III. METHODS OF THE RESEARCH

This chapter describes the following major points: the design of the research, population and sample, data collecting technique, research procedure, scoring system of reading test, try out of research instrument, data analysis, and hypothesis testing.

3.1 Research Design

This research is a quantitative research. Hatch and Farhadi (1982) state that quantitative is a kind of research in which the data used tend to use statistics as measurement in deciding the conclusion. The design of this research was to find out the solution of the problem that occurs in the class in teaching learning process.

The design of the research is as follows:

T1 X T2

T1 = Pre test

T2 = Post test

X = Treatment

(Hatch and farhady, 1982:20)

3.2 Population and Sample of the Research

The population of this research was all the second year of SMPN 8 Bandar Lampung. There were six classes in which each of them consists of 30 students. So, the total number of population was 180 students. From those number of students, the researcher only took one class (30 students) as the sample that was VIII B. Based on the information, the writer determined the sample by using simple probability random sampling class by using lottery. The following are the steps:

a. Writing the six classes' code in six pieces of paper and to be rolled
b. The rolled papers are entered into the box and shuffled
c. The researcher asked the teacher to take two rolled papers that become the sample and try out classes for the research.

3.3 Reading Test

In the collecting the data, the researcher administered a pretest, treatments, and post test. Then, she analyzed the result of those three activities which can be clarified as follows:

a. Pre-test

The kind of reading test used was objective test. The reading test was given to identify learners' reading achievement which consisted of pretest and posttest. The pretest was given before the treatment was conducted, Firstly the researcher administered a pretest to find out the students' reading comprehension achievement

before treatment. The posttest was administered at the end of treatments in order to find out the results of students' reading comprehension achievement after the 5-time treatments. The test of reading comprehension in this research was used to answer those two research questions.

In selecting reading text, the researcher considered the text based on themes stated in curriculum for the second year of SMP (KTSP 2006).

b. Treatments

Treatments with three different lesson plans. Those three lesson plans consist of three different topics was given to the class. The researcher taught the students by using mixed techniques, i.e.: explanation, illustration, question and answer, and also discussion.

c. Post-test

It was done in order to know the effect of the treatments towards the students' reading comprehension ability after given the treatments.

The items used in pretest and post test were objective test in multiple choice, while the total items of pretest and post test are twenty five with four option for each item. The items are based on the material that given to the students that are taken from English Curriculum for Junior High School.

3.4 Research Procedures

The research procedures are as follows:

a. Determining the population and sample

There are four classes of the eight grade of junior high school. The researcher chose two classes, VIII D as a try out class and VIII B as the sample class by lottery.

b. Finding and selecting the materials to be taught

The researcher selected the material based on English Curriculum for Junior High School.

c. Administering the try out to know the quality of the test

The test was done in order to measure the level of difficulty (LD) and discrimination power (DP) as well as find out the reability andvalidity of the test.

d. Administering the pretest and finding the result

The reseracher administered the pretest in order to find out the students' basic ability before treatments. In this test, the researcher asked the students to do multiple choice tests that consist of 30 items.

e. Presenting the three lesson plans (treatments)

The treatments was conducted in three meetings. It requires ninety minutes for each meeting. In each treatments, there was a different sub topic that was presented.

f. Administering the post test

The posttest was administered after treatments. In this test, the students were asked to do multiple choice test consist of 25 items.

g. Analyzing the data and testing hypothesis

After scoring student's works, the researcher compared the result of pretest and posttest to see whether the score of posttest is higher than the pretest.

3.5 Scoring system

Before getting the score, the researcher determined the procedure or technique to be used in scoring the students' work. In order to do that, the researcher used Arikunto's formula (1989:271). The ideal highest score is 100. The scores of pretest and post test was calculated by using the following formula :

$$S\frac{r}{n}\ X\ 100$$

S = the score of the test

r = the total of the right answer

n = the total

3.6 Try-out of the Test

To know whether the test is good or not, some criteria should be considered. The criteria of good test are validity (content validity and construct validity), reliability, and level of difficulty and discrimination power.

a. Level of difficulty

Level of difficulty (LD) relates to "how easy of difficult the items is from point of view of the students who took the test" (Shohamy, 1985:79). The level of difficulty can be determined by dividing the number of students who get it right by the total number of students (Shohamy, 1985:79).

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

Notes :

LD = Level of Difficulty

R = The number of students who answer correctly

N = The number of the students

The criteria of difficulty level are :

LD < 0.30 = difficult

LD= 0.30-0.70 = satisfactory

LD> 0.70 = easy

b. Discrimination Power

The discrimination power (DP) is the proportion of the high group students getting the items correct minus the proportion of the low level students who got the item correct" (Elena, 1985:81). The formula can be seen as follows:

$$DP = \frac{L1 - L}{{}^{1}/_{2}\ N}$$

DP = Discrimination power

L1 = Number of upper group students who answer correctly

L = Number of lower group students who answer correctly

N = Total number of students

The criteria are:

