CHAPTER III
RESEARCH METHOD

This chapter discusses about research design, subject and setting of the research, variables and indicators of the research, methods of data collection, and methods of data analysis.

A. Research Design

Research design plays an important role in a research because the quality of research greatly depended on the design. In this research, the researcher used the form of quantitative one. Quantitative is broadly used to describe what can be counted or measured and therefore can be considered objective.[1] It means that the method and instrument involve numerical measurement and then the statistical quantification would be conducted.

In this research, the writer used an experimental research. Experimental research seeks to determine if a specific treatment influences an outcome.[2] An experimental research involved two groups: experimental group and control group. An experimental group receives a new treatment while control group receives a usual treatment. This research used pre-test and post-test.

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[1]Michael J. Wallace, *Action Research for Language Teacher*, (Cambridge: Cambridge University Press,1998),p.38

[2]E-Book: John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, (California: Sage Publications, Inc.3rded), p.29

The design of the experiment can be describe as follows:[3]

$$\frac{E \; 01 \; X \; 02}{C \; 03 \; Y \; 04}$$

Where:

E = experimental group

C = control group

01 = pre-test for experimental group

02 = post-test for experimental group

03 = pre-test for control group

04 = post-test for control group

X = treatment by using song

Y = conventional method

Based on the pattern above, the subjects of research were classified into an experimental class (top line) and control class (bottom line). The quality of subjects was first checked by pretesting them (0_1 and 0_3). Then, the experimental treatment (taught by using song) was applied to the experimental class. This treatment was symbolized as "X", while the control class (taught using conventional method), this treatment was symbolized as "Y". The test was held in the form of written. Then, the results of post-test (0_2 and 0_4) were computed statistically.

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[3]Arikunto, Suharsimi, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: PT. Rineka Cipta, 2006), p. 86

B. Setting of the Research

This study was conducted at MTs Miftahul Ulum Weding Bonang Demak in the academic year of 2015/ 2016 which is located at Weding- Bonang Demak Street KM 05. The reason why the researcher chose MTs Miftahul Ulum Weding Bonang Demak because students there still had lack of motivation to study English, especially for studying simple past tense, so the researcher wanted to make an experiment by using Song to make students enjoy the material exactly for studying simple past tense.

The research was conducted on 21 April- 5 Mei 2016. The researcher chose that time because the students still feel spirit, so delivering the material would be not too hard.

C. Subject of the Research

The subject of this research is the Eighth grade students of MTs Miftahul Ulum Weding Bonang Demak. Due to the limitation of time, the researcher would not take all students as the subjects, but drew a sample.

1. Population

The population is the generalization region consisting of: objects/ subjects that have certain qualities and characteristics defined by the researchers to learn and drawn conclusions.[4] The population of this research was Eighth

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[4]Sugiyono, *Metode Penelitian Pendidikan*, (Bandung: Alfabeta, 2013), p. 117

grade students MTs Miftahul Ulum Weding Bonang Demak in the academic year of 2015/ 2016.

2. Sample

Sample is part of the number and characteristics possessed by the population.[5] The research was an experimental research, so the researcher needed to take two classes that became an experimental and control class as the sample from five classes of the population.

3. Technique Sampling

In getting sample of the research, the researcher took the procedure called the cluster sampling. Cluster sampling is taking sample towards sampling units (individual), in which the sampling units are in one group (cluster), each unit in one group would be taken into the sample and also has homogeny characteristic[6]. The procedures are from all the member groups of the population, only few groups selected as a sample area (randomly). From some of the sample groups, specify which individuals would be the sample (experimental class and a control class). The sample may be categorized in paired sample, because there are experimental and control group that are compared. There are five classes at MTs Miftahul Ulum Weding Bonang Demak, Class 8A, 8B, 8C,

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[5]Sugiyono, "*Metode Penelitian….",* p. 118

[6] www.buatskripsi.com/2011/02/langkah-cluster-sampling-tahapan.html?m=1 (accessed on Wednesday, June 15th 2016)

8D, 8E. The researcher used lottery as the way to choose the sample. In this case, each of the classes names were written on piece of paper, and the paper was rolled and put into slot of a box. After being mixed, a paper was dropped out of the slot and these become the sample of the research.[7] 8D and 8E were dropped out from the slot. So, the researcher chose 8D as the experimental class and 8E as the control class. Because the researcher used cluster sampling, so, all students in 8D and 8E became the sample of the research.

