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## CHAPTER III

### METHOD OF RESEARCH

#### A. Research Design

This research was an experimental research. In this research, there were two variables; the independent variable (X) was Word Mapping Strategy and dependent strategy (Y) was to students' vocabulary mastery. The target of the population was the eighth grade students of State Junior High School 1 PangkalanKuras. The research was held in class VIII that consisted of 35 students.

In this research the writer had 2 classes of the population. In this research the writer used quasi-experiment designs. According to Creswell (2012: 309-311) "Quasi-experiments include assignment, but not random assignment of participants to groups". According to Campbell and Stanley, (1963: 47) say that Non-Equivalent experimental involves two groups (experimental and control group), both of them given a pretest and posttest in which both groups do not have pre-experimental sampling equivalent. Because educators often use intact groups (schools, colleges, or school districts) in experiments, quasi-experimental designs are frequently used.

The quasi-experimental approach introduces considerably more threats to internal validity than the true experiment. Because the investigator does not randomly assign participants to groups, the potential threats of maturation,



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selection, mortality, and the interaction of selection with other threats are possibilities. Individuals assigned to the two groups may have selection factors that go uncontrolled in the experiment. Because we compare two groups, the treatment threats may also be present. In addition, when the pretest–posttest design is used, additional threats of history, testing, instrumentation, and regression also may occur. While the quasi-experimental design has the advantage of utilizing existing groups in educational settings, it introduces many threats that you need to address in the design of the experiment.

### **B. Time and Location of the Research**

The location of this research was Junior High School 1 Pangkalan Kuras, Riau Province. The location was Junior High School 1 Pangkalan Kuras at Jl. Datuk Laksamana No. 91 Kec. Pangkalan Kuras. This research was conducted on February 2016.

### **C. Subject and Object of the Research**

The subject of this research was the eighth grade students of Junior High School 1 Pangkalan Kuras.in 2014/2015 academic year. While the object of this research was the effect of using Word Mapping Strategy on students' Vocabulary Mastery at Junior High School 1 PangkalanKuras.

## D. Population and Sample

### 1. Population

The population of this research was the eighth grade students of Junior High School 1 PangkalanKuras in 2015-2016 in academic year. The students weredivided into 8 classes. The total number of population for this level was 282 students. The specification of population can be seen on the table below:

**Table III.1**  
**The Total Population of the Second Year Students of Junior High School 1 PangkalanKuras**

No	Class	Students		Total
		Male	Female	
1	VIII A	9	16	25
2	VIII B	12	13	25
3	VIII C	16	14	30
4	VIII D	10	18	30
5	VIII E	17	19	36
6	VIII F	17	18	30
7	VIII G	18	18	36
8	VIII H	14	19	36
<b>Total</b>		<b>113</b>	<b>135</b>	<b>248</b>
		<b>248</b>		

### 2. Sample

The population was large enough to be all taken as sample of the research. Based on the total population above, the writer took two classes for the samples by using Cluster Sampling. Cluster sampling randomly selects groups, not individuals. All the member of selected groups had similar

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characteristics. According to Gay (2000: 129), cluster sampling is most useful when the population is very large or spread out over a wide geographic area. So, the writer took two classes as the sample of this research. They were class VIII C as experimental class and VIII D as control class. Therefore the sample was 60 students.

**Table III.2**  
**The Sample of the Research**

No.	Class	Type	Total
1	VIII C	Experimental class	30
2	VIII D	Control class	30
Total			60

### E. Technique of the Data Collection

In this research, the research used test to measure the students' vocabulary mastery. The writer used pre-test and post-test. Pre-test was used to know students vocabulary mastery before doing treatment to experiment and control class. And post-test was done at the end of the research to know the effect of using Four Word Mapping strategy or treatment for experiment class and also to know the differences between experiment and control. To know the students' achievement in vocabulary, the writer used a written test. The type of the test was multiple choices test. The test consisted of 20 items for pre-test and 20 items for

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post-test. The test consisted of 4 passages with 5 questions for each passage. The students were given 30 minutes to answer the test included some vocabulary skill. The topic that would be asked was about meaning of the vocabulary in context, synonym or antonym in narrative text. After doing the test, the writer then looked at the total score from the result of the test. According to Suharsini, the score will be classified as follow:

**Table III.3**  
**The Classified of Score**

No.	Scores	Categories
1	80-100	Very good
2	66-79	Good
3	56-65	Enough
4	40-55	Less
5	0-39	Fail

## **F. Validity and Reliability of the Test**

### **1. Validity of the Test**

According to Hughes (1989:22), a test is said to be valid if, it measures accurately what it is intended to measure. Gay (2000:161) stated that the validity is the appropriateness of the interpretations made from the



test score. There are three kinds of validity that consist of content validity, construct validity, and criterion validity.

