

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the procedures of the study in order to figure out the answer of the questions previously stated in chapter one. The discussion includes method and technique of the research, population and sample, instruments, data collection and data analysis.

3.1 Research Method

This study investigates the use of scanning in reading comprehension. The technique was implemented to the students in the experimental group in order to find out the effectiveness of the technique as compared to the students in control group who were treated in conventional technique. The experimental with pretest and posttest design in this study is described as follows.

Table. 3.1

The experimental with pretest and posttest design

Sample	Pre-test	Treatment	Post-test
Experimental Group	X_{1e}	T	X_{2e}
Control Group	X_{1c}	0	X_{2c}

Notes:

X_{1e} = students' reading comprehension of experimental group in pre-test

X_{1c} = students' reading comprehension of control group in pre-test

X_{2e} = students' reading comprehension of experimental group in post-test

X_{2c} = students' reading comprehension of control group in post-test

T = Treatment using scanning technique

0 = No treatment using scanning technique

From the table above, it can be seen that both of the groups were given pretest in the beginning of the research. Afterwards, the experimental group was given the treatments for six times. After the treatments both of the groups were given the post test in the ending of the research. The result of the post test in experimental group is the answer of the effectiveness of using scanning skills in reading comprehension of eight graders of one Madrasah Tsanawiyah in Cimahi.

3.1.1 Research Design

The Design of the study was quasi-experimental design, the pretest-posttest non equivalent-groups design. Bes (1981:73) in Permadi (2008: 33) says that the pretest – posttest non equivalent-groups design is often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes which may be similar.

The formula is represented as follows:

$$\frac{G1 \quad T1 \quad X \quad T2}{G2 \quad T1 \quad T2}$$

From the design above two classes were selected to an experiment. A class as an experimental group (G1) which was given treatment (X) and a class was a control group (G2) which was not given treatment.

Pretest (T1) was administered before the treatment and at the end of treatment period; post test (T2) was held to assess students' reading ability.

3.1.2 Research Variables

There are two variables in this study. The dependent variable is the improvement of students' reading ability. The independent variable is the effectiveness of scanning technique in improving students' reading ability.

3.2. Hypothesis

This study proposes the hypothesis : H_a = scanning is effective in improving students' reading comprehension.

3.3 Population and Sample

The population of this study was taken from eight graders of Madrasah Tsanawiyah Nurul Iman Cimahi. There are two classes of the eight grade.

To conduct the study, the researcher uses both of the classes. The first class, VIII A as experimental group and the last one VIII B as control group. Each group has 35 students.

3.4 Research Instruments

There are some instruments used in this research. They are as follows:

1. Pre-test. This reading test comprises thirty multiple choices which were tested to the experimental and control group. This is given to both groups before the treatment of scanning skills technique is given. It is to find out the initial abilities of the two groups.
2. Post-test. This reading test comprises thirty multiple choices which were tested to the experimental and control group. This is given to both groups to find out the students' reading comprehension achievement after the treatment was given.
3. Classroom observation. This observation is applied to experimental group to know the student's attentiveness of scanning involves students' participation, the frequency of students' attendance, the accuracy of students' responses, and the enthusiasm / punctuality of students' to go into the class.

However, before applying the instrument to the experimental and control group, the value of validity and reliability was sought. So that 40 items of multiple choices were tested to another class in order to gain 30 questions items which are valid and reliable.

3.5 Research Procedures

3.5.1 Organizing teaching procedures

In conducting the research, the researcher acted as a teacher and facilitated the students in the classroom reading process in the experimental and control group. There were two steps taken in preparing the teaching process. Firstly, preparing appropriate materials for teaching and learning processes during the treatment. It consisted of analyzing the English Teaching and Learning Curriculum 2006 and textbooks arranged based on the English Teaching and Learning Curriculum 2006. The books that were used namely English on Sky by Mukarto et. al. and Developing Competence in English by Media Pratama. Secondly was organizing teaching procedures in the control and experiment group.

3.5.2 Administering Try Out test

Before the instrument used in the research, the researcher administered try out test to investigate the validity and reliability of the instrument. Try out test consisted of 40 multiple choice questions related to the text from several textbook that used by the second graders of Junior High School. The try out test was conducted in class VIII c on 12th January, 2009.

3.5.3 Administering Pre-test

Pre-test was administered as entry test in order to investigate the validity and reliability of the instrument before it was used in the research.

