

CHAPTER III

RESEARCH METHOD

A. Research Design

In this research, the researcher used an experimental design. Experimental research is research that is intended to determine whether there is a result of something that is imposed on the subject inquired.¹ In other words, an experimental research try to examine whether there is a causal relationship. An experimental research involved two groups: experimental group and control group.

	Pre test measure	Treatment	Post test measure
Experimental group	O ₁	X	O ₃
Control group	O ₂	—	O ₄

*Pre-test-post-test design of control and experimental group.*²

In this research, the experimental and control group are consisting of seventh grade students of MTs. N Keling. The

¹Suharsimi Arikunto, Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006), 13th Ed., p. 207.

²Sugiyono, *Metode Penelitian Pendidikan, Pendekatan Kuantitatif, Kualitatif, R & D*, (Bandung : CV. Alfabeta, 2008), 6th Ed. p. 112.

writer decided to choose class VIII B as the try out class, VII A as experimental class and VII F as the control class.

B. Research Setting

This study was conducted in MTs N Keling Jepara. The subject of this study is the seventh grade student of MTs N Keling in the academic year of 2015/2016.

C. Subject of the Research

1. Population

Population is all the subject of the research.³ In this study, the population or the subjects of research are the seventh grade students at MTs N Keling in the academic year 2015/2016. The number of the population is 186 students. They are divided into VII A, B, C, D, E and F.

2. Sample

Sample is part of that can represent all the population observed. It is called sample research when we want to generalize the sample research result.⁴In this study, there are two classes as sample. Where class VII A as the experimental class that consist of 30 students and class VII F as the control class that consist of 31 students.

³Sugiyono, *Metode Penelitian Pendidikan, Pendekatan Kuantitatif, Kualitatif, R & D*, ...p. 117.

⁴Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, ...p. 131.

3. Sampling

Sampling is a technique to take a sample.⁵ In this study, the writer used cluster random sampling technique. Finally, chosen class VII A as the experimental class that consist of 30 students and class VII F as the control class that consist of 31 students.

D. Variable of Research

Variable is the object of research or something that become the concern of research.⁶ There are two types of variables, dependent variable (Y) and independent variable (X). The dependent variable is the variable of focus or the central variable on which other variables will act if there is any relationship. Independent variable is selected by researcher to determine the relationship with the dependent variable.

In this research, there were two variables, those variables were:

1. The Independent Variable (X)

Independent variable is variable that influences or becomes the cause of change or emergence the dependent

⁵Sugiyono, *Metode Penelitian Pendidikan, Pendekatan Kuantitatif, Kualitatif, R & D*, ...p.118.

⁶Sugiyono, *Statistika Untuk Penelitian*, (Bandung : CV. Alfabeta , 2010), p. 3

variable.⁷ Independent variable in this research was the use of teams games tournament as a learning model in teaching descriptive text reading. The experimental group taught descriptive text reading using teams games tournament while the control group taught descriptive text reading without the aid of teams games tournament.

2. Dependent Variable (Y)

In other dependent variable has same mention with output variable. Dependent variable is a variable which influenced or become effect because of independent variable. Dependent variable in this research is students' achievement in language learning reading descriptive text.

E. Technique of Data Collection

In collecting the data, the researcher took some techniques to collect the data in this study:

1. Documentation

The documentation is collecting the data was conducted by recording students' activity in the class. The documentation method would use to look for the data concerning matters or the variable that took the form of the

⁷Sugiono, *Statistika untuk Penelitian*, ... p. 4.

note, transcript, book, inscription, ledger, agenda, etc.⁸In this research, documentation method would use to get the data about students' name list and previous score or students achievement in the experimental class and control class.

2. Test

A test is a method of measuring a person's ability, knowledge or performance in a given domain.⁹ Test is an examination or trial to find its quality, value, composition, etc.¹⁰In this research, the researcher used pre-test and post-test. Pre-test gave to experimental class and control class. It is given in order to know the score of students' achievement before they taught by using teams games tournament (experimental class) and without teams games tournament (control class).

Post-test gave to experimental class and control class. It is given in order to know the score of students' achievement after they taught by using teams games tournament (experimental class) and without teams games tournament (control class).

⁸Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, ..., p. 158.

⁹H Douglas Brown, *Language Assessment Principles and Classroom Practice*, (San Francisco Longman, 2004), p. 3.

¹⁰SuharsimiArikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p. 223.

F. Technique of Data Analysis

In this study, there are three kinds of tests that will be done in experimental research, there are try out test, pre-test, and hypothesis test.

Try-out test was conducted before the pre-test. The instrument to be tried out was the composition test. The result of test was used to find out the validity, reliability, difficulty level and also the discriminating power of each item.

1. The Validity

Validity is a measurement that show the levels of validity based instrument. The valid instrument if it has a high validity and invalid instrument if it has low validity.¹¹ We can call it with valid instrument if an instrument can measure something that measured.¹²

The measure instrument to count coefficient of question validity use product moment correlation formula are:

$$\gamma_{pbi} = \frac{Mp - Mt}{St} \sqrt{\frac{p}{q}}$$

Where:

γ_{pbi} = Correlation coefficient biserial

¹¹Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, ... p. 211

¹²Sukardi, *Metodologi Penelitian Pendidikan Kompetensi dan Praktiknya*, (Jakarta: PT. Bumi Aksara, 2009) p. 122

Mp = The sum of object item

Mt = The average of total score

St = Result value of test item

p = Students proportion that answer true in question

q = Students proportion that answer false in question¹³

Result of r_{xy} which get from calculation that formula compare with r table *product moment*. Value of r_{table} calculated with standard of signification 5% then n appropriate with sum of respondent. If $r_{xy} > r_{table}$ we can clarify each item of questions is valid. Then if $r_{xy} < r_{table}$ we also clarify the correlation there is not significant.

