

## **CHAPTER III**

### **RESEARCH METHOD**

This chapter presents the research method. It focuses the method used in conducting this study. The decision covers research design, population, sampling and sample, variable data, data source, data collecting method and instruments and technique of data analysis.

#### **A. Research Design**

In this study the writer use experimental research design with two groups using quantitative approach. Experimental research design is a research design intended to test the effectiveness of something. Experimental research is a scientific investigation in which an investigator manipulates and controls one or more independent variables and observes the dependent variable or variables for variation concomitant to the manipulation of the independent variables (Ary,1985:26). According to Creswell (2008:3) research is a process of steps used to collect and analyze information to increase our understanding of a topic or issues". Thus, research method is an important part in a research to find out the scientific truth. The experimental method is a systematic and scientific approach to research in which the researcher manipulates one or more variables, and controls and measures any change in other variables.

In this research the researcher used Quasi Experimental research design with quantitative approach. This design focuses on treatment and outcome. The data was collected from pretest and post test in order to know whether English Grammar Application is effective in teaching simple past tense. According to Craswell (2008:3) below is the general overview of quasi-experimental design:

Table 3.1 Two Groups Pre-test Post-test Design

Group	Pretest	Independent Variable	Post Test
E	Y1	X	Y2
C	Y1	-	Y2

Note:

E : Experimental Group

C : Control Group

Y1 : Pre-test

Y2 : Post-test

X : Treatment

Pretest is given for the both of classes. In experimental group the researcher administer test using the application. In control group the researcher administer test in form of paper-based test. The aim of administering pretest is to knows the student's ability in grammar before being taught using the application.

The treatment will be given only in the experimental group. After the researcher administering pretest, the students was taught by using the application. the learning process in control group used conventional method in teaching. The research only use board as the media for teaching

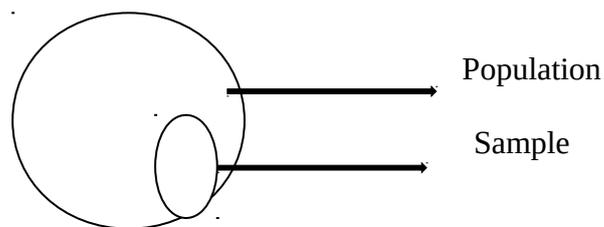
After the treatment was given to the students, the researcher administering post test for both of control group and experimental group. After that the

researcher analyze the students score and interpret it whether the application is effective.

### **B. Population and Sample**

Population is all subjects being studied. Parahoo (1997:218) defines population as “the total number of units from which data can be collected”, such as individuals, artifacts, events or organizations. Burns and Grove (2003:213) describe population as all the elements that meet the criteria for inclusion in a study. Sample is part of population that is being studied. Whether sampling is a process of taking sample.

**Figure 3.1 The illustration of population and sample**



The population of this research is students in the first grade of Islamic Senior High School Kota Blitar which has 352 students. Then the researcher uses purposive sampling to decide the sample. The researcher chooses students in X MIA 1 with 30 students, and X MIA 2 with 34 students.

### **C. Variables**

Variables is one of key term in any research. Variable is focus of a study. according to Ary (1985:30) the variables are classified as independent and dependent variables. Here are the variables of this research:

1. Independent Variable: is the one affecting another variable. In this research teaching grammar using English Grammar Test Application is an independent variable because it can affect the students score. After the treatment are given, the students score will change.
2. Dependent Variable: is the one affected by another variable. In this research student's grammar achievement is a dependent variable because after get the treatment, it will change.

### **D. Research Instrument**

Instrument is very important in every research. The function of instrument is as a tool to get the data. The instrument which is used by the researcher is test. The aim of the test is to know the students score before and after taught by using English Grammar Application.

Gay, (1992: 154) stated that a test is not necessarily a written set of question to which and individual respond in order to determine whether he or she passes. It means that after the students are being tested, students can measure their ability whether they are passed the test or not. When students get high score means that they can pass the exam. In opposite, when the students score are low, means that they can't pass the exam or their ability still low.

The test was multiple choices with 30 question for both pre-test and post-test. The content of pre-test and post test were the same content but in different form. The test specification can be seen in this table:

**Table 3.2 Number of Questions**

<b>Material of Simple Past Tense</b>	<b>Number of items</b>	<b>Total</b>
The use of past participle	Randomly between 1-30	30 questions
The use of auxiliary (was/were)	Randomly between 1-30	
The use of regular/irregular verb	Randomly between 1-30	

There were four meetings that the researcher needed to collect the data. Each meeting consists of 45 minutes.

To classify the students' score the researcher use the following criteria:

**Table 3.3 Criteria of students' score**

<b>No</b>	<b>Classification</b>	<b>Range of Score</b>
1.	Excellent	96-100
2.	Very Good	86-95
3.	Good	76-85
4.	Fairly Good	66-75
5.	Fair	56-65
6.	Poor	46-55
7.	Very Poor	0-45

## **E. Validity**

Validity refers to the extent to which an instrument measured what it claimed to measure (Ary *et al*, 2009: 225). It means that the test will be valid when it measures what is supposed to measure. To ensure whether the test has a good validity, the researcher used construct validity and content validity.

### **1. Content validity**

According to Gay (1992:156) content validity is the degree to which a test measures an intended content area. Content validity is a kind of validity which depends on a careful analysis of the language being tested and of the particular test. A test is done to have content validity if its contents a represented sample of the language skill, structure, etc. The test will have content validity if it includes a proper sample of the structure or content which is relevant with the purpose of the test.

