III. RESEARCH METHOD

This part discusses the design of this research and how to collect the data from those samples. The writer encloses the data collecting technique and the procedures of this research. The writer also gives the scoring system and how the data are analyzed.

3.1 Research Design

This research was quantitative in nature, because the major data were quantitative, that was, the students' scores of reading comprehension and was done by using Pre-test Post-test Control Group Design (Hatch and Farhady, 1982:21), in which the research investigates whether there was an improvement in students' reading comprehension achievement of narrative text. The writer chose this design because she used the true-experimental design. There were two classes of research participants: one was experimental class which got treatment through CTL and the other as a control class which got treatment through translation method. Both the classes got the same materials.

The research design can be represented as follow:

G1: T1 X1 X2 X3 T2

G2: T1 O1 O2 O3 T2

G1   : Experimental class

G2   : Control class

T1   : Pre-test

T2   : Post-test

X   : Treatment by the researcher (teaching reading through CTL)

O   : Treatment by the teacher (teaching through Translation Method)

While the result of the pre-test was used to indicate students' reading comprehension, the result of post-test of both classes were compared to prove whether or not there was any difference of students' reading comprehension of narrative text achievement between experimental class and control class in order to see whether CTL was effective or not.

(Hatch and Farhady, 1982:21)

3.2 Population and Sample

3.2.1 Population

The population of the research was the first year students of SMAN 1 Bandar Lampung. There were 18 classes in this school and each year has 6 classes. The total number of the population was 656 students, consisting of 344 female students and 312 male students. In this research, the researcher chose the first year students in the first semester of academic year 2010/2011 to be investigated. There were six classes of the first year students, that was, X1, X2, X3, X4, X5, X6 and each class consists of 32 students. Their ages range from 15-16 years old.

3.2.2 Sample

From the population above two classes were taken as the sample of this research, one as experimental class, class that was given the treatment (teaching reading of narrative text using CTL), and the second class as control class, class that did not give the treatment by the researcher (teaching reading of narrative using teacher's method; that was translation method). In determining the experimental class and control class the writer used random sampling technique by using lottery, so that all the first year classes got the same chance to be sample in order to avoid subjectivity and to guarantee every class has the same opportunity.

3.3 Data Collecting Technique

In collecting the data the writer uses the following technique:

1. **Pre-test**

   Pre-test was the way to measure students' ability in the beginning before giving treatment. The researcher used pre-test because it was very important to know students' ability at the beginning in order to compare it with students' ability after treatment. Because, in this research the researcher used Pre-test Post-test Control Group Design. Pre-test was given in order to know how far the competence of the students in reading comprehension before the treatment and to know whether both experimental class and control class were equal or not in the term of their reading comprehension of narrative text achievement.

The researcher gave pre-test which were multiple choices that consist of twenty items. The materials that would be tested, relates to the narrative text that was suitable with their level.

2. Post-test

Post-test was the test that was given to the students after giving treatment. Post-test was very important in this research because the researcher need to know whether there was significant difference between students taught through CTL and those through translation method, in order to know whether there was significant difference between students who were taught by using CTL and the students who were taught by using technique used by teacher. The researcher gave post-test which were multiple choices that consist of twenty items. The materials that was tested, relate to the narrative text that is suitable with their level. The post-test was done after three meetings of the treatments. The result of the post-test of two classes was compared in order to know whether CTL was effective or not.

3.4 Research Procedures

In conducting this study, the researcher conducted the following procedures:

1. Planning

   Before applying the research procedure, some planning was made so the application would run well. The procedure of making planning of this research can be seen as follows:

a. Preparing the try out

The test was prepared (called try out test) and given to the students in order to know the quality of the test as instrument of the research.

b. Analyzing the test

The result of the try out test was analyzed in order to know which items were good to be used in pre-test.

c. Preparing the pre-test

The good items from tryout test that had analyzed before were prepared to be given in the pre-test.

d. Preparing the materials

The material that was prepared to the students relates to the curriculum that are used in the school and also suitable to introduce CTL in teaching reading to the students in experimental class.

e. Preparing the post-test

The test was prepared by providing the number of items and materials that would be tested. The topic given in the test was based on the materials that had been taught before.

