

## **CHAPTER III**

### **METHOD OF RESEARCH**

#### **A. Research design**

The type of study is a field research. It means that a study conducted by researcher to know the effectiveness of using semantic mapping technique in improving vocabulary mastery of the seventh grade students at SMPN 5 Kotabaru and to know about the students' respond toward semantic mapping technique in improving vocabulary mastery of the seventh grade students at SMPN 5 Kotabaru.

In this research, the researcher use quantitative approach. According to Azwar (2005, p.5), state that an approach emphasizing quantitative analysis of the numerical data (numbers) are process with statistical methods. The method of the research is experiment research. According to Creswell (2013, p.42) stated that experiment research seeks to determine if a specific treatment influence an outcome. In experiment research. Experiment method is a research to compare teaching and learning process by using semantic mapping technique and not using semantic mapping technique and compare significant difference between using semantic mapping technique and not using semantic mapping technique in improving vocabulary mastery. It means there are two classes (experiment class and control class) that will be given different treatment. Experiment class means a class is taught by using semantic mapping technique and control class is the real class. It means, for teaching and learning activities as usual.

Observation, interview, test (pre-test and post-test) and questionnaire are used in this research. The researcher used mean, t-test, and Gain test formula, to know the effective of using semantic mapping technique in improving vocabulary mastery of the seventh grade students at SMPN 5 Kotabaru and to know the students' respond toward semantic mapping technique in improving vocabulary mastery with using questionnaire.

## **B. Research Setting**

The researcher takes place in SMPN 5 Kotabaru to apply her research which located on Jl. Bima Atas, Desa Baharu Selatan, Kecamatan Pulau Laut Utara, Kode pos 72155. According observation at SMPN 5 Kotabaru the total number of teacher is 24 teachers, Teacher data PTT is 2, and Administration Staff data is 5. Which teachers' English teachers consist English consist 4 teachers, and English teacher of the seventh grade of 1 teacher; she is Ida Yulianti, S.Pd.

The researcher interested in applying this researcher at SMPN 5 Kotabaru wants to know development of teaching and learning English there, especially at the seventh grade.

## **C. Population and Sample of the Research**

### **1. Population**

Population is a set (collection) of all elements possessing one or more attributes of interest (Arikunto, 1986, p.102). The population of this research is all of the seventh grade students at *SMPN 5 Kotabaru*. The number of them are consist 127

all of the seventh grade students at *SMPN 5 Kotabaru*. To know more about them, it can be seen in the following table:

Table 3.1. The students of the seventh grade at *SMPN 5 Kotabaru*

No.	Class	Total
1.	A	31
2.	B	32
3.	C	32
4.	D	32
Total		127

**Source: Administration Staff Documentary at SMPN 5 Kotabaru**

## 2. Sample

Sample is part of the population from information which collected (Arikunto, 1986, p.104). Sudjana (1986, p. 163) stated that purposive sampling also known as sampling consideration, this sampling can done based on individual consideration (teacher) or researcher consideration (researcher). Based on the explain above, the researcher uses purposive sampling. (Arikunto, 1986, p.113).

Table 3.2. Sample of the seventh grade students at *SMPN 5 Kotabaru*

No	Classes		Total
	Control Class	Experiment Class	
1.	VII A	-	31
2.	-	VII B	32

**Source: Administration Staff Documentary at SMPN 5 Kotabaru**

While the researcher only focus on the seventh grade students A and B, the researcher do not choose class C and D. because, teacher suggestion for me. That's, A class and B class difficult for memorizing vocabulary and ability vocabulary limited than other class (C and D), based on interview English teacher of *SMPN 5 Kotabaru*.

## **D. Data and Source of Data**

### **1. Kind of data**

There are two kinds of data in this research. They are primary data and secondary data as follows:

#### **a. Primary data**

The primary data in this research are:

- 1) Data that related with effectiveness using semantic mapping technique in improving vocabulary mastery.
- 2) Data that related with students' respond toward semantic mapping technique in improving vocabulary mastery.

#### **b. Secondary data**

To complete the primary data, the writer also collects the secondary data which are related to research object as follows:

- 1) Brief history of SMPN 5 Kotabaru.
- 2) The decription about headmaster, teachers, administration staff and students of SMPN 5 Kotabaru.
- 3) The application of teaching process and facilities in SMPN 5 Kotabaru.