DP : 0,00-0,19 = poor

DP : 0,20-0,39 = satisfactory

DP : 0,40-0,69 = good

DP : 0,70-1,00 = excellent

DP : -(negative) = bad item

c. Validity of the Test

A test is considered valid if the test measures the object to be measured and suitable with the criteria (Hatch and Farhady, 1982; 250). According to Hatch and Farhady (1982; 251) there are two basic types of validity; content validity and construct validity.

a. Content validity

Content validity is the extend to which a test measures a representative sample of the subject matter content, the focus of content validity is adequacy of the sample and simply on the apperance of the test (Hatch and Farhady, 1982; 74)**.** To get the content validity, the test is adapted from the students' book. Then, the test is determined

according to the material that will be taught to the students. In other words, the writer write and make the test based on the materials in the English Curriculum for Junior High School**.** In this research, scoring criteria was based on the five aspects of reading; Determining main ideas, Inferences, References, Finding detail information, and Vocabularies . The texts was used taken from any text books and articles on the internet. The composition of the test items is presented on the table of specification below.

Table 3.1. Specification of Reading Test

No	Sub-Skills of Reading	Item Number	Percentage
1	Determining main ideas	1, 8, 14, 22, 28, 30, 35, 36	20 %
2	Inferences	4, 5, 7, 11, 13, 21, 24, 31	20 %
3	References	2, 6, 10, 16, 20, 27, 32, 39	20 %
4	Finding detail information	3, 9, 17, 19, 23, 25, 29, 38	20 %
5	Vocabularies	12, 15, 18, 26, 33, 34, 37, 40	20 %
Total		40	100 %

b. Construct validity

Construct validity is concerned with whether the test is actually in line with the theory of what it means to know the language that is being measured, it was examined whether the test given actually reflect what it means to know a language (Shohamy, 1985;74). It means that the items should really test the students whether they have mastered the reading text or not.

c. Reliability of the Test

Reliability of the test can be defined as the extent to which a test produces consistent result when administrated under similar conditions (Hatch and Farhady, 1982:243). Split-half technique was used to estimate the reliability of the test and to measure the coefficient of the reliability between odd and even group, *Pearson Product Moment formula* (Lado, 1961 in Hughes, 1991:32) is used as follows:

$$\mathbf{rl} = \frac{\sum xy}{\sqrt{\left[\sum x^2\right]\left[\sum y^2\right]}}$$

rl : Coefficient of reliability between odd and even numbers items.
x : Odd number.
y : Even number.
x^2 : Total score of odd number items.
y^2 : Total score of even number items.
Xy : Total number of odd and even numbers.

The criteria of reliability are:

- 0.80 – 1.00: high.
- 0.50 – 0.79: moderate.
- 0.00 – 0.49: low.

(Hatch and Farhady, 1985:247).

To know the coefficient correlation of whole items, *Spearmen Brown`s prophecy formula* was used. The formula is as follows:

$$\boldsymbol{rk} = \frac{2r1}{1 + r1}$$

rk : The reliability of the test.
r1 : The reliability of the half test.

(Hatch and Farhady, 1982:246).

The criteria of the reliability are:

0.90-1.00 = high

0.50-0.89 = moderate

0.0-0.49 = low

If the result of te reliability is less than 0.50 then the item should be revised.

3.7 Data analysis

In order to know the students' progress in comprehending the text, the students' scores were computed by doing three activities:

a. Scoring the pretest and the post test

$$S = \frac{r}{n} X\ 100$$

b. Tabulating the result of the test, and finding the mean of the pre test and the post test. The mean is calculated by applying the following formula:

$$\bar{X} = \frac{\sum X}{N}$$

X = mean

∑X = the total number of students scores

N = number of students

c. Drawing conclusion from the tabulated results of the tests given, that is, by comparing the means of the pretest and post test.

In order to know whether the students got any progress, the following formula was used.

$$I = \overline{X2} - \overline{X1}$$

I = the increase of students ability

X2 = the average score of post test

X1 = the average score of pre test

In this research, the writer chose *Repeated Measured T-test (paired t-test or Dependent Sample T-test)*. This analysis was used to compare two kinds of data or mean from similar sample. Each subject had initial score (pre-test) and after being given the treatment, the subjects were given post-test. Then the pre-test and post test scores were analyzed to see whether both scores are the same or different (Setiyadi, 2006:170). The formula is:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}}$$

And

$$\sum x^2 d = \sum d^2 - \frac{(\sum d)^2}{N}$$

Md = mean from the differences pretest and posttest (posttest-pretest)

Xd = deviation of each subject (d – md)

$\sum x^2 d$ = total of quadratic deviation

N = subjects on sample

(Arikunto, 2010: 349-350)

The analysis was computed using SPSS version 17.0. The hypothesis was analyzed at significant level of 0.05 ($p<0.05$) in which H_0 would be approved if Sign>α. It means that the probability of error in the hypotheses is only about 5%; and H_1 would be approved if Sign<α (α<0.05).

3.8 Hypothesis

The criteria for this test are:

Ho : Ho is acccepted if t-ratio is smaller than t-table (The hypothesis proposed are not proved)

Ha : Ha is accepted if t-ratio is equal or higher than t-table (the hypotheses proposed are proved)