CHAPTER III

RESEARCH METHODOLOGY

This chapter presents and discusses some aspects of the research methodology which has been briefly introduced in chapter I. It consists of research design, the population and the sample, the data collecting procedure, the instruments, the procedure of research, and the procedure of data analysis.

3.1 Research Methods

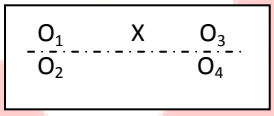
3.1.1 Research Design

The study employed quasi experimental design and focused on two variables, the CIRC method as independent variable and students' reading comprehension as dependent variable. Hatch and Farhady (1982:24) state that we can control variables as many as we can and also limit the interpretations we make about cause-effect relationship then hedge power of our generalization statements by using quasi-experimental design. Therefore, a quasi experimental design is highly appropriate since this design is a study which aims at finding out on the influence of independent variable (Sugiono, 2008: 114)

Moreover, a quasi-experimental was applied in this study because of some reasons. In this study, a true experimental design would not be feasible due to some limitations such as what Kerlinger (1970 cited in Cohen and Manion, 1994) states that quasi experimental refers to a compromised design, an appropriate description when it is applied in educational research where the random selection or random assignment of schools and classrooms is quite impracticable.

In addition, a quasi experimental design does not need random sampling. In fact that, it was hard to find control group that could be used in this research. It was almost impossible to get the sample which can be given treatment, all classes in all junior high schools in Bandung could not be experimented. The school teachers only gave two classes to be observed while other classes were still taught by them. Based on that explanation, a quasi-experimental design is simpler than a true experimental design. A quasi-experimental research is illustrated as follows:

The Quasi Experimental Research



Where;

- O_1 : the pretest for the experimental group
- O_2 : the pretest for the control group control group
- X : the treatment (CIRC method)
- O_3 : the posttest for the experimental group which has been already given treatment
- O_4 : the posttest for the control group which has no given treatment

Based on the illustration above, treatments were only given to the experimental group. The experimental group was treated by learning narrative text reading using CIRC method, while the control group did not receive any treatments. The control group did not receive any treatments yet it was still taught by conventional method.

Hatch and Farhady (1982) state that the pretest and posttest non-equivalent groups design is often used in classroom experiments when the experimental and control groups are such naturally assembled groups as intact classes which may be similar. A pretest and posttest were conducted in this study to collect the data in a form of score. After finding the data, the data were analyzed and interpreted to answer first question of the study.

There were two groups which are compared in the study. Frankel and Wallen (1990) state that a quasi experimental design is a comparison group design. The difference was in the use of the treatment. The treatment used in this study was CIRC method in teaching students' reading narrative text. Both the experimental and control groups would comprehend the narrative text. CIRC method was chosen in this study because the process of CIRC method included of four integrated skills of English which was expected to students so that they would comprehend the text easier and did not feel bored during the classroom activity.

This study began with the statement of the null and alternative hypothesis. Null hypothesis (H_O) states that there is no difference in mean adjustment level between those who received CIRC method and those who did not. By using null hypothesis, every possibility of the research can be shown. If the null hypothesis is retained, it can be concluded that treatment did not work. While, if the statistical test determines that there is a difference between the two means, then alternative hypothesis (H_A) is retained, it means that the null hypotesis will be rejected. In other words, it indicates that the treatments work well.

The hypotheses can be seen as follows:

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

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

3.1.2 Variables

Hatch and Farhady (1982) define a variable as an attribute of a person or an object which varies from person to person or from object to object. In this research, there are two kinds of variables named independent variable and a dependent variable. Sugiono (2006) states that independent variable is a variable which influences or evokes the changes in the dependent variable meanwhile the dependent variable is a variable which is influenced or resulted due to independent variable. In conclusion, CIRC method as the implemented method was the independent variable while the dependent variable was students' reading comprehension.

3.2 Population and Sample

3.2.1 Population

In this study, the population was the eighth grade students of SMPN 40 Bandung which consisted of ten classes from VIII-A to VIII-J.

