tests in form pre-test and post-test. The result of pre-test and post-test are presented in Table 1 below.

Table 1: The scores of students in pre-test (X) and post-test (Y).

Students Number	Pre-test (X)	Post-test (Y)
1	4	7
2	6	8
3	6	7
4	5	5
5	5	8
6	3	7
7	5	8
8	4	8
9	5	7
10	5	8
11	3	7
12	2	5
13	4	7
14	5	8
15	7	9
16	4	7
17	4	7
18	3	7
19	3	6
20	4	8
21	6	8
22	6	7
23	2	5

Statistical Analysis of the Data

The data collected would be statistically analyzed using descriptive statistics. Statistical analysis would include calculation of frequency distribution of scores, calculation of mean, and standard deviation of each test.

Frequency Distribution of pre-test and post-test

Table 2: Frequency distribution of pre-test (X)

Scores	Tally	Freq	Freq-%	Cum-Freq	Cum-%
7	I	1	3%	26	10%
6	II	4	15%	25	96%
5	II III I	6	23%	22	84%
4	II III II	7	26%	16	61%
3	II III	5	19%	8	30%
2	II I	3	11%	3	11%

Note:

Freq- = Frequency
 Cum-freq =Cumulative Frequency
 Cum-% = Cumulative Percentage

As seen in table 2, the highest score is seven, and the lowest is two of 26 subjects who take the pre-test, 1 (or 3%) gets a seven, 4 (or 15%) get a six, 6 (or 23%) get a five, 7 (or 26%) get a four, 5 (or 19%) get a three and 3 (or 11%) get a two.

Frequency distribution of pre-test scores is visually shown in figure 1.

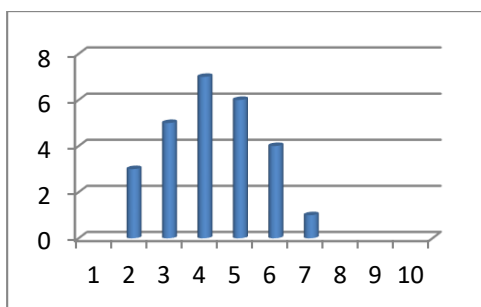


Figure 1. Frequency distribution of pre-test scores

After calculating the frequency of pre-test scores, frequency distribution of post-test score is calculated. The result is presented in Table 3.

Table 3: Frequency distribution matrix of post-test (Y)

Scores	Tally	Freq	Freq-%	Cum-Freq	Cum-%
9	I	1	3%	26	100%
8	II III III	8	30%	25	96%
7	II III IIII	10	38%	17	65%
6	II I	3	11%	7	26%
5	II II	4	15%	4	15%

As seen in the table 3, the highest score is nine, and the lowest is five of 26 subjects that take the post-test, 1 (or 3%) gets a nine, 8 (or 30%) get a eight, 10 (or 38%) get a seven, 3 (or 11%) get a six, and 4 (or 15%) get a five. Frequently distribution of post-test scores is visually displayed in figure 2.

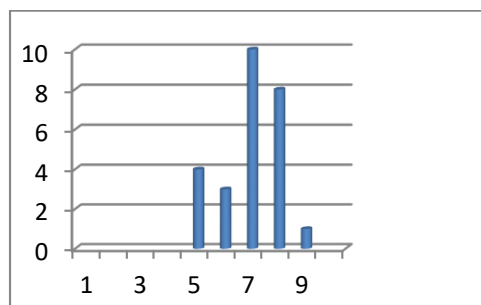


Figure 2. Frequency Distribution of Post-test Scores

Computation of Mean and Standard Deviation

To calculate the mean and standard deviation of both the pre-test and post-test scores, firstly we calculate the sums and sum square of both pre-test and post-test scores as seen in Table 4 below:

Table 4: Sums of Pre-test (X) and Post-test (Y) scores

Students Number	Pre-test (X)	X ²	Post-test (Y)	Y ²
1	4	16	7	49
2	6	36	8	64
3	6	36	7	49
4	5	25	5	25
5	5	25	8	64
6	3	9	7	49
7	5	25	8	64
8	4	16	8	64
9	5	25	7	49
10	5	25	8	64
11	3	9	7	49
12	2	4	5	25
13	4	16	7	49
14	5	25	8	64
15	7	49	9	81
16	4	16	7	49
17	4	16	7	49
18	3	9	7	49
19	3	9	6	36

20	4	16	8	64
21	6	36	8	64
22	6	36	7	49
23	2	4	5	25
24	2	4	5	25
25	4	16	6	36
26	3	9	6	36
N=	$\sum X$	$\sum X^2$	$\sum Y$	$\sum Y^2$
26	=110	=512	=181	=1291

It is mentioned in Table 4, N=26, $\sum X=110$, $\sum X^2=512$, $\sum Y=181$, and $\sum Y^2=1291$.

