CHAPTER III

RESEARCH METHODOLOGY

Research methodology is the most significant aspect in conducting a research. It includes the research design, population and sample, data collection and data analysis.

3.1 Research Design

The important part in conducting the research is designing research methodology. According to Ary, Jacobs, & Razavieh (1990:310) experiment design refers to the conceptual framework within which the experiment is conducted. That statement is supported by Ary, Jacobs, & Razavieh (1990:298) Experiment is a scientific investigation where the experimenter controls one or more independent variable and observes the effects of these manipulations of dependent variable. It means that, the researcher control and observes the manipulate process in the control group and experimental group. So, for this study the researcher uses quantitative research and refers to experimental research design because this study is to test whether think aloud strategy is effective or not in teaching reading of descriptive text.

According to Best (1981:68-69) there are three categories in experimental research design: true experimental design, quasi-experimental design, and pre-experimental design. Based on Best (1981:68) quasi-experimental design provides

a less satisfactory degree of control, used only when randomization is not feasible. It means that quasi-experimental design happens because the random process to control group and experimental group cannot be applied. So, for this study the researcher uses quasi-experimental design. There are two groups in quasi experimental design, they are experimental group and control group.

Quasi experimental research design is conducted by delivering test. The test is given twice (pre test and post test) for experimental group and control group. The first step that is done by the researcher is giving pre-test for both experimental group and control group. The second is the researcher gives treatment about think aloud strategy in teaching reading of descriptive text only for experimental group. In giving the treatment the researcher will do for four times. Meanwhile, for control group will be taught by using traditional method as the teacher usually teaches in the classroom. For the last, the researcher will give post-test for both experimental group and control group to evaluate students' reading comprehension of descriptive text after implementing think aloud strategy in teaching reading of descriptive text.

The design of this research could be illustrated as follows:

GROUPS	PRE-TEST	TREATMENT	POST-TEST
Experimental	O1	√	O2
Control	O1	-	O2

Table 3.1 Pre-test and Post-test Quasi Experimental Design

Where:

O1   : Observation 1-Pre test

O2   : Observation 2-Post test

√   : Conduct treatment

-       : Do not conduct treatment

3.2 Population and Sample

According to Yount (2006) a "population" consists of all the subjects you want to study. From statement above, the populations of this study are the eighth grade at SMP Islam Manbaul Ulum Gresik. Meanwhile, sample is the process of selecting a group of subjects for a study in such a way that the individuals represent the larger group from which they were selected (Yount, 2006). For this study, the samples are two classes of the eighth grade, they are 8 A and 8 E. The researcher chooses those classes because they have similar ability in English reading skill as shown by the result of homogeneity test. So, the samples of this study are homogenous.

3.3 Data Collection

Data collection consists of data collection technique, research instruments, the validity of the test, try out and procedure of collecting data, in which the researcher explains bellow:

3.3.1   Data Collection Technique

In order to get data for the research, collecting data in the research is very important. This research is taken the data from the test, there are pre-test and post-test. The first data is pre-test that is given for both experimental and control group. It is to know the students ability in reading comprehension before they get the treatments and also to find the homogeneous both of group. After pre-test, the researcher gives treatment only for experimental group for four times. Meanwhile, the control group that will be taught by using traditional method as the teacher usually teaches in the class. After that, the researcher gives post-test to experimental group and control group. It is to know the influence of think aloud strategy toward students' reading comprehension of descriptive text.

After that, the researcher collects the data from students' pre-test and post-test score, then analyzed the data of pre-test by using general linear model and the data of post-test by using independent sample t-test in SPSS 15.0 program.

3.3.2   Research Instrument

Research instrument is an important thing in conducting the research. In this study, the researcher uses test in collecting the data. There are two tests that are used by the researcher. First is pre-test and the second is post-test. Pre-test will be given by the researcher for both experimental group and control group. It is to know the students ability in reading comprehension before they get the treatments and also to find the homogeneous both of group. Whereas, post-test will be given for both experimental group and control group after the researcher conducts the

treatments only in experimental group. The score of post-test will show the influence of think aloud strategy toward students' reading comprehension of descriptive text.

3.3.3 The Validity of the Test

Before conducting pre-test and post-test as instrument of this study, the test should be tried out in terms of validity. According to Djiwandono (2008) validity is the suitability interpretation of test results. In means that, validity is an instrument that made as a measurement to measure items whether that items is valid or not valid.

In this test, the researcher will try to analyze the validity based on the face validity, construct validity and the content validity. The face validity is about the validity of test itself, in which this test is for English reading test. For the construct validity is about construct the items and model of items. For example: multiple choice items model, the answer from A to D must have same criterion, such as:

What is the body color of elephant?

a. Red

b. Blue

c. Grey

d. White

Derived from the example above, the multiple choices have the same criterion, it is noun.

