

CHAPTER III

RESEARCH METHOD

This chapter covers Research method that consists of research type, Research Method that consist of research type, research design, place of the study, population and sample of the study, research instruments, research instruments validity, research instrument reliability, index difficulty, data collection procedures, data analysis procedure.

A. Research Type

The type of research is quasi experiment. Quasi-experiment study designs are similar to randomized experimental design in that they involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment groups because. The quasi-experimental be aware of the threats to both internal and external validity and consider those factors in their interpretation. Although true experimental are preferred, quasi-experimental design are considered worthwhile because they permit researchers to reach reasonable conclusions even through control is not possible.¹

Therefore, the writer used quasi experiment because it was not based on random assignment of subjects to experiment and control groups. There were two groups in this model. They are experiment group and control group. The groups were given pre-test and post-test. Pretest was given to know pre-ability before

¹ Donal Ary, (et, all), *Introduction to Research in Education (Eight edition)*, Canada: Wadsworth (engange learning), 2010,p.316.

giving of the treatment and posttest was given to measure the students' score after given treatment.

B. Research design

The design of this study was experimental design. Experimental design is a plan for an experiment that specifies what independent variables will be applied, the number of levels of each, how subjects are assigned to groups, and the dependent variable.² The writer used the experimental design because the writer wanted to measure the effectiveness of using word wall in teaching vocabulary.

C. Place and Time of the study

This study conducted in MTs Muslimat NU Palangka Raya, Pilau street number 41 on the eight grade students, second semester. This study took time consumed about 2 months starting from April until May 2016.

D. Population and sample of the study

1. Population

A population is defined as all members of any well-defined class of people, events, or objects.³ The population of this research was eighth grade students at MTs Muslimat NU Palangka Raya. There are three classes and the numbers of students are:

²Donal Ary, *Introduction to Research in Education (Eight edition)*, United State: Wadsworth (engage learning), 2010,p. 641.

³ *Ibid*, p.148

Table 3.1**Population**

NO	CLASSES	NUMBER OF STUDENT
1	VIII-a	39
2	VIII-b	40
3	VIII-c	39
	Total	118

2. Sample

A sample is a portion of a population.⁴ The writer took two classes to be the sample. The first class was experiment group that used word wall. The second class was control group that was not used word wall. In addition, the writer used cluster sampling because the unit chosen is not an individual but a group of individuals who are naturally together or grouped by the school⁵. The writer used cluster sampling for it. According to the teacher , the class VIII-a and class VIII-c have represented average English achievement of whole the population. So, it helped the writer to choose that class as sample of the study. The number of sample can be seen as follow:

⁴ *Ibid*, p.148

⁵ *Ibid*, p. 154

Table 3.2
Number of Sample

NO	Group	Class of student	Number of student
1	E	VIII C	39
2	C	VIII A	39
Total			78

E : Experiment Group

C : Control

Table 3.3
Design of pre-test and post-test

Group	Pre-test	Treatment	Post-test
Experiment Group	T	X	Y
Control Group	T	-	Y

T : Pretest Result

X : Treatment Result

Y : Post Test Result

E. Research Instruments

1. Research Instruments

To get the data, the writer used this instrument in this study. Here, the writer used test.

a. Test

A test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned.⁶ To get the data, the writer does the test; it consists of pre test and post test. The function of pre test is to know how many students' vocabulary before they uses word wall. And the function of post test will be to know how many students' vocabulary that has already had after they uses word wall as media.

According to Thurnbury Multiple choice tests are a popular way of testing in that they are easy to score and they are easy to design. Moreover , the multiple choice format can be used with isolated words, words in a sentence context, or words in whole text.

The writer makes test of multiple-choice item, because the multiple choice item is generally recognized as the most widely applicable and useful type of objective test. It can more effectively measure many of the simple learning outcomes measured by the short-item or completion.⁷ So, the writer used test of multiple choices item that consist of 100 items. The items were test to try-out which to know the instrument valid or no. Then some questions which are valid used in pre-test and post-test.