Before the test given to the sample of this research, the writer did try out the test items. The test given to the students was considered not too difficult or not too easy. According to Arikunto (2008:208) the test is accepted if the degree of difficulty is between 0.30-0.70. It was determined by finding the difficulty level of each item. The formula for item difficulty is as follows:

$$P = \frac{B}{Js}$$

Where

P: Index of difficulty

B: The number of correct answer

Js: The number of students

The difficulty level of an item shows how easy or difficult a particular item in a test. The items that do not reach the standard level of difficulty are excluding from the test and they are changed with new items that are appropriate. The standard level of difficulty used is <0.30 and >0.70. It means that an item is accepted if the level of difficulty is between 0.30-0.70, and it rejected if the level of difficulty is less than 0.30 (the item is too difficult) and over than 0.70 (the item is too easy).

**Table III.4**  
**Comprehend the Word Correctly**

Variable	Comprehend the Word Correctly (from pronunciation and word comprehension)					N
Item No.	1	5	9	13	17	30
Correct	16	17	17	17	15	
P	0.64	0.68	0.68	0.68	0.6	
Q	0.36	0.32	0.32	0.32	0.4	

$$Q = 100 - P$$

$$P = B/JS$$

Based on the table above, the item numbers of question to comprehend the word correctly are number 1, 5, 9, 13, and 17. It shows that the proportion of correct answer to comprehend the word correctly of test item is number 1 that shows the proportion correct answer 0.64, item number 5 shows the proportion of correct answer 0.68, item number 9 shows the proportion of correct answer is 0.68, item number 13 shows the proportion of correct answer is 0.68 and item number 17 that shows the correct answer is 0.6. The total correct answer to comprehend the word correctly test is 0.65. Based on standard level of difficulty "p" is  $>0.30$  and  $<0.70$ . So, the items of state comprehend the word correctly were accepted.

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**Table III.5**  
**Use the Word Correctly (use grammatical function)**

Variable	Use the Word Correctly (use grammatical function)					N
Item No.	2	6	10	14	18	30
Correct	15	16	17	14	13	
P	0.6	0.64	0.68	0.56	0.52	
Q	0.4	0.36	0.32	0.44	0.48	

$$Q = 100 - P$$

$$P = B/JS$$

Based on the table above, the item numbers of question for using the words correctly are number 2, 6, 10, 14 and 18. It shows that the proportion of correct answer for using the words correctly of test item is number 2 that shows the proportion correct answer 0.6, item number 6 shows the proportion of correct answer 0.64, item number 10 shows the proportion of correct answer is 0.68, item number 14 shows the proportion of correct answer is 0.56 and item number 18 that shows the correct answer is 0.52. The total correct answer of using the words correctly test is 0.6. Then, based on standard level of difficulty “p” is  $>0.30$  and  $<0.70$ . So, the items of difficulties for use the word correctly were accepted.

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**Table III.6**  
**Finding the Meaning of the Word Based on Context**

Variable	Finding the meaning of the word based on context (aspects of meaning: denotation, connotation, appropriateness)					N
Item No.	3	7	11	15	19	30
Correct	17	16	13	15	14	
P	0.68	0.64	0.52	0.6	0.56	
Q	0.32	0.36	0.48	0.4	0.44	

$$Q = 100 - P$$

$$P = B/JS$$

Based on the table above, the item numbers of question for finding the meaning of the word based on context are number 3, 7, 11, 15, and 19. It shows that the proportion of correct answer for finding the meaning of the word based on context of test item is number 3 that shows the proportion correct answer 0.68, item number 7 shows the proportion of correct answer 0.64, item number 11 shows the proportion of correct answer is 0.52, item number 15 shows the proportion of correct answer is 0.6 and item number 19 that shows the correct answer is 0.56. The total correct answer of finding the meaning of the word based on context test is 0.6. Then, based on standard level of difficulty “p” is  $>0.30$  and  $<0.70$ . So, the items of difficulties for finding the meaning of the word based on context were accepted.

