

CHAPTER III

RESEARCH METHODOLOGY

This chapter tells about the research design, population and sample, instruments, data collection and data analysis. Each of items is discussed separately in the following sections.

3.1 Research Design

The important part in conducting the research is designing research methodology. The researcher uses an experimental research. The purpose of this study is to determine whether or not stick figure can help students in constructing simple present form. According to Ary Jacob & Razavich (1990;310) experiment design refers to conceptual framework within which the experiment is conducted. That statement is supported by McMillan that in experimental research the investigators have control over one or more independent variables and observes the effect of these manipulation of dependent variable. in the study (1992;13). It means that the researcher control and observes the manipulate process in the control group and experimental group. So far in this study the researcher use quantitative research and refers to experimental research design because the study is to test whether or not stick figure can help students in constructing simple present form.

In this study, the researcher use quasi-experimental design. Shadish, W., Cook, T., & Campbell, D. (2002).stated that quasi experiment does not evaluate the

intervention randomly. This is to find out the significant effect of using stick figure in constructing simple present form for eight grades at SMP Muhammadiyah 4 Giri.

Quasi experiment can use are pre test and posttest as none randomly selected controlled group. In this study, there two groups; they were controlled group and experimental group. Both of group are given pre test and post test, the treatment is given to the experimental group while control group is without any treatment.

Here, the researcher as the practitioner who implements stick figure as strategy in constructing simple present form to the students. Firstly, the experimental group and control group are defined by using score. The scores both of the groups are as the measurements of their ability in constructing sentences before applying treatment. Then, next step is giving treatment to the experimental group for about three times. The posttest is administered to measure their result. The quasi experiment chart can be seen in figure below:

| Group | Pre test | Treatment | Post test |
|--------------|-----------------|------------------|------------------|
| Experiment | + | + | + |
| Control | + | - | + |

Table 3.1 Non Randomized Subjects, prêt test and post test quasi experiment design note:

- + : Conduct treatment
- : Do not conduct treatment

After the researcher choose that two classes which incoming control group and which one incoming the experimental group, then the researcher will apply the strategy just in experimental group to know whether the strategy that applied by the

researcher will provide significance influence or not for students in constructing simple present form (Singular Form). The strategy that use by the researcher in tgis study is stick figure. In this study the researcher will conduct four meeting in experimental group by always implementing the strategy in each of meeting.

Here the researcher not only conducts the treatment in experimental group, but the researcher also enters into control group to teach them . The differences here is, if in the experimental group the students will get any treatment but in the control group the researcher will teach the students by using traditional method. In this control group the researcher will not use any other strategy to teach the students in constructing simple present form. The researcher here will explain directly in front of class how to construct sentences in simple present form correctly. Which at the end of her explanation the researcher will spread worksheet to measure students understanding in constructing simple present form (singular form)

Schedule of Implementation

During doing this study, the researcher has schedule for experimental group as follow:

| No | Time | Activity |
|----|--------------------------------|-------------------------|
| 1. | July 27 th , 2015 | Giving Pre-test |
| 2. | August 3 th , 2015 | Giving first treatment |
| 3. | August 4 th , 2015 | Giving second treatment |
| 4. | August 10 th , 2015 | Giving third treatment |
| 5. | August 11 th , 2015 | Giving fourth treatment |
| 6. | August 24 th , 2015 | Giving Post-test |

And this one is the schedule for control group :

| No | Time | Activity |
|----|--------------------------------|----------------------------------|
| 1. | July 27 th , 2015 | Giving Pre-test |
| 2. | August 4 th , 2015 | First meeting of control group |
| 3. | August 5 th , 2015 | Second meeting of control group |
| 4. | August 12 th , 2015 | Third treatment of control group |
| 5. | August 1 th , 2015 | Fourth meeting of control group |
| 6. | August 24 th , 2015 | Giving Post-test |

3.3 Population and Sample of the Study

According to Yount, Rick (2006) a population consist of all the subjects you want to study. From statement above, the population of this study are the seven grade at SMP Muhammadiyah 4 Giri Gresik. Meanwhile, sample is the process of selecting a group of subjects for a study in such way that the individuals represent the large group from which they were selected (Yount, Rick 2006). For this study, the sample are two classes of the seven grade, they are 7 A and 7 B .the researcher choose those classes because they have similar ability in constructing simple present form as shown by the results of homogeneity test. The sample of this study are homogenous.