SMPN 40 Bandung was chosen as the school in conducting this study because in the beginning before conducting the study, it was known that the students of this school were homogeneous. The target of the study was to find out

the subject which was from homogeneous background such as gender or parents economy status since the method used required team groups consisting of high, medium, and low achievement students.

3.2.2 Sample

In this study, two classes of eighth grades in SMPN 40 Bandung were taken as the sample. The first class (VIII-E) as a control group was taught by a conventional method and the second class (VIII-A) as an experimental group which was given some treatments. Both classes were chosen since they had no statistically significant difference in compared mean in statistical computation before the treatment. The pretest and posttest were conducted in the two groups in this study.

3.3 Data Collecting Procedures

In conducting this study, some steps were taken to make the research run in a well-organized way. The first step was organizing research instrument. The instruments used were reading tests in the form of questionnaire and interview. The reading tests were employed in a pretest and a posttest. The pretest and posttest were administered to both experimental and control groups.

The second step was administering pilot test to the students besides the experimental and control group. The third step was administering the pretest to both experimental and control groups. The result of the pretest showed initial students' reading ability before getting CIRC method as a treatment.

Then, the fourth was organizing the lesson plan and conducting the treatment to the experimental group while the control group was given no treatment. The fifth step was administering posttest to both experimental and control groups. The result was aimed to find out significant difference level between the experimental and control groups in comprehending the narrative text. The fifth step was conducting an interview. The data from interview was aimed to cover second question about students' responses of the implementation of CIRC method in improving students' reading ability

3. 4 Research Procedures

In conducting this study, there were some procedures administered. First, a pilot test was required to analyze the validity and reliability of the test. Furthermore, pretest, posttest, and interview were conducted to collect the data. The results of pretest and posttest scores were analyzed by statistical t-test sample by using SPSS 17.00 for windows. The data then were interpreted to answer first research question. Meanwhile, the data from interview were interpreted to answer second research question about students' response through the use of CIRC method in teaching students' reading narrative text.

3.4.1 Administering Pilot Test

A pilot test was administered to measure the validity and reliability of the instruments. The pilot test was given to the students besides the experimental and control groups but the population was the same as the sample. The pilot test was

conducted to the eighth grade students of SMPN 40 Bandung class VIII-C. There were 30 students involved in pilot test.

The pilot test consisted of 40 items. It was made based on the standard competence and based competence in syllabus of the school. The pilot test items can be seen in appendix B and the eighth grade of junior high school syllabus of teaching narrative text can be seen in appendix A.

3.4.2 Administering Pretest

After finding out the reliability and the validity of the test including level of discrimination and difficulty test, the next step taken was administering pretest. The pretest consisted of 30 items. The pretest was administered to both the experimental and control groups in the beginning of the treatment in order to measure students' initial reading comprehension whether they are similar or not. The pretest items can be seen in appendix B.

3.4.3 Conducting the Treatments

The treatments were conducted only to the experimental group after the pretest was administered. The treatments were conducted in several meetings. The preparations of conducting treatments were making appropriate materials and teaching procedure for teaching and learning process during the treatment. Therefore, it was important to design appropriate lesson plans for experimental and control groups. Moreover, the experimental group was taught reading narrative text by using CIRC method based on the procedure of CIRC designed by

Slavin (1998). Specifically, the lesson plans contained instructional objectives, a list of materials, assignment to groups, and criteria of assessment. The lesson plans also specified the social skills and expected behaviour.

Meanwhile, the control group was taught by conventional method using instructional procedures suggested in eight graders book but the content, skills, and instructional objectives of control lesson plans were designed the same as experimental group. The procedures of the control group lesoon plans were organized into three stages of lesson planing: pre, whilst and post activities. These stages provided opportunities of using a wide variety of instructional techniques such as brainstorming, discussion, question and answer.

Both the experimental and control group lesson plans addressed the same instructional objectives and were based on the same reading selections and exercises. However, the experimental plans provided opportunities for small group interaction and for sharing resources among team members. Conversely, the students in the control group worked individually or sometimes in pair and shared ther answers with the class. The lesson plans of experimental and control group can be seen in appendix B.