D. Variables and Indicators

A variable is any factor, condition situation, treatment and all actions that able to be used to influence the experimental.[8] According to 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 experiment).[9]

This research had two variables. Those are:

1. The independent variable (X)

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[7]Sugiharto, "*Teknik Sampling,* (Jakarta: Gramedia Pustaka Utama, 2003), p. 49-50

[8]Sanjaya, Wina, *Penelitian Pendidikan: Jenis, Metode dan prosedur*, (Jakarta: Kencana, 2013), p. 95

[9]Arikunto, Suharsimi, "*Prosedur Penelitian…"*, (Jakarta: PT. Rineka Cipta, 2010), p. 161

Independent variable is the variable that is the cause or effect the onset or change in the dependent variable.[10]The independent variable of this research is the use of song in teaching simple past tense.

The indicators of this variable are:

a. Teacher gives the worksheet (simple past tense) to the students

b. Students read the worksheet

c. Students make a note or try to identify the past tense sentences.

d. The students write the conclusion.

2. The dependent variable (Y)

The dependent variable is a variable that is affected or that become the result because of the existence of the independent variable.[11] The dependent variable of this research is score of students' comprehension in simple past tense.

The indicators are:

a. Identifying the formula of simple past tense (positive, negative, interrogative)

b. Composing the simple past tense sentences.

[10]Tanzeh, Ahmad, *Pengantar Metode Penelitian*, (Yogyakarta: Teras, 2009), p. 85

[11]Arikunto, Suharsimi, "*Prosedur Penelitian…*", p. 162

E. Data Collection Technique

To make this research successful, the researcher used some instruments to collect the data, they are as follows:

1. Documentation

Document is a piece of written or printed material that provides a record of evidence or event an agreement, ownership, identification, etc.[12] It refers to the archival data that help the researcher to collect the needed data. The researcher will collect the documents related to the object of research such as students name list, score of the students related to simple past tense material.

2. Observations

It refers to the activity of giving total concern to research object by the sense. In this research, the concern of research focused on the students' behavior in the class like their attention to the teacher, their activities in the class and etc.

3. Test

Test is an instrument measuring instrument for data collection where in responding to the questions in the instrument, participants are encourage to show maximum

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[12]Eastwood, John, *Concise Oxford Dictionary*, 8th ed. (London: Oxford University Press, 2004), p. 256

performance.[13] Test is used to collect initial data and the final data about the students' comprehension in simple past tense.

In this research, the researcher used pre- test and post-test.

a. Pre-test

Before the teacher taught new material by using song, the teacher gave the test to the students. Pre-test would be given to the experimental class and control class in the same way.

b. Post-test

Post-test would be given to the experimental class and control class. It was given in order to know the score of students' achievement after they are taught using song (experimental class) and without song (control class).

F. Data Analysis

After conducted the test, data analysis was carried out to find out the data normality and the homogeneity of sample. It means to check if the research result met the requirement of good research or not.

1. Normality test

The first step that had to be done before doing the research is to test the data normality. Normality test is used to

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[13]Purwanto, *Evaluasi Hasil Belajar*, (Yogyakarta: Pustaka Belajar, 2013), p. 63

know the distribution data normal or not. To find out the distribution data, it uses normality test with Chi square.[14]

Calculate the Chi square (χ^2), the formula:

$$\chi^2 = \sum \frac{(O-Ei)^2}{Ei}$$

Determine the degree of validity (df). In the calculation of this data is arranged distribution consisting of k pieces o that the interval to determine the criteria test use formula df= k-l, where k is the number of class intervals and the real extent α= 0.05

Determine the distribution normality with test criteria: if $\chi^2{}_{count} > \chi^2{}_{table}$, so the data is not normal and other way if $\chi^2{}_{count} < \chi^2{}_{table}$ so the data is normal distribution.

