CHAPTER III

RESEARCH METHOD

A. Research Design

The type of this research was a quasi experimental research. Nunan (1992, p.41) stated that a quasi experimental research has both pre- and post-test and experiment and control group. In additions, Lodico *et al* (2006, p.185) argues that a common type of experimental study, called quasi-experimental study. Then Cohen *et al* (2007, p.282) states that "A quasi-experimental design in form the pretest-post-test non-equivalent group design is one of the most commonly used quasi experimental designs in educational research".

The design of this research was a quasi-experimental design by using the non-equivalent control group design. One class of the eighth grade of Junior High School 01 Kampar participated as sample called experimental class and another as control class. Theses class got pre-test, treatment, and post-test. The design can be seen in the following table. Cohen (2007, p.288):

Table III.1
Table of Research Design

Group	Pre-test	Treatment	Post-test
Experimental	O_1	T	O_2
Control	O_3	-	O_4

Note :

O_1 : Pre-test for experimental group

O_3 :Pre-test for control group

T   : Treatment by using Motor ImagingStrategy

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-　　　　: Treatment without using Motor Imaging Strategy

O_2　　: Post-test for experimental group

O_4　　: Post-test for control group

B. Location and Time of the Research

This research was conducted from January to February 2017 of the eighth grade at State Junior High School 01 Kampar. It is located on Air Tiris, Kampar Regency.

C. Subject and Object of the Research

The subject of the research was the eighth grade students of State Junior High School 01 Kampar. The object of the research was The Effect of Using Motor Imaging Strategy on Students' Vocabulary in Reading.

D. Population and Sample of the Research

The population of this research was the students of the eighth grade at State Junior High School 01 Kampar. The specification of the population can be seen as follows:

1. Population

Table III.2
The Table of Population

Class	Male	Female	Total
VIII^A	10	20	30
VIII^B	13	18	31
VIII^C	12	18	30
VIII^D	15	18	33
VIII^E	15	16	31
VIII^F	11	20	31
VIII^G	14	17	31
VIII^H	15	18	33
VIII^I	11	20	31
VIII^J	13	18	31
Total	129	183	312

2. Sample

Considering this population of the research is bigger, the total population was 312, thus the writer took the sample of the population of the research. According to Sing (2006, p.81), sampling is indispensable technique of behavioural research, the research work cannot be undertaken without use of sampling. The study of the total population is not possible and it is also impracticable. The practical limitation: cost, time and other factors which are usually operative in the situation, stand in the way of studying the total population. The concept of sampling has been introduced with a view to making the research findings economical and accurate.

In this research, the writer took two of ten classes as sample by using cluster sampling technique. Srinagesh (2005, p.304) stated that cluster sampling is suitable when the population is homogeneous, like all the students being in ninth grade, when no distinction within that category is called for. The writer randomly selected the sample by Writing the names of each class (VIII$_A$ - VIII$_K$) on a sheet of paper after that selecting 2 pieces of that paper and the writer got class VIII^I as an experimental group and VIII^J as a control group.

Table III.3
The Sample of the Research

No	Class	Male	Female	Total
1	VIII^I	11	20	31
2	VIII^J	13	18	31
TOTAL				62

E. Technique of Collecting Data

In collecting the data, the writer used test to measure the students' vocabulary in reading. A test in school is usually given after a book has been read like a test of memory. A test was done twice, they were pre-test and post-test. Pre-test was used to know students' vocabulary in reading before doing treatment to experimental and control classes, and post-test was done at the end of the research to know the effect of using motor imaging strategy on experimental class and without using motor imaging strategy for control class.

According to Hughes (1989, p.15), there are two kinds of testing, direct and indirect test. In this research the writer used indirect test, multiple-choice test to measure students' vocabulary in reading. There were twenty questions for respondent. The questions were based on the indicators of vocabulary. They consisted of five indicators and each had four questions. It can be seen from the blue print test below:

Table III.4
The Blueprint of the Test

No	Indicator of Items	Question Number
1	Identify the meaning of words in the text.	1,6,11,16
2.	Identify the correct spelling of the words in the text.	2,7,12,17
3.	Identify the meaning in relationship (synonym or antonym) of the words in the text.	3,8,13,18
4.	Identify the about the word formation.	4,9,14,19
5.	Identify the appropriate word.	5,10,15,20

Then, the writer took the total score from the result of the vocabulary in reading test. In SMPN 01 Kampar, KKM (Standard Passing Score) for English subject is 75.

F. The Validity and Reliability of the test

The type of test used was multiple choices. Multiple choice was a test designed for choosing (a, b, c, and d), and the sample chose one, it was based on the question, before questions were given to the students. It should be tested about validity and reliability.