3.4.4 Administering Posttest

The posttest was administered to both experimental and control groups at the end of the treatments. The test consisted of thirty items. The scores from the posttest were used to measure whether the implemented method influenced the experimental group or not. All items of reading test were the same as the pretest

but the items had different arrangement so that the students could not memorize the questions but they would comprehend the texts.

3.4.5 Conducting interview

The interview was only conducted to the students of the experimental group. The interview aimed to get the data would be analyzed to cover second question about students' responses through the CIRC method. The interview was conducted at the conclusion of the treatments. The interview was set based on the advantages and disadvantages, the obstacles of the CIRC method, and the students' strategies to reduce the obstacles faced during the treatment.

3.5 Time Allocation

This study was conducted in SMPN 40 Bandung for about four weeks. A pilot test was conducted before the pretest. Then, a pretest was conducted in the first week of meeting for both experimental and control groups. The treatments were conducted in the second until the sixth meeting in the experimental group. The control group, however, was taught by using the conventional method. Finally, posttest was conducted in the sixth meeting in the experimental and control groups. The following table presents the schedule of treatment in this study.

Table 3.3

Treatment Schedule

No.	Experimental Group		Control Group	
	Date	Theme/Material	Date	Theme/Material
1.	22-10-10	Pre-test	21-10-210	Pretest
2	25-10-10	Treatment1: Here is the folktale	25-10-10	Treatment1: It must be Cinderella
3.	29-10-10	Treatment2: Traveling to magic world	28-10-10	Treatment2: Meet William Tell
4.	01-11-10	Treatment3: Odysseus and the storm	01-10-10	Treatment3: Thumbelina
5.	05-11-10	Treatment4: The Smart Parrot	04-11-10	Treatment4: The Mouse, The Bird, and the Sausage
6.	08-11-10	Treatment5: It's Time to Love	08-11-10	Treatment5: The Three Bears and I
7.	12-11-10	Posttest	11-11-10	Posttest
8.	15-11-10	Interview	-	-

3.6 Data Analysis

3.6.1 Scoring Technique

The instrument used in the study was in the form of a set of multiple-choice questions. After getting the statistic data, then the data would be analyzed by using scoring technique formula. In this study, the formula applied to analyze pretest and posttest data was as follows:

S=R

Where, S : Score ; R : Right answer

3.6.2 Data Analysis on the Pilot Test

The pilot test data were analyzed to measure the validity, reliability, level of difficulty and discrimination level of the instrument.

3.6.2.1 Validity Test

The validity and reliability of instruments have been absolute requirements to make sure that the questioners can be used as research instrument of the study. Fraenkel and Wallen (1990: 139) state that validity refers to the appropriateness, meaningfulness, and usefulness of the specific assumptions that researcher makes based on the data collected. In this study, those pilot data were been measured with Person Product Moment to get the validity of the test. Those data were calculated by SPSS 17 for windows. It can be used to analyze the validity of each item. There is no absolute validity; it tends to be high, medium, and low validity. The criteria for the validity test were stated as follows:

Table 3.4

r Cooeficient Correlation (Validity)

Raw Score	Interpretation
0,00 - 0,199	Very Low
0,20 - 0,399	Low
0,40 - 0, 599	Moderate
0,60 – 0,799	High
0,80- 1,00	Very High

(Sugiono, 2006:257)

3.6.2.2 Reliability

Besides test of validity, it is important to compute the reliability of the test. Reliability is the extent to which the result can be regarded consistent or stable (Brown, 1990:98). A test can be accepted as a reliable test if it can be a consistent test to obtain the scores.

In this study, the reliability of instrument was revealed by internal consistency of Split-half technique with Spearman-Brown formula in SPSS 17.0 for windows. This technique was utilized because the data analyzed were scored by one score right answer. Gozali (2002) states that the instrument may have a high reliable set of items if the alpha is greater than 0,6.

