# CHAPTER III

# RESEARCH METHOD

This chapter will discuss about the method used by the researcher in conducting this research. The discussion will cover research design (a), population, sample and sampling (b), research variable (c), research instruments (d), validity and reliability testing (e), Normality Testing (f), data collecting methods (g), and data analysis (h).

## A. Research Design

Research design used in this study is pre-experimental research design with quantitative approach. Creswell (2008:6) states that quantitative research is a type of educational research in which the researcher decides what to study, asks specific, narrow question, collects quantifiable data from participants, analyze these numbers using statistics, and conducts the inquiry in an unbiased, objective manner.

Quantitative is research that is used statistical technique to understand and explain phenomena. Ary et al (2010 : 26) states that experimental research involves a study of the effect of the systematic manipulation of one variable on another variable. The manipulated variable is called the experimental treatment or the independent variable.

The goal of experimental research is to test hypothesis to establish cause and effect relationships. The overarching purpose of experimental

research is to determine whether a particular approach or way of doing something is "better" than the "older" or more traditional approach that has served as the standard practice (Lodico et al, 2006 : 12).

There are many kinds of the experimental research design, such as pre-experimental design, true experimental, factorial design and quasi-experimental designs (Ary et al ,2010 : 302). This research used pre-experimental design because they provide little or no control of extraneous variables in the form of one-group pretest-posttest design. This research used pre-test and post-test to see the result of the treatment.

The one-group pretest and posttest design usually involves three steps : (1) administering a pretest measuring the dependent variable, (2) applying the experimental treatment X to the subjects, and (3) administering a post test, again measuring the dependent variable. Differences attributed to application of the experimental treatment are then evaluated by comparing the pretest and post-test scores (Ary et al, 2010 : 303).

**Table 3.1 A Diagram One Group Pretest-Posttest Design**

| Pre-test | Independent Variable | Post-test |
|----------|---------------------|-----------|
| $Y_1$    | X                   | $Y_2$     |

The procedures of the pre-experimental research with one-group pretest-posttest design in this research were described as follows:

1. Administering a pretest ($Y_1$) which proposed to measure students' mastery in vocabulary before given a treatment.

2. Applying an experimental that was using song ($X$) to teach vocabulary.

3. Administering a posttest ($Y_2$) which proposed to measure students' mastery in vocabulary after given a treatment.

Applying one group pretest-posttest, the researcher wanted to find out whether there is any significant different of students' mastery before and after being taught using song at MTsN Tunggangri in academic year 2015/2016.

## B. Population, Sample and Sampling

### 1. Population

Before the sample was collected, the researcher had to determine the population. Arikunto (2006: 130) stated that a Population is formulated as the whole groups of people or object that have been formulated clearly. Based on Creswell (2008: 151) a population is a group of individuals who have the same characteristics. It means population has at least one characteristic that differentiates it from other groups.

The population of this study was taken from MTsN Tunggangri Kalidawir Tulungagung. The population of this research is all of the class of eighth grade students in MTsN Tunggangri that is consist of ten classes

in academic year 2015/2016 with total of students 392 students, 169 male, and 223 female. The quantity of students in each class of the population as follows :

**Table 3.2 Population of the Research**

| Class | X (Total of Students) |
|---|---|
| VIII – A | 28 |
| VIII – B | 42 |
| VIII – C | 42 |
| VIII – D | 42 |
| VIII – E | 42 |
| VIII – F | 41 |
| VIII – G | 39 |
| VIII – H | 37 |
| VIII – I | 38 |
| VIII – J | 41 |
| $\sum X$ | 393 |

2. **Sample**

Sample is part of population. A sample must be representative to a population (Arikunto, 2006: 131). It means that good sample must be representative of the entire as possible, so that the generalization of the sample of this research. Based on Creswell (2008: 152) a sample is a

subgroup of the target population that the researcher plans to study for generalizing about the target population.

