

### III. RESEARCH METHOD

#### 3.1 Research design

In conducting this research the writer used experimental method. This experimental method dealt with two groups, one was experimental class 1 and another was experimental class 2. Each of the groups received pre-test, treatments and post test. The experimental 1 class got treatment through group work and the experimental class 2 got treatment through individual study. The design can be represented as follows:

K1 : T1 X1 T2

K2 : T1 X2 T2

K1 : experimental class 1

K2 : experimental class 2

T1 : pre-test

X1 : Experimental class 1 treatment by using group work technique

X2 : Experimental class 2 treatment by using individual study technique

T2 : post-test

(Setyadi, 2006:135)

### **3.2 Population and Sample**

The population of the study was the second year students of SMP N 23 Bandar Lampung in the 2009/2010 academic year. Grade VIII was chosen considering the previous knowledge they have from previous semesters. The research was done in SMPN 23 Bandar Lampung since there was no such research conducted. To decide the classes chosen, simple random probability sampling by using lottery is used (Setiyadi, 2006: 39). There were eight classes of grade eight, one class was ignored since the class belongs to the superior class which means that the students in the class were selected from all students who got high achievement in all subjects. Therefore, from seven classes of grade eight students, two classes were randomly taken. In this research one class became experimental class 1, that was 8C and another class was 8D becomes the experimental class 2.

### **3.3 Variables**

A variable can be defined as an attribute of a person or an object which varies from object to object (Evelyn Hatch, 1982: 12). While John W best (1997: 9) says that variables are the conditions or characteristics that the researcher manipulates, controls, or observes.

In a field research, variables are classified into dependent, independent, moderate, control, and intervening variables. In this script, the writer applies only two variables, they are:

1. Group work and individual study became independent variables.

2. Students' achievement in learning simple past tense became dependent variable.

### **3.4 Data Collecting Technique**

The procedures of this research were as follows:

1. Finding the population

The populations of the research were taken randomly by using lottery.

2. Administering the try-out test to another class

This test was administrated to know the quality of the test.

3. Presenting the pre-test

This test was given to experimental class 1 and experimental class 2 in order to know the students' background knowledge of simple past tense. It was also administered in order to know the equality and the differences of the two classes. The researcher asked two raters to score the results.

4. Arranging the material to be taught

The researcher arranged the material that would be taught to each class by preparing the lesson plan.

5. Implementing the methods (group work and individual study) both in experimental and control group

In this term, the researcher applied two techniques to both classes. The experimental class was taught by using group work and the control class was taught by using individual technique.

6. Presenting the post-test to evaluate the result of the experiment.

This test was given after the experiment to both classes in order to know the student's achievement after they received the treatment. The researcher asked two raters to score the result.

#### 7. Analyzing the data

The data were analyzed by using normality test, homogeneity test, and hypothesis test.

### **3.5. Data Analysis**

In analyzing the data, the researcher used the following steps:

#### 1. Try out-test

This step was done in order to know the level of difficulty and discrimination power and also to find out the reliability of the test. Thus, 40 items were tested in the try out.

#### 2. Pre-test

The goal was in order to know the student's ability in mastering the simple past tense before they were given the treatment. It was administered in order to know the equality and difference of the two classes. It used to see whether the two classes have equal background knowledge or not.

#### 3. Post-test

After conducting the treatment, the researcher gave post-test to both classes. It was done in order to know the result of the experimental and

control class, whether they had development or not.

### **3.6. Research Instrument**

The instrument that was used for collecting data was pre-test and post-test. The type of the test was objective test. It was multiple choice tests. Each items consisted of four options: a,b,c,d. The area or material that was tested was simple past tense. The writer used thirty test items.

### **3.7 Criteria of Good Test**

In this research, to prove whether the test has good quality, it must be tried out first. The test can be said having a good quality if it has a good validity, reliability, level of difficulty, and discrimination power.