3.4 Data Collection

Data collection consists of data collection technique, research instruments, the validity of the test, tryout and procedure of collecting data. In which the researcher explains bellow;

3.4.1 Data Collection Technique

In order to get the data for the researcher, collecting data 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 their ability in constructing sentences in the form of simple present before they get the treatments and also to find out the homogeneous both of group. After pre-test the researcher give treatments only for experimental group for four times. Meanwhile in control group that will be toughly by using traditional method as the teacher usually

teaches in the class. So, the researcher gives post-test to experimental group and control group. It is to know the influence of stick figure in constructing simple present form for students of seven grade.

After that, the researcher collects the data from student's pre-test and post-test score. Then the researcher begin to analyze the data of pre-test by using general linear model and the data of post-test by using independent sample t-test in SPSS 16.0 program.

3.4.2 Research Instrument

Research instrument is an important thing conducting the research. The use of instruments of the research should be made as appropriate as possible in order to get the correct data. The instruments of this study are pre-test and post-test. The researcher for both experimental and control group will give first pre-test. The test is given to know students ability in constructing simple present tense in sentences before they give treatment from the researcher and to find out the homogeneous both of group. Therefore, post-test will be given for both experimental and control group after the researcher conducts the treatment only in experimental group. The score of post-test will show the influence of stick figure for students in constructing simple present form.

3.4.3 The Validity of the Test

Term of validity refers to the test value whether a test measures what should it to measure. Tuckman(1975;229) staets that test validity refres to whether a test measureswhat we intend it to measure. Ary et al (1982;213) states that the validity

question is concerned with the extent of which instrument measures what one thinks it is measuring. In this research, the researcher will try to analyze the validity based on the face validity, construct validity and content validity. The face validity is about the validity of test itself. In which the test is about grammar in simple present form. For construct validity is about construct the items and model of items. And for content validity is about the content of the test itself which should represent materials in the syllabus especially in the subject that refers to the simple present form.

After getting the result of try out, the researcher classifies the group into three groups. Such as are high group, medium group and low group. Group Classification derives from the number of students $\times 30\%$ (expert judgment of 25%-30% interval). It is possible to take another percentage between the intervals. For example the students are 40. So $40 \times 30\% = 12$ (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 as follows;

| Items | Correct Answer | Wrong Answer | HGC (*) | LGC (**) | IDL (***) | IDP (****) | Conclusion (*****) |
|-------|----------------|--------------|------------|-------------|--------------|---------------|-----------------------|
| 1. | | | | | | | |
| 2. | | | | | | | |
| 3. | | | | | | | |

Where :

*) HGC (High Group who answer 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 students belong to low group.

****) IDL(Index of Difficulty Level | 0,2- 0,8 |)

$$\text{Correct Answer} : \frac{\sum \text{students}}{40} \times 100\%$$

Example : 23 : 40 X 100%

$$23 : 40 = 0,575$$

*****) IDP (Index of Discriminstion power | $\geq 0,2$ |)

$$\text{HGC} - \text{LGC} : 12$$

Example : 8 – 5 : 12

$$3 : 12 = 0,25$$

*****) Conclusion consist of accepted, 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.

3.4.4. Reliability Of Test

The basic concept of reliability test is consistency of the test score. Reliability measurement supplied an instrument of how much a variance might expect under

different condition. To see the consistency of the test is characteristically presented by means of reliability coefficient or standard error of measurement.

Criterion :

0.0 \leq rkk $<$ 0.20 is the lowest reliability

0.20 \leq rkk $<$ 0.40 is the low reliability

0.40 \leq rkk $<$ 0.60 is the quite reliability

0.60 \leq rkk $<$ 0.80 is the high reliability

0.80 \leq rkk 1.00 is the higher reliability

- The items is 30 items. The cronbach's Alpha 0.864. Then, the reliability test is the highest reliability ($0.80 \leq 0.864 < 1.00$)
- The validity test are 25 is valid items and 5 non valid items. That was according to: (<0.3 is difficult) ($0.70 - 1$ is easy) and ($0.30- 0.7$ is medium).