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**Table III.7**  
**Finding the Synonym, Antonym, and Translation (meaning-relationships)**

Variable	Finding the synonym, antonym, and translation (meaning-relationships)					N
Item No.	4	8	12	16	20	30
Correct	16	17	16	14	17	
P	0.64	0.68	0.64	0.56	0.68	
Q	0.36	0.32	0.36	0.44	0.32	

$$Q = 100 - P$$

$$P = B/JS$$

Based on the table above, the item numbers of question for finding the synonym, antonym, and translation are number 4, 8, 12, 16 and 20. It shows that the proportion of correct answer for finding the synonym, antonym, and translation of test item is number 4 that shows the proportion correct answer 0.64, item number 8 shows the proportion of correct answer 0.68, item number 12 shows the proportion of correct answer is 0.64, item number 16 shows the proportion of correct answer is 0.56, and item number 20 that shows the correct answer is 0.68. The total correct answer of finding the synonym, antonym, and translation test is 0.64. Then, based on standard level of difficulty "p" is  $>0.30$  and  $<0.70$ . So, the items of difficulties for finding the synonym, antonym, and translation were accepted.

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## 2. The Reliability of the Test

A test must first be reliable as meaning instrument. Reliability is a necessary characteristic of good test. According to Brown (2004:20), a reliable test is consistent and dependable. Reliability has to do with accuracy of measurement. The test was reliable when an examinee's result was consistent on repeated measurement.

To obtain the reliability of the test given, the writer used Kuder Richardson 20 (K-R 20) formula to calculate the reliability of the test formula as follows (Arikunto (2008:101)):

$$r_{it} = \left( \frac{n}{n-1} \right) \left( \frac{st^2 - \sum p_i q_i}{st^2} \right)$$

Where:

$n$  = Number of item is in the instrument

$p_i$  = Proportion of subjects who answered the item correctly

$q_i$  = Proportion of subject who answered the item with the wrong (1- $p_i$ )

$\sum p_i q_i$  = the multiplication result between  $p$  and  $q$

$S^t$  = total variance

The reliability coefficients for good identified kinds of structure text and reading comprehension test were expected to exceed 0.0 and closed 1.00. Heaton (1988:168) stated that the reliability of the test was considered as follows:

0.00-0.20: reliability is low



0.21-0.40: reliability is sufficient

0.41-0.70: reliability is high

>0.70: reliability is very high

$$\begin{aligned}
 St^2 &= \frac{\sum Xt}{n} \\
 &= \frac{357.2}{30} \\
 &= 11.90 \\
 r_i &= \left( \frac{n}{n-1} \right) \left( \frac{St^2 - \sum pq}{St^2} \right) \\
 &= \left( \frac{30}{30-1} \right) \left( \frac{11.90 - 4.63}{11.90} \right) \\
 &= \left( \frac{20}{29} \right) \left( \frac{7.27}{11.90} \right) \\
 &= 1.052(0.61) \\
 &= 0.63074
 \end{aligned}$$

To know the test is reliable or not, the value of  $r_{11}$  must be compared with  $r$  product moment. The value of  $r_{11}$  must be higher than  $r$  table. From the calculation above the value of  $r_{11}$  is 0.63074. Then the  $r_t$  at 5% grade of significance is 0.349 While  $r_t$  at 1% grade significance is 0.449. So, it can be concluded that  $0.349 < 0.601701 > 0.449$ . On other word, the instrument is reliable because the value of  $r_{11}$  is higher than  $r_t$ .

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## G. Technique of Analyzing Data

In this research, the data were analyzed by using statistical method. The writer analyzed the data by using T-test. T-test was used in order to find out whether there was significant effect of using Word Mapping strategy on Vocabulary mastery. Meanwhile according to Hartono (2008: 208) the collected data will be analyzed by using statistical analysis T-test formula, as follow:

$$t_0 = \frac{M_x - M_y}{\sqrt{\left(\frac{S_{dx}}{\sqrt{N-1}}\right)^2 + \left(\frac{S_{dy}}{\sqrt{n-1}}\right)^2}}$$

- To : the value of t-obtained  
 Mx : mean score of experimental sample  
 My : mean score of control sample  
 SDx : standard deviation of experimental group  
 SDy : standard deviation of control group  
 N : number of student

Is consulted with the value of t-table degree freedom (df) = (N1+N2)-2

statistically hypotheses:

Ha:  $t_0 > t\text{-table}$

Ho:  $t_0 < t\text{-table}$

Ha will be accepted if  $t_0 > t\text{-table}$ , in other word there is an effect of using 3H Strategy toward vocabulary mastery.

Ho will be accepted if  $t_0 < t\text{-table}$  or there is no an effect of using 3H strategy toward vocabulary mastery.