CHAPTER III

RESEARCH METHODOLOGY

In this chapter the writer explains about the research methodology. This chapter consists of approach and type of the study, place and time of the study, the population and sample of the study, research instrument try out, research instrument validity, research instrument reliability, the data collecting procedure and the data analysis procedure.

A. Research Type

In this study, the writer uses a quantitative approach because this approach is qualified to collect statically data to answer the problems of his study. Then, the writer measuresthe students' score by the test: Pre-test and post-test.

B. Research Design

The design of this study is time series design. Time series design is methodology is developed for approaching data in range of research settings.[1]This design involves successive observations throughout a programmed intervention and assesses the characteristics of the change process. It is truly the mainstay of the proposed design package because it serves several simultaneous functions. First, it is descriptive. The descriptive function of the time series is particulary important when the intervention extends over a considersble time period. The time series is the only design to furnish a continuous record of functions in the

[1] Gottman,M john, *Design and analysis of research using time series,*University of Wisconsin , 1969, p. 299

experimental variabels over the entire course of the program. [2]The writer used time series design because the writer wanted to measure the effectiveness of using TPR method in teaching vocabulary.

The type of this studyisTime series designs do not have random assignmentof subjects to groups or other strategies Experimental designto control extraneous variables.[3]The writer usedTime series design byOne-Group Pre test–Post test Design, The one-group pre test–post test design usually involves three steps: (1) administering a pre test measuring the dependent variable; (2) applying the experimental treatment *X* to the subjects; and (3) administering a post test, again measuring the dependent variable. Differences attributed to application of the experimental treatment are then evaluated by comparing the pre test and post test scores. There was no control group. The writer gave pre-test to students, and then gave them treatment. After treatment was given, the writer gave students post-test. The writer taught the students for five times by using TPR and then there was posttest in order to measure the students' ability after treatment.

Table 1.1

One-Group Pretest–Posttest Design

Pretest	**Independent**	**Posttest**
Y_1	X	Y_2

Notes:

[2]*Ibid*, p. 299
[3]*Ibid*, p. 302

Y_1 : Pre-test.

iX : Independent variable (TPR)

Y_2: Post-test

C. Population and Sample

1. Population

The large group about which the generalization made is called a population. A population is defined all members of any well-defined class or people.[4] In this research, the researcher takes MTs Muslimat Nu students to the population of his study. The Population of the research is Seventh grade students at MTs Muslimat Nu where there are three classes and the number of students are as follow:

Table 1.2

The Population Distribution of the Study

CLASSES	NUMBER OF STUDENT
VIII-A	**39**
VIII-B	**39**
VIII-C	**39**
Total	**117**

[4]. *Ibid*,p. 148.

2. Sample of Study

A sample is a portion of a population.[5]The techniques used in this study subjects are not randomly assign.In this study, the writer used cluster sample for the study. Cluster sampling according to Donal Ary is the unit chosen is not an individual but a group of individual who are naturally together.[6] Then the writer took one class it was VII-B with consist 39 students. In this study the writer taught by using TPR on Physical Appearance in Vocabulary .

Table 1.3

Number of Sample

NO	Class of student	Number of student
1	Class VII B	39
Total		39

D. Research Instrument

Instrument of the study is very needed in the research. It is because the instrument is tool to get the data of study, in which the data is the important things to help the writer in answering the problem of study and also to prove the hypotheses. The data also needed to find the aim of study. It is to measure the

[6]*Ibid*, p. 154

effectiveness of using TPR on Physical Appearance in Vocabulary teaching the seventh Grade students at MTs Muslimat Nu Palangka Raya.

1. Test

According to Heaton "Test may be constructed primarily as devices to reinforce learning and to motivate student, or primarily as a means of as seeing the student's performance the language.[7] Test is a question which is used to measure competence, knowledge, intelligence, and ability of talent which is possessed by individual or group to collect data. In this research, there were two kinds of test, pre test and post test that were given to the students as participants. Before carrying out the teaching, the pre test will be given to experiment in order to make sure that have similar and equal level of proficiencies. The post test will be given to the experimental after being taught by TPR.

