CHAPTER III

RESEARCH METHODOLOGY

This chapter discusses the research methodology applied in this study to find out (a) the effectiveness of the implementation of cognitive learning strategies in teaching reading in improving students reading comprehension, and (b) to find out reading difficulties face by the students . The discussion of this chapter includes research design, sample and population, research procedure, data collection, research instrument, and data analysis.

3.1 Hypothesis

In this research, the writer uses the null hypothesis which is:

H_0: there is no effect of cognitive learning strategies in improving students reading comprehension.

H_1: the cognitive learning strategies are effective in improving students reading comprehension.

3.2 Research Method

3.2.1 Research Design

This study applied quasi-experimental design by using non-equivalent control group design pre test and post test since the goal of the study is to find the effectiveness of certain strategy. The quasi experimental research is used when random assignment of subject to experimental and control group is possible (Gall and Borg, 1979). Therefore, this used quasi experimental because of limitation time and school regulation.

The design of quasi experimental using non equivalent control group design is depicted as follows;

Table 3.1

The Quasi Experimental Design

Group	Pre test	Treatment	Post Test
Experimental Group	O_1	X	O_2
Control Group	O_3	-	O_4

Note:

- X represents the experimental treatment

- O represents pretest and post test measurement of dependent variable (Gall and Borg, 1979)

3.2.2 Variables

There are two variables in this study. The first is independent variable which is manipulated or changed by the researcher (Jacobs *et al*, 1979). Thus, the independent variable in this study is the implementation cognitive learning strategies.

The second variable is dependent variable which is observed and measured to determine the effect of the independent variable (Jacobs *et al*, 1979). Therefore, the dependent variable in this study is students' reading comprehension.

3.3 Population and Sample

The population of this study is second grade of a state vocational school in Bandung, two of which have been assigned to experimental and control group. The experimental class is XI AK4 and the controlled class is XI AK5. Those classes were chosen because each class consists of 35 students and recommended by the school. Both experimental and controlled classes are given pretest and post test. However, the treatment was only given to the experimental class.

3.4 Research Procedures

The procedures of this study consisted of several steps. The first step was designing lesson plans for implementing cognitive learning strategies in teaching reading in improving students reading comprehension. The second step was constructing organizing research instrument then pilot testing the instrument to find out validity and reliability of the test. The third step was administering pretest to the two groups to find out their initial reading comprehension.

Furthermore, the fourth step was conducting teaching experiment by implementing cognitive learning strategies to the experimental group. Then, the fifth step was conducting post test to both of groups to find out their reading comprehension after treatment. The sixth step was administering the questionnaire to experimental group to figure out information about students' reading difficulties. The next step was analyzing the result of data collected from pretest, post test, and questionnaire. The last step was drawing the conclusion then proposing suggestion for further study.

3.5 Data Collection

The data of this study were obtained from research instruments. The data were collected through pretest, post test and questionnaire.

3.5.1 Pre Test

The pretest was given to both experimental and control group to find out students initial ability of reading comprehension. The pretest was given before the treatment. The pretest items consist of 25 questions which have been adapted from TOEIC test.

TOEIC (Test of English for International Communication) is an English language proficiency test for people whose native language is not English. The TOIEC test score indicates how people can communicate in English with others in global work place. The test doesn't require specialized knowledge or vocabulary; it

measures only the kind of English used in everyday activities. The test questions include many different settings and situation such as general business, manufacturing, finance and budgeting, corporate development, office, etc. The test is divided into two main sections; listening and reading. Furthermore, since TOEIC test is a registered trade mark of educational testing service the validity and reliability of the test doesn't need to be test.

3.5.2 Post Test

The post test was given after the treatment to find out whether there is any difference between the experimental group and control group. The items were the same as with those in pre test. Since the study was conducted in vocational school the items were adapted from TOEIC test. The test was chosen because in Indonesian context, the TOEIC scores indicate someone's English competence in line with the need of work field in global work place. Moreover, it could also encourage the owner of TOEIC certificate to communicate in English with people in their work field. SMK graduates who have TOEIC certificate therefore, have acknowledgement of their English competence which suit their work field. Thus, this test is suitable for vocational school students who are prepared to enter work place.

3.5.3 Questionnaire

Questionnaire that was used in this study was close questionnaire. It is given to find out reading difficulties faced by the students.

3.6 Time Allocation

The study was held about one month. The treatment was given to the experimental group in four sessions. The following table presents the treatment schedule of the study.

Table 3.2

The Schedule of the Study

No	Date		
1	2 November 2011	Pre Test	Experimental and control group
2	9 November 2011	1st Treatment: Skimming training	Experimental Group
3	12 November 2011	2nd Treatment; Scanning Training	Experimental Group
4	16 November 2011	3rd Treatment: Contextual Guessing training	Experimental Group
5	19 November 2011	4th Treatment: Jigsaw Reading training	Experimental Group
6	23 November 2011	Post Test	Experimental and control group

3.7 Technique for Analyzing Data

3.7.1 Scoring Technique

The test used in this study was multiple choice tests. According to Arikunto (2006) there are two types of formulas that can be used in the process of scoring and data previously obtained. The formulas were formula with or without punishment. This study used formula without punishment. The formula is stated as follows:

$$S = R$$

In which S is Score and R is Right Answer

3.7.2 Pre test data analysis

The procedures to analyze pre test data are as follows:

3.7.2.1 Normality test

To analyze the normality of the score, Kolmogrov – Smirnov formula was used in this study. The Kolmogrov – Smirnov test was performed by using SPSS 17.0 for windows. The hypotheses used were as follow:

H_0: Sample is from population with normal distribution

H_1: Sample is from population with not normal distribution

The table of the data output from SPSS 17.0 simply concluded as follow; by using 5% level of significance (α), the criteria of normality test is H_0 is rejected if significance value (Sig.) < 0,05, meanwhile if the significance value (Sig.) > 0,05, H_0 is accepted.

3.7.2.2 Variance Homogeneity Test

After the result of normality test was found, the researcher conducted variance homogeneity test. The hypotheses used were as follows:

H_0= the variance of pre-test of experimental and control group are homogenous.

H_1= the variance of pre-test of experimental and control group are not homogenous.

To analyze the homogeneity of variance of the score, Levene's test formula was used in this study. The test was performed using SPSS 17.0 for windows. The criteria of the test are H_0 is rejected if the significance value more than the level of significance (Sig < 0,05). Meanwhile if significance value is less than the level of significance (Sig > 0,05), therefore H_0 is accepted.

3.7.2.3 The Analysis of t-test

Coolidge (2000) states that independent t-test is used to analyze a causative relationship between the independent variable and dependent variable that is measured on both groups. Furthermore, it is used to compare the means from two different groups.

The independent t-test is conducted when the normality distribution and homogeneity of variance of each scores has been proven. However, if the data do not fulfill the requirements, formula in non-parametric statistics can be used to compare two means of experimental and control group.

3.7.3 Post test data analysis

Post test was conducted to find out whether there is any difference between students' score of experimental group and control group after treatments. The procedures of post test data analysis were exactly same as pre test data analysis. Besides calculating t-test, paired t-test in SPSS 17.0 for windows was also calculated. It was aimed to find out the differences between pre test and post test score in each group.

3.7.4 Questionnaire Analysis

The formula of percentage is used to analyze the questionnaire. The data will be interpreted based on frequency of students' answer. The formula of percentage for calculating the questionnaire as follows:

$$P = \frac{fo}{n} \; x \; 100\%$$

Note:

P = percentage

Fo = frequency observed

n = number of sample