III. RESEARCH METHODS

This chapter discusses the design of this research and how to collect the data from the sample. In this chapter, the researcher also encloses the data collecting technique, the procedures of this research, the scoring system and how to analyze the data.

3.1. Research Design

This research was quantitative by nature. Hatch and Farhady (1982: 22) state that quantitative is a kind of research in which the data were used to tend to use statistics as measurement in deciding the conclusion.

Related to this, the researcher used *one group pre-test post-test design* to investigate whether or not contextual clues strategy can give influence on the students' reading comprehension achievement. Then the researcher administered pre-test and post-test. The pre-test was conducted to measure students' reading comprehension achievement before treatment and the post-test conducted to find out the students' reading comprehension achievement after being taught through contextual clues strategy. Then, the students' achievement was found by comparing the means (average scores) 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 were given a pre-test before a treatment and post-test after the treatment. The design of this research can be described as follow:

$$\textbf{T1} \qquad \textbf{X} \qquad \textbf{T2}$$

Where :

T1   = Pre-test

X   = Treatment

T2   = Post-test

(Hatch and Farhady, 1982: 20)

The first activity was administering the try out test in order to determine the validity and reliability of the instruments. Then the researcher administered the pretest to the experimental class in order to find out the entry points of the students before they got the treatments. After that, the researcher conducted the treatment. The treatments were carried out three times assuming that three times treatments were enough. The next step was administering the post test to experimental class to identify the results of the treatment.

3.2. Setting of the Research

1. Time

The research was conducted from July 24th until August 10[tth], 2012. The first activity was administering try out test. Then, continue to administered the pre test in the experimental class, after that the treatments were conducted for

three times meetings. The last was administering the post test to see the result after conducting the treatments.

2. **Place**

This research was conducted for the third grade of SMP Taman Siswa Tanjung Karang. There are four classes of third grade on SMP Taman Siswa Tanjung Karang. One class was taken as the sample of this research. The reason why the third grade students of SMP Taman Siswa Tanjung Karang are chosen as the sample was because the students in this school still have difficulties in reading comprehension of descriptive text especially identifying the main idea, get the specific information, making inferences, reference and identify the vocabularies from the text.

3.3. Variables

This research consists of the following variables:

1. Students' reading comprehension achievement of descriptive text as dependent variables (Y).

2. Contextual clues training strategy as independent variables (X).

3.4. Population and Samples

The population of this research was the third grades of SMP Taman Siswa Tanjung Karang. There are four classes of third grades on SMP Taman Siswa Tanjung Karang. One class was chosen as the experimental class which was given the treatments by using contextual clues strategy. The class was selected randomly by using lottery since there were no stratified and priority class. It was

applied based on the consideration that every class in the population has the same opportunity to be selected as samples.

3.5. Data Collecting Technique

In collecting the data, the researcher used the reading tests which consist of pre-test and post-test. The tests was administered. The results will be discussed in detail in the following sections:

3.5.1. Types of Data Collecting Technique

a. Pre-Test

Pretest was administered in order to find out the students' reading comprehension achievement before the treatments. It required 60 minutes for the test. The test was multiple choices that consist of thirty items with the option A, B, C, D. The materials were descriptive text. In order to see the complete elaboration of the result of pre-test can be found in chapter 4 (p.40).

b. Post-Test

This test was administered after conducting the treatments for the students. The researcher gave the posttest in order to know the result of this class in teaching learning process whether they have progress or not. The aim of this test was to find out the students' reading comprehension achievement after three times treatments. It required 60 minutes for the test. The test was multiple choices that consist of thirty items with the option A, B, C, D. The materials were descriptive text.

In order to see the complete elaboration of the result of pre-test can be found in chapter 4 (p.41).

3.5.2. Try Out of Data Collecting Technique

Before the data collecting techniques were used, they were tried out to measure the quality of the instrument. A try out of the test was conducted before having the pre-test and the post-test to investigate the quality of the test items. It was carried out to make sure the quality of the instruments before the test was used to gather the data. It was administered to IX A that is consisting of 22 students.

3.5.2.1. Criteria of a Good Try Out Test

A test was said to have a good quality if it has a good validity, reliability, level of difficulty, and discrimination power. Therefore, the try out of the test was carried to achieve the objectives. The results of which are elaborated in the following sections:

3.5.2.1.1. Validity

The validity test was the extent to which a test does the job desired of it; the evidence may either empirical or logical (Lyman, 1971:196). A test can be said valid if the test measures the object to be measured and suitable with the criteria (Hatch and Farhady, 1982:251). According to Hatch and Farhady (1982:251), there are four basic types of validity: face validity, content validity, construct validity and empirical or criterion-related validity. The researcher used content

and construct validity for this research. It was considered that the test should be valid and in line with reading theory and material.

a. Content Validity

Content validity was extent 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). The researcher used content validity because she wanted to know whether or not the content of the test was sufficiently representative and comprehensive for the test to be a valid measure of what it was supposed to measure. To know whether the test was good reflection of what was taught and the knowledge which the teacher wants the students to know, the researcher compared this test with table of specification. If the table represented the material that the researcher wants to test, then it is valid from that point of view. A table of specification is an instrument that help the test constructor plan the test.

Table 1. Table of specification of Try Out Test

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

Table 2. Table of specification of Pre-Test

No	Aspects of Reading	Item Numbers	Total Items	Percentage
1	Identify the main idea	1, 6, 9, 18, 23, 28, 29	7	23%
2	Specific information	2, 5, 7, 10, 17, 20	6	20%
3	Inference	4, 15, 21, 25, 26	5	17%
4	Reference	8, 12, 14, 19, 24, 30	6	20%
5	Vocabulary	3, 11, 13, 16, 22, 27	6	20%
	TOTAL		30	100%

Table 3. Table of specification of Post-Test

No	Aspects of Reading	Item Numbers	Total Items	Percentage
1	Identify the main idea	1, 10, 11, 13, 18, 21, 26	7	23%
2	Specific information	3, 14, 17, 19, 23, 27	7	20%
3	Inference	4, 7, 9, 16, 24	5	17%
4	Reference	2, 6, 12, 20, 22, 29	6	20%
5	Vocabulary	5, 8, 15, 25, 28, 30	6	20%
	TOTAL		30	100%

b. Construct Validity

Construct validity concerned whether the test was actually in line with the theory of reading comprehension or not (Hatch and Farhady, 1982:251). The test was aimed to know whether the test was true reflection of the theory in reading comprehension, the researcher examined whether the test questions actually reflect the means of reading comprehension or not.

3.5.2.1.2. Reliability

Reliability refers to the extent to which the test was consistent in its score and gave 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 the coefficient of the reliability the first and second half group, the researcher used the following formula:

$$rl = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y2)}}$$

Where:

      rl   : the coefficient of reliability between first half and second half

           group.

      X   : the total numbers of first half group.

      Y   : the total numbers of second half group.

      X^2 : the square of X.

      Y^2 : the square of Y.

(Lado in Hughes, 1991:3)

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

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

Where:

   rk : the realibility of the whole test.

   r1 : the realibility of the half test.

The criteria are:

0,90 – 1,00   is high

0,50 – 0,89   is moderate (satisfactory)

0,0 – 0,49   is low

(Hatch and Farhady, 1982:246)

The result of the reliability test was 0.75 (See Appendix 5). It was based on the criteria of reliability that was proposed by Hatch and Farhady (1982:247), the test had moderate or satisfactory reliability in the range 0,50 – 0,89. It indicated that this instrument would produce consistent result when administered in the similar condition to the same participants and in different time (Hatch and Farhady, 1982).

3.5.2.1.3. Level of Difficulty

Level of difficulty of an item simply showed how easy or difficult the particular item proved in the test (Heaton, 1975: 182). Level of difficulty was generally expressed as the fraction (or percentage) of the students who answered the item correctly. To see the level of difficulty, the researcher used the following

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

(Heaton, 1975: 182)

Where:

LD : level of difficulty.

R : the number of students who answer correctly.

N : the total number of the students.

The criteria are:

< 0.30 = difficult

0.30-0.70 = average

> 0.70 = easy

(Shohamy, 1985: 79)

Based on the computation of level difficulty (see Appendix 6.), the researcher found that there were 6 items which were more than 0.70 which means that the items were easy and 4 items were below 0.30 which means difficult. Meanwhile there were 30 items which were between the ranges 0.30 – 0.70 or belonged to average.