The instrument of the test in this research is objective test. Test that given was multiple choice form which covered 100 items. Based on the intan pariwara books there are 100 items try out taken from them.[8] And after analysis from SPSS 16.0 Program appear that 40 items is validity and 60 items validity. pretest 40 items and posttest 40 items. Which one from the 40 items pre test there are 21 adjective and 19 noun. and 40 items post test are 37 adjective and 3 noun.

[7] J.B.Heaton,, *Language Testing*, 1987, p. 1.
[8] Dwi Yuniarti, *Bahasa inggris kelas VII semester* . Intan pariwara, Klaten 2014,p. 26

2. Try Out

The purpose of try out is to test or measure validity or reliability of research instrument. The writer would try out the instrument before it applied to give pre test to the real sample. The writer obtained the instrument quality consisted of instrument validity and instrument reliability. The test would be tried to the seventh Grade of MTs Muslimat Nu Palangka Raya in the VII- B class. In this case, the student assigned to answer some questions was be given. Then, the writer gave score and analyzed the obtained data to check the instrument reliability.

E. Research instrument validity

1. Reliability

Reliability is a necessary characteristic of any good test: For it to be valid at all, a test must first be reliable as a measuring instrument.[9] In Rather reliability, there are inter-rater reliability and intra-rater reliability. Inter-rater reliability is the consistency of the judgment of several raters on how they see a phenomenon or interpreted the responses of the subject.[10] It indicates accuracy in scoring composition of two different raters. Meanwhile, intra-rater reliability referred to the consistency of the rater in scoring the same paper at two different points of time. It points out an individual accuracy in

[9] *Ibid*, p. 155s

[10] Sabarun, *The Effectiveness of Using an outline in Writing Expository Essay,* Unpublished Thesis. Palangkaraya: State Islamic Collage of Palangka Raya, 2010 p. 37

scoring a particular composition.[11] In this study the writer uses intra-rater reliability. The reliability of the whole test can be estimated by using this formula:[12]

$$r_{11} = \left(\frac{k}{k-1}\right)\times\left(1-\frac{M(k-M}{k.Vt}\right)$$

Note : k = number of items

M = The mean score on the test for all the testers

Vt = the standard deviation of all the testers' score

The steps in determining the reliability of the test are:

a. Making tabulating of testes' scores.

b. Measuring the mean of the testes' scores with the formula : M= $\frac{\sum Y}{N}$

c. Measuring the total variants with the formula:[13]

$$Vt= \frac{\sum Y^2 - \frac{(\sum Y))^2}{N}}{N}$$

Vt = the total variants

$\sum Y$ = the total of score

$\sum Y^2$ = the square of score total

N = the number of testes

d. Calculating the instrument reliability using KR-21.

[11] *Ibid,* p. 37
[12] Suharsimi Arikunto, *Prosedur Penelitian*, p. 108
[13] Sugiyono. *Metode Penelitian Administrasi*. Bandung. Alfabeta. 2007. P. 137

e. The last decision is comparing the value of Γ_{11} and Γ_t

$\Gamma_{11} > r_{table}$ = Reliable $\Gamma_{11} <$ Γ_{table} = Not Reliable

f. Knowing the level of reliability of instrument, the value of Γ_{11} was interpret based on the qualification of reliability as follows:[14]

0.800- 1.000: Very High Reliability

0.600-0.799: High Reliability

0.400-0.599: Fair Reliability

0.200-0.399: Poor Reliability

0.000-0.199: Very Poor Reliability

From the measurement of instrument try out reliability it is known that the whole numbers of test items a reliable and can be used as the instrument of the study. And this case, the sore of try out was fair reliability.