3.4.3.1 Try Out

Before conducting pre-test and post test the researcher will conduct try out to the other students that are not include 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. In this step the researcher will give thirty question and all of the questions are multiple choices. Here the researcher will put fifteen question for pre test and fifteen question for post test. The researcher ask to the students to do the try out in 30 minutes, so after get the data of try out the researcher wil analyze each items based on the result of try out to

find out the validity of the test. In this study the researcher will implement the try out in SMP ISLAM MANBAUL ULUM GRESIK.

3.4.5 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 the approval the test 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 the research. For the first the researcher choose the subjects and divided into two groups, they are experiment and control group. Then, the researcher conducts pre-test for both experimental group and control group. It is to get the primary data. After giving pre-test, the researcher, the researcher gives the treatment only for experimental group. It is conduct for 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 and control group. It is to know the effectiveness of stick figure in constructing simple present form.

3.5 Data Analysis

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

3.5.1 Homogeneity Test

In homogeneity test, the researcher uses SPSS 15.0 program. The purpose of this test is to analyse 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 constructing simple present form. And the goal of homogeneity test is to know the different variance between both of group, control and experimental group. So after the homogeneity test is applied the researcher will know whether the two populations are homogenous or not. And finally the researcher can set up the class.

The homogeneity test will be checked in independent simple T-Test. Independent simple T- Test is use to compare the difference of average between experimental group and control group. The steps in homogeneity test as the following procedure; firstly, open SPSS program. So click variable view in SPSS data editor. Third, in column name type “nilai”bin 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 tabel type “nilai” in the firs row and type “kelas” in second row. So, in column values, for the firts row let empty(none), for the second row click small box. In value type “1”, in value label type “kelas 7” then click add. The next step in value type “2” in value label type “kelas 7”, then click add and click ok. After that open data view in SPSS data editor, then there are column variable “nilai” and “kelas”. So type data of post test according the variable, in variable “kelas 8” type with numeral 1 and 2(1 refers to “kelas 7A” and 2 refers to “kelas 7B”). Aftr 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. In analyzing the data, the researcher conclude the result with the criteria including null hypothesis was on follow :

Ho: sample data from homogeneous population

H₁: sample data not from homogeneous population

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

3.5.2 Hypothesis Testing

In hypothesis testing, the researcher also use SPSS 15.0 program. The hypothesis testing will be checked in independent sample t-test. Independent sample t-test is use to compare the difference of average between experimental group and control group.

The steps in hypothesis testing as the following procedure; firstly, open SPSS program. So 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 second row. So, 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 1” then click add. The next step in value type “2” in value label type “kelas 2”, then click add and click ok. After that open data view in SPSS

data editor, then there are column variable “nilai” and “kelas”. So type data of post test according the variable, in variable “kelas 8” type with numeral 1 and 2(1 refers to “kelas 7A” and 2 refers to “kelas 7B”). 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.

In analyzing the data, the researcher use independet t-test formula. In calculating t-test the formula as follow:

$$t \frac{(x_1 - x_2) (u_1 - u_2)}{S_{x_1 - x_2}}$$

Where:

t is t value

x_1 is average group 1

x_2 is average group 2

S is standart error of the two groups

$u_1 - u_2$ is always default to 0

Where:

$$S_{x_1 - x_2} \sqrt{\frac{s^2_{pooled}}{n_1} + \frac{s^2_{pooled}}{n_2}}$$

$S_{x_1-x_2}$ is standard error of two groups

s_2 is 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 large 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 dffor 1st sample: $n_1 - 1$

df_2 dffor 2nd sample: $n_2 - 1$

Estimate standart error of the difference:

$$S_{x_1-x_2} = \sqrt{\left[\frac{SS_1 + SS_2}{n_1 + n_2 - 2} \right] \left[\frac{1}{n_1} + \frac{1}{n_2} \right]}$$

Then, analyze the result and conclude the result by seeing in sig (2-taild) on the equal variances assume 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:

H_0 : “there is no significant influence constructing simple present form by using stick figure between control group and experimental group.

H_1 : “there is significant influence constructing simple present form by using stick figure between control group and experimental group.

Criteria : H_0 can be rejected if sig. (2-tailed) $< \alpha$, where ($\alpha = 0,05$)