Content validity is a kind of validity which depends on careful analysis of the language being tested and of the particular test subjective. According to Gay in his book, *Educational Research Competencies for analysis and Application Fourth Edition*, "Content validity is of prime importance for achievement test. A test score cannot accurately reflect a student's achievement if it does not measure what the student was supposed to learn (Gay, 1992:156). A test is said to have content validity if its contents constitutes a representative sample of the language skill, structure, etc. Being tested, the try out test was valid in terms of content validity because this test accord with Syllabus.

Thus, the researcher can conclude that the test were valid in content validity because thematerial are tested have been taught to the students. the researcher made this test based on the course objective in the syllabus of Islamic Senior High School Kota Blitar. Therefore, this test was valid in term of content validity.

**Table 3.4 Content Validity**

Main competence	3.5 membedakan fungsi social, struktur teks, dan unsur kebahasaan beberapa teks recount lisan dan tulis dalam bentuk biografi dengan memberi dan meminta informasi terkait tokoh terkenal sesuai dengan konteks penggunaannya.
Basic Competence	4.5.2 menyusun teks recount lisan dan tulis dalam bentuk biografi terkait tokoh terkenal dengan memperhatikan fungsi social, struktur teks, dan unsur kebahasaan secara benar sesuai konteks
Indicator	<ul style="list-style-type: none"> <li>- Siswa mampu membuat kalimat dalam bentuk Simple Past Tense</li> <li>- Siswa mampu membuat kalimat dari hal-hal yang mereka lakukan di masa lampau dalam bentuk Simple Past Tense</li> <li>- Siswa mampu megidentifikasi kalimat dalam bentuk Simple Past Tense</li> </ul>
Technique	Written test
Instrument	<ul style="list-style-type: none"> <li>- Pretest</li> <li>- Post Test</li> </ul>

## 2. Construct Validity

A test must have a cosntruct validity if it can be demonstrated that it measured just the ability which is supposed to measure. The word construct refers to any underlying ability which hypothesized in a theory of language ability. The form of the test must be sitable to the tedt

grammar, no other skill. Here the researcher make 30 questions to measure student grammar achievements.

**Table 3.5 Construct Validity**

No.	Standard Competence	Test items
1	The use of past participle	1-10
2	The use of auxiliary (was/were)	11-20
3	The use of regular/irregular verb	21-30

### 3. Face Validity

Face validity becomes one of the validity types that can be established. Validity was measurement that showed the level of the instrument. Face validity was very important. A test which does not have face validity may not be acceptable by test takers, teachers, education authorities, and employers. The researcher used face validity by consulting with the advisor to validate the test.

### F. Reliability

Reliability refers to consistency of score obtained by the same persons when they are re-examined with the same test on the different occasion or with different sets of equivalent items. Validation in this research as the result was taken from SPSS as follows:

**Table 3.6 Reliability Testing**

**Case Processing Summary**

Cases	N	%
Valid	10	100.0
Excluded <sup>a</sup>	0	.0
Total	10	100.0

**Reliability Statistics**

Cronbach's Alpha	N of Items
.488	29

The result of calculation on the reliability test was 0,488. According to Triton, the value of Cronbach's alpha can be interpreted as follow

**Table 3.7** Interpretation of Cronbach Alpha

<b>Cronbach's Alpha</b>	<b>Interpretation</b>
0,00-0,20	Less Reliable
0,21-0,40	Rather Reliable
0,41-0,60	Quite Reliable
0,61-0,80	Reliable
0,81-1,00	Very Reliable

When the reliability score compared with those categories, reliability calculation result is in the range of 0,41-0,60 in accordance with the categories of reliability in the table above are quite reliable.

### **G. Technique of Collecting Data**

The researcher used quasi-experimental research design to collect the data. The researcher give treatment to experimental group by using the application and

take their score with the application too. From the control group, the researcher use conventional method to teach them and take their score in paper based test.

## H. Normality and Homogeneity Testing

### 1. Normality Testing

Normality testing is conducted to know whether the data is normal distributed or not. The normality testing in this research used statistic computation SPSS One-Sample Kolmogrov-Sminov test by the value of significance ( $\alpha$ ) = 0.05. Testing of data normality is conducted by the rules as follow:

- If the value of significance  $> 0.05$ , so the data is normally distributed.
- If the value of significance  $< 0.05$ , so the data is not normally distributed.

If the data are normally distributed, the researcher can continue to the homogeneity testing.

### 2. Homogeneity Testing

Homogeneity testing is conducted to know whether the data has a homogeneous variance or not. The homogeneity testing in this research using statistic computation SPSS that is Levene Statistic test by the value of significance ( $\alpha$ ) = 0.05. The sample can be categorized as a homogeneity if the value of significance  $>$  than 0.05, so it means that the data of sample as same variance.

## **I. Data Analysis**

The data of the research are collected from the students score that will be analyzed quantitatively. Quantitatively analysis was done using statistical formula is called statistical analysis. The function is to find out the significance differences between students who are taught by using English Grammar Application and they are who do not teach. The data are analyzed by using SPSS 16.0 for windows.

The quantitative data on this research is analyzed by using statistical computation. The researcher analyze the data by using formul of t-test to know the significance difference of english grammar achievement between students who are taught by using English Grammar Application and those are who are not.