Based on these results, mean and standard deviation of pre-test and post-test scores are computed.

The mean of pre-test of (X)

$$\bar{X} = \frac{\sum x}{N}$$

$$\bar{X} = \frac{110}{26} = 4.23$$

The mean of post-test (Y)

$$Y = \frac{181}{26} = 6.96$$

As can be seen, the mean of pre-test is 4.23 whereas post-test is 6.96. The mean of post-test is higher than that of post-test.

Computation of Standard Deviation

Standard deviation refers to the spread of scores along a normal curve from the mean, which indicates homogeneity or heterogeneity of students' mastery before and after the experimental treatment. In this study, standard deviation is calculated using raw score method. Thus, the standard deviation of pre-test is:

$$s = \sqrt{\frac{\sum x^2}{N} - (\bar{X})^2}$$

$$s(x) = \sqrt{\frac{512}{26} - (4.23)^2}$$

$$s(x) = \sqrt{19.6 - 17.8}$$

$$s(x) = \sqrt{1.8}$$

$$s(x) = 1.34$$

The standard deviation of the post-test

$$s(y) = \sqrt{\frac{1291}{26} - (6.96)^2}$$

$$s(y) = \sqrt{49.6 - 48.4}$$

$$s(y) = \sqrt{1.2}$$

$$s(y) = 1.09$$

DISCUSSION

After implementing the use of mind mapping technique to improve students' reading comprehension, the writers obtain the data of pre-test and post-test. The result shows the score of pre-test is lower than post-test. In other words, mind mapping technique is effective in improving eight grade students' ability in comprehending descriptive text.

The result of pre-test obtained by the writers show the mean score of pre-test is 4.23 and the standard deviation is 1.34 or it categorized low. The highest score is seven (7) achieved by one (1) students, the lowest score two (2) achieved by three (3) students. When analyzed this score of pre-test the writers find problem the students' difficulties are caused by many factors, such as in lack of vocabulary, the lack of grammar knowledge, low interested in reading. Beside it, some of students are difficult to understand the text and they are difficult to get the meaning from the text. Smith and Robinson (1980:205) say that reading comprehension means the understanding, evaluating, utilizing of information and idea gained through interaction between reader and author.

According to Buzan Tony (2013), mind mapping is a graphical method of taking note which take tree branch format with idea branching into their subsections that enriched with colors, pictures, codes, and dimension to add interest, beauty and individuality which are used as aid creativity, memory and specifically to recall information. The role of teacher is needed not only to manage and convey the purpose of learning but the teacher is able to help, guide, direct, and increase students to have good reading.

The writers make sure the students' ability in comprehending descriptive text by giving them tests to got score of post-test. The mean score of post-test is 6.96 and the standard deviation is 1.09. The highest score is nine (9) achieved by one (1) student, and the lowest score is five (5) achieved by four (4) students.

The data above show some students' score improved significantly. In pre-test, students scores are low because the students cannot express the idea in teaching learning process. So, the implementation of mind mapping can enhance get ideas and the students are able to relate information in the text and stored information in their memory. Mind mapping can make the students easier to remember and the colors can make the students more interesting in teaching learning process. Studying English, especially in reading is important to use mind-mapping technique to have a good reading and understand what they have read. By this technique, the students will enjoy the lesson.

CONCLUSION AND SUGGESTIONS

The students are easy to understand the reading materials, in meaning answer the question and taking the main ideas. Using of mind mapping technique in teaching reading also helps the teacher to improve

students' ability to comprehend the reading text and to find out the answer of the question related to the text. Some suggestions can be mentioned below:

1. Looking at the result, it is recommended for teachers to add Mind mapping technique to improve students' reading comprehension, because this method can help students in answering questions in descriptive text and makes them active in reading activities.
2. The teachers have to be creative in order to make teaching and learning process become more interesting, enjoyable, and effective for students.

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