1. Validity of the test

Hughes (1989, p. 23) stated that the approach to test validity is to see how far results on the test agree with those provided by some independent and high dependable assessment of the candidate's ability. Heaton (1990, p.179) states that index of difficulty (or facility value) of an item simply shows how easy or difficult the particular item proved in the test. Test is accepted if the degree of difficulty is between 0.30 – 0.70. Before the test was given to the sample of the research, both of test had been tried out to the 30 students of the eighth grade students at Junior High School 01 Kampar that were not included as the sample of the research to validity the test. Arikunto (2011, p.245) stated that the formula for item difficulty is as follows:

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

Where;

P : Index of difficulty or facility value

B : the number of correct answers

JS : Number of Students taking the test

The formula above was used to find out the difficulties of each item of test that writer gave to the sample of the research. The items that did not reach the standard level of difficulty were excluding from the test and changed with the new items that were appropriated. The items were accepted with facility values between 0.30 and 0.70. It was rejected if the level of difficulty was below 0.30 and over 0.70. Then, the proposition correct was represented by P, whereas the proposition incorrect was represented by Q.

The data were gotten from try out; the evaluation of the test includes the indicators of the vocabulary in reading. They are:

a. The students are able to identify the meaning of the words in narrative text;

b. The students are able to identify the correct spelling of the English word in narrative text;

c. The students are able to identify the meaning in relationship (synonym or antonym) of the word in narrative text;

d. The student are able to identify about the word formation in narrative text;

e. The students are able to identify the appropriate in narrative text;

The calculation of the item difficulty can be seen from the following table:

Table III.5
Students identify the meaning of the words in the text

Variable	Meaning of the words				N
Item no	1	6	11	16	
Correct	18	17	17	16	30
P	0.60	0.57	0.57	0.53	
Q	0.40	0.43	0.43	0.47	

$Q = 1.00 – P$

Based on the table III.5 above, it shows that the proportion of correct answer number 1 is 0.60, the proportion of correct answer number 6 is 0.53, the proportion correct answer number 11 is 0.57, and the proportion correct answer number 16 is 0.53 from the total number of students, 30. Based on the standard level of difficulty "p" > 0.30 and < 0.70, it is pointed out that item difficulties in average of each item number for identifying the main idea of the text are accepted.

Table III.6
Students Identify the correct spelling of the words in the text

Variable	Correct spelling of the word				N
Item no	2	7	12	17	
Correct	17	15	17	13	30
P	0.53	0.50	0.53	0.43	
Q	0.47	0.50	0.47	0.57	

Based on the table III.6 above, it can be seen that the proportion of correct answer for item number 2 is 0.53. The proportion correct answer for item number 7 is 0.50. The proportion correct answer for item number 12 is 0.53. The proportion correct answer for item number 17 is 0.43. And the total number of the students is 30. In short, each item of identifying correct spelling of the words in the text is accepted because the value of index difficulty is between 0.30 and 0.70.

Table III.7
Identify the synonym or antonym of the words in the text.

Variable	Synonym or antonym of the word				N
Item no	3	8	13	18	
Correct	17	15	18	16	30
P	0.57	0.50	0.60	0.53	
Q	0.43	0.50	0.40	0.47	

Based on the table III.7 above, it can be seen that the proportion of correct answer for item number 3 is 0.57. The proportion of the correct answer for item number 8 is 0.50. The proportion of the correct answer for item number 13 is 0.60 and the proportion of the correct answer for item number 18 is 0.53. In short, each item of identifying synonym or antonym of the word is accepted because the value of index difficulty is between 0.30 and 0.70.

Table III.8
Students Identify about the word formation

Variable	Word formation				N
Item no	4	9	14	19	
Correct	19	18	19	17	30
P	0.63	0.60	0.63	0.57	
Q	0.37	0.40	0.37	0.43	

Based on the table III.8 above, it shows that the proportion of the correct answer for item number 4 is 0.63. The proportion of the correct answer for item number 9 is 0.60. The proportion of the correct answer for item number 14 is 0.63. The proportion of the correct answer for item number 19 is 0.57. And the total number of the students is 30. In short, each item of stating identifying about the word formation is accepted because the value of index difficulty is between 0.30 and 0.70.

Table III.9
Students Identify the appropriate word

Variable	Appropriate word				N
Item no	5	10	15	20	
Correct	19	19	17	17	30
P	0.63	0.63	0.43	0.57	
Q	0.37	0.37	0.57	0.43	

Based on the table III.9 above, it can be seen that the proportion of the correct answer for number 5 is 0.63. The proportion of the correct answer for item number 10 is 0.63. The proportion of the correct answer for item number 15 is 0.43. The proportion of the correct answer for item number 20 is 0.57. And the total number of the students is 30. In short, each item of stating identifying the appropriate word is accepted because the value of index difficulty is between 0.30 and 0.70.