2. Validity

To measure the validity of the instrument, the writer uses the formulation of Product Moment by Pearson as follows :[15]

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

Where :

[14] *Ibid*. P.138

[15] Anas Sudijono, *Pengantar Statistik Pendidikan*, Jakarta : PT. Raja Grafindo Persada, 2008, p. 206.

r_{xy} : Total coefficient of correlation

$\sum X$: Total Value of Score X

$\sum Y$: Total Value of Score Y

$\sum XY$: Multiplication Result between Score X and Y

N : Number of students

The validity of a test is the extent to which it measures what is supposed to measure and nothing else.[16] An instrument is 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 can make it. The test must aim to provide a true measure of a particular skill which it is intended to measure, to the extent that is measures external knowledge and other skills at the same time, and it will not be a valid test. Validity on this study was distinguished into some kinds as follows:

a. Face Validity

This type of validity, in fact is often referred to as face validity : If a test item looks right to other testers, teachers, moderators, and tastes.[17] The test will be used by the writer is suitable to others and at the same level that is Senior High School level. The face validity of the test items as follow :

[16] J.B. Heaton, *Writing English Language Test,* England : Longman, p. 153.
[17] J.B. Healton, *Language Testing*, (Published Test, May : 1989), p. 153

1) The kind of test is vocabulary. The test is about noun and adjective.
2) The form of test items is multiple choice.
3) The Language of Items uses English.
4) The test items are suitable to the Junior High School.

b. Content Validity

A test is said to have content validity if its content constitutes a representative sample.[18]The content validity has something to do with questions as to how adequately the test content samples larger domain of situations at presents. In the other words a test supposed to be valid in terms of its content when it is developing as to contain adequately representative sample of the course, the objective, and the items. The writer used multiple choice test consist of 100 items.

c. Construct Validity

Construct validity is type of validity which assumes the existence of certain learning theories or constructs underlying the acquisition of abilities and skills.[19] If a test has construct validity, it was capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning. Construct validity refer to the extent to which operationalization of a construct (e.g. practical tests

[18]*Ibid*, p. 153.
[19] J.B. Healton, *Language Testing*, (Published Test, May : 1989), p. 153

developed from a theory) do actually measured what the theory said they do.

F. Data Collecting procedure

To get the data, the writer uses some ways in this study. Those ways are:

1. The writer was determine the students into class.
2. The writer determined the class.
3. The writer gave try out to another class before testing for pre –test and post test.
4. The writer gave score to the students sheet of try out to test the validity and reliability.
5. The writer gave pre-test to the class.
6. The writer taught the class using Total Physical Response one meeting (physical Appearance)
7. The writer gave post the first Post test.
8. The writer thoughtthe class using TPR twice meeting.
9. The writer gave the second Post test.
10. Measured normality and homogeneity.
11. The writer analyzed the obtained data from mean of post test score
12. The writer interpreted the stastical result.
13. The writer discussed about the conclusion.

The procedures of collecting the data as follow :

Table 1.4

Data collecting procedure

No	Source of data	Instrument	Data needed
1	Student 7 grade students MuslimatNu Palangka Raya .	Pre test	Students score before using TPR
2	Students 7 grade students Muslimat Nu Palangka Raya	Post test 1	Students score during using TPR
3	Students 7 grade students Muslimat Nu Palangka Raya	Post test 2	Students Score after using TPR

G. Documentation

In the present study, documentation was used in order to find the information needed in the research. This technique of collecting data was done

by seeing the documentation to get real information of the experiment like : a . The students ‘ name, b. The syllabussof English subject, c. The result of the test, d. picture of the students experiment.

H. Data Analysis

To analyze the data is collect ; the writer used some procedures in this study:

1. The writer give test to the students of the seventh grade students Muslimat NU Palangka Raya.
2. The writer collect the data of the students’ test result.
3. The writer give score the students’ test result by using the formula:[20]

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

Where:

B : Frequency of the correct answer

N : Number of test items

4. The writer tabulate the data into the distribution of frequency of score table, then looking for the mean, median, modus, standard deviation, and standard error of experiment class.Formula of mean, median and modus:[21]

a. Mean

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

[20]Anas Sudijono, *Pengantar Evaluasi Pendidikan*, Jakarta: Rajagrafindo

[21] Hartono, *Statistik Untuk Penelitian*, Yogyakarta: Pustaka Belajar, 2011, p. 33.

