

CHAPTER III

RESEARCH METHOD

In this chapter, the researcher presents research design, population, sampling and sample, variable, data and data source, method of collecting data, research instrument and technique of data analysis.

A. Research Design

Research design is the most important part of a research. A researcher must arrange the research design first before going to the field to conduct a research. The researcher also must consider several things in a research such as; the purpose of the research, nature of the problems and the circumstances around the field. Here, the researcher used quantitative approach. Quantitative approach produce a numerical data that can be analyzed in the end of data collection.

Syamsuddin (2011) stated experimental research is a systematic and logic method to answer a question “ If something placed in controlled analyzed situation, what will happen?” in this situation the researcher manipulate a treatment, stimulus, or certain condition. An experimental research aims to find out cause effect relationships, which use the experimental data that compared with the controlled data.

Generally an experimental research design has three important characteristic based on Ary in Syamsuddin(2011), they are;

1. Manipulate independent variable

2. Others possible variable may affect independent variable must be controlled to be constant variable.
3. The effect of manipulate independent variable and dependent variable observed directly by the researcher.

The main characteristic of an experimental research is the manipulation. There are any designed manipulations of the variables. Manipulation here based on sukardi at syamsuddin (2011) is an action or treatment done by the researcher based on scientific consideration in responsible way to obtain different effect at the independent variable.

The researcher controlled the dependent variable to find out the effect of independent variable. Control here, based on Gay in the Syamsuddin (2011) is an effort on the part of researcher to remove the influence of any variable other than the independent variable that affect performance on a dependent variable.

Fraenkel and Wallen at Syamsuddin (2011) stated that there are three main design used for experimental design;

1. One-shot case study
2. The one group pre-test post-test
3. The static group comparison design.

Considering the purpose of the study that was to identify the difference between students' score before and after being taught by using realia, this research conducted as a pre-experimental quantitative research design. The researcher use

one group pre-test and post-test. One single group was measured or observed before and after being exposed to a treatment. This research was classified as pre-experimental design because the researcher choosed the sample based on some criteria not in random way.

Table 3.1

A diagram one group pre-test post-test design

Pre-test	Treatment	Pos-test
Y₁	X	Y₂

The one group pre-test post-test design involves three steps;

1. Administering a pre-test to measure the dependent variable
2. Applying an experimental treatment X to the subject
3. Administering post-test again measuring independent variable

The procedure of experimental research that use on group pre-test post-test design applied in this study are:

1. Administering pre-test aims to measure students speaking score before being taught by using realia for eight grade of MTs SunanKalijogo.
2. Applying the experimental treatment by using realia as the teaching media.

3. Administering post-test aims to measure students speaking score after being taught by using realia at eight grade of MTs SunanKalijogo.

The effectiveness of the teaching media would be known after the researcher found out the significance different score of the students before and after being taught by using realia.

Variable as characteristics of the subject of a research, and the characteristic tend to be different from an individual to another or from time to time. In this research, there were two variables the dependent variable and independent variable. Dependent variable was realia as teaching media and the independent variable was students' speaking achievement.

There are several steps in applying realia in the classroom that will be used by the researcher:

1. Delivering materials about describing things to the students.
2. Showing the realia to the students as teaching media, to make them understand about the material easily.
3. Give example to describe thing by using realia.
4. Give opportunity to the students to try describing thing using realia.
5. Evaluate students' achievement.

The details steps that conducted in the classroom see lesson plan in the appendix.

B. Population, sample and sampling

According to Best (1995) A population is any group of individuals that have one or more characteristics in common that are interesting. In this study, the population were all of eight grades of MTs Sunan Kalijogo Rejosari in the academic year 2015/2016, which consisted of three classes. The researcher took the A class as the sample of this research that consisted of 31 students with 11 boys and 20 girls. The researcher chooses A class because the students of A class has average proficiency.

In a research, there are two types of sampling; probability sampling and non-probability sampling. Non-probability sampling is also called non-random sampling. Non-random sampling is a sampling technique which is used when it cannot be ensured that each item has an equal chance of being selected. There are three types of non-random sampling; convenience sampling, quota sampling, and purposive sampling. Based on the three types of non-random sampling, this study used purposive sampling. The researcher choosed the sampling based on who the researcher think would be appropriate for the study, a need or purpose for the research.

