

## **CHAPTER III**

### **METHODOLOGY**

This chapter describes the procedures of the study in order to find out the answers of the two questions previously stated in chapter one. The chapter covers: research design, the instrument, population and sample and data analysis.

#### **3.1 Research Methods**

According to Best (1981: 18) research is considered as a more formal, systematic, and intensive process of carrying on a scientific method of analysis. This research used quantitative method to conclude the data with experimental method chosen to test the hypothesis served. For that the reason, this research take two classes; the first class is served as control class and the second class is served as experimental class or usually called intact group design (Tuckman, 1982: p. 128).

##### **3.1.1 Research Design**

The design of the study was quasi-experimental design, the pretest-posttest nonequivalent-groups design. Best (1981:73) says that the pretest-posttest nonequivalent-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:

**G1 T1 X T2**

**G2 T1 T2**

From the design above two classes were selected to an experiment. A class was 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 implementation of skimming and scanning techniques as the treatment, and then at the end of the treatment priode, posttest was held to asses students' reading ability.

### **3.1.2 Variables**

Variables are the conditions or characteristics which the experimenter can manipulate, control, or observe. There were two variables in this study. The first was independent variable and the second was dependent variable.

Hatch and Farhady (1982:15) says that independent variable is the major variable which is investigated. In this study, the skimming and scanning techniques as the teaching methods were the independent variable and became the major variable to be investigated. Still, according to Hatch and Farhady (1982:15) the dependent variable is the variable which is observed and measured to determine the effect of the independent variable. Variable that was influenced by the independent variable in this study was the students' reading ability.

## 3.2 Hypothesis

This research begins with Null Hypothesis ( $H_0$ ) where both classes conducted; experimental and control classes are similar.

$$H_0 : \mu_{experimental} = \mu_{control}$$

It means that there is no difference between experimental class and control class in the *mean* adjustment level (Gerald Kranzler and Janet Moursund; 1999). By using null hypothesis, every possibility of the research can be shown. If the hypothesis is rejected, it can be concluded that experiment works. While, if the hypothesis is accepted, the experiment does not work.

So, the null hypothesis of this research is skimming and scanning is not effective in increasing students' reading ability.

## 3.3 Subjects

### 3.3.1 Population

According to Best and Kahn (1989: 11) population is any group of individuals that have one or more characteristics in common that attract the researcher. The population of this research was the second grade students of SMA Laboratorium (Percontohan) UPI Bandung which was grouped into eight classes. Each class consists of about 41 students, so the total population is about 328 students.

### **3.3.2 Sample**

Sample is a part of a population selected observation and analysis (Best and Kahn (1989: 11). The samples of this research were two classes (XI IPA 3 and XI IPS 2) which were selected based on the classification made by the school. Class XI IPA 3 acted as the experimental group and XI IPS 2 as the control group. Each class consists of 41 students. To anticipate the absence of some students during the research, the researcher only takes 34 students from each class as the sample. So the fix number of the sample is 68 students. During the experiment, the experimental group was given several treatments in period of four meetings.

### **3.4 Research Instruments**

Reading comprehension test which has aim to measure students' reading ability was used as the instrument of this research. This reading test comprises 30 multiple choice items which were tested to the experimental and control classes. The reading comprehension test was used in pretest and posttest and given to the experimental and the control group. The aim of pretest was to discover the student's previous ability in reading and then posttest was conducted to assess students' reading ability after having treatment.

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

In formulating the items of the test, there were some points to be

considered; first the relevance of the items to the purpose of the study, second appropriateness of the reading passages, third the relevance of the items to the curriculum.

The followings is the syllabus for Senior High school (KTSP 2005) in reading aspect that were taken as considerations in developing the test items (see table 3.1).