According to Sugiyono, (2007 : 73) states that the sample is part of the total and characteristics possessed by the population. It means if the population is very large, it is unlikely that the researcher learn all that exists in the population. Therefore, researcher can use the sample taken from the population. The sample of this research was the VIII E grade students at MTsN Tunggangri academic year 2015/2016 consists of 42 students, 18 male, and 24 female. The researcher decides to choose VIII E because the researcher believes that VIII E has average proficiency in English language subject. Based on the researcher consideration this class is appropriate one for doing the research.

3. **Sampling**

Sampling technique is the process of selecting a number of individuals for a study in such a way the individual represent the large group from they were selected. Sampling is the process of selecting a number of individuals for a study in such a way that the individuals represent the larger group from which they were selected (Gay, 1992:123). The purpose of sampling is to gain information about a population; rarely is a study conducted that includes the total population of interest as subject.

According to Sugiyono (2007: 73) stated that sampling is technique to take sample. Thus, in selecting the sample in this research, the researcher

chooses one kinds of non probability sampling. For this research, the researcher used purposive sampling technique. Purposive sampling also referred to as judgment sampling-sample elements judged to be typical, or representative, are chosen from the population (Ary et al, 2010: 156).

The researcher used purposive sampling to choose the sample. Purposive sampling is technique to chosen the sample with specific purpose (Sukardi, 2012: 64). By using purposive sampling, the expected criteria for sample obtained completely in accordance with the research to be conducted. Choosing the sample is based on purposive sampling depends on what criteria are used. So first determined what criteria sample taken researcher took sample of class VIII. The researcher chooses the class VIII-E as the sample because in applying the experimental design, the sample must not be too "good" and too "bad" in their English achievement. It is intended to reduce the extraneous variable may appears since the design is pre-experimental research without control group. And also, the researcher chooses class VIII-E as the sample because among other classes the students of the VIII-E class had average capability based on purposive sampling depends on what criteria are used.

## C. Research Variables

Variable is research object or something that becomes view point of research. Variable is a characteristics or attribute of an individual or an organization that researchers can measure or observe and varies among

individuals or organizations studied (Creswell, 2008: 123). This study has two variables; they are independent variable and dependent variable.

a. Independent variable

Independent variable is the variable which influence dependent variable, in the other words independent variable is causes variable. Independent variable is an attribute or characteristic that is dependent on or influenced by the independent variable (Creswell, 2008: 126). In this research, the independent variable is song.

b. Dependent variable

Dependent variable is the variable which is influenced by independent variable. According to Creswell (2008: 126) dependent variable is an attribute or characteristics that influences or affects an outcome or dependent variable. The dependent variable in this study is the students' vocabulary mastery.

### D. Research Instrument

The researcher must use instrument in order to get the better data. The instrument of the research is a tool or facility that is used by researcher for collecting data in order to get better result or in other words, it can be occur complete and systematic. The instrument is used by the researcher is test. The instrument of the test in this research is objective test. Objective test is frequently criticized on the grounds that they are simpler

to answer than subjective test. This vocabulary testing used by the researcher to know the students mastery in vocabulary before and after taught by using Song.

Tests are valuable measuring instruments for educational research. A test is not necessarily a written set of questions to which an individual responds in order to determine whether he or she "passes" (Gay, 1992: 154). According to Ary et al (2010; 201) stated that a test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned. Arikunto (2010:193) explain that a test is a set of question or exercise or by any means which is used to measure the skill and the knowledge, intelligence, ability or talent proposed by individual or a group of people.

The researcher gave twice of test to the students. The first test was pretest where it was given to the students before giving treatment by teaching vocabulary using song. It aims to know students mastery of vocabulary achievement before taught by using song. The second test is given to the students after giving treatment by teaching vocabulary using song. It aims to know students mastery achievement after taught by using song.

The test items in the pretest are exactly same as those in the posttest. The researcher gave the test that contains 25 items and consists of 2 kinds. The first kind is multiple choices that contain 20 items. Second is changing the verb from verb 1 to verb 2. It was done to know the final score and to know the students' difference competence before and after they getting treatment. Thus, in measuring the students' comprehension achievement the teat was considered quit representative to topic in the class.

E.  **Validity and Reliability Testing**

The quantitative research always depends on measurement. These measurements are validity and reliability through instrument of research. The instrument of this research was test.  In this research, vocabulary test used to measure the students' achievement in mastering vocabulary after they have been taught by using song. Validity and reliability testing of this test was very important to know scores derived from instrument used in the research.