C. Research Instrument

The instrument used to get the data was test. According to Brown (2000) Test is a method of measuring person's ability or knowledge, in a given domain. Based on the statement, test can be used to measure the students' ability or students' achievement. In this research, the test used covered try out of the test, pre-test and post-test.

1. Try Out Test

In this research, the researcher conducted the try-out before the test. Try out test was administered in form of familiarity test. The researcher brought seven things with different theme for the students. The researcher must ensure that the students familiar with the things.

The result of try out can be used to measure the validity and the reliability of the test, and it can be carried out in either a small number or a large number (Arikunto, 2013). So, the try-out function is to determine the extent to which it discriminates between individuals who are different. Thus, the test that has been designed was to represent the sample of testers. Try out test was administered to another group beside experimental and control group on January 12nd 2016.

2. Test (Pre-test and Post-test)

In this research, the researcher used pre-test and post-test. Pre-test was given to the sample. It was conducted before the treatment. Meanwhile, post-test was conducted after the treatment. It was also given to both control group and experimental group. It was taken as measurement tool to measure students' reading comprehension mastery before and after the treatment was conducted.

- a. Pre-test

Pre-test was administered before the treatment. Pre-test was conducted on January 26th 2016 followed by 31 test taker. The researcher gave four things in four different themes for the students. The students choose a thing and describe it. The researcher takes role as the observer whose observed and rate students speaking ability.

b. Post-test

Post-test was administered after the treatment. Post-test was conducted on March 15th 2016 that was followed by 31 test taker. The researcher used the same method which used in the pre-test.

Post-test was also administered in the form of speaking test. The researcher used same way. The researcher provide students four things with four different themes. The students must choose a things and describe it in five sentences.

D. Validity and Reliability Testing

1. Validity Testing

Brown (2000) states that validity is the degree to which a test actually measures what it is intended to measure. This test was used to check wether the instrument is valid or not if the instrument was applied in a subject of the research. To know the validity of instrumen used to gather the data, the researcher used content validity and construct validity. The explanation of content validity and construct validity, as follows;

a. Content validity

The test was said to have content validity if its content constitutes a representative sample of the language skills, structure etc, being tested. Beside that the content of instrument have to relevant with the purpose of the test. In this research, the content of instruction in testing used intruction to describing thing. It was suitable for the eight grade students of MTs Sunan Kalijogo Kalidawir.

b. Construct validity

Construct validity is capable of measuring certain specific characteristic in accordance with a theory of language behaviour and learning. Its the process of determining the extent to which test performance can be interpret in term of one or more construct. Here, the researcher used construct validity in administering speaking test. It was used to measure the students' speaking ability.

2. Reliability Testing

Realibility is the degree to which one may expect to find the same result if a measurement is repeated. its means that a test has high realibility if it give the same resul, when it is tried out many time on sample.

The computation of this realibility used *IBM SPSS Statistics 16* with *realibility analysis*. The criteria of realibility's degree can be seen on Table below, whereas the realibility's result can be seen on appendix.

According to triton in Sujianto (2009) the value of cronbach's alpha can be interpreted as follow:

Table 3.2 cornbrach's alpha interpretation based on triton

Cronbach's Alpha	Interpretation
0.00-0.20	Less Reliable
0.21-0.40	Rather Reliable
0.41-0.60	Quite Realiabile
0.61-0.80	Reliable
0.81-1.00	Very Realiabile

E. Normality and Homogeneity Testing

1. Normality Testing

Normality testing is conducted to know whether the gotten data is normal or not. The computation of normality testing in this research using *IBM SPSS Statistics 16* is *One-Sample Kolmogorov-Smirnov test* by the value of significance (α) = 0.050. Testing of data normality is conducted by the rules as follow:

- If the value of significance > 0.050 so the distribution data is normal.
- If the value of significance < 0.050 so the distribution data is not normal.

If the distribution data is normal, so next to homogeneity testing.

