III. RESEARCH METHOD

This chapter discussed the methodology of this research and how to collect the data from these samples. It consisted of research design; population and sample; data collection technique; research procedure; try out of research instrument; data analysis; and hypothesis test.

3.1 Research Design

The researcher used one group pre-test and post-test design (Hatch and Farhady, 1982:20) in which it was intended to investigate whether there was an improvement of the students' reading comprehension through TBL.

The researcher administered pre-test and post-test. Pre-test was conducted to measure the students' reading comprehension before treatment and post-test was conducted to find the students' reading comprehension after being taught through TBL. Then, the students' improvement find out by comparing the means (average score) between pre-test and post-test. It was used to find out the progress before and after the treatment. The researcher used one class as the experimental class where the students have been given a pre-test before a treatment and post-test after the treatment. The questionnaire was administered in order to investigate what problems are faced by the students in learning reading comprehension through TBL.

Referring to Hatch and Farhady (1982:20), the design of this research can be presented as follows:

$$T1 \quad X \quad T2$$

T1 = Pre-test

X = Treatment (by using TBL technique)

T2 = Post-test

3.2. Setting of the Research

This research took place at SMPN 10 Bandar Lampung.

3.3 Population and Sample

The population of this research was at SMPN 10 Bandar Lampung. The researcher chose the second grade students since descriptive text was one of their learning materials. The researcher employed two classes, one as the experimental class and the other for try out class. One class consisted of (VIII-D) 24 students was taken as sample that was given the treatment. The class was selected randomly by using lottery since there were no stratify and priority class. It was applied based on consideration that every class in the population had the same opportunity to be selected as samples.

3.4 Data Collecting Technique

The researcher collected the data by administering the activities as followed:

1. Reading Test

In collecting the data, the researcher used Reading Test that consisted of pre-test and post-test. The pre-test had been given before the treatment in order to know the basis of the students' reading comprehension. Post-test had been given after

the treatment was done. It was used to know the final result of the students'
reading comprehension after being taught using TBL technique. The pre-test and
post-test consisted of 25 reading comprehension multiple choice items with four
options a, b, c, and d covered identifying a main idea, identifying specific
information, determining reference, making inference, and understanding difficult
vocabulary.

2. Questionnaire

Questionnaire was a research instrument consisted of a series of questions for the
purpose of gathering information from respondents. The questionnaire was been
distributed on the last meeting of teaching learning reading comprehension in
order to investigate what problems were faced by the students in learning reading
comprehension through TBL. The contents of the questionnaire were about the
students' learning problem and opinions about learning reading comprehension
through TBL technique. The content of questionnaire was presented in the table of
specification:

Table 1. Table of Specification of Questionnaire

No	Categories	Item Numbers	Total Items
1	Response to English Lesson	1, 2	2
2	Response to Reading	3, 4, 5, 6	4
3	Response to applying TBL Technique	7, 8, 9, 10	4
TOTAL			10

3.5 Research Procedure

The procedures of this research were as followed:

1. Determining the research problems

The problem of the research was intended to find out TBL technique can improve
the students' reading comprehension.

2. Determining the sample and population

Population of this research was the second grade of SMPN 10 Bandar Lampung. The sample of this research was one class which was VIII-D.

3. Administering try out test

The try out class was given to the students with 50 multiple choice items in 90 minutes with four options a, b, c, and d. Through try out the researcher recognized the reliability and validity of the test.

4. Administering the pre-test

The researcher gave the pre-test for the experimental class. It was done before the treatment. The students answered 25 multiple choice items with four options a, b, c, and d in 60 minutes.

5. Conducting the treatments

There were three times of treatment that was done by the researcher. It consists of three meetings with three different topics in 90 minutes for each meeting which applied TBL technique.

6. Administering the post-test

After conducting the treatment, the researcher gave the post-test as the final result of this research. It was used to find out whether the students' reading comprehension improve or not after being taught using TBL technique. The students answered 25 multiple choice items with four options a, b, c, and d in 60 minutes.

7. Administering the questionnaire

The questionnaire was administered in order to investigate what problems were faced by the students in learning reading comprehension through TBL. The questionnaire consists of 10 items.

8. Analyzing the test result

All the data were gathered by the average score (mean) of reading test and questionnaire were analyzed to draw the conclusion.