3.5.2.1.4. Discrimination Power

The discrimination power (DP) was the proportion of the high group students getting the items correct minus the proportion of the low-level students who getting the items correct. To see the discrimination power, the researcher used the following formula:

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

(Heaton, 1975: 182)

Where :

DP = Discrimination power.

U = number of upper group who answer correctly.

L = number of lower group who answer correctly.

N = total number of the 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 items, should be ommited.

From the computation of discrimination of power (see Appendix 6) the researcher got 7 items were poor (having less than 2.00 index), 11 items were satisfactory (having more than 2.00 index), and 19 items were good (having more than 4.00 index) and 3 items were excellent (having more than 0.70 index). In general, it can be stated that all items tested had good discrimination power and positive value. In this research, the researcher omitted 10 items that were unsatisfactory to be used. Eventually, the items that were administered were 30 items for pre-test and post-test. After analyzing the data, the researcher got 30 items were good and 10 items were poor and should be dropped.

3.6. Research Procedures

The procedures in administering the research are as follow:

1. **Determining the problem**

   The first step of this research was determining the problems. The researcher determined what kind of problems appear in the class.

2. **Determining the sample of the research**

   The sample was chosen by simple random technique, using lottery since the students' ability was parallel and all students had the same chance. The researcher took one class as the experimental class which was given the treatments by using contextual clues strategy.

3. **Determining the research instrument**

   The research instruments for reading tests were try out test, pre-test and post-test. Most of the materials were taken from students textbook and the internet. It was aimed to make an equal proportion both pre-test and post-test.

4. **Administering try-out of the test**

   The try out test 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 consists of 40 items of multiple choices test.

5. **Administering the pre-test**

   Pre-test was aimed to identify the ability of the students before they get the treatment. The researcher used the objective test with four options of each item. One of the options was correct answer and the rests were as distracters.

6. **Conducting the treatment**

   The treatments were classroom activities which applied contextual clues strategy during the classroom activity. The researcher gave three-time treatments in 2 x 40 minutes for each treatment. The topic was about the descriptive texts.

7. **Administering the post-test**

   Post-test was aimed to evaluate the students' reading comprehension after being given the treatments. After the treatment, it was hoped that the students are able to practice the technique independently.

8. **Analyzing the data**

   Analyzing the data was used to compare the pre-test and post-test results by using the Statistical Package for Social Science (SPSS) version 17.0. The students' scores of the reading test both from pre-test and post-test would be analyzed, discussed and interpreted.

3.7. Data Analysis

The data had been analyzed in order to see whether the students' reading comprehension achievement was increase or not. The researcher examined the students' scores using the following steps:

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

2. Tabulating the result of the test and calculating the scores of the pretest and posttest.

3. Drawing conclusion from the tabulated-result of the pretest and posttest by statistically analyzing the data using statistical computerization. i.e. Repeat Measure T-Test of Statistical Package for Social Science (SPSS) version 17.0 It is used as the data come from the two samples (Hatch and Farhady, 1982: 111).

3.7.1. Scoring System

In scoring the result of students' scores in pre-test and post-test, the researcher used percentage correct system (Lyman, 1971:95). The percentage correct score was used to report the result of classroom achievement tests. The researcher calculated the average of pre-test and post-test by using this formula:

$$X_{\%c} = 100\frac{R}{T}$$

Where:

$X_{\%c}$: Percentage of correct score

R : Number of the correct answer

T : Total number of the item test

(Lyman, 1971:95)

3.7.2. Calculating the Mean Score

Mean told about how difficult or easy the test was. According to Heaton (1991, p.175), the mean score of one test was arithmetical average i.e. the sum of separate score which is divided by the total number of students. It was efficient to measure the central tendency, even it was not always appropriate. To calculate the mean, the researcher used the formula as follow:

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

Where:

X : Mean

$\sum x$: total scores

N : Number of students

3.8. Hypothesis Testing

After collecting the data, the researcher recorded and analyzed them in order to find out whether or not contextual clues strategy can give the influence on the students' reading comprehension achievement after implementing the contextual clues strategy. The researcher used Repeated Measure t-test to know the level of significance of treatments effect. To see the significance, the researcher used the following formula:

$$t = \frac{X_1 - X_2}{S_D}$$

Where:

X_1 : Mean from pre-test

X_2 : Mean from post-test

S_D : Standard error of differences between means

(Hatch and Farhady, 1982: 114)

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 rejected