1.  **Validity**

Validity is concerned with how accurate the test measure and the appropriate of the test for the subjects. It is one characteristics of a good test. According to Ary et al (2010:225) validity was defined as the extent to which an instrument measured what it claimed to measure. Heaton (1988; 159) states that the validity of test is the extent to which it measures what it is supposed to measures and nothing else. There are four types of validity, they are content validity, criterion-related validity, construct validity, and face validity. In this research, the researcher used content validity and construct validity to measure whether the test has a good validity or not. The description of both types of validity is described below.

a.  **Content Validity**

A test is said to have content validity if its content constitutes a representative sample of the language skills, structures, etc with which it is meant to be concerned. The test would have content validity only if it includes a proper sample of the relevant structures (Hughes,

1989:22). The researcher create questions of the test based on the components of vocabulary testing that is matched by syllabus so that is was not out of contents. The researcher made this test based on the course objectives in the syllabus of eighth grade in MTsN Tungganggri. The content validity in this research can be showed as follow:

**Table 3.3 Content Validity of the Objective of Syllabus**

| Standard Competence | 12. Mengungkapkan makna dalam teks tulis fungsional dan esai pendek berbentuk *recount text* dan *narrative* untuk berinteraksi dengan lingkungan sekitar |
|---|---|
| Basic Competence | 12.1 Mengungkapkan makna dan langkah retorika dalam esai pendek sederhana dengan menggunakan ragam bahasa tulis akurat, lancar dan berterima untuk berinteraksi dengan lingkungan sekitar berbentuk *recount* dan *narrative* |

*Continued*

*Continuation*

| Indicator | • Mengidentifikasi cirri kebahasaan teks fungsional pendek berbentuk *recount text / narrative* • Menulis teks pendek dan sederhana dalam bentuk *recount text / narrative* dengan langkah retorika yang benar • Mengidentifikasi berbagai makna *recount text / narrative* |
|---|---|
| Technique | Writing |
| Instrument of Test | Pre-test Post-test |

**b. Construct Validity**

A test is said have construct validity if it can be demonstrated that it measures just the ability which is supposed to measure. Based on Heaton (1989 : 161) if a test has construct validity, it is capable of measuring certain specific characteristics in accordance with a theory of language behavior and learning. Creswell (2008: 173) stated that construct validity is established by determining if the scores from an instrument are significant, meaningful, useful, and have a purpose.

2. **Reliability**

Reliability is a necessary characteristic of any good test for it to be valid at all and a test must be reliable as measuring instrument. According to Ary et al (2010: 236) the reliability of a measuring instrument is the degree of consistency whit which is measures whatever it is measuring. Creswell (2008: 169) states that a goal of good research is to have measures or observations that are reliable. This quality is essential in any kind of measurement. So, the reliability is important part to know the test is good or not in using the test to measure students master in vocabulary of this research. A reliable test is consistent and dependable. Thus, if the students are given the same test on two different occasions, the test should yield similar result and the more similar the scores are, the more reliable the test is.

The researcher consider the reliability coefficient use the formula from Kuder Richardson Reliability or KR-20, which is based on the proportion of correct and incorrect responses to each of the items on a test and the variance of the total scores (Ary et al, 2010:245). The researcher uses KR-20 Formula by calculating the data using Microsoft Excel. According to Vansickle (2015: 4) the classification of reliability test is:

**Table 3.4 The Criteria of Coefficient Correlation**

| Reliability Test Coefficient | Classification |
|:---:|:---:|
| Less than 0.20 | Poor |
| 0.20 to 0.40 | Fair |
| 0.40 to 0.60 | Moderate |
| 0.60 to 0.80 | Good |
| 0.80 to 1.00 | Very Good |

Based on table above the researcher got value of coefficient reliability was 0.704 for tryout pre-test instrument and the value of coefficient reliability was 0.783 for tryout post-test instrument.