⁶ *Ibid*, p. 201.

⁷ Norman E. Gronlund, *Measurement and Evalutaion in Teaching 5th Edition*, London, Collier macmillan Publisher, p. 75.

The tables of specification item of the test and specification item are below:

Table 3.4
Specification Items Of The Test

No	Vocabulary Mastery	Specification item test	Noun	Verb	Adjective
1		Complete sentence	23	6	11
2		Definition	6	3	5
3		Antonym	-	5	5
4		Synonym	2	1	3
5		Picture	13	11	6
Total			44	26	30
			100		

Table 3.5
Specification Item

Skill to Measure	Components	The Number of the test	Number of item	Percentages (%)
Vocabulary Mastery	Noun	1, 3, 12, 13, 15, 16, 18, 20, 26, 27, 36, 39, 40, 41, 43, 50, 51, 52, 53, 54, 57, 59, 60, 61, 62, 63, 66, 67, 68, 69, 70, 72, 78, 79, 80, 81, 82, 83, 84, 86, 93, 94, 96, 97	44	44%
	Verb	8, 9, 10, 17, 25, 33, 44, 45, 48, 49, 55, 56, 58, 65, 71, 73, 74, 75, 76, 77, 88, 89, 90, 91, 92	25	25%
	Adjective	2, 4, 5, 6, 7, 11, 14, 19, 21, 23, 24, 28, 29, 30, 31, 32, 34, 35, 37, 38, 42, 46, 47, 64, 85, 87, 95, 98, 99, 100	31	31%
	Total		100	100%

2. Research Instruments Try Out

The writer gave test of try out to eight grade students at MTs Muslimat Nu Palangka Raya (VIII-B). It was conducted on Saturday, March 16th, 2016, at 12.05 – 01.20 am in VIII-B room with the number of student were 40 students.

To get the data of try out, the writer used some procedures as follows:

- a. The writer made and prepared test of try out.
- b. The writer gave test of try out to the students
- c. The writer asked the students to do test of try out.
- d. The writer collected the student's answer.
- e. The writer calculated and gave score to the students' answer.
- f. The writer analyzed the result of try out to know valid of test try out.
- g. If the results were valid, it meant that the test items as the instrument of this study is suitable to be give.

Table 3.6 The Result of Try Out

No		The Number of the Test	Number of Item
1	Valid	1, 2, 6, 8,11, 12, 13, 16, 17,19, 20, 21, 23, 25, 26, 27,30, 31, 33, 34, 37,39, 40, 41, 43, 44, 45, 47, 48, 50, 51, 53, 54, 55, 57, 58, 59, 60, 65, 70, 71, 72, 73, 75, 76, 77, 79, 81, 82, 83, 84, 88, 89, 90, 91, 95, 96 and 99	58
2	Invalid	3, 4 ,5 ,7 ,9 ,10 ,14 ,15 ,18 ,22, 24, 28, 29, 32, 35, 36, 38, 42, 46, 49, 52, 56, 60,61,62,63,64,66,67,68,69,74,78,80,85,86,87,92,93,94,97, 98 and 100	42
Total			100

Based on the table above, the questions valid are 58 and the questions invalid are 42.

3. Research Instruments Validity

Validity of a test is the extent to which the test measures what is intended to measure. An instrument was considered to be a good one if it meets some requirement. One of them is validity.

Every test, whether it is a short, informal classroom test or a public examination, should be a valid a constructor could make it. The test must aim to provided a true measure of a particular skill which it is intend to measure, to the extent that is measure external knowledge and other skills at the same time, and it would not be a valid test. Validity on this study is distinguish into some kinds as followed:

a. Face Validity

This type of validity, in fact is often refer to as face validity: If a test item looks right to other testers, teachers, moderators, and tastes.⁸ The test used by the writer is suitable to others and at the same level that is Senior High School level.

b. Content Validity

This kind of validity depends on a careful analysis of the language being tested and of the particular course objectives. The test should be so constructed as to contain a representative sample of the course, the relationship between the test items and the course objectives always being apparent.⁹ In making the test, the writer tried to match each of the test items with the syllabus that used by MTs Muslimat NU Palangka

⁸ J.B.Heaton, *Language Testing*, (Published Test, May: 1989), p. 153.