**Table 3.1**

<b>Aspect</b>	<b>Standard Competence</b>	<b>Basic competence</b>	<b>Indicator</b>
Reading	Understanding the meaning of short functional text and simple essay in the form of report, narrative and analytical exposition in the context of everyday situation and also to access knowledge	Responding the meaning of formal and informal short functional text (banner, poster, pamphlet, etc) by using various written language in the context of everyday situation and also to access knowledge	<input type="checkbox"/> 1 Students are able to read aloud different kind of text with the correct utterance and intonation <input type="checkbox"/> 2 Students are able to identify the topic of the text <input type="checkbox"/> 3 Students are able to identify certain information

(Source: KTSP)

### **3.5 Research Procedure**

#### **3.5.1 Organizing Teaching Procedure**

The researcher performed as teacher and facilitator in both experimental and control group. In preparing the teaching process, the writer carried out two steps. First, preparing appropriate materials for teaching and learning process

during the treatment. Second, organizing teaching procedures in the control and the experimental group.

In the experimental group, the teaching materials and procedures were highly related with the implementation of skimming and scanning techniques in reading. While in the control group, conventional reading materials and teaching procedures were applied.

### **3.5.2 Administering Try-out Test**

Before the instrument used in the research, the researcher administrated try out test to investigate the validity and reliability of the instrument. Try-out test consisted of thirty multiple choice questions related to texts with different kinds of genre. The test materials were adapted from several textbooks used by the second grade of senior high school students and also articles from the internet. The try-out test was conducted in class XI IPA 2 of SMA Laboratorium (Percontohan) UPI on April 10, 2008 before the experimental teaching began.

### **3.5.3 Treatment**

Two second grade classes in SMA Laboratorium (Percontohan) UPI, which were XI IPA 1 as the experimental group and XI IPS 2 as the control group, were selected to the experiment. The experimental group was exposed to the skimming and scanning techniques to reading while the control group was taught by using conventional technique in teaching reading.

### 3.5.3.1 Implementation of Experiment

Arranging general schedule of experiment was intended to make well-establish experiment. The table below is the schedule of the experiment.

**Table 3.2**

**Schedule of the Study**

No	Experiment Group		Control Group	
	Date	Material/Theme	Date	Material/Theme
1	April 16, 2008	Pretest	May 8, 2008	Pretest
2	April 17, 2008	Beauty and the Beast	May 9, 2008	Beauty and the Beast
3	April 30, 2008	Mp3 Player	May 15, 2008	Mp3 Player
4	May 7, 2008	The Taxi Driver and the Nun	May 16, 2008	The Taxi Driver and the Nun
5	May 14, 2008	Digital Camera	May 22, 2008	Digital Camera
6	May 15, 2008	Posttest	May 23, 2008	Posttest

### 3.5.3.2 Classroom Activities of Experimental Group

The following were the experimental group activities:

1. Teacher presentation

Before beginning the lesson, teacher described and explained about different kind of texts and how many of those various English texts appeared in most exams. Then teacher proposed a certain techniques in reading, which were

skimming and scanning techniques, as one of the solution in overcoming and improving their reading abilities. The Teacher explained the theories, usages and implementation of skimming and scanning techniques. Hence, the topics or worksheets were distributed to the students.

## 2. Individual Work

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

## 3. Team Discussion

After completing the worksheet, the students worked in groups. The students are asked to discuss several questions regarding of the text given and to write the results of the discussion in a piece of paper

### **3.5.3.3 Classroom Activities of Control Group**

#### 1. Teacher presentation

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



## 2. Individual Work

The student answered the questions based on the text and then asked to write the main idea of the text in a piece of paper.

### **3.5.4 Administering Pre-test and Post-test**

To investigate the students' initial ability, the pre-test was conducted. It was given to both experimental and control group. Afterward, to investigate the effectiveness of skimming and scanning techniques in teaching reading, at the end of the program post-test was given to both groups

## **3.6 Data Analysis**

### **3.6.1 Scoring Technique**

The test used in this research was multiple choice items. There are two types of formulas can be used to process the multiple choice item data (Arikunto, 2003); the formula with punishment and the formula without punishment. In this study, the writer used the formula with punishment. The formula is as follows:

$$S = R$$

In which, S: score & R: right answer

### **3.6.2 Data Analysis on Try-out Test**

The obtained data from the try-out test were analyzed to investigate the validity and reliability of the test items. Furthermore, the valid and reliable items were used as the research instrument. According to Best and Kahn (1989: 160) to carry out data gathering procedure, validity and reliability of the instrument are

essential.