The pre-test was consisted of four texts and thirty multiple choice items in which the questions were related to the text. The materials of the texts were adapted from several textbooks used by the second graders of junior high school. The pre-test was conducted to both of the group before the experimental teaching begun.

3.5.4 Experiment

The scanning skill was used for teaching reading in the experiment group. The control group was treated using conventional method. However, the materials and the teaching procedures, except the reading technique, that were conducted to the control group were the same as the experimental group.

3.5.4.1 Implementation of Experiment

The experiment started from 2nd February to 26th February, 2009 covering four treatments. It covered two meeting a week, each meeting consisting of two hours of instruction (one hour instruction was forty minutes). However, the duration was not enough; this is one of the limitations of the study. The research schedule can be seen in the table 3.2 below.

Table 3.2

Research Schedule

No	Experimental Group		Control Group	
	Date	Material/theme	Date	Material/theme
1.	19 th January, 2009	Pre-test	22 th January, 2009	Pre-test
2.	2 nd February,	Coconut	5 th February,	Coconut

	2009		2009	
3.	9 th February, 2009	Louis Pasteur	12 th February, 2009	Louis Pasteur
4.	16 th February, 2009	Reog Ponorogo	19 th February, 2009	Reog Ponorogo
5.	23 rd February, 2009	Desak Made Suarti Laksmi	26 th February, 2009	Desak Made Suarti Laksmi
6.	2 nd March, 2009	Post-test	2 nd March, 2009	Post-test

3.5.4.2 Classroom Activities of Experimental Group

The following were the experimental group activities:

1. Teacher Presentation

To begin the lesson, teacher described and explained about different kind of texts. Then the teacher proposed a certain techniques in reading which is scanning skills, as one of the solution to overcoming and improving their reading abilities. The teacher explains the theories, usages and implementation of scanning skills. Hence, the topics or worksheets were distributed to the students.

2. Individual Work

After receiving the worksheet and the explanation of scanning skills, the students then read the text and practices using the technique by answering several questions based on the text given. In general the practices consist of finding specific information in a limited amount of time. The practices were also performed continuously and in sequenced in pre, whilst, and post reading activities.

3.5.4.3 Classroom Activities of Control Group

The following were the experimental group activities:

1. Teacher Presentation

The teacher explained the topic and material to the students. The teacher gave the worksheets to the students and they were asked to answer several questions based on the text provided.

2. Individual Work

The students answered the questions based on the text.

3.5.5 Administering Post-test

From the table above it can be seen that post-test was conducted on 2nd March, 2009, after the experiments was finished. Further, the post-test was given to class VIII A as experimental group and the last one VIII B as control group.

3.5.6 Computing t-Test

After the data was collected, it was counted using t-Test formula with the assistance of SPSS 17 for windows.

3.6 Data Analysis

3.6.1 Scoring technique

The test used in this research was multiple choices consist of thirty numbers test which developed based on standard of competence for eight

graders of Junior High School. They are expected to understand text and answer the question of the text using scanning skills.

3.6.2 Data Analysis on Try Out test

A test would be a good test when the test is valid and reliable. Therefore, the validity and reliability of the test must be tested. The validity was used to measure whether the reading test represent certain things to be measured as stated by Anderson et al(cited from Arikunto 2008: 65) ' a test is valid if it measures what it measure while, reliability was used to measure the level of consistency of the test .

3.6.2.1 Testing Validity

To calculate validity of the reading test, each item of the test was analyzed and calculated by using Pearson Product Moment Correlation formula. The formula is

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

(Arikunto : 2008)

Where:

X : Score item for each number

Y : total score

n : number of samples

$\sum X$: the totaling of x

$\sum Y$: the totaling of y

$\sum XY$: the totaling of x times y

3.6.2.2 Testing Reliability

The reliability of the reading test was analyzed by using split-half method. The obtained data will be separated equally become two parts based on the item number of the test. Then, the obtained data calculated using product moment correlation. And after the correlation formula gained, spearman-Brown Formula then used. The formula is:

$$r_{11} = \frac{2r_{\frac{11}{22}}}{(1 + r_{\frac{11}{22}})}$$

(Arikunto : 2008)

Where :

r_{11} : coefficient reliability

$r_{1/2 1/2}$: correlation coefficient for each half of the test item

3.6.3 Data Analysis on Pre Test

The aims of pretest are both to investigate the students' initial ability and to investigate the initial equivalence between the groups; the researcher used t-test formula.