3.6 Scoring System

In scoring the students' test result, the researcher used Heaton's (1988:183) formula. The highest score was 100. The scores of pre-test and post-test were calculated by using this formula as follows:

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

Where:
S = Score of the test
r = total of right answer
n = total of test items

3.7 Try Out of Research Instrument

The instrument of this research was objective reading test in form of pre-test and post-test. The researcher chose multiple choice items form since its marking was rapid, simple, and most importantly reliable, not subjective or influence by the markers' judgment (Heaton 1975:135).

Try out test purposed to know the quality of the research instrument that was used in pre-test and post-test. In order to get a good test, the test item should fulfill

some criterias such as: validity, reliability, level of difficulty, and discrimination power that will be discussed below.

1. Validity

Validity referred to the extent to which the test measures and to what was intended to measure (Hatch and Farhady, 1982:250). Validity indicated how deep the instrument can measure the target of the research. There were four types of validity namely face validity, content validity, construct validity, and empirical validity or criterion-related validity. To measure the test had a good validity, the researcher used content validity and construct validity. Face validity concerned with the layout of the test while empirical validity or criterion-related validity was concerned with measuring the success in the future, as in replacement test (Hatch and Farhady, 1982:251). So, these two validities were considered to be less needed. The two types of validity that was used in this research as followed:

a. Content Validity

Content validity meant that the test was good reflection of what has been taught and the knowledge which the teacher wanted students to know (Shohamy, 1985:74). Content validity was used to analyze multiple choice items that were applied based on curriculum to measure the students' reading comprehension. According to Setiyadi (2006:23), to fulfill this type of validity the researcher should be aware of all the indicators of the test items and analyzed whether the instrument, in this case reading comprehension text, had represent the material which was measured. The content being measured was the students' reading comprehension i.e. identifying main idea, identifying specific information, determining reference, making inference, and understanding difficult vocabulary.

Furthermore, the researcher compared the test items with a table of specification. The test was based on the current English curriculum, and the syllabus of second grade SMP students and represent of the materials that has been taught by the teacher. The content of the test was presented in the table of specification:

Table 2. Table of Specification of Try Out Test

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

b. Construct Validity

Construct validity concerned with whether the test was actually in line with the theory of what it meant to know the language (Shohamy, 1985:74). It meant that the test items should measure the students' reading comprehension. Construct validity referred to the validity of inferences that observations or measurement tools actually represent or measure the construct being investigated. The measurement tools seek operation of the concept, typically measuring several observable phenomena that were expected to reflect the underlying psychological concept. There were several approaches to evaluating construct validity, one method was the known-groups technique, which involved administering the measurement instrument to groups expected to differ due to known characteristics.

To make sure the test reflected the theory in reading comprehension, the researcher examined whether the test questions actually reflected the means of reading comprehension or not.

2. Reliability

Reliability was how consistent the results were when the experiment was repeated a number of times under same methodological conditions, then the instrument was said to be reliable. Reliability of the test can be defined as the extent to which a test produce consistent result when administrate under similar conditions (Hatch and Farhady, 1982:244). The test was determined by using Pearson Product Moment which measure the correlation coefficient of the reliability between odd and even number (reliability of half test) in the following formula:

$$r_1 = \frac{\sum XY}{\sqrt{[\sum X^2][\sum Y^2]}}$$

Where:

r_1 = coefficient of reliability between first half and second half items

X = total number of odd numbers item

Y = total number of even numbers item

X^2 = square of X

Y^2 = square of Y

(Lado in Hughes, 1991:3)

Then the researcher uses *Spearman Browns' Prophecy* formula to determine the reliability of the test as follows:

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

Where:

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

(Hatch and Farhady, 1982:247)

3. Level of Difficulty

Level of difficulty was determined as the proportion of correct responses, that the higher the difficulty, the lower proportion correct and the higher the proportion incorrect (Henning, 1987:49). Test items should not be too easy and not be too difficult for the students as research subject. To find out the level of difficulty of the test items, the researcher used the formula as followed:

$$LD = \frac{U + L}{N}$$

Where:
LD : level of difficulty
U : the proportion of upper group students who answer correctly
L : the proportion of lower group students who answer correctly
N : total number of students

The criteria are:

<0.30 = difficult

0.30-0.70 = average

>0.70 = easy

(Shohamy, 1985:79)

4. Discrimination Power

Descrimination power was used to know whether the test items can differentiate students' ability. To calculate the discrimination power, the researcher used this 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 were:

0.00-0.20 = poor

0.21-0.40 = satisfied

0.41-0.70 = good

0.71-1.00 = excellent

Negative = bad items (should be omitted)

(Heaton, 1975:182)

5. Result of Try Out

Try-out test was administered in VIII-G on Monday, May 13th 2013. The number of the try-out test was 50 items that the time allocation was 90 minutes. Those items were in the form of multiple choices, which contained four options of answer for each question (a, b, c, and d). After analyzing the data, the researcher got that 25 items were good while 25 items were bad and should be dropped.