Where:

Mx : Mean

Fx : Total result product between each score with frequency

N : Number of case

b. Median

$$Mdn = 1 + \frac{{}^{1}/_{2}\,N - fkb}{fi} \times i$$

Where:

Mdn : Median

N : Number of case

Fkb : Cumulative frequency located in under interval contain median

Fi : Authentic frequency (frequency of score contain median)

i : Interval class

$$Mo = 1 + \frac{fa}{fa + fb} \times i$$

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:[22]

c. Standard Deviation

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

Where:

SD : Standard Deviation

i : Interval

N : Number of students

d. Standard Error

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

Where:

Sem : Standard Error

Sd : Standard Deviation

N : Number of students

5. The writer calculate normality and homogeneity.

Before analyzing the data using ANOVA, there were two kinds of requirements which should be measured; normality and homogeneity.

a. Normality test

[22]*Ibid*, p. 60

It was used to know the normality of the data that was going to be analyzed whether both groups had normal distribution or not. In this study, researcher used One-Sample Kolmogorov-Smirnov Test to test the normality. SPSS 16.0 was used to know the normality of the test.

b. Homogeneity Test

Homogeneity I used to know whether experimental class, that are decided, come from population that has relatively same variant or not.[23]

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

Notice:

F : Frequence

The hypotheses in homogeneity:

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

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

IfcalculationresultofFislowerthanFtableby5%degreeof significance so H_o is accepted, it means both groups have same variant. In addition, the SPSS program will be applied.

Pengambilan keputusan dalam uji homogenitas dalam SPSS:

1. *Jika nilai Signifikansi atau nilai probabilitas < 0,05, maka dikatakan bahwa varian dari dua atau lebih kelompok populasi data adalah tidak sama.*

[23]*Ibid,* p.280

2. *Jika nilai Signifikansi atau nilai probabilitas > 0,05, maka dikatakanbahwavarian dari dua atau lebih kelompok populasi data adalah sama.*[24]

It means, to analyze the result of homogeneity test on SPSS program:

1. If the Significant value is lower than 0,05, so the data population among two or more groups is different.
2. If the Significant value is higher than 0,05, so the data population among two or more groups is not different.

The data of this study were the students' vocabulary scores. The data were inform of quantitative data. The data were analyzed by means of inferential statistics.

The researcher analyzed the data by applying some procedures in the following:

1. Collecting the data of the students' vocabulary scores of pre test and post test 1 and post test 2.
2. Arranging the obtained score into the distribution of frequency of score table.
3. To answer the research problems, the researcher applied the One Way Repeated measures ANOVA statistical calculation.
4. Interpreting the result the finding
5. Making discussion to clarify the research finding.

[24]Sahid Raharjo, 2013. *Uji Homogenitas dengan Program SPSS*. www.ujihomogenitasdata. com. (Accessed on Mey 3rd, 2015).

6. Concluding the result of the interpretation.

A. Summary

To sum up, the steps in collecting , analyzing , and testing hypothesis can be described below. In the first step, divides the subject into experimental class. Second step gave pre – test to the students in order to know the early ability of the subject. Third step, gave treatment toexperimental Class using TPR method. gave post test 1 to experimental Class. Fifth step, gave treatment to experimental Class using TPR. And gave post test 2 to experimental Class. Sixth step, before testing the hypothesis, calculates normality and homogenity test using SPSS. Sixth step test hyphothesis to answer the research problem using One Way repeated measures ANOVA formula with SPSS 16.0 Program. Seventh step, interprets the analysis result . eighth step, discussion on the results is made to clarify the finding. Lastly , the conclusion , as describeb in figure below.

