

CHAPTER III

THE RESEARCH METHOD

This chapter will discuss about the method that is used by the researcher in conducting this study. The discussion includes the research design, variable of research, population and sample, location of the research, treatment, instruments, try out, procedure of experiment, and data analysis.

A. The Research Design

In this study, the researcher wants to see whether the use of the authentic materials has significant influence to increase students' reading achievement at the first year of MTs Al Manar. The researcher also wants to know if there is the difference between achievement before and after given treatment at the first year student's of MTs Al Manar.

This research uses quasi-experimental research. Quasi-experimental design, is used because in the reality is difficult to get control group used to conduct the research.¹According to Daniels Muijs, quasi-experimental design are meant to approximate as closely as possible the advantages of true experimental designs where the problems mentioned above occur, such as having to implement a program in a natural school setting.

¹ Sugiyono. *Metode Penelitian Pendidikan*.(Bandung: Alfabeta. 2006).114.

The experimental method is used to find whether there is the influence between two variables that includes causal effect relationship. Here, the experimental method is used because there is random assignment where a group of subject is taken from certain population and grouped in two groups, which are experimental group and control group. This design is one of the most effective in minimizing the threats to experimental validity.

B. Variable of Research

Variable are the conditions or characteristics that the experimenter manipulates, controls and observes.

According to suharsimi

“A variable is defined as something that varies from one case to another. The dependent variable is variable which one observes and measures to determine the effect of the independent variable. Independent variable (the major variable) is the variable which is selected manipulated and measured by researcher”.²

In this research there were two variables in this research that divided dependent variable and independent variable. The dependent variable in this research is reading achievement. Meanwhile the independent variable in this research is authentic materials. There is also extraneous variable which other than dependent and independent variable. It can influence the result of this research. Here, the researcher does the equalization before taking every student in either experimental class or control class.

² Suharsimi, Arikunto. 2002. *Procedure penelitian*. Jakarta: Rineka cipta, 98.

C. Population and Sample

Knowing population and sample in the research is very important. Because making mistakes to determine the population will affect the sample, the researcher will explain about the population and sample research.

1) Population

The researcher takes MTs Al Manar and chooses the first year students. The population of this study was the first year students in the academic year of 2013 / 2014. It consists of four classes. They are VII A, VII B, VII C. VII A has 33 students, VII B has 33 students, and VII C has 30 students. So, there are 90 students at the first year students of MTs Al Manar.

2) Sample

There are three classes of the first year students of MTs Al Manar the academic year of 2013 / 2014. In this research, the researcher takes two of them they are VII A and VII B as sample because they have same English teacher and lesson schedule. The researcher decides to choose VII A as the experimental group and VII B as the control group.

The researcher listed all of the students of class VII A and VII B at a piece of paper and folded it. The researcher picked the sample of the students who will be the experimental group by picking a piece of paper one by one until a number of the students between control and experimental group are same. There are 33 students at control group and 33 students at experimental group.

One group will be taught by using authentic materials and other group will be taught without authentic materials.

D. Location of the Research

To do this research, the researcher decides to take the population and sample of MTs Al Manar. The location of the research is in Ds. Tanjungtani, Kec. Prambon, Kab. Nganjuk.

E. Treatment

Treatment is used to know the influence of authentic materials to increase reading achievement. Here, the experimental group is taught using authentic material and control group without it. In control group is also given reading lesson but with usual method that was taught by the teacher. Before giving treatment, the researcher tells the aim of using authentic materials to the teacher and the students as well. The steps are described as follow:

TABLE 3.1

RESEARCHER'S ACTIVITY IN THE CLASSROOM

No	Control group	Experimental group
1	Greeting	Greeting
2	Introduction to the students	Introduction to the students
3	Teacher explains about procedure text based on the workbook	Teacher explains about procedure text and shows a text as example

		of authentic materials
4	Teacher asks the students to pay attention to the text in the workbook	Teacher asks the students to pay attention to the text which is given
5	Teacher reads the text in the workbook	Teacher reads the text in the authentic material
6	The teacher asks the students to read and understand the content of the text in workbook	The students asked to read and understand the content of the text in the authentic material
7	The students do the exercises in workbook	The students do the exercises in worksheet which is given
8	Teacher gives evaluation about the students' activity	Teacher gives evaluation about the students' activity
9	Review	Review

F. Instrument of Research

In this research, the instrument which used by the researcher is test only. The test is given to all of samples, after the experimental group gets some treatment and control group does not. The material of the test is same both experimental and control group. The purpose of the test is to know about progression both control and experimental group.

1. Test

In this research, the test is given in the form of multiple choices with four options. This type is chosen because it is economical in term of the number of items that can be answered in a short period of testing time; students' test papers also can be easily and quickly scored. Thus, the students will not probably be confused in answering the question presented. The data from this research test can be used to measure the influence of authentic material to increase students' reading achievement.

Try-out test is necessary since the result is used to make sure that the measuring instrument has validity and reliability. So, to get the reliability of the test the researcher conducted try-out on February 13th, 2014 at 10.15 to 11.15 a.m. The researcher took VII C class of MTs Al Manar for the subject of try-out.