## 2. Source of data

There is some source of data that is used in this research, such as:

- a. Respondents : All Seventh Grade (A class and B Class) at SMPN 5 kotabaru in academic year 2015/2016 with total 63 students.
- b. Informants : They are the Headmaster, English Teachers, and Administration Staff of SMPN 5 Kotabaru.
- c. Documents : All written reports that are needed in this research, such as list of students' seventh grade, vocabulary comprehension test result (pre-test and post-test), the data about the school, teachers, staffs of SMPN 5 Kotabaru.

## E. Technique of Collecting Data

The technique of collecting data that is used in this research including:

### 1. Observation

This is a technique which the writer comes to SMPN 5 Kotabaru and observes detailly by using field note and recorded by video. The data that searched by researcher are activity, media and strategy in experiment class. The data are collected to know how is the activity of teaching vocabulary in control class that is used by teacher in SMPN 5 Kotabaru, media and strategy that is used by teacher.

## **2. Test**

The writer used pre-test and post-test to know the students' first ability in vocabulary and the students' last ability in vocabulary using semantic maps strategy in experiment class and not using semantic maps strategy in control class. This test is applied in experiment and control class to get the score of the students' achievement of vocabulary mastery. The instrument that will be taken from the pre-test are multiple choice, arrange the words into a good sentence, complete the dialogue, and translate Indonesian sentences into English. The instrument that will be taken from post-test are multiple choice, arrange the words into a good sentence, complete the sentence, and make semantic maps appropriate word that give by teacher. The test can be seen in the appendix.

## **3. Interview**

In this technique, the writer makes communication and interview with some related person, such as: the teacher, the headmaster and the administration staff directly to obtain data that are related to primary or secondary data by using interview guide. The interview guide to teacher is about before of using semantic maps on Saturday, April 23<sup>th</sup> 2016 and after of using semantic maps strategy on Saturday, May 21<sup>th</sup> 2016 and interview guide to the headmaster and the administration staff is about data of school in SMPN 5 Kotabaru on Saturday, April 30<sup>th</sup> 2016. The interview can be seen in the appendix.

#### 4. Questionnaire

The writer gives questionnaires for students as sample of the research on Saturday, April 30<sup>th</sup> 2016, especially experiment class using semantic maps strategy. This technique is used to collect data about how students respond toward semantic maps strategy in improve their vocabulary. There are 16 questionnaire using 'yes' or 'no' answer. For questionnaire using 'yes' or 'no' answer will be scored as follow:

- a. Score 1 for answer (yes)
- b. Score 0 for answer (no)

Then the scorer each question is accumulated and looked for its percentage to the number of students. The process calculating will be explained in data analysis. The questionnaire can be seen in the appendix.

#### F. Research Instrument

In order to make organizing and analysis of the data processing easier, the writer organizes the research instrument of the teaching and learning by using semantic maps strategy at SMP 5 Kotabaru, as follows :

1. Answering 25 multiple choice questions (Synonym, Antonym, and Meaning), each correct answer will be scored 2 points, if the students can answer all question correctly, they will get score 50 (Question synonym, antonym, and meaning taken from source Syah, D.1987. *Kamus Synonym & Antonym untuk Ujian TOEFL & IELTS*, Jakarta: Rineka Cipta).

2. Answering 5 Arrange the words into a good sentence, each correct answer will be scored 1 point. If the students can answer all question correctly, they will get score 5 (Question arrange the words into a good sentence taken from source Novitasari,Siswanto, et al. 2007. *New Let's Talk*. Bandung:Pakar Raya, p. 5).
3. Answering 5 complete the dialogue (for pre-test) /complete the sentence (post-test), for each question is scoring 3 points, if the students can answer all question, the will get score 15 (Question fill in the blank taken from source Siswanto, Arini, Dewanto. 2005. *Based on Literacy Approach Let's Talk*. Bandung: Pakar Raya, p. 68).
4. Translate 5 Indonesian sentences into English and each correct sentence will be scored 6 points (Question translates Indonesian sentences into English taken from Gunawan, Khatimah, Wachidah. 2013. *Bahasa Inggris When English Rings the Bell*. Jakarta: Kementerian Pendidikan dan Kebudayaan, p. 11).
5. If the students can answer all questions correctly, they will get score 30, (for pre-test question).
6. Each students have vocabulary, begin from :

Table 3.3. The categorized of score vocabulary mastery

Vocabulary	Score
5	3
10	6
15	9



20	12
25	15
30	18
35	21
40	24
45	27
50	30

**(Source: Score of English Teacher at SMPN 5 Kotabaru)**

So, if the students have 50 vocabularies. They will get score 30, (for Post-test question).