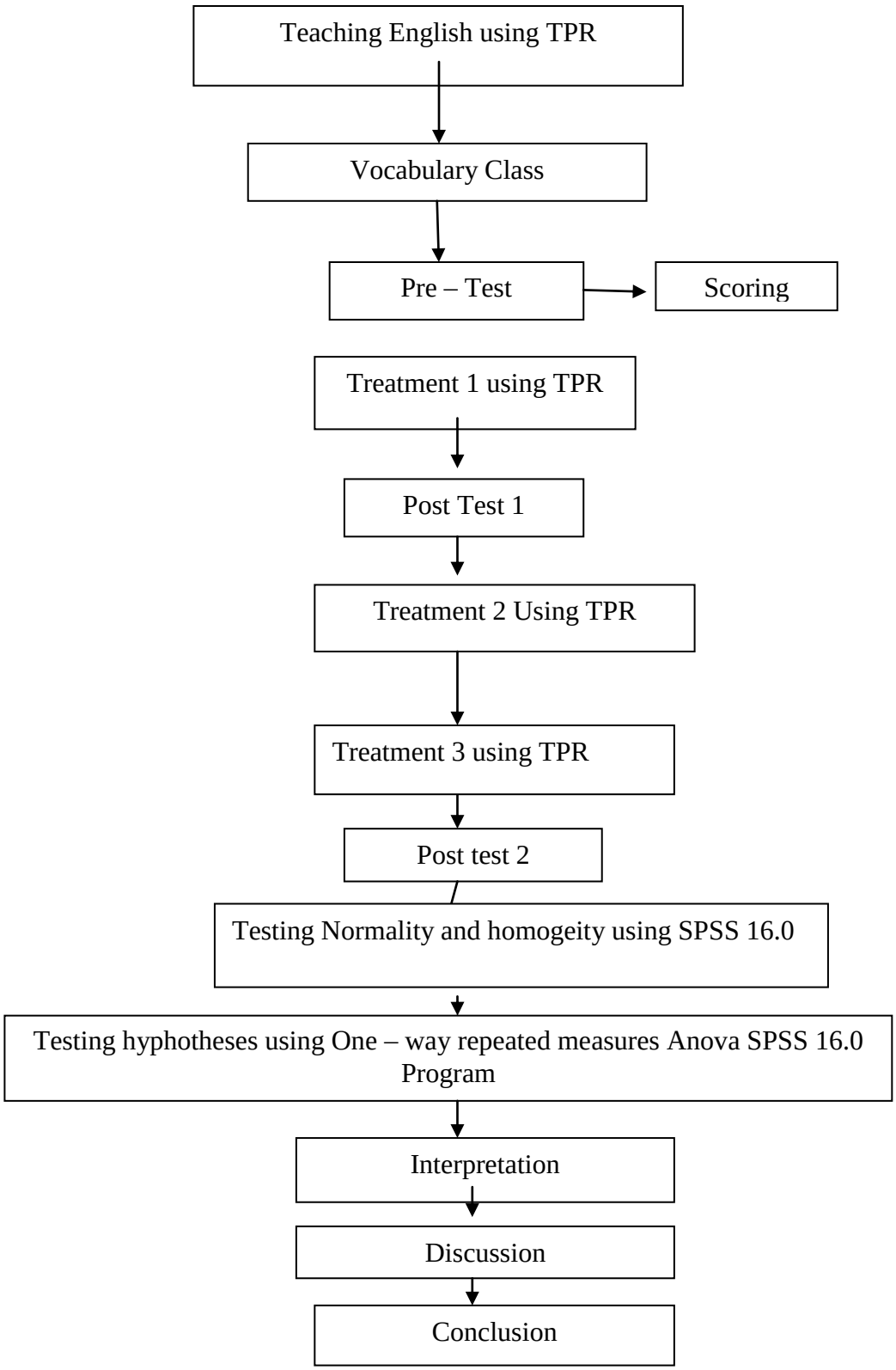
Teaching English using TPR
Vocabulary Class
Pre – Test
Scoring
Treatment 1 using TPR
Post Test 1
Treatment 2 Using TPR
Treatment 3 using TPR
Post test 2
Testing Normality and homogeity using SPSS 16.0
Testing hyphotheses using One – way repeated measures Anova SPSS 16.0 Program
Interpretation
Discussion
Conclusion

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