3.6.3.1 Normality of distribution test

In this study, the researcher used the SPSS 17 for windows to analyze the normality distribution of the scores with the steps as follows:

1. Stating the hypothesis and setting the alpha level at 0.05 (two tailed test).

H_0 = the score of the experimental and control group are normally distributed

H_a = the score of the experimental and control group are not normally distributed

2. Analyzing the normality distribution using Kolmogorov-Smirnov formula in SPSS 17 for windows
3. Comparing the Asymp. Sig with the level of significance to test the hypothesis. If the Asymp. Sig > level significance (0.05) the null hypothesis is accepted; the scores are normally distributed.

3.6.3.2 Homogeneity of Variance Test

In analyzing the variance homogeneity of the scores, the researcher used the Levene test formula in SPSS 17 for windows. The analyzing of variance homogeneity follows the step below:

1. Stating the hypothesis and setting the alpha level at 0.05

H_0 = the variance of the experimental and control group are homogenous

H_a = the variance of the experimental and control group are not homogenous

2. Analyzing the variance homogeneity using the Levene test formula in SPSS 17 for windows.

3. Comparing the probability with the level of significance for testing the hypothesis. If the probability $>$ the level of significance (0.05) the null hypothesis is accepted; the variance of the experimental and control group are homogenous.

3.6.3.3 Computing t-Test

The steps of the t-test calculation are as follows:

1. Stating the hypothesis and setting the alpha level at 0.05 (two tailed test).

H_o = the two samples are from the same population; there is no significant difference between the two sample ($X_e = X_c$)

H_a = the two samples are from the same population; there is a significant difference between the two sample ($X_e \neq X_c$)

2. Finding the t value.
3. Comparing the probability with the level of significance for testing the hypothesis. If the probability is more than or equal to the level of significance (0.05) the null hypothesis is accepted; the two groups are equivalent (the calculation were performed in SPSS 17)

3.6.4 Data Analysis on Post Test

In calculating the post test data, the researcher used the same steps as in calculating the pretest data. The researcher used t-Test formula, case II studies or independent sample test (Hatch and Farhady, 1982: 111).

3.6.5 Data Analysis on the Experimental and Control Group Scores

To investigate whether or not the difference of the pretest and posttest means of each groups is significance, the researcher analyzed the pretest and posttest scores using the matching t-test (Hatch and Farhady, 1982: 114). The steps are as follows:

1. Stating the hypothesis and setting the alpha level at 0.05 (two tailed test).

H_0 = there is no significant difference between the pretest and posttest scores

H_a = there is a significant difference between the pretest and posttest scores

2. Finding the t-Value
3. Comparing the probability with the level of significance for testing the hypothesis. If the probability is more than or equal to the level of significance (0.05) the null hypothesis is accepted; the two groups are homogenous.

The scores of pretest and posttest for the experimental and control group will also be computed to find the level of reading comprehension mastery before and after learning scanning skills or before and after the treatment. To find out the mastery of reading comprehension, computing the average of each test will be necessary. By doing so, the average scores of each test will be found, so the mastery of each test will be known. The formula to compute average will be as follows:

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

Where :

M_x : average X (before treatment)

$\sum x$: the sum of x scores (pretest)

N : the number of subjects

And

$$M_y = \frac{\sum y}{N}$$

Where :

M_y : average Y (after treatment)

$\sum y$: the sum of Y scores (posttest)

N : the number of subjects

After finding the average of each test, it is necessary to interpret what it means. The interpretation of the average will lead us to knowing to what extent the mastery of reading comprehension before and after treatment will be. Related to this, Harris (1969: 134) cited in Permadi (2008) classifies the range of scores with its probable class performance. The classification is as follows:

Table 3.3

Classification of the Range Scores

Test Scores	Probable Class Performance
80 – 100	Good to excellent
60 – 79	Average to good
50 – 59	Poor to average
0 – 49	Poor

3.6.6 Data Analysis on Classroom Observation

To find out the students' attentiveness of scanning technique, classroom observation is hold to the experimental group during the experiment. There are four times experiments in the experimental group.

The purposes of the observation are:

1. Students' participation during the implementation of scanning technique.
2. The frequency of students' attendance.
3. The accuracy of students' responses during the experiments.
4. The enthusiasm/punctuality of students' to go into the class.