2. Analysis Reliability

Reliability refers to the nation that an instrument can be trusted enough to be used as data collection tool for instrument which has been already good.¹⁴ An instrument in this research has reliability value if the result of test has consistent to measure an object. It means reliable test make the researcher sure about research result that has same result

¹³Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, (Jakarta: Bumi Aksara, 2002) p. 79

¹⁴Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p. 221

when test was run.¹⁵ In this research the writer uses internal reliability. Internal reliability is obtained by analysing data from a one-time test result. The researcher uses the K – R20 formula to measure the reliability of the instrument:¹⁶

$$r_{11} = \left(\frac{k}{k-1} \right) \left(\frac{S^2 - \sum pq}{S^2} \right)$$

Notes:

r_{11} = Reliability of the instrument

k = Sum of questions

S^2 = Varian

p = Subject proportion that answer true in questions

$\sum pq$ = Sum between cross of variable p and q

S = Standard deviation from the test

3. Difficult Level Analysis

Beside use validity and reliability, to get good and balance questions the researcher also use difficult level analysis. Balance means some questions have category begin from easy, medium and difficult appropriate with the portion.

¹⁵Sukardi, *Metodologi Penelitian Pendidikan Kompetensi ...*,p. 127

¹⁶Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, p. 101

Here, researcher used difficult level analysis formula as follow:¹⁷

$$P = \frac{N_p}{N}$$

Notes:

P = Difficulty's index

N_p = Number of students who have right answer.

N = Number of students

Criteria:

- 0.00 – 0.30 (difficult category)
- 0.31 – 0.70 (medium category)
- 0.71 – 1.00 (easy category)

4. Discriminating Power Analysis

Discriminating Power is used to know how accurate the question differ higher subject and lower subject. It is an ability of questions to know and distinguish students who have higher achievement and lower achievement. According to Arikunto (2002) calculate the index of discriminating power, the writer will use the formula as follow:¹⁸

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

¹⁷Anas Sudjino, Pengantar Evaluasi Pendidikan, (Jakarta: Rajawali Press, 2009), p. 372-373.

¹⁸Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, p. 213-214.

Notes:

D = Discriminating power questions.

B_A = The number of participants in the upper group who answered the item correctly.

B_B = The number of participants in the lower group who answered the item correctly.

J_A = The number of participants the upper group.

J_B = The number of participants the lower group.

P_A = The proportion of participants in upper group that answered true.

P_B = The proportion of participants in lower group that answered true.

Arikunto state that criteria of discriminating power (D) to two kinds of this questions are:

- $D \leq 0.00$ (Least)
- $0.00 \leq D \leq 0.20$ (Less)
- $0.20 \leq D \leq 0.40$ (Enough)
- $0.40 \leq D \leq 0.70$ (Good)
- $0.70 \leq D \leq 1.00$ (Excellent)

Analysis result of data to know the influence of teaching learning using Teams Games Tournament to improve students' achievement at eighth grade of MTs N Keling. Here

the researcher uses pre-test and hypothesis tests where this technique can be held with steps are:

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 was done to find out distribution data. The steps of normality test used Liliefors test:

1) Hypothesis

Ho : 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 $z_i = \frac{Xi-X}{s}$

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_0 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.

b. Homogeneity test

The purpose of test is to know homogeneity sample in research. If sample is homogeny, so this research can implement to all of population. It means researcher can use at all of students.

To know the homogeny of data, researcher uses two variant similarity tests, are:

$$F_{hitung} = \frac{\text{Biggest Variants}}{\text{Smallest Variants}}$$

The couple of hypothesis test are:

$$H_0: \sigma_1^2 = \sigma_2^2$$

$$H_a: \sigma_1^2 \neq \sigma_2^2$$

Criteria of trial is H_0 accepted if $F_{hitung} < F_{table}$ with $\alpha = 5\%$.

c. Hypothesis test

The data is examined to respond the objectives of the study. First, the test will be done in both groups,

experimental and control group. Next, the result of the test will be scored using analytic scale. Then, the means score of two groups is determined. Last, the two means are compared by applying t-test. “T-test is one of the statistic experiments which are used to know whether there is significance difference between the two variables or not”. The formula is:¹⁹

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

With,

$$S^2 = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1 + n_2 - 2}$$

Notes:

\bar{X}_1 = The mean score of the experimental group

\bar{X}_2 = The mean of the control group

n_1 = The number of experimental group

n_2 = The number of control group

s_1^2 = The standard of deviation of experimental group

s_2^2 = The standard of deviation of control group

S = The standard of deviation of both groups

¹⁹Sugiyono, *Statistika Untuk Penelitian*, p.138

If the obtained score is higher than t-table score by using 5% alpha of significance, H_0 will be rejected it means that H_a will be accepted.