### **3.6.2.1 Instrument Validity and Reliability**

Validity and reliability are qualities that are essential to the effectiveness of any data-gathering procedures, Best (1981: 153). Definition of validity and reliability based on Best (1981: 153-154) is as follows:

Validity is that quality of data-gathering instruments or procedure that enables it to determine what it is designed to determine. Reliability is the quality of a consistency that the instrument or procedure demonstrates over a period of time. Whatever it determines, it does so consistency.

### **3.6.2.2 Instrument Validity**

Validity is quality of data gathering instrument or procedure that enables it to measure what is supposed to measure (Best and Kahn: 1989). According to Arikunto (2002: 243) Pearson product moment correlation can be used to analyze the validity of each item. The data was calculated by SPSS 15 for windows.

### **3.6.2.3 Instrument Reliability**

According to Best and Kahn (1989: 160) reliability can be defined as the consistency degree of the instrument or procedure. Spearman-Brown formula (split-half) can be used to calculate the reliability of the instrument. The data was calculated by SPSS (Statistical Package for the Social Sciences). The result was interpreted with the following criteria in table 3.3.

**Table 3.3**

**r Coefficient Correlation**

r Coefficient	Correlation
0.800 - 1.000	Very High
0.600 - 0.800	High
0.300 - 0.600	Moderate
0.000 - 0.300	Low

(Arikunto, 2002: 245)

**3.6.3 Data Analysis on the Pretest**

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, Case II studies or independent sample test (Hatch and Farhady, 1982: 111). Hatch & Farhady (1982: 114) states three assumptions underlying the *t*-test as follow:

1. The subject is allotted to one group in experiment
2. The variances' scores are equal and normally distributed
3. The scores on the independent variable are continuous

For that reason, the researcher did the normality distribution and variance homogeneity test before calculated the data using *t*-test formula.

**3.6.3.1 Normality of Distribution Test**

In this study, the researcher used the SPSS 15 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 the control group are normally distributed

$H_1$  = the score of the experimental and the control group are not normally distributed

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

### **3.6.3.2 The Homogeneity of Variance Test**

In analyzing the variance homogeneity of the scores, the researcher used the Levene Test formula in SPSS 15 for window. The analyzing of variance homogeneity follows the steps 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

$H_1$  = the variance of the experimental and control group are not homogenous

2. Analyzing the variance homogeneity using Levene Test formula in SPSS for windows.
3. Comparing the probability with the level significance for testing the hypothesis. If the probability > the level of significance (0.05) the null hypothesis is accepted; variance of the experimental and control group are homogenous.

### 3.6.3.3 The Calculation of *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)

$H_0$  = the two samples are from the same population; there is no significant difference between the two sample ( $X_e = X_c$ )

$H_1$  = 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, the null hypothesis is accepted; the two groups are equivalent (The calculation were performed in SPSS 15 for window)

### 3.6.4 Data Analysis on the Posttest

In calculating the posttest 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 the 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 matched *t*-test (Hatch & 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

$H_1$  = there is 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, the null hypothesis is accepted; the two scores are homogenous (The calculation were performed in SPSS 15 for window)]

The scores of pre and post test for the experimental group will also be computed to find the level of reading comprehension mastery before and after learning skimming and scanning techniques or before and after 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 look as follow:

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

Where:

$Mx$  = average x (before treatment)

$\sum x$  = the sum of x scores (pre test)

$N$  = the number subjects

And

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

Where:

$M_y$  = average  $y$  (after treatment)

$\sum y$  = the sum of  $y$  scores (post test)

$N$  = the number 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) classifies the range of scores with its probable class performance. The classification is as follow:

**Table 3.4**

**Classification of the Range of Score**

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