CHAPTER III

RESEARCH METHODOLOGY

This chapter provides a discussion on the methodology employed in the study, covering statements of problems, research design, hypothesis, clarification of terms, data collection, procedures of study, data analysis.

3.1 Statement of Problems

As it is stated in the previous chapter, the problems to be examined in the present study are formulated as follows.

1. Is the small group discussion method effective in teaching reading?

2. What are the students' responses towards the use ofsmall group discussionin teaching reading?

3.2   Research Design

To find out the effectiveness of small group discussion method in teaching reading and to investigate the students' responses towards the use of small group discussion in teaching reading,this studyused quasi experimental design.

According to Hatch & Farhady (1982: 24), quasi experimental design are practical compromises between true experimentation and the nature of human language behaviour which we wish to investigate.

Since the population of the study had been already assigned to several classes, this study used nonequivalent group design. The study involved two groups; experimental group and control group. The experimental group received small group discussionmethod treatment while the control group received conventional method. The experimental design in the research is described in the following table.

Table 3.1

The nonequivalent group design

Groups	Pretest	Treatment	Posttest
Experimental	Xe 1	T	Xe 2
Control	Xc 1	-	Xc 2

Xe 1   : Experimental group in pretest

Xc 1   : Control group in pretest

T   : Small group discussion method treatment

Xe 2   : Experimental group in posttest

Xc 2   : Control group in posttest

(Hatch and Farhady: 1982)

Nunan (1992) stated that the variable which the experimenter expects to influence the other is called the *independent variable,* in this study it was small group discussion method. The last one is variable upon which the independent

variable is the acting is called *dependent variable* or the students' score in reading.

3.3   Research Hypothesis

According to Nazir (2005), a hypothesis is a prediction, an explanation of the research outcome which is expected by the researcher.

Regarding to Coolidge (2000) hypothesis isan educated guess about some states of affairs. There are two hypotheses;the first is null Hypothesis (H_0) which states that there is no significant difference in total mean score between experimental group and control group (Kranzler and Moursund, 1999). The notation of null hypothesis is as follows:

$$H_0: \mu_1 = \mu_2$$

H_0: Null hypothesis

μ_1: Control group

μ_2: Experimental group

The second hypothesis is alternative hypothesis (H_a) which states that there is significant difference in total mean score between experimental and control groups (Kranzler and Moursund, 1999). The notation of alternative hypothesis is as follows:

$$Ha: \mu_1 \neq \mu_2$$

H_a: Alternative hypothesis

μ_1: Control group

μ_2: Experimental group

Based on the statement above, this study used alternative hypothesis (Ha),which means that there are significantly difference between students who were taught by using small group discussion with students who received conventional method.

3.4 Clarification of Terms

In order to avoid unnecessary misinterpretation, some terms are classified as below.

1. Small group discussion refers to a group which consists of six or fewer students who are assigned a task that involves collaboration (Brown, 2001:177 and McCrorie:2006).

2. Reading refers to a complex process of getting information from written text in which a reader uses his previous knowledge to recognize and to decode the words and to interpret the meaning (Michigan Reading Association: 1985; S.Pang: 1994; Byrne: 2004; Kenneth: 1967).

3.5 Data collection

3.5.1 Population and Sample

This study was conducted in one of public Junior High School in Bandung. According to McMillan and Schumacher (1989), population is the sample consisting of individuals selected from a larger group of person. The population in this study was eighth graders in a junior high school in Bandung.

According to Coