

III. RESEARCH METHOD

In this chapter, the researcher discusses several points such as: the research design, variables, population and sample, data collecting technique, research procedures, instrument, criteria of a good tryout test, the scoring system, data analysis, and hypothesis testing. The content of this chapter is presented as follows.

3.1 Research Design

This study used a quantitative method. One group pre-test and post-test was used in this research. It aimed to investigate whether there was an increase and a difference of students' achievement in reading comprehension through DRTA technique. The pre-test was conducted to measure students' reading comprehension ability before treatment and the post-test was conducted to find the students' reading comprehension achievement after being taught through DRTA technique. Then, the students' increase was found 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.

Two classes were used, the first class was the control class that was given the tryout and the second class was as the experimental class where the students were given a pre-test before treatments and post-test after treatment. The design of this research can be illustrated as follows:

T₁ X T₂

T₁ : Pre test

T₂ : Post test

X : Treatment

(Hatch and Farhady, 1982: 20)

The pre-test was done to measure the initial capability of the students, before they got the treatments and to see how the accuracy of the students in answering the questions. After giving the pre-test, the treatment was done. It was conducted six times, 2 x 45 minutes per meeting. To know the result of the treatment, the researcher conducted post-test. It aimed to find out whether or not the students improved their capability after they had got the treatment.

3.2 Variables

This research consisted of the following variables:

1. The students' achievement in reading as dependent variable (Y),

It is categorized as dependent variable because students' achievement is based on the activity output. The achievements of students can be measured to determine whether or not there is an effect of the independent variable.

2. DRTA (Directed Reading Thinking Activity) as independent variable (X)

It is categorized as dependent variable because DRTA is the variable that can influence the dependent variable to determine the correlation between phenomenon and the object which is observed.

3.3 Population and Sample

The population of the research was the second year students of SMAN 9 Bandar Lampung in even semester. There were 9 classes of the second grades. They were class XI Science 1- class XI Science 6 and class XI Social 1- class XI Social 3. In SMAN 9 Bandar Lampung, there were also XI Lintas Minat I and II. These classes consisted of the students from collaboration of class XI Science 1 to class XI Science 6. This class consisted of the students who took English subject as specialization. So there were some students from different classes gathered in class Lintas Minat.

Based on the population above, the researcher took two classes as the sample. The first class was class XI LM 1 as the control class, while the second class was class XI LM 3 as the experimental class of the research. Class XI Lintas Minat 3 consisted of 22 students. Purposive random sampling was used in this research. Purposive random sampling is a type of non-probability sampling technique. It focuses on sampling technique where the unit that are investigated are based on the judgement of the researcher. The goal of purposive sampling is not to randomly select unit from a population to create a sample with the intention of making generalizations from that sample to the population of interest. Therefore purposive random sampling was used, because Class XI LM can be the sample of each of second grade students of SMAN 9 Bandar Lampung.

3.4 Data Collecting Techniques

To collect the data, the following test was used, that is pre-test and post-test

a. Pre test

The pre-test was administered to the students before giving the treatment in order to know the basic of students' reading comprehension and to see the students mean score in reading comprehension before treatment. The result of reading test try-out was presented by the test administer in order to determine the quality of the test as instrument of the research. Multiple choice questions were given in which the students were asked to choose one correct answer from the option a, b, c, d, or e. In this test the students were given 30 items of reading test and it was conducted within 60 minutes for the test.

b. Post-Test

The test administered after conducting the treatments for the students. The post-test was given in order to know the result of teaching learning process whether they had progress or not after being taught through DRTA technique. The aim of the test was to find out the students' reading comprehension achievement after giving the treatments. Multiple choice questions were given in which the students were asked to choose one correct answer from the option a, b, c, d, or e. In this test the students were given 30 items of reading and it was conducted within 60 minutes for the test.

3.5 Research Procedures

In order to ensure that the result deals with its best procedures to maintain a good process, there are several steps as follows:

1) Determining the research instrument

The test was made for pre-test and pos-test. The multiple choices were form of the test. The texts of the test were various such as; fable, legend, fairytale of narrative text. The questions which were presented in the test consisted of five aspects of reading, which related to main idea, inferences, specific information, references, and vocabulary.

2) Try out of the instrument

Try out of the instrument was conducted before the pre-test and the post-test to investigate the quality of the test items, whether the test was appropriate for the students or not. The test was in form of multiple choices. There were 35 items that should be answered by the students with the options a, b, c, d or e. It required 60 minutes for the try-out.

3) Administering the pre-test

Pre-test was conducted to find out the students' basic reading comprehension, how far was the students' proficiency toward mastering reading comprehension. The test was given before conducting the treatment. The multiple choice test was prepared which was consisted of 30 items with the options a, b, c, d or e. The text of the test was narrative text. It required 60 minutes for the test.