⁹ J. B. Heaton, *Writing English Language Tests*, Longman, 1975, p. 154.

Raya. The writer made the test content (question) related with material was teach to the students.

c. Construct Validity

If a test has construct validity, it is capable of measuring certain specific characteristics in accordance with a theory of language behavior and learning.¹⁰ Type of test was vocabulary test, and the form of test was multiple choices. In this study, the test was written test to measure the students' vocabulary knowledge.

To measure the validity of the instrument, the writer used the formulation of product moment by Pearson follows:¹¹

$$r_{xy} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\{N \cdot \sum X^2 - (\sum X)^2\}\{N \cdot \sum Y^2 - (\sum Y)^2\}}}$$

Where:

r_{xy} : Numeral of index correlation 'r' product moment

N : Total of sample

$\sum XY$: Amount of the product between X score and Y score

$\sum X$: Amount of the x score

$\sum Y$: Amount of the y score

¹⁰ *Ibid*, p. 154.

¹¹ Riduan, *Metode dan Teknik Menyusun Proposal Peneletian*, Bandung: Alfaberta, 2010. p. 75.

To know the validity level of the instrument, the result of the test was interpreted to the criteria below:¹²

0,80 - 1000 = very high validity

0,60 - 0,799 = high validity

0,40 - 0,599 = fair validity

0,20 - 0,399 = poor validity

0,00 - 0,199 = very poor validity

4. Research Instruments Reliability

Reliability also means the consistency with which a test measures the same thing all the time. Reliability of a test refers to its consistency with which it yields the same rank for an individual taking the test several times.¹³ The reliability of the whole test can be estimated by using the formula:

$$r_{11} = \left(\frac{N}{N-1} \right) \left(1 - \frac{m(N-m)}{Nx^2} \right)$$

Where:

N = the number of items in the text

M = the mean score on the test for all the testes

¹²*Ibid*, p. 76.

¹³Norman E. Gronlund, *Measurement And Evaluation In Teaching (Fifth Edition)*, New York: Macmilan Publishing Company, 1985, p. 14.

X = the standard deviation of all testes' scores¹⁴.

5. Index difficulty

The index of difficulty (or the facility value) of an item simply shows how easy or difficulty the particular item proved in the test. The index of difficulty (F.V) is generally expressed as the fraction (or percentage) of the students who answered the item correctly. It is calculated by using the formula:

$$F.V = \frac{R}{N}$$

R is represents the number of correct answer and N is the number of students taking the test.¹⁵

F. Data Collection Procedure

To get the data, the writer used some procedures as follows:

1. The writer chose the place of the study.
2. The writer determined two groups, the first group was experiment group and the second group was control group.
3. The writer gave pre test to both classes (experiment group and control group).
4. The writer checked the result of pre test.
5. The writer gave treatment (teaching) to the experiment group using cartoon movie and the writer taught the control group without cartoon movie.
6. The writer gave post test to both classes.

¹⁴J. B. Heaton, *Writing English Language Tests*, Longman, 1975, p. 157.

¹⁵Ibid, p. 172.

7. The writer checked the result of post test.
8. The writer gave score to students' answer (pre test and post test).

G. Data Analysis Procedure

To analyze the data that has been collected; the writer used some procedures in this study:

1. The writer gave test to the students of the eight grades students at MTs Muslimat Nu Palangka Raya.
2. The writer collected the data of the students' test result.
3. The writer gave score the students' test result by using the formula:

$$\text{Score} = \frac{B}{N} \times 100^{16}$$

Where:

B : Frequency of the correct answer

N : Number of test items

4. The writer tabulated the data into the distribution of frequency of score table, then looking for the mean, median, modus, standard deviation, and standard error of experiment group and control group.