After counting up all the three aspect, will be gotten the highest score is 100 points and the lowest score is 0. The total maximum expected score. (MES) of all questions is 100 points. In this research students will pass two kinds of the test:

a. Pre Test

In pre-test, all of seventh grade students at students at SMPN 5 Kotabaru, control class and experiment class will answer 40 items about vocabulary mastery, It means the researcher want to know they vocabulary skill before the teacher uses semantic maps as a strategies.

b. Post Test

In post-test, all of seventh grade students at Seventh Grade at SMPN 5 Kotabaru, control class and experiment class will answer the same questions with post-test, it means the researcher wants to know the students' mastery of vocabulary after the researcher uses semantic maps as a strategy.

The students' score will be categorized into five levels based on Anas Sudijono as follows (Sudijono: 2011, p.35)

Table 3.4. The categorized of score test (pre-test and post-test)

<b>Score</b>	<b>Categories</b>
80 -100	Very Good
66- <80	Good
56- <66	Fair
46- <56	Low
0<46	Very low

## **G. Technique of Data Processing**

### **1. Editing**

This technique is used to the examine all of the collected data to make sure that they are already complete or not. The researcher arranged all of data systematically by following correct role in writing of research.

### **2. Scoring**

The researcher count the scores for the students' based on the correct answer in the sheets of test. The students' scores are arranged on the table based on name of students and are completed with using category of score.

### **3. Tabulation**

Tabulation is to create tables that contain data that has been scoring in accordance with the analysis required. Result data on the table to be easy in interpretation data in this research.

### **4. Data interpretation**

Data that has been edited and scored will be interpreted by the researcher. Data of result test is interpreted by using category of score based on Anas Sudijono.

The interpretation of the researcher does not change the authenticity of data that is gotten in field.

## **H. Technique of Data Analysis**

### **1. Data from observation**

The researcher observes detail how is the activities, media and technique that are used by teacher in control class by using field note and recorded by video. From observation, the researcher analyzed detail and all data of observation. This data is used to complete data in this research.

### **2. Data from test**

Data from test, this data test was gain to compare students' ability in vocabulary by using semantic mapping technique and not using semantic mapping technique in instructional activities of vocabulary, the researcher used a quantitative data which are related to the numerals and they are analyzed by statistics. The researcher used t-test formula to calculate the data. The analysis has concerned between experiment class and controlled class. The researcher calculates mean, deviation and T-test, the formulas as follows: (Murdan, 2012, p.164)

- a. Looking for mean variable I as follows the formula

$$M_x = \frac{\sum x}{N_1}$$

$M_x$  : mean of the experiment class

$\sum x$  : accumulative of total score of the experiment class

$N_1$  : number of subject of the experiment class

b. Looking for mean variable II as follows the formul

$$M_y = \frac{\sum y}{N_1}$$

$M_y$  : mean of the control class

$\sum y$  : accumulative of total score of the control class

$N_1$  : number of subject of the control class

c. Looking standard deviation for variable I as follows the formula

$$SD_1 = \sqrt{\frac{\sum x^2}{(N-1)}}$$

$SD_1$  : standard deviation of experiment class

$\sum x^2$  : accumulative of the quadrant of deviation of the experiment class

d. Looking standard deviation for variable II as follows the formula

$$SD_1 = \sqrt{\frac{\sum y^2}{(N-1)}}$$

$SD_1$  : standard deviation of control class

$\sum y^2$  : Accumulative of the quadrant of deviation of the control class

e. Looking standard error of mean variable I as follows the formula

$$SE M_x = \frac{SD}{\sqrt{N-1}}$$

$SE M_x$  : standard error of the experiment class

1: value of constant

f. Looking standard error of mean variable II as follows the formula

$$SE M_y = \frac{SD}{\sqrt{N-1}}$$

$SE M_y$ : standard error of the control class

1 : value of constant

g. Looking for standard error for comparative mean variable I and mean variable II as follows the formula

$$SE_{M_1 - M_2} = \sqrt{SE M_1^2 + SE M_2^2}$$

$SE_{M_1 - M_2}$  : standard error for comparative mean of experiment class and control class