4) Conducting the treatments

After giving the pre-test, the treatment was conducted in six meetings. It took 90 minutes for each meeting of the treatment. The researcher taught narrative text by applying DRTA technique.

5) Administering the post- test

After the treatments were given, the post- test was administered to find out whether there was any increase between their score in the pre- test and the post- test. The questions were in form of multiple choice in which the students were asked to choose one correct answer from the option a, b, c, d, or e. In this test the students were given 35 items of reading. The material was narrative text. It was conducted within 60 minutes for the test.

6) Analyzing the data

After conducting the pre-test and post-test, the data of students' answer were analyzed by using t-test. It was used in order to know whether or not DRTA technique able to increase the students' ability in reading comprehension. If there was an increase in the score of the post- test, it simply meant that research gave a good progress for the students to master reading comprehension.

3.6 Instrument

Two reading tests were provided to check the comprehension of students in reading. There were pre-test and post-test. The pre-test was given in the first meeting before the treatments. While the post-test was conducted after the

students received the treatments. The questions were in form of multiple choices in which the students were asked to choose one correct answer from the option a, b, c, d, or e. In this test the students were given 30 items of reading and it was conducted within 60 minutes for the test. The purpose of the pre-test was to see the understanding of reading comprehension at the first step before the treatments were given. On the other hand, the purpose of the post-test was to find out whether or not there was an increase of students' achievement after the students received the treatments.

3.7 Try-out of the Instrument

The purpose of try out test was to measure whether the test was good and applicable to be used during the research. A measurement of a good test considered several factors, such as validity (content validity, face validity and construct validity), reliability, level of difficulty and discrimination power.

3.7.1 Validity

Validity refers to the extent to which the test measures what is intended to measure. It means that it relates directly to the purpose of the test. A test can be considered valid if it can precisely measure the quality of the test. There are several types of validity according to the different purpose of the test. In this research, content validity, face validity, and construct validity were used.

3.7.1.1 Face Validity

Face Validity focuses on the layout or appearance of the test. The instrument was in form of multiple choices question, and it contained of five aspects that became the aspects that were concerned in applying DRTA technique. It aimed to measure the students' mastery of five aspects, such as determining main idea, references, finding specific information and inferences also understanding vocabulary.

3.7.1.2 Content Validity

Content validity means that the test is good reflection of what has been taught and the knowledge which the teacher wants the students to know (Shohamy, 1985: 74). To get the content validity of reading comprehension, the materials should be found based on the standard competence in syllabus for second grade of senior high school students in second semester that are students were able to construct meaning of functional text and simple monolog of narrative text and the objectives of teaching those were the students were able to find out the main ideas, identify the specific details or information, infer the information, reveal the meaning of the words and determine the reference of words stated in the text.

Moreover, a table of specification was made in order to judge whether the content validity already good or not. It meant that the items of the test should present the material being discussed. Then, the test determined according to the materials that had been taught to the students. In other words, the test was based on the materials in the English Curriculum, so that it could be said that the test had content validity since the test was good representation of material studied in the classroom.

Table 3.1 Reading Specification of Try out Test

No.	Reading Skills	Items Numbers	Percentage of items
1.	Determining main idea	1, 6, 11, 21, 26, 31	17,1%
2.	Specific information	5, 8, 15, 16, 20, 22, 23, 27, 29, 33,35	31,4%
3.	Determining inference	2, 10, 12, 17, 24, 28, 30, 34	22,9%
4.	Reference	3, 9, 14, 18	11,5%
5.	Understanding vocabulary	4, 7, 13, 19, 25, 32	17,1%
Total		35 items	100%

3.7.1.3 Construct Validity

Construct validity is concerned with whether the test is actually in the line with the theory of what it means to know the language (Shohamy, 1985: 74). It means that the test items should really test the students or the test items should really test the students or the test items should really measure the students' ability in reading comprehension.

Regarding the construct validity, it measured whether the construction had already referred to the theories, meaning that the test construction had already in line with the objectives of learning (Hatch and Farhady, 1982: 251). Basically, the construct and content validity were overlap. It was a representation of the material from the subject. In line with Nuttal (1985) the relation validity of the instrument refers to construct validity in which question represent of specification in reading skill.

Criterion validity was not used in this research. It was used to predict the performance of another instrument. This validity was not used because it seemed difficult to find the similar valid test to be used in this research as comparison to find criterion validity.

3.7.2 Reliability

Reliability of the test is consistency which a test yields the same result in measuring whatever it does measures. So, a test cannot measure anything well unless it measures consistently (Haris, 1974: 14). Reliability of the pre test and post test speaking are examined by using statistical measurement stated by Shohamy (1988: 213).

The statistical formula is:

$$R = 1 - \frac{6 \cdot (\sum d^2)}{N \cdot (n^2 - 1)}$$

Notes:

R : Reliability

N : Number of the students

d : The difference of the rank correlation

1-6 : Constant number

3.7.2.1. Reliability of the Test

Reliability refers to the extent 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: 224). In other words, how far it can measure the subject at separated time, but it shows the same result relatively (Setiyadi, 2006: 113). Reliability can be defined as the extent to which a test produce consistent results when administered under similar condition (Hatch and Farhady, 1982: 244). The test was determined by using Pearson Product Moment which measures the correlation coefficient of the

reliability between odd and even number (reliability of half test) in the following formula:

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Where:

r_{xy} : coefficient of reliability between odd and even numbers item

x : odd number

y : even number

$\sum x^2$: total score of odd number items

$\sum y^2$: total score of even number items

$\sum xy$: total score of odd and even number

After getting the reliability of half test, the researcher used Spearman Bowns Prophecy formula (Hatch and Farhady, 1982: 247) to determine the reliability of the whole tests, as follows:

$$r_k = \frac{2 r_{xy}}{1 + r_{xy}}$$

Where :

r_k : the reliability of the whole tests

r_{xy} : the reliability of half tests

The criteria of reliability as follows:

0.90 – 1.00 = high

0.50 – 0.89 = moderate

0.00– 0.49 = low

(Hatch and Farhady, 1982: 127)

Practically, the reliability of the test in this research was analyzed by using SPSS. The result of the reliability can be seen in Appendix 12. It was 0.97. The criteria was, 0.90-1.00 = high, 0.50-0.89 = moderate, 0.00-0.49 = low. So that, it can be concluded that the reliability of the test was high.

3.7.3. Level of Difficulty

Level of difficulty relates to how easy or difficult the item taken from the point of view of the students who take the test. It was important since test items which were too easy (that all students get right) can tell us nothing about differences within the test population (Shohamy, 1985: 79). Moreover, the difficulty level of an item shows how easy or difficult that particular item done by the participants (Heaton, 1975: 182).

It is calculated by the following formula:

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

Where:

LD : level of difficulty

U : the number of upper group who answer correctly

L : the number of lower group who answer correctly

N : the total number of students in upper and lower groups

The criteria are as follows:

<0.03 : difficult

0.03 – 0.07 : average

> 0.07 : easy

(Shohamy, 1985: 79)

3.7.4 Discrimination Power

Discrimination Power refers to the extent to which the items are able to differentiate between high and low level students on that test. Discrimination power used to differentiate between the students who have high ability and those who have low ability. The discrimination power is calculated by this following formula:

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

Where :

DP : discrimination power

U : the number of students from the upper who answer correctly

L : the number of students from the lower who answer correctly

N : the number of the students

The criteria are:

DP: 0.00 - 0.19 = Poor items

DP: 0.20 - 0.39 = Satisfactory items

DP: 0.40 - 0.69 = Good items

DP: 0.70 - 1.00 = Excellent items

DP: - (Negative) = Bad items, should be omitted

(Heaton, 1975: 180)

3.8 Scoring System

The scoring system that was used in this research was dividing the right answer by total items timed 100. In scoring the students result of the pre-test and post-test, the formula by Arikunto (1997: 212) is employed:

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

Were :

S : score of the test

R : number of right answer

N : total number of items on test

3.9 Data Analysis

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

1. Scoring the pre-test and post-test.
2. Tabulating the result of the test and calculating the mean of pre-test and the post-test. The mean is calculated by applying the following formula:

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

Notes:

M = mean (average score)

$\sum x$ = the total students' score

N = total number of students

(Hatch and Farhady: 1982)

Drawing conclusion from the tabulated results of the test given, that was by statistically analyzing the data using statistical computerization i.e paired T-Test of Statistical Package for Social Science (SPSS) to test whether the increase of students gain was obvious or not, in which the significance is determined by $p < 0,05$. It was used as the data from one sample (Hatch and Farhady, 1982: 117). In order to know whether the students get any progress, the formula was as follows:

$$I = X2 - X1$$

Notes

I = the increase of students reading comprehension achievement

X2 = the average score of post-test

X1 = the average score of pr-test

3.10 Hypothesis Testing

Research finding were used to test the hypothesis, they were:

1. H_0 : There is no difference of students' achievement in reading comprehension taught through DRTA technique
- H_1 : There is any difference of students' achievement in reading comprehension taught through DRTA technique