2. **Reliability of the Test**

Coleman & Klapper (2005, p.83) stated that assessment also needs to test students in a consistent way. A student should get the same mark regardless of when he or she sits a test and regardless of who is marking the work This is what is meant by assessment being reliable. Then, Cohen *et al* (2007, p.146) states that reliability in quantitative research is essentially a synonym for dependability, consistency and applicability over time, over instruments and over groups of respondents. To obtain the reliability of the test, the writer used SPSS 16.0 version to find out whether the test is reliable or not.

Heaton (1990, p. 159) states that the standard reliability of test is considered as follows:

0.00 – 0.20 = Reliability is low

0.21 – 0.40 = Reliability is sufficient

0.41 - 0.70 = Reliability is high

0.71 – 1.00 = Reliability is very high

<div align="center">Table III.10
Reliability Statistics</div>

Cronbach's Alpha	Part 1	Value	-1.234[a]
		N of Items	10[b]
	Part 2	Value	-.490[a]
		N of Items	10[c]
		Total N of Items	20
Correlation Between Forms			.283
Spearman-Brown Coefficient		Equal Length	.441
		Unequal Length	.441
Guttman Split-Half Coefficient			.435

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

b. The items are: item1, item2, item3, item4, item5, item6, item7, item8, item9, item10.

c. The items are: item11, item12, item13, item14, item15, item16, item17, item18, item19, item20.

Heaton (1990, p. 164) states that the split-half method is based on the principle that, if an accurate measuring instrument were broken into two equal parts, the measurements obtained with one part would correspond exactly to those obtained with the other. Based on the table III.11 above, it can said that reliability was accepted which was $0.41 < 0.435 < 0.70$ or higher than 0.41 and lower than 0.70. It also can be stated that the reliability was **high.**

3. **The Normality Test**

In order to know whether the data are normal distribution or not, the writer used Kolmogorof-Smirnov method as the formula to analyze the data. In this research, the writer analyzed the data by using SPSS

(Statistical Product and Service Solutions) 16.0 version program. The SPSS result for Kolmogorov-Smirnov Z test would be interpreted as follows:

p-value (Sig.) > 0.05 = the data are in normal distribution

p-value (Sig.) < 0.05 = the data are not in normal distribution

The result of normality of score in experimental and control class was computed by using SPSS version 16.0 It was presented in the following table:

Table III. 11 Test Of Normality One-Sample Kolmogorov-Smirnov Test		Post-Experiment	Post-Control
N		31	31
Normal Parameters [a]	Mean	82.42	72.42
	Std. Deviation	8.551	7.839
Most Extreme Differences	Absolute	.135	.137
	Positive	.098	.137
	Negative	-.135	-.121
Kolmogorov-Smirnov Z		.751	.765
Asymp. Sig. (2-tailed)		.625	.603
a. Test distribution is Normal.			

Based on the table III.11 above, it shows that the significant level in Kolmogrov-Smirnov test

0.625 (Sig.) > 0.05 = Experiment data were in normal distribution

0.603 (Sig.) > 0.05 = Control data were in normal distribution

In conclusion, the data were in normal distribution.

4. The Homogeneity Test

Test of homogeneity was done to know whether sample in the research came from population that had same variance or not. In this

research the homogeneity of the test was to measure pre-test scores of the experimental class and control class through SPSS 16.0. The result of computation of homogeneity through SPSS is:

Table III.12
Test of Homogeneity of Variances

Score			
Levene Statistic	df1	df2	Sig.
2.258	1	60	.993

Based on the table test of homogeneity of variances, the value of significance was 0.138. This value shows that value of sig > α = 0.993 > 0.05, it can be concluded that both classes had similar variants of homogeneous.

2. Technique of Data Analysis

In order to find out whether there is a significant effect of using Motor Imaging Strategy on students' vocabulary in reading of narrative text, the writer used post-test score of experimental class and control class, and the data were analyzed statistically by using T-test (Independent sample t-test) and it was calculated by using software SPSS 16.0 version. The significant value was employed to see whether there is significant effect of using Motor Imaging Strategy on students' vocabulary in reading.

The test consisted of 20 items and the score of each number was 5. The category score of vocabulary in reading could be classified as follows:

Table III.13
The Classification of Students' Score (Arikunto, p. 245)

No.	Categories	Score
1	Very Good	80-100
2	Good	66-79
3	Enough	56-65
4	Less	40-45
5	Fail	30-39

Statistically the hypotheses were:

H_a : Sig. (2 tailed) < 0.05

H_o : Sig. (2 tailed) > 0.05

The writer will conclude that:

1. H_a is accepted if Sig.(2 Tailed) < 0.05 It means there is a significant effect of students' vocabulary in reading of narrative text between those who were taught by using Motor Imaging Strategy and those who were not taught using Motor Imaging Strategy.

2. H_o is accepted if Sig. (2 Tailed) > 0.05 It means there is no significant effect of students' vocabulary in reading between those who were taught by using Motor Imaging Strategy and those who were not taught using Motor Imaging strategy.