According to Ary et al (2010: 241) if the reliability coefficient is near 1.00, the instrument has relatively little error and high reliability. From this statement, the researcher could be conclude that both instrument in pre-test and post-test was reliable, so it can be used as appropriate instrument to measure student's mastery in vocabulary with needed some any revising.

## F. Normality Testing

Normality test are used to determine whether a data set is well-modeled by a normal distribution or not. Normality test is intended to show that the sample data come from a normality distribution population. To know the normality, the researcher used One-Sample Kolmogorov-Smirnov test with SPSS 16.0. The hypotheses for testing normality are:

a. $H_o$　　　　: Data is in normal distribution

b. $H_a$　　　　: Data is not in normal distribution

c. The hypotheses for normality testing explain that the data is normal distribution if $H_o$ is accepted and the data is not in normal distribution if $H_a$ is accepted. The $H_o$ is accepted when the significance value is higher than 0.05 ($\alpha = 5\%$), while $H_0$ is rejected when the significance value is lower than 0.05 ($\alpha = 5\%$). The result for normality testing can be seen as follows;

**Table 3.5 One-Sample Kolmogorov-Smirnov Test**

**One-Sample Kolmogorov-Smirnov Test**

| | | Unstandardized Residual |
|---|---|---|
| N | | 42 |
| Normal Parameters[a] | Mean | .0000000 |
| | Std. Deviation | 10.38670264 |
| Most Extreme Differences | Absolute | .104 |
| | Positive | .104 |
| | Negative | -.098 |
| Kolmogorov-Smirnov Z | | .673 |
| Asymp. Sig. (2-tailed) | | .756 |

a. Test distribution is Normal.

Based on the data above, the result of normality test uses one-sample kolmogorov-smirnov test shows the subjects is 42 students. The value of Kolmogorov-Smirnov Z is 0.673 and the Asymp. Sig (2-tailed) is 0.756. It shows that the data is normal, because the value of Kolomogorov-Smirnov Z is 0.673 more than 0.05 (0.673>0.05) and the Asymp. Sig (2-tailed) is 0.756 more than 0.05 (0.756>0.05).

### G. Data Collecting Method

The data collecting method is the method to obtain the data in the research. The method in collecting data of this research is administering test. The researcher gave twice test to the students. The first test is pre-test and the second post-test while there were teaching activities or treatment between both tests.

1. Pretest

Pre-test was given before the treatments. Lodico et al (2006: 178) a pretest is a test given before the experimental treatment. So pretest is done before treatment process to know the students' vocabulary mastery before taught used by song. The researcher gave the test that contains twenty five items and consists of two kinds. The first kind is multiple choices that contain twenty items. Second is changing the verb from verb 1 to verb 2. The numbers of students who took the pre-test there were 42 students. Then, the result of the test is students' score. The score obtained were analyzed to determine between pre-test and post-test.

2. Posttest

Post-test was held after all treatments were conducted. A posttest is a measure on some attribute or characteristic that is assessed for participants in an experiment after a treatment (Creswell, 2008: 297). The test items in the post-test are exactly the same as those in pre-test. The post-test is done to see final score and to know the different of the students' score before get the treatment and after they get the treatment. The goal of

this test is to measure students' vocabulary after being taught using song. The researcher gave the test that contains twenty five items and consists of two kinds. The first kind is multiple choices that contain twenty items. Second is changing the verb from verb 1 to verb 2. The numbers of students who took the pre-test there were 42 students.

## H. Data Analysis

The data obtained from research result students test that were analyzed quantitatively. Quantitative analysis was done using statistic which is called statistical analysis. This technique was used to find the significant difference on students' vocabulary mastery before after being taught using Song. The data was collected from students' score in pretest and posttest. To know the significant difference on the students' vocabulary mastery before and after being taught by using song, the researcher in this research using paired sample T-test as SPSS 16.0 for windows, because of some reason. There are, first the data is interval data (see from the score of the student), second the data is parametric. Parametric is the test for analyzing interval and ratio data. Third, the data is normal it can be seen from normality testing which show that the data is normal. Fourth, the researcher use only one class and consists of 42 students, and use the treatment before – after section. The total number of students which is higher than from 30 students is one requirement for use t-test.