#### **1. Validity**

The validity of the test is the extent to which it measures what it is supposed to measure and nothing else (Heaton, 1991:159). In order to measure whether the test has a good validity, the researcher analyzes the test from content, construct, and face validity.

Content validity is concerned with whether the test is sufficiently representative and comprehensive for the test. In the content validity, the materials given are suitable with the curriculum. In this case, the researcher uses the simple past tense

that is supposed to be comprehended by grade VIII students. To fulfill this validity, the researcher should see all the indicators of the instrument and analyze them whether the measuring instrument has represented the material that will be measured or not. In this research, the researcher will arrange the instrument based on the material that will be given. If the measuring instrument has represented all the ideas that connected with the material that will be measured, that measuring instrument has fulfilled the aspect of content validity. Content validity can also be examined from the table of specification. If the table represents the material that the tester wants to test, it means that it is a valid test from the point of view (Shohamy, 1985: 74). The content validity is constructed by including simple past tense material presented in the training; they are regular verb, irregular verb, auxiliary verb, and modal verb.

The content of try out test is represented in the table of specification below:

Table 3. Specification of the Try out Test

No	Verb Classes	Numbers of Items	Percentage
1	Regular verbs	2,8,10,11,26,32,33,34,39	22,5%
2	Irregular Verbs	3,5,6,12,13,15,17,18,19,21,22,24,27,29, 30,35,40	42,5%
3	Auxiliary Verbs	1,4,7,9,16,20,25,28,36,37,38	27,5%
4	Modal Verbs	14,23,31	7,5%
Total			100%

Construct validity examines whether the test actually in line with the theory, meaning that whether the test in line with the school curriculum. In this research, the researcher uses the simple past tense that is supposed to be comprehended by the grade VIII students of junior high school. The materials are based on the curriculum used in junior high school nowadays; it is KTSP (Kurikulum Tingkat Satuan Pendidikan) 2006.

## 2. Reliability

Hatch and Farhady (1982:243) says that reliability of a test can be defined as the extent to which a test produces consistent result when administered under similar conditions. Because of consisting some indicators in the instrument, researcher will use split-half technique in order know how far each indicator will show the same result in measuring an aspect. To measure the coefficient of the reliability between odd and even group, this research uses the Pearson Product Moment Formula (Arikunto, 1997:69) as follows:

$$r_{xy} = \frac{N \sum XY - (\sum x)(\sum y)}{\sqrt{[N \sum x^2 - (\sum x)^2][N \sum y^2 - (\sum y)^2]}}$$

Where:

r : coefficient of reliability between odd numbers and even numbers items

x : total numbers of odd numbers items

y : total numbers of even numbers items

n : number of students who take part in the test

X<sup>2</sup> : square of x

Y<sup>2</sup> : square of y

$\Sigma x$  : total score of odd numbers items

$\Sigma y$  : total score of even numbers items

Then this research use “Spearmen Brown’s Parophecy Formula” (Hatch and Farhady, 1982:286) to know the coefficient correlation of whole items.

The formula is as follows:

$$r_k = \frac{2r_l}{1 + r_l}$$

$r_k$  : the reliability of the test

$r_l$  : the reliability of half test

The criteria of reliability are:

0.90-1.0 : high

0.50-0.89 : moderate

0.00-0.49 : low

(Hatch and Farhady, 1982:286)

The result of reliability of try out test in this research was 0.98 (see appendix 4). Seeing the criteria that the writer proposed above, the reliability of this test was high, while a criterion for high reliability was in range 0.90-1.00. It could be concluded that this instrument would give consistent result when it was administered under similar condition, to the same participant and in different time (Hatch and Farhady, 1985:247). Therefore, it could be stated that the test had fulfilled the criteria of reliability. In other words, the test was reliable.