For the content validity, it is about the content of the test itself which should represent materials in the syllabus of reading skill especially on descriptive text (table of content validity can be seen in the appendix 3).

After getting the result of try out, the researcher classify the group into three groups. Such as are high group, medium group, and low group. Group Classification derives from the number of students X 30% (expert judgment of 25% - 30% interval). It is possible to take another percentage between the intervals. For example the students are 40. So, 40 X 30% = 12 (take the first total 12 of the upper sequence from the 'f' (frequency) and another total 12 from the bottom). After that, deciding every item which is valid or not valid as follows: Example:

Items	Correct Answer	Wrong Answer	HGC *)	LGC **)	IDL ***)	IDP ****)	CONCLUSION *****)
1.							
2.							
3.							

Table 3.2 Construct Validity

Where:

*) HGC (High Group who answers the items correctly)

Identify how many correct answers determined by each student belong to high group.

**) LGC (Low Group who answer the items correctly)

Identify how many correct answers determined by each student belong to low

group.

***) IDL (Index of Difficulty Level [0,2 – 0,8])

Correct Answer: $\sum$ Students X 100%

Example   : 23 : 40 X 100%

                 23 : 40 = 0,575

****) IDP (Index of Discrimination power [$\geq$ 0,2])

HGC – LGC : 12

Example   : 8 – 5 : 12

                 : 3 : 12 = 0,25

*****) Conclusion consists of accepted, rejected, and revised. Where accepted is

the result of IDL in level [0,2 – 0,8] and IDP in level [$\geq$ 0,2]), meanwhile, rejected

is the result of IDP and IDL is not require with the level IDL and IDP. In addition,

revised is the result one of IDL and IDP is not require with the level IDL and IDP.

3.3.3.1 Try Out

Before conducting pre-test and post-test, the researcher will conduct try

out to the other students that are not included in this research. The purpose of try

out is to know whether items that will use for pre-test and post-test are valid or

not. The researcher conducts try out to students' grade 8 B that consisted of 34 students at the same school. The researcher conducted the try out in two days, first day was on 1st December 2014 and the second day was on 2nd December 2014. When he conducted try out, the participants were 31 students because 3 students were absent. In the try out, the researcher gave thirty questions and all of the questions were multiple choices, fifteen questions for trying out of pre-test and fifteen questions for trying out of post-test (the question of try out can be seen in the appendix 4). The researcher asked the students to do the try out. He gave 30 minutes to finish it. After the researcher got the data of try out, the researcher analyzed each items based on the result of try out to find out validity of the test.

The result of try out pre-test showed that the items number 3,10,12,13,14 were accepted because the result of IDL in level 0,2 – 0,8 and IDP in level ≥ 0,2. Meanwhile, the items number 2,4,8,11,15 were revised because the result one of IDL and IDP is not require with the level IDL and IDP. Then, the items number 1,5,6,7,9 were rejected because the result of IDP and IDL is not require with the level IDL and IDP. Whereas, the result of try out post test showed that the items number 1,5,6,8,10, 11,12,13,14,15 were accepted because the result of IDL in level 0,2 – 0,8 and IDP in level ≥ 0,2. Meanwhile, the items number 2,3,4,7 were revised because the result one of IDL and IDP is not require with the level IDL and IDP. Then, the items number 9 was rejected because the result of IDP and IDL is not require with the level IDL and IDP (the result of try out can be seen in the appendix 4 and the table analysis of try out can be seen in the appendix 5).

3.3.4   Procedure of Collecting Data

Before giving the test, the researcher asks permission to the headmaster of the school and explains the purpose of this study. After getting his approval, the tests are given to the students but before giving the pre-test, the researcher tries out the test to find out validity of each item. After finding out the validity of the test, the researcher conducts his research. For the first, the researcher chooses the subject and divided into two groups, they are the experimental group and the control group. Then, he conducts pre-test for both experimental group and control group. It is to get the primary data. After giving pre-test, the researcher gives the treatment only for experimental group. It is conducted four times. Meanwhile, for control group that will be taught by using traditional method as the teacher usually teaches in the classroom. Finally, the researcher gives post-test to experimental group and control group. It is to know the influence of think aloud strategy toward students' reading comprehension of descriptive text.

3.4 Data Analysis

After getting the data, then the researcher analysis those data to answer the research questions stated in chapter 1.