2. Homogeneity test

It is used to know whether the data are homogeneous or not. The formula is:[15]

$$F = \frac{Vb}{Vk}$$

Where:

Vb: bigger variance

Vk: smaller variance

The hypotheses in homogeneity test are:

Ho: homogeneity variance $\quad = \sigma_1^2 = \sigma_2^2$

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[14]Sudjana, *Metode Statistika*, (Bandung: Tarsito, 2003), p. 273

[15]Sudjana, "*Metode Statistika….",* p. 250

Ha: non homogeneity variance $= \sigma_1^2 \neq \sigma_2^2$

If the calculation result of F_{count} is lower than F_{table} ($F_{count} > F_{table}$) by 5% degree of significant so Ho is accepted, it means the data is homogeneous or both of groups have the same variance.

3. Test of average

It is use to examine average whether experimental group and control group that has been decided having significant different of average.

Ho: $\mu_1 = \mu_2$

Ha: $\mu_1 \neq \mu_2$

By using the following formula:[16]

$$t = \frac{\overline{\chi_1} - \overline{\chi_2}}{\sqrt{\frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1+n_2-2} \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where:

$\overline{\chi_1}$: Average of experimental group

$\overline{\chi_2}$: Average of control group

n_1 : Number of experimental group

n_2 : Number of control group

S_1^2 : Standard deviation of experimental group

S_2^2 : Standard deviation of control group

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[16]Sugiyono, *Statistika Untuk Penelitian,* (Bandung: Alfabeta, 2009), p. 140.

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The criteria of this test is Ho accepted if $- t_{1-\frac{1}{2}\alpha} < t < t_{\frac{1}{2}\alpha}$ where $t_{\frac{1}{2}\alpha}$ obtained from the distribution list t with df= $(n_1 + n_2 - 2)$ and opportunities $(1-\frac{1}{2}\alpha)$. Values for other t Ho rejected.

4. Analysis Phase End

To examine the hypothesis that will have been stated, these following steps are used:

a. Normality Test

The second step of this test is same as the normality test on the initial data.

b. Homogeneity Test

The second step of this test is same as the homogeneity test on initial data.

c. Hypothesis Test

Two-way ANOVA was used to test the hypothesis of comparative average k samples when the researcher conducted a categorization of the sample into several blocks, so if variability or source of variation in test One Way ANOVA derived from the treatment and an error, then the two-way ANOVA source of diversity is not only coming of treatment and error, but also from the block. Here are the steps in the calculation of ANOVA two lanes (two ways ANOVA):

1) Identification values: t (number of treatments), r (the number of blogs)

2) count the total number of observations (n), namely: n = r x t

3) Calculate the total sum of the squares of the formula:

$$SS_T = \sum (X_{ij})^2 - \frac{(\sum T_j)^2}{n}$$

d. Calculate the sum of squares of treatment with the formula:

$$SS_P = \sum \frac{\sum (P_1)^2}{r} - \frac{(\sum T_j)^2}{n}$$

e. Calculate the sum of the squares between the blocks with the formula:

$$SS_B = \sum \frac{\sum (B_1)^2}{t} - \frac{(\sum T_j)^2}{n}$$

Search for F table by considering (1) the level of significance (α), (2) DF1 namely df of the largest MS, and (3) DF2 namely df of MS smallest.

Compare the price of F Calculate the F table.

1) When the F count $<F$ table, then Ho is accepted, which means the average of the two treatments did not differ significantly,

2) When the F count> F table, then Ho is rejected and H_1 accepted, which means the average of the two treatments difference significantly.[17]

[17]https://freelearningji.wordpress.com/2013/04/11/anova-dua-jalur-two-way-anova/ (accessed on 07 January 2016 at 21.30)