3.6.2.3 Level of Difficulty

Another requirement that needs to be considered as excellent instrument is difficult test. Arikunto (1998:209) argues that difficult test aims to get the level of difficulty for each item of the instrument. Further, Fultcher and Davidson (2007) describes that test instrument can be accepted as a good test if it is not too easy or too difficult for the population for whom the test will be assigned. An ideal item has the facility values around 0.5, with an acceptable range being from 0.3-0.7.

The formula employed to measure level of difficulty is as follows:

$$P=\frac{B}{JB}$$

Where; P is index of difficulty

B is the number of students who can answer the questions

JB is the total of correctly answer from the number of students

3.6.2.4 Discrimination

The level of discrimination was important to find out different scores between higher ability and lower ability test takers. The most commonly used method of calculating item of discrimination is the point biserial correlation. This is a measure of association between responses to any specific items on the whole test (Hening, 1987, cited in Fulcher and Davidson, 2007). The statistical computation will be as follows:

$$\mathbf{r}_{pbi} = \frac{\overline{X}_p - \overline{X}_q}{S_x} \sqrt{pq}$$

Where;

r_{pbi} = point biseral correlation

$\overline{X}p$ = mean score on the test for those who get the item correct

$\overline{X}q$ = mean score on the test for those who get the item incorrect

Sx = standard deviation of test scores

p = the proportion of test takers who get the item correct (facility value)

q = the proportion of test takers who get the item incorrect.

Items with r_{pbi} of 0.25 or greater are considered as acceptable, while those with lower value was rewritten or excluded from the test (Henning, 1987 in Fulcher and Davidson, 2007).

3.6.3 Data Analysis on Pretest and Posttest

The data which were obtained from the pretest and posttest were used to investigate students' initial ability in reading and then it would be analyzed by the independent sample t-test statistics. Beforehand, hypothesis was stated with the

alpha 0.05. Hatch and Farhady (1982: 114) state that there should be certain assumptions in doing statistical test: first, only one group is as the subject in the experiment; second, the scores on independent variable are continuous, and third, the scores are normally distributed, while variances of score are equal. Thus, test of normal distribution and the homogeneity of variance were done before the t-test calculation.

In analyzing the normal distribution, Kolmogrov-Smirnov test was used in the data analysis. Meanwhile, Levene Test formula in SPSS 17 was used to analyze the homogeneity of variance. As the next step in analyzing the pretest data, independent t-test sample was used to investigate whether or not any difference between control group and experimental group students to compare mean of both groups. The independent t-test sample was also aimed to give the results whether the study would reject or accepet the null hypothesis. Then the calculation of effect size was conducted by using t_{obt} from the independent sample t-test of posttest.

Besides, dependent t-test was also used in the research following the nearly steps as in comparing pretest of both groups. It was conducted to investigate whether or not the difference of pretest and posttest means of each group is significant. Prominently, the computation of pretest and posttest scores for the experimental group was conducted to find the level of the reading ability of students of the group before and after the use of CIRC method in teaching students' reading ability. Furthermore, to check the level of effect of the treatment, test of effect size was administered after t-test calculation.

Calculation of the effect size is important to be administered to determine the effect of the influence of independent variable upon the dependent variable (Coolodge, 2000: 151). It is calculated to investigate how significant the effect of independent variable in practical terms is. If the treatment works well then there will be a large effect size.

The formula of effect size is:

$$\mathbf{r} = \sqrt{\frac{t^2}{t^2+df}}$$

Where:

r = effect size

t = t_{obt} or t value from the calculation of the independent t-test

df = $N_1 + N_2 - 2$

After the value or r has been obtained, the scores were matched with the following scale to interpret the effect size.

Table 3.5

Effect Size Value

Effect Size	r Value
Small	**.100**
Medium	**.243**
Large	**.371**

(Coolidge, 2000:151)

3.6.4 Data Analysis on Interview

The interview data were transcribed to obtain the information about the use of CIRC method in teaching students' reading narrative text from the students' point of view. The administering of interview was aimed to find out advantages and disadvantages, the obstacles, and strategies that the students applied to reduce the obstacles during the implementation of CIRC method. The interpretation of interview result would be given in the next chapter.