$SE M_1^2$  : quadrant result of standard error of mean of the experiment class

$SE M_2^2$  : quadrant result of standard error of mean of the control class

h. Looking for t, as follows the formula

$$t_{\text{test}} = \frac{M_1 - M_2}{SE_{M_1} - SE_{M_2}}$$

$t_{\text{test}}$  : value of t observation

i. Giving interpretation for t with consulting t table

1) Looking for degree of freedom

$$Df/db = (N_1 + N_2) - 2$$

df/db : degree of freedom

$N_1$  : number of subject the students in experiment class

$N_2$  : number of subject the students in control class

2 : value of degree of freedom for two variables

2) Consulting score of df/db with t table

$t_{table}$  : value of critic “t”

In significant degrees  $t_{table}$  5%

In significant degrees  $t_{table}$  1%

3) Making hypothesis interpretation

$H_o$  (Zero Hypothesis) : there is no significant difference

$H_a$  (Alternative Hypothesis) : there is significant difference

If “ $t_{test}$  is higher than the value of  $t_{table}$  “so  $H_o$  is rejected,  $H_a$  is accepted.

If “ $t_{test}$  is lower than the value of  $t_{table}$  “so  $H_o$  is accepted,  $H_a$  is rejected.

### 3. Gain test

Nuraeni in Mahmudah (2014, p.59) stated that, Gain Test done to look from the effectiveness of semantic maps strategy in vocabulary mastery. This can be done by using the following formula:

$$g = \frac{\text{score post test} - \text{score pre test}}{\text{score maximal} - \text{score pre test}}$$

Table 3.5. The categorized of score gain test for measure effectiveness

Score	Category
$g < 0,3$	Low

$0,3 \leq g \leq 0,7$	Fair
$G > 0,7$	High

#### 4. Data Analysis Procedure to the Students' Respond

Analysis technique that is used to measure the students' respond in using Semantic Mapping is the percentage technique analysis as follow:

$$P = \frac{F}{N} \times 100 \%$$

Explanation:

P : Number of percentage

F : Frequency

N : Number of the respondent

Table 3.6. The interpretation of students' responds toward semantic mapping (Arikonto, 2002, p.44, in Ardila, 2014, p. 49)

Percentage (%)	Category
81 - < 100	Very Good
61 - < 81	Good
41 - < 61	Enough
21 - < 41	Bad
0 - < 21	Very Bad

For mean the students' respond in using Semantic Mapping the answer "YES", with formula:  $M = \frac{\sum P}{N}$

Explanation:

$M$  = Mean

$\Sigma p$  = Total answer “yes” questionnaire

$N$  = Total Question Questionnaire

### **I. Data from interview**

In this study, the writer takes on the seventh grade students' at SMPN 5 Kotabaru. The writer takes 63 students' as the sample consisting of 32 students as the experimental class and 31 students as the control class.

Before giving the treatment, the writer conducted a pre-test for two groups on Friday, 29<sup>th</sup> April 2016. The Teacher study as usual, but same material with experiment from Monday, 2<sup>th</sup> May 2016 until 14<sup>th</sup> May 2016. The test measures first students' ability in vocabulary. The researcher use written. The test about vocabulary consist 40 items that is divided into three test forms, they are 25 items to multiple choice, 5 items to arrange the words into a good sentence, 5 items to fill in the blank, and 5 items to translate Indonesian sentence into English. The researcher makes written test of the seven grade students based on their condition which have difficult in remembering, pronouncing and writing words correctly.

After conducting the pre-test, the writer gave a treatment to students in experiment class from Friday, 5<sup>th</sup> May 2016 until 19<sup>th</sup> May 2016. 32 students as experimental class and 31 students as the control class. After giving the treatment, The researcher taught vocabulary to students in experiment class by using semantic mapping technique in five meetings and the teacher taught vocabulary to students in



control class not using strategy semantic maps from Thursday, 5<sup>th</sup> May 2016 until 19<sup>th</sup> May 2016 in five meetings too. The vocabularies that are learned in both classes are same but technique that is used is different in teaching vocabulary. The vocabularies related describing thing (Transportation), family (father, mother, and etc.), sports (swimming), Fruits (apple), Animal (Whales).

After conducting the treatment, the writer gave a post-test both of two groups on Saturday, 20<sup>th</sup> May 2016. The writer compares result pre-test and post test of experiment and control class. From this result, the writer can know how in improving vocabulary mastery by using semantic mapping and not using semantic mapping technique and examine whether there is significant difference between using and not using of semantic mapping technique in improving vocabulary mastery of the seventh grade students at SMPN 5 Kotabaru.