2. Application

   After planning, the research procedures that had already planned were applied, there were some steps that should be applied, and they were:

   a. In the first meeting, try out was given. Students were given the test paper, asked to do the test and last asked them to hand in their answer sheet. This test was multiple choices that consist of 50 items.

b. After giving the try out test to the students and get the result, the test items were analyzed in order to know which items were good to be used in pre-test.

c. In the second meeting, the pre-test was given. The test papers were given to the students for both experimental class and control class, asked them to do the test and then asked them to hand in the test.

d. After the pre-test, the treatment was conducted, the experimental class was taught through CTL and the control class was taught through translation method. Both of classes were given the same materials. The writer taught the students in experimental class for three times. Moreover the control class taught by their own teacher and the writer followed the teaching learning process as observer.

e. Post-test was given in the last meeting. The test papers administered to the students for both experimental class and control class, and then they were asked to do the test and for last asked them to hand in the test.

3. Reporting

The last point that should be done in this research procedure was reporting. There were two steps that were done in reporting:

a. Analyzing the data from pre-test and post-test (both control class and experimental class). The researcher analyzed the data by comparing the average score (mean) of the pre-test and post-test to know whether there improved of students' reading ability through CTL.

b. Making a report on the findings.

3.5 Scoring System

In scoring the result of students' work, the researcher used Arikunto's formula (1997: 212). The researcher calculated the student's score of the pre-test and post-test by using this formula:

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

Where :

S   : The score of the test
R   : The right answer
N   : The total items

3.6 The Criteria of Good Test

A good test should meet four criteria: a good validity, reliability, and level of difficulty and discrimination power.

3.6.1 Validity of the test

A test can be said to be valid if it 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 four types of validity: face validity, content validity, construct validity and empirical or criterion-related validity. To measure whether the test has good validity, the researcher used content and construct validity since the other two are considered be less needed. Face validity only concerns with the layout of the test. Criterion-related validity is concerned with measuring the success in the future, as in replacement test (Hatch and Farhady, 1982:251). The two type uses in this research are:

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 appearance of the test. (Hatch and Farhady, 1982: 251). To know whether the test was good reflection of what has been taught and of the knowledge which the teacher wants the students to know, the researcher compares this test with the table of specification. If the table represents the material that the researcher wants to test, then it is valid from the point of view. A table of classification is an instrument that helps the test constructor plans the test.

Table 2. Table of specification

No	Objectives	Item Numbers	Total Items	Percentage
1	Identify the main idea	8,12,14,24,28,45	6	12%
2	Vocabulary	1,5,13,17,21,26,32, 34,40,49,50	11	20%
3	Specific information	3,4,7,9,15,19,20,25 ,27,29,30,33,35,36, 41,42,46,47	17	36%
4	Inference	2,6,11,18,23,31,37, 38,44,50	10	20%
5	Reference	10,16,22,39,43,48	6	12%
	TOTAL		100	100%

b. Construct Validity

Construct validity is concerned with whether the test is actually in line with the theory of what reading comprehension means (Hatch and Farhady, 1982:252).

To know the test is true reflection of the theory in reading comprehension, the researcher examines whether the test questions actually reflected the means of reading comprehension or not.

3.6.2 Reliability of the Test

Reliability refers to the extend to which the test is consistent in its score and gives us an indication of how accurate the test score are. (Hatch and Farhady, 1982: 244)

Reliability of the test can be determined by using the Spilt half method in order to estimate the reliability of the test. To measure coefficient of the reliability the first and second half group, the researcher used the following formula:

$$r_l = \frac{\sum XY}{\sqrt{\left[\sum X^2 \sum Y^2\right]}}$$

Notes:

r_l : The coefficient of reliability between first half and second half group
X   : The total numbers of first half group
Y   : total numbers of second half group
X^2 : The square of X
Y^2 : The square of Y

<div align="right">(Lado in Hughes, 1991:3)</div>

Then the researcher used "Spearman Brown's Prophecy Formula" (Hatch and Farhady, 1982: 256) to determine the reliability of the test as follow:

$$Rk = \frac{2rl}{1 + rl}$$

Rk   : the reliability of the test
rl   : the reliability of half test

The criteria of reliability are:
0.90 – 1.00 = high
0.50 – 0.89 = moderate
0.00 – 0.49 = low

3.6.3 Level of difficulty

To see the level of difficulty, the writer used the following formula:

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

Where:
LD   : level of difficulty
R   : the number of the students who answer correctly
N   : the total number of the students

The criteria is:
< 0.30   = difficult
0.30 – 0.70   = average
> 0.70   = easy

(Shohamy, 1985: 79)

3.6.4 Discrimination Power

To see the discrimination power, the writer used the following formula:

DP = the proportion of upper SS – the proportion of lower SS

½ total number students

(Shohamy, 1985: 81)

The criteria are:

1. If the value is positive, it has discrimination because a large number or more knowledgeable students than poor students get the item correct. If the value is zero, it means no discrimination.

2. If the value is negative, it has negative discrimination because more low-level students than high level students get the item correct.

3. In general, the higher discrimination index, the better, in the classroom situation most items should be higher than 0.20 index.

(Shohamy, 1985: 82)

3.7 Data Analysis

The writer computed the students' score in order to find out the students' achievement in reading narrative text through Contextual Teaching and Learning using the following steps:

1. Scoring the pre-test and post-test.

2. Tabulating the results of the test and calculating the score of the pre-test and post-test.

3. Drawing conclusion from the tabulated results of the pre-test and post-test administered, that was by statistically analyzing the data using statistical computerization i.e. *Independent Groups T-Test of Statistical Package for Social Science (SPSS) version 15.0 for windows* to test whether the increase of students' gain is significant or not, in which the significance was determined by $p < 0.05$. It is used as the data come from the two samples (Hatch and Farhady, 1982:111).

3.8 Hypothesis Testing

Treatment of the data

In order to determine whether the data are good or not, the data should meet the criteria:

1. Random test

This test is used to know that the data are taken is random. The data are tested by

Statistic Formula in Descriptive Formula (SPSS 15). The criteria for Random test

are:

H_1: the data is random

H_0: the data is not random

The hypothesis is accepted if the result of random test is higher than 0.05 (sign >

). In this case, the researcher used 0.05, level of significance.

2. Normality test

This test is used to measure whether the data in two classes are normally

distributed or not. The data are tested by One-sample Kolmogorov-Smirnov

Formula (SPSS 15). The criteria of normal distribution are:

H_1: the distribution of the data is normal

H_0: the distribution of the data is not normal

The hypothesis is accepted if the result of the normality test is higher than 0.05

(sign >). In this case, the researcher used level of significance of 0.05

3. Homogeneity test

This test is used to know whether the data in two classes are homogeneous or not.

The data are tested by Independent Sample Test (SPSS 15). The criteria for the

homogeneity of pre test are:

H_1: There is no significant difference in the level of ability (equal)

H_0: There is a significant difference in the level of ability (not equal)

The criterion for the hypothesis is: H_1 is accepted if the result of Homogeneity test of pre test is higher than 0.05 (Sign >).

3.9 Hypothesis Test

After collecting the data, the writer recorded and analyzed them in order to find out whether there is an increasing in students' ability in reading comprehension of narrative text or not after the treatment. The writer uses Independent Group T-test to know the level of significance of the treatment effect.

The formulation is:

$$t_{obs} = \frac{\overline{X}_e - \overline{X}_c}{S_{(\overline{X}_e - \overline{X}_c)}}$$

With:

$$S_{(\overline{X}_e - \overline{X}_c)} = \sqrt{\left(\frac{S_e}{\sqrt{n_1}}\right)^2 + \left(\frac{S_c}{\sqrt{n_2}}\right)^2}$$

$\overline{X}_e$: Mean from the difference pre-test and post-test of experimental class

$\overline{X}_c$: Mean from the difference pre-test and post-test of control class

$S_{(\overline{X}_e - \overline{X}_c)}$: Standard error of differences between means

n: Subjects on sample

(Hatch and Farhady, 1982:111)

The criteria are:

1. If the t-ratio is higher than t-table: H_1 is accepted

2. If the t-ratio is lower than t-table: H_0 is accepted