2. Homogeneity Testing

Homogeneity testing is conducted to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing by using *IBM SPSS Statistics 16* is *Test of Homogeneity of Variance* by the value of significance = 0.050. Before doing homogeneity testing, the researcher decides hypothesis in this homogeneity as follow:

H₀: Both variances (before and after given the treatment) are same.

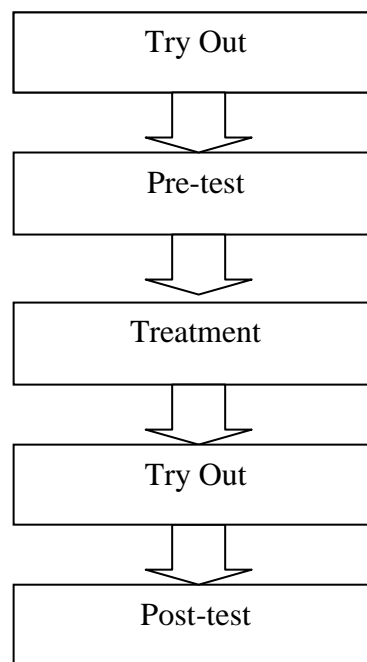
H_a: Both variances (before and after given the treatment) are different.

There is also certainty in taking decision of homogeneity testing, as follow:

The value of significance > 0.050 , so H₀ is rejected, its mean that the data of the populations that have different variance.

F. Method of Collecting Data

Figure 3.1 Method of Collecting Data



G. Technique of data analysis

The data were gotten from pre-test and post-test. Then, the researcher computed the difference between the mean of pre-test and post-test from experimental group and control group because the researcher want to know whether there was significant difference of students score in speaking ability between the students score before and after being taught by using realia.

After that, the researcher analyzed the normality of pre-test and post-test from experimental group and control group. Normality testing is conducted toknow whether the gotten data is normal or not. The computation of normality testing in this research used *IBM SPSS Statistics 16* is *One-Sample Kolmogorov-*

Smirnov test by the value of significance (α) = 0.050. Testing of data normality is conducted by the rules as follow:

- If the value of significance > 0.050 so the distribution data is normal.
- If the value of significance < 0.050 so the distribution data is not normal.

If the distribution data is normal, so next to homogeneity testing.

Homogeneity testing is conducted to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing by using *IBM SPSS Statistics 16* is *Test of Homogeneity Variance* by the value of significance = 0.050. Before doing homogeneity testing, the researcher decided hypothesis in this homogeneity as follow:

H₀: Both variances (before and after given treatment) are same.

H_a: Both variances (before and after given treatment) are different.

There is also certainty in taking decision of homogeneity testing, as follow:

The value of significance > 0.050 , so H₀ is rejected, its mean that the data is the populations that have different variance.

If the data gotten was normal and homogeneous, the next, testing hypothesis by using *IBM SPSS Statistics 16* is *independent sample t-test* for gain scores. Gain scores was the result of post-test minus pre-test and then it was counted by using using *IBM SPSS Statistics 16* is *independent sample t-test* for gain scores. In this research, hypothesis testing was used to know whether thereare difference between teaching speaking using realia and conventional teaching towards material of speaking ability.

Intrepretation of the result of *paired sample t-test* on gained scores of the sample are as follows:

- If the value of significance < 0.050 and $t_{count} > t_{table}$. Its mean that there is difference between use realia and do not use realia towards students' acievement in speaking.
- If the value of significance > 0.050 and $t_{count} < t_{table}$. Its mean that there is no difference between use realia and do not use realia towards students' acievement in speaking.

If the gotten data was not normal and homogeneous , so testing hypothesis by non parametric statistic, like *Mann-Whitney* testing. This testing was strongest test than another nonparametrik test. The test was other alternative for T-test parametric if the reseacher want to avoid the opinion of T-test which the measuring in the research is more weak than interval scale.

Interpretation of the result of *Mann-Whitney* testing on *gain scores* of sample are as follows:

- If the value of significance < 0.050 . Its mean that there are difference between *gain scores* of the students that are taught by using realia and whose not in speaking.
- If the value of significance > 0.050 . Its mean that there are no difference between *gain scores* of the students that are taught by using realia and whose not in speaking.