3.4.1. Homogeneity Test

In homogeneity test, the researcher uses SPSS 15.0 program. The purpose of this test is to analyze the variances of the observation in experimental group and control group are homogeneous because the researcher cannot random the students. So, the homogeneity test is necessary to make sure the students in both of class have same ability in reading skill or not. After that, the researcher can conduct the treatment.

The homogeneity test will be checked in General Linear Model with the following procedures: firstly, open the SPSS program. Second, click variable view in SPSS data editor. After that, in column name, type "nilai" in the first row and type "kelas" in the second row. Then, in column decimals, change numeral become 0 for all variables. After that, in column label, type "nilai" in the first row and type "kelas" in the second row. Then, in column values, for the first row let empty (none) and for the second row click small box, in value type "1", in value label type "kelas 8 A", then click add. The next step in value type "2", in value label type "kelas 8 E", then click add and click ok. After that, open data view in SPSS data editor, then there are column variable "nilai" and "kelas". Then, type data of pre-test according the variable, in variable "kelas" type with numeral 1 and 2 (1 refers to "kelas 8 A" and 2 refers to "kelas 8 E"). After that, click analyze → general linear model → univariate. Then, put the variable "nilai" to dependent variable, and variable "kelas" to fixed factor, then choose option. From display menu, choose homogeneity test, and then click continue. Next, go into univariate again and finally click ok. Then, analyze the result and conclude the result by

seeing on sig. on the right column of Levene's test of equality of error variances

table with the criteria of concluding null hypothesis is on the below:

Ho: sample data from homogeneous population.

H_1: sample data not from homogeneous population.

Criteria: Ho can be rejected if sig $< \alpha$ ($\alpha = 0,05$)

3.4.2. Hypothesis Testing

In hypothesis testing, the researcher also uses SPSS 15.0 program. The

hypothesis testing will be checked in independent sample t-test. Independent

sample t-test is used to compare the difference of average between experimental

group and control group.

The steps in hypothesis testing as the following procedures: firstly, open

the SPSS program. Second, click variable view in SPSS data editor. Third, in

column name type "nilai" in the first row and type "kelas" in the second row.

After that, in column decimals, change numeral become 0 for all variables. Then,

in column label, type "nilai" in the first row and type "kelas" in the second row.

After that, in column values, for the first row let empty (none), for the second row

click small box, in value type "1", in value label type "kelas 8 A", then click add.

The next step in value type "2", in value label type"kelas 8 E", then click add and

click ok. After that, open data view in SPSS data editor, then there are column

variable "nilai" and "kelas". Then, type data of post-test according the variable, in

variable "kelas" type with numeral 1 and 2 (1 refers to "kelas 8 A" and 2 refers to "kelas 8 E"). After that, click analyze → compare means → independent sample t-test. Then, put the variable "nilai" to test variable, variable "kelas" to grouping variable. After that, click define group, for group 1 type "1" and for group 2 type "2", next click continue. Finally click ok. Then, analyze the result and conclude the result by seeing on sig. (2-tailed) on the equal variances assumed if the sample homogeneous and on the equal variances not assumed if the sample not homogeneous with the criteria of concluding null hypothesis is on the below:

Ho: "There is no significant influence in using think aloud strategy between

experimental group and control group.

H_1: "There is significant influence in using think aloud strategy between

experimental group and control group.

Criteria: Ho can be rejected if sig. (2-tailed) < α, where (α = 0.05).

In analyzing the data, the researcher uses independent t-test formula. In calculating t-test, the formula as follow:

$$t = \frac{(x_1 - x_2) - (\mu_1 - \mu_2)}{Sx_1 - x_2}$$

Where:

t is t value

X_1 is average group 1

X_2 is average group 2

S is standard error of the two groups

$\mu_1 - \mu_2$ is always defaults to 0

Where:

$$Sx_1\text{-}x_2 = \sqrt{\frac{S^2 Pooled}{n_1} + \frac{S^2 Pooled}{n_2}}$$

$Sx_1 - x_2$ is standard error of two groups

S_2 pooled is variants of the two groups

n_1 is Number of sample group 1

n_2 is Number of sample group 2

Pooled variance: the average of the two sample variances, allowing the larger sample to weight more heavily.

Formula:

$$S^2\ Pooled = \frac{(df_1)s^2 1 + (df_2)s^2 2}{df_1 + df_2}$$

or

$$S^2\ Pooled = \frac{SS_1 + SS_2}{df_1 + df_2}$$

$df_1 = df$ for 1st sample; $n_1 + 1$

$df_2 = df$ for 2nd sample; $n_2 + 1$

Estimated standard error of the difference:

$$Sx_1\text{-}x_2 = \sqrt{\left[\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right]\left[\frac{1 + 1}{n_1 + n_2}\right]}$$