Post-test was given to all of sample after the experimental group gets some treatments and the control group does not. This test aims to know about progressions on both experimental and control group. The students had 50 minutes to do the post test. They had to do 30 item number multiple choices. The post-test was held on February 22nd, 2014.

After that the researcher collected the students' answer then the result of post tests will be counted by looking at the scoring system constructed by the formula in the next chapter.

2. The criteria of good test

To know whether the test is good or not, the researcher checks it through the validity, reliability, difficulty of level and discriminating power of each items of test.

a. Validity

Validity is the degree of correctness of the assessment result in representing the skill being assessed. A test must appropriate with the objectives. Content validity is concerned with what goes into the text, thus the degree of content validity in classroom test relates to how well the test measure the subject matter content studied. In the same manner as equitability by Arikunto. Anderson other friends declare “*A test a valid if it measure what it purpose*”.³

b. The index of Difficulty

The level of difficulty or facility value of items simply shows how easy or difficult the particular items proved in the test. The index of difficulty (FV) is generally expressing the fraction or the percentage of the students who answer the items correctly. It is calculated by using the following formula⁴:

³ Suharsimi Arikunto, *Dasar- Dasar Pendidikan*, (Jakarta: Bumu Aksara. 2002)hlm.65

⁴ Soenardi Djiwandono, *Tes Bahasa Dalam Pengajaran* (Bandung: ITB, 1996),141.

c. The index of Discrimination

The index of discrimination power of the test item is the difference between the correct and incorrect number of high and low students. To estimate item discrimination power is done by comparing the number of students in upper and lower group answering the item correctly. The formula used to know the discrimination power is as follow:

$$D = \frac{U - L}{N}$$

Where:

D = the discrimination power

U = the number of students in the upper level group who answered the item correctly.

L = the number of students in the lower group who answered the item correctly.

N = the number of students in each of the group.

d. Reliability

Reliability is the test which measure consistently from one time to another.⁵ Donald Ary states that the reliability of a measuring instrument is degree of consistency with it measures whatever it is measuring.⁶ It means that a test cannot measure anything well unless it measures constantly. The formula

⁵ John W. Best, *Research in Education*. 199

⁶ Yuslia styawati, *The Effectiveness of guessing Game to Increase Students' vocabulary in Learning English at SDN Campurejo 2 Kediri*

uses the number of items in the test to measure the reliability. The number of the test should be divided into two groups.

G. Try Out

Before the instrument was used in the real situation, the researcher gave try out. The try out was conducted at class VII C with the sample of 33 students. The instrument contained 30 comprehension questions.

After try out was administered, the item analysis, reliability, and the effectiveness of the test can be administered.

1. Item difficulty

An item is considered had a good difficulty level if it is not too easy or too difficult for students. So they can answer the items. When the test contains many items, which are too easy and too difficult, it cannot be a good test. So, every item should be analyzed first before it is used in a test. The value of the level difficulty is computed by using the formula:

$$FV = \frac{R}{N}$$

Where:

FV = the index of difficulty.

R = the number of correct answer.

N = the total number of the students are taking the best.

TABLE 3.2
THE STANDARD LEVEL OF DIFFICULTY

Interval	Criteria
$0.00 < IK \leq 0.30$	Difficult
$0.30 < IK \leq 0.70$	Medium
$0.70 < IK \leq 1.00$	Easy

For example let's take item number 1:

$$R = 31$$

$$N = 33$$

$$\text{So, } FV = \frac{31}{33}$$

$$FV = 0,94$$

After getting the P value, we could say that item number 1 is easy. It because the P value= 0,94 belongs the interval 0,70 – 1,00 whose criteria is easy. The whole computation result of difficulty index for each item are number 4,10,16,20,26, as difficult items and items number 7,8,9,13,15 as easy items and 1,2,3,5,6,11,12,14,17,18,19,21, 22, 23, 24,25, 27,28,29,30 as medium items.

2. Discrimination Power

The index of discriminating told us whether those students who perform well on the whole test tended to do well or badly on each item in test.

The upper group is taken 27% from the number of students after it is arranged rankly, and so the lower group. The computation of the discriminating power using the following formula⁷:

$$D = \frac{U - L}{N}$$

Where:

D = the index of item discrimination power

U = the number of students in upper group who answered the item correctly

L = the number of students in lower group who answered the item correctly

N = the number of students in each of the group

TABLE 3.3

THE STANDARD OF DISCRIMINATING POWER

Interval	Criteria
$0.00 < D \leq 0.20$	Poor
$0.20 < D \leq 0.40$	Satisfactory
$0.40 < D \leq 0.70$	Good
$0.70 < D \leq 1.00$	Excellent

For example let's take item number 2:

$$U = 9$$

$$L = 6$$

⁷M Soenardi Djiwandono, *Tes bahasa dalam Pengajaran*, 143.

$$N = 10$$

$$\text{So, } D = \frac{9 - 6}{15}$$

$$D = 0,3$$

Because the D value = 0.3 belong to the interval 0,20 – 0,40, the item number 2 is satisfactory. The whole computation result of difficulty index for each item are number 4,10,16,20,26, as difficult items and items number 7,8,9,13,15 as easy items and 1,2,3,5,6,11,12,14,17,18,19,21, 22, 23, 24,25, 27,28,29,30 as medium items.

