

CHAPTER III

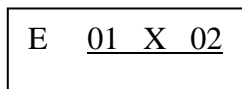
RESEARCH METHOD

This chapter discusses about sources of data, research design, research setting, population and sample of research, variables and indicators of research, methods of data collection, and methods of data analysis.

A. Research Design

This research is quantitative because the result of the students' achievement of pre-test and post-test will be explained by number, which are evaluated and also interpreted by statistic procedure. In this case refers to use T-test.

Research method used here is quasi-experiment, a part of experimental research that do not use control group or it can called by one group pretest-posttest design¹. In this research the researcher only use one group as experimental group and to get the value of independent variable is from pre-test score, so post-test score will be the dependent variable after the researcher giving the treatment. This research design will be described as follow:



¹ William R. Shadish and Thomas D. Cook, *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*, (USA: Houghton Mifflin Company, 2002), p. 108

Where,

E : Experimental group/class

X : Treatment

01 : Pre-test

02 : Post-test

B. Research Setting

1. Time of the research

This research will be conducted from February 1st to February 23rd 2016 counted since the proposal was submitted until the end of research.

2. Place of the research

This research will be conducted at MA At-Tawaazun, located in Jl. Nuri no. 56, kel. Widuri, kab.Pemalang.

C. Subject of The Research

1. Population

Population is all of the research of subject.²The population in this research is all students of grade eleventh MA At-Tawaazun in academic year of 2015/2016. But it is a new school, so the number of the entire students is 22 students.

²Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p. 173

2. Sample and Sampling

Sample is some of chosen population using certain procedure and has same characteristic so that can be expected to represent its population.³ Sampling is the process done to choose and take sample correctly from population so that it can be used as valid representative to the population.

Based on the situation and condition of that school, the researcher decides to take boring sampling or total sampling. Boring/total sampling is the sample that represents its population, and it usually taken because the population has the small number less than 100.⁴

D. Variable of Research

According to Fred D. Kerlinger as cited by Arikunto, that all experiments have one fundamental idea behind them; to test the effect of one or more independent variables on a dependent variable (it is possible to have more than one dependent variable in experiments)⁵, and also quasi experimental.

This research use two variables, independent and dependent variables. According to Robert as cited by Noor,

³Nana Sudjana and Ibrahim, *Penelitian dan Penilaian Pendidikan*, (Bandung: Sinar Baru Bandung: 1989), p. 85.

⁴Juliansyah Noor, *Metodologi Penelitian Skripsi, Tesis, Disertasi, dan Karya Ilmiah. edisi pertama*, (Jakarta: Kencana Prenada Media Group: 2011), p.156

⁵Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, P.159

independent variable is a cause that predicted by some of changes in dependent variable. And dependent variable is main factor that will be explained, predicted, and influenced by other factors.⁶

E. Technique of Data Collection

1. Test

Test is any procedure for measuring ability, knowledge, or performance.⁷ In order to discover by questions or practical activities, what someone knows, or what someone or something can do or is like.

In tests, researchers have at their disposal a powerful method of data collection, an impressive array of tests for gathering data of a numerical rather than verbal kind.⁸ The data was collected by giving written test. Written test was conducted twice, there are pre-test and post-test.

This technique is applied by researcher to know the students' achievements that have done in learning English, especially in teaching narrative text on the reading class.

⁶Juliansyah Noor, *Metodologi Penelitian Skripsi, Tesis, Disertasi, dan Karya Ilmiah. edisi pertama*, p. 48-49

⁷Jack C. Richard. *Longman Dictionary of Language Teaching and Applied Linguistic 2nd edition*, p. 546

⁸Louis Cohen, Lawrence Manion and Keith Morrison, *Research Method in Education. Fifth Ed*, (London: Routledge Falmer: 2005), p.317.

2. Documentation

Another data is needed to help the researcher run the research. In addition to do that, data will be collected through documentation of the students' previous examination score from the school. It will be used to validate the sample. And documentation of students' written test recording is used to evaluate students' reading skill.

F. Method of Data Analysis

1. First Phase (Try-out Test)

Try out test is necessary since the result will be used to make sure that the measuring instrument has such characteristics as validity and reliability. The instrument to be tried out was the composition test. The result of test was used to find out the validity and reliability.

a. Validity

Heaton states that validity is the extent to which it measures what is supposed to measure and nothing else.⁹ The result was consulted to critical score for r-product moment. If the obtained coefficient of correlation was higher than the critical score for r-product moment, it meant that a paragraph was valid at 5% alpha level

⁹J. B. Heaton, *Writing English Language Test*, p. 153.

significance. To calculate the validity, the researcher used the formula¹⁰ as follows;

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

Where:

r_{xy} = coefficient of correlation between X and Y

N = the number of students

$\sum X$ = total score of test item

$\sum Y$ = total score

$\sum XY$ = the sum of multiplication X times Y

b. Reliability

Reliability refers to the stability or the consistency of the test scores. Heaton states that 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.¹¹ In this study, the reliability of the test was measured by comparing the obtained score with r-score product moment. Thus, if the obtained score was higher than the table r-score, it could be said that the test was reliable.