Formula of mean, median and modus:¹⁷

a. Mean

$$Mx = \frac{\sum fx}{N}$$

¹⁶ Anas Sudijono, *Pengantar Evaluasi Pendidikan*, Jakarta: Rajagrafindo

¹⁷ Hartono, *Statistik Untuk Penelitian*, Yogyakarta: Pustaka Belajar, 2011, p. 33.

Where:

M_x : Mean

$\sum Fx$: Total result product between each score with frequency

N : Number of case

b. Median

$$Mdn = u - \frac{\frac{1}{2}N - fka}{fi} \times i$$

Where:

Mdn : Median

N : Number of case

F_{kb} : Cumulative frequency located in under interval contain median

f_i : Authentic frequency (frequency of score contain median)

i : Interval class

c. Modus

$$Mo = u - \frac{fb}{fa + fb} \times i$$

Where:

Mo : Modus

Fa : frequency located in above interval contain modus

Fb : frequency located in under interval contain modus

i : Interval class

Formula of standard deviation and standard error: ¹⁸

d. Standard Deviation

$$SD = \sqrt{\frac{\sum fx^2}{N}}$$

Where:

SD : Standard Deviation

i : Interval

N : Number of students

e. Standard Error

$$Sem = \frac{sd}{\sqrt{n-1}}$$

Where:

Sem : Standard Error

Sd : Standard Deviation

¹⁸ *Ibid*, p. 60

N : Number of students

5. The writer calculated normality and homogeneity.

a. Normality

It was used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not. Chi square was used here:¹⁹

$$\chi^2 = \sum \left[\frac{(f_o - f_h)^2}{f_h} \right]$$

Where:

χ^2 = Chi square

f_o = frequency from observation

f_h = expected frequency

Calculation result of χ^2 was compared with x table by 5% degree of significance. If χ^2 was lower than x table, so the distribution list was normal.

b. Homogeneity

It was used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. The formula is:²⁰

$$F = \frac{\text{Bigger Variant}}{\text{Smaller Variant}}$$

¹⁹Sudjana, *Metode Statistika*, Bandung: Tarsito, 1996, p. 273.

²⁰*Ibid*, p. 280

Where:

F : Frequence

The hypotheses in homogeneity:

$F_{\text{value}} \leq F_{\text{table}}$, means both of variants are homogeneity.

$F_{\text{value}} > F_{\text{table}}$, both of variants are homogeneity.

If calculation result of F was lower than F table by 5% degree of significance so H_0 was accepted, it meant both groups have same variant.

6. The writer calculated the data by using t-test to examine the hypothesis of the study. To examine the hypothesis, the writer used t-test formula as follows:²¹

$$t_o = \frac{M1 - M2}{SEm1 - m2}$$

Where:

M1-M2 : The difference of two mean.

SEm1-m2 : The standard error of difference between two mean.

To know the hypothesis was accepted or rejected using the criterion:

If $t\text{-test} \geq t_{\text{table}}$, it meant H_a was accepted and H_0 was rejected.

If $t\text{-test} \leq t_{\text{table}}$, it meant H_a was rejected and H_0 was accepted.

7. The writer interpreted the result of t-test. The writer accounted degree of freedom (df) with the formula as follows:²²

$$df = (N1 + N2 - 2)$$

Where:

²¹Anas Sugiono, *Pengantar Statistik Pendidikan*, Jakarta: Rajawali Press, 1978, p. 372

²²*Ibid*, p. 284

df : Degree of freedom

N1 : Number of subject group 1

N2 : Number of subject group 2

2 : Number of variable

8. The writer discussed and concluded the result of data analysis.

Figure 3.1 Steps of collecting, data analysis procedure and testing hypothesis