To know the result of reliability of the try-out test, the researcher used *Pearson Product Moment*. The result showed that the reliability of the test was 0.96 (see appendix 4). It could be inferred that the test had high level of reliability, in the

range 0.90-1.00 by referring to the criteria of the reliability proposed by Hatch and Farhady (1982:247).

From the computation of level of difficulty in the try-out test, the researcher got 7 easy items in the try-out test which was higher than 0.70 (item number 1, 3, 25, 26, 27, 40, and 49), 12 difficult items which was less than 0.30 (4, 6, 7, 8, 10, 15, 16, 17, 19, 20, 21, and 35), and average items which was in the range of 0.30-0.70 (2, 5, 9, 11, 12, 13, 14, 18, 22, 23, 24, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47, 48, and 50) (see appendix 5).

In the data of discrimination of power in the try out test, the researcher got 2 items (1 and 8) which had negative value in discrimination, 16 items (2, 3, 5, 6, 7, 9, 10, 13, 15, 16, 18, 19, 20, 28, 35, and 40) were poor which had less than 0.20 index, and 23 items (4, 12, 17, 21, 23, 27, 29, 30, 31, 32, 33, 34, 36, 38, 39, 41, 42, 43, 45, 47, 48, 49, and 50) were satisfactory and 3 items were good (11, 14, 22, 24, 25, 26, 37, 44, and 46).

Based on the text analysis, it was finally decided that 25 items were good and the rest, 25 items were bad and should be dropped because they did not fulfill the criteria of the level difficulty and discrimination power. The researcher only administered 25 items that were satisfactory to be used in pre-test and post-test.

The content of pre-test and post-test was represented in the table of specification:

Table 3. Table of Specification of Pre-test

No	Aspects of Reading	Item Numbers	Total Items	Percentage
1	Main Idea	7, 11, 14, 17, 23	5	20%
2	Specific Information	5, 8, 12, 15, 19, 20, 22	7	28%
3	Reference	9, 13, 18, 25	4	16%
4	Inference	1, 3, 6, 16	4	16%
5	Vocabulary	2, 4, 10, 21, 24	5	20%
	TOTAL		25	100%

Table 4. Table of Specification of Post-test

No	Aspects of Reading	Item Numbers	Total Items	Percentage
1	Main Idea	1, 4, 14, 20, 23	5	20%
2	Specific Information	5, 12, 16, 17, 19, 21, 24	7	28%
3	Reference	3, 6, 15, 22	4	16%
4	Inference	8, 10, 13, 25	4	16%
5	Vocabulary	2, 7, 9, 11, 18	5	20%
	TOTAL		25	100%

3.8 Data Analysis

The researcher analyzed the students' score in order to find out the students' improvement in reading comprehension using TBL technique using the following steps:

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

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

3. Making conclusion from the tabulated-result of the pre-test and post-test administer by using statistical analyzing computerization i.e. *Repeated Measure t-test of Statistical Package for Social Science* (SPSS) to test whether the increase of the students' gain was significant or not, in which the significance was determined by $p < 0.05$. It was used as the data come from the two samples (Hatch and Farhady, 1982:114).

3.9 Hypothesis Testing

The researcher collected the data then analyzed them to determine whether there was an improvement of students' reading comprehension using TBL technique or not after treatment. The researcher used *Repeated Measure t-test* in analyzing the data. The significance level was in 0.05 even the hypothesis was approved if sign <p. Therefore, the probability of error in the hypothesis was only about 5%.

3.10 Research Schedule

The schedule of the research can be seen in the following table:

Table 5. Research Schedule in Conducting Research at SMPN 10 Bandar Lampung

No	Date	Activities
1	Monday, February 18th 2014	Pre-Research
2	Monday, May 13th 2014	Try out test in VIII-G
3	Tuesday, May 14th 2014	Pre-test in VIII-D
4	Wednesday, May 15th 2014	First Meeting in VIII-D
5	Thursday, May 16th 2014	Second Meeting in VIII-D
6	Friday, May 17th 2014	Third Meeting in VIII-D
7	Saturday, May 18th 2014	Post-test in VIII-D
8	Monday, May 20th 2014	Questionnaire