### 3. Level of Difficulty

To see the level of difficulty, the researcher uses the following formula:

$$LD = \frac{R}{N}$$

Where:

LD : level of Difficulty

R : number of students who answer correctly

N : the total number of students following the test

The criteria are:

<0.30 : difficult

0.30-0.70 : average

>0.70 : easy

(shohamy, 2985:79)

Seeing the result of item analysis from try out test, it could be inferred that there were ten items which came into the classification of easy items, those were items numbers 8,11,12,16,17,28,32,34,35, and 39 (see appendix 5). The rest 30 items were in the level of average difficulty. The ten easy items were dropped, while the rests were administered for the pretest and posttest.

### 4. Discrimination Power

To see the discrimination power, the researcher will use the following formula:

$$DP = \frac{U - L}{\frac{1}{2}N}$$

Where:

DP : discrimination power

U : the proportion of upper group students

L : the proportion of lower group students

N : total number of students

The criteria are:

1. If the value is positive discrimination a large number of more knowledge students then poor students get the item correct. If the value is zero, no discrimination
2. If the value is negative, it means that more low-students than high level students get the item correct
3. In general, the higher the discrimination index, the better. In the classroom situation most items should be higher than 0.20 indexes

Based on the calculation of discrimination index, the result of try out test showed that there were 7 items (8,11,22,32,34,35) had zero discrimination. It meant that the items could not discriminate the upper and lower students well. Therefore, those items were dropped. Then item number 12 was also dropped since the ID result was negative, which meant low level students answered more that the high level students. Item numbers 16,28, and39 were also dropped since the result were under 0.20. In short, 30 items had discrimination index above 0.20 and they were administered to the pretest and posttest. Those items were 1,2,3,4,5,6,7,9,10,13,14,15,17,18,19,20,21,23,24,25,26,27,29,30,31,33,36,37,38, 40. A further result of discrimination index was shown on appendix 6.

## 5. Scoring System

In scoring students result of the test, this research uses Arikunto's formula.

The highest score is 100. The scores of pretest and posttest are calculated by using formula as follow:

$$S = \frac{R}{N}100$$

Where:

S : the score of the test

R : the total of the right answers

N : the total items (Arikunto, 1997:212)

### 3.8 Data Analysis

The researcher analyzes the pretest and posttest data in order to know whether there is a significant increase of the students' simple past tense mastery. The researcher analyzes the students' structure achievement by doing these activities:

1. Scoring the pretest and posttest
2. Tabulating the result of the test and calculating mean of the pretest and posttest
3. Drawing conclusion from the tabulated result of pretest and posttest administering, that is statically analyzed by using SPSS (Statistical Package for Social Sciences) in order to test whether increase of the students' gain is significant or not.

### 3.9 Data Treatment

The researcher computed the data through drawing conclusion from the tabulated results of the pretest and posttest after having finished collecting the data. In doing so, the researcher analyzed the data statistically by administering the normal distribution, homogeneity test and hypothesis test.

#### 1. Normal distribution test

This test was administered in order to find out whether the data from both groups were normally distributed.

The hypothesis of the normal distribution test was:

H : The distribution of the data is normal

In this research, the criterion for the hypothesis was:

The hypothesis is accepted if  $\text{sign} > \alpha$ . In this case, the research uses the level of significance of 0.05.

#### 2. Homogeneity Test

To find out whether the data from the two groups were met the criteria of the equality of variance, the researcher used homogeneity test. In this research, the hypothesis of this test was:

H : The data is homogenous

In this research, the criterion for the hypothesis was:

The hypothesis is accepted if  $\text{sign} > \alpha$ . In this case, the research uses the level of

significance of 0.05.

### **3.10 Hypothesis testing**

The hypothesis was used to prove whether the hypothesis proposes in this research was accepted or not. The researcher used SPSS (Independent T-test).

The hypothesis for the research question was:

$H_0$  : “There is no significant difference of students’ simple past tense mastery who are taught group work and of those taught through individual study.

$H_1$  : “There is significant difference of students’ simple past tense mastery who are taught group work and of those taught through individual study.