The following process is discarding or revising the items. It does not need the requirement. To increase the quality of the test, the revision or the delectation from real test is done by considering item difficulty and item discrimination power. Thus, the items which can be used in the real test from 30 items are 25. Furthermore, to know the result of this analysis, see the table below and the more complete analysis see the table at the appendix.

3. Reliability

Reliability is necessary characteristic of a good test. Reliability is the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials. It means that a test would be reliable if it gives consistent measurement.

To cover the weakness of the direct writing test, researcher focused his attention on scorer or rater reliability. Therefore, the researcher did inter-rater reliability.

Tuckman W. Bruce said that “test reliability means that a test is consistent⁸. This formula uses the number of items in the test, to measure the reliability; the number of the test should be divided into two groups. In which the first group consist of odd number and the second group on the other. This procedure is called by split half pattern. Consulting the split half pattern, the computation of the reliability of the test used the following formula.⁹

$$r \frac{X}{Y} = \frac{N \Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{\{N \Sigma x^2 - (\Sigma X)^2\} \{N \Sigma Y^2 - (\Sigma Y)^2\}}}$$

Where:

N= the number of students

X= the score of odd number

Y=the score of even number

From the about formula we can calculate the score of reliability:

$$r \frac{X}{Y} = \frac{N \Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{\{N \Sigma x^2 - (\Sigma X)^2\} \{N \Sigma Y^2 - (\Sigma Y)^2\}}}$$

$$= \frac{1020(79) - 8058}{\sqrt{10(10404) - 10404(106240 - 6241)}}$$

⁸ Tuchman W Bruce, *Conducting Educational Research second edition* (USA: Harcourt Brace Jovanovich, Inc, 1978), 160

⁹ Anas sudijono, *Pengantar Evaluasi pendidikan*(Jakarta: PT Raja Grafindo Persada, 1998), 219

$$\begin{aligned}
&= \frac{80580-8058}{\sqrt{(10404-10404)(62410-6241)}} \\
&= \frac{72522}{\sqrt{(93636)(56169)}} \\
&= \frac{72522}{\sqrt{5259440484}} \\
&= \frac{72522}{72522} \\
&= 1
\end{aligned}$$

Next, the result of reliability is transferred into the formula of *Split-half*¹⁰

$$\begin{aligned}
r_{11} &= \frac{2r_{\frac{11}{12}}}{1+r_{\frac{11}{12}}} \\
&= \frac{2 \times 1}{1+1} \\
&= 1
\end{aligned}$$

According to Lawrence W. Neuman quoted by Bambang Setiyadi stated.¹¹ In quantitative research, a complete of lack reliability is indicated by coefficient of 0,00 and perfect positive reliability is indicated by coefficient of

¹⁰ L. R. Gay. *Educational Research: competencies for Analysis and application*, (New York:Mac-Milan Publishing Company, 1987).166

¹¹ Bambang Setiyadi. *Metode Penelitian untuk pengajaran Bahasa Asing: Pendekatan kuantitatif dan kualitatif*.(Yogyakarta:Graha Ilmu, 2006). 16

1,00. Based on this criterion, the reliability estimates for thirty items is 1. It means that indicates that the test of try out is reliable.

TABLE 3.4

STANDARD LEVEL OF REALIBITY

0,80-1,00	Reliability is very high
0,60-0,80	Reliability is high
0,40-0,60	Reliability is medium
0,20-0,40	Reliability is low
-1,00-0,20	Reliability is very low (not reliable)

H. Procedure of Experiment

Doing this research, the researcher use some procedure, those are having post-test design”. Dealing with this experiment, the teaching activities are divided into two parts. They are main teaching activity and post teaching activity. The main teaching activity is doing treatment which is given to experimental group and conventional teaching for control group. The last activity is giving post-test to all of the groups to know whether authentic materials have influence or not.

TABLE 3.5
THE SCHEDULE OF ACTIVITES DURING THE RESEARCH

Meeting	Stages	Topic	Experimental Group	Control Group
First	Try Out	P R O C E D U R E T E X T	February 13 th , 2014	February 13 th , 2014
Second	Treatment 1		February 15 th , 2014	February 15 th , 2014
Third	Treatment 2		February 20 th , 2014	February 20 th , 2014
Fourth	Treatment 3 and posttest		February 22 th , 2014	February 22 th , 2014

I. Data Analysis

The researcher uses ANCOVA (Analysis of covariance) to analyze the data from pretest and posttest statistically. The main purpose ANCOVA is to adjust the posttest means different among group on the pretest, because such differences are likely to occur with intact group. Data analysis technique is one of the important ways to know whether teaching learning process is successful or not.