To calculate the reliability of the test, the researcher used half split formula with r-score product

¹⁰Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: Bumi Aksara: 2007), p. 72-75.

¹¹J. B. Heaton, *Writing English Language Test*, p. 155

moment formula and continues it with spearman-brown formula as follows¹²,

$$r_{11} = \frac{2 r_{1/2}^{1/2}}{(1 + r_{1/2}^{1/2})}$$

Where:

r_{11} = index reliability

$r_{1/2}^{1/2}$ = r_{xy} index correlation between half split data

Next step is consulting the result score of r_{11} with score of r_{tabel} . If $r_{count} > r_{tabel}$ test item is reliable.

c. Index of Difficulty

Heaton states that “the index of difficulty of an item simply shows how easy or difficult the particular item proved in the test”.¹³ If a teacher knows deeply about item difficulty in making a test, he can make his test easy, medium, or difficult.

To know the item difficulty, the writer used the formula:

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

Where:

P = index of difficulty

B = the number of students who answers correctly

¹²Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p. 223-224.

¹³J. B. Heaton, *Writing English Language Test*, p.172.

JS = the total number of students

The index of difficulty level can be classified as follows:

$0.00 < 0.30$ is difficult

$0.30 < 0.70$ is medium

$0.70 < 1.00$ is easy

d. Discriminating Power

Item of discrimination power tells how well the item performs in separating the better students from the poorer students. If the good students tend to do well on an item and the poor students do badly on the same item, then the item is a good one because it distinguishes the good student from the bad student. Heaton states, “The discrimination index of an item indicated the extent to which the item discriminated between the testee, separating the more able testee from the less able. The index of discriminating power told us if students who perform well on the whole test tended to do well or badly on each item in the test.”¹⁴

To calculate the index of discriminating power, the writer used the formula:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

¹⁴J. B. Heaton, *Writing English Language Test*, p.173.

Where:

J_A = Number of all students in the upper group

J_B = Number of all students in the lower group

B_A = Number of students in the upper group who answered the item correctly

B_B = Number of students in the lower group who answered the item correctly

P_A = The proportion of the upper group who answered the item correctly

P_B = The proportion of the lower group who answered the item correctly

The criteria of determining the index of discriminating are below:

D = 0.00 – 0.20: Poor

D = 0.21 – 0.40: Satisfactory

D = 0.41 – 0.70: Good

D = 0.71 – 1.00: Excellent

2. Second Phase

a. Normality test

The researcher did normality test in this research to know the normality distribution of class or not. The normality test with Liliefors is done to find out distribution data. The steps of normality test use Liliefors test:

1) Hypothesis

H_0 : the sample was from population which normal distributed.

H_a : the sample was not from population which normal distributed.

2) Statistical Test

$$L_o = \max |F(z_i) - s(z_i)|$$

Where $z_i = \frac{X_i - \bar{X}}{s}$

Explanation:

z_i = standard value (i)

x_i = sample of data (i)

$$F(z_i) = P(Z \leq z_i)$$

$$F(z_i) = \frac{\text{Total } Z_1, Z_2, \dots, Z_n \leq Z}{n}$$

3) Level significant (α) = 0,05

4) Critical Area (CA) = $\{L | L > L_{\alpha;n}\}$ with n is size of sample.

5) Test decision

H_0 rejected if L_o in critical area.

6) Conclusion

a) Sample was from population that normal distributed, if H_0 accepted.

b) Sample was not from population that normal distributed, if H_0 rejected.

3. Final Phase

Post-test is held after all treatments are conducted. This test was used to measure student's achievements after they were given treatments. The result of test was analyzed statistically by looking for the mean and the percentage of the result. The aim is to compare between the pre-test and post-test. Then, the overall result is counted by using t-test formula in order to know the significances of the research. The formula that is used in the paired t-test as follows:¹⁵

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}}$$

Where:

Md = Deviation mean between pre-test and pos-test

Xd = Deviation difference from deviation mean

$\sum x^2 d$ = Amount of deviation quadrate

N = Number of subject

Df = or Db is $N-1$

Testing criteria that apply H_a is accepted if $t_{count} > t_{table}$ with determinate $df : (N - 1)$ and the significant $\alpha = 5\% (1 - \alpha)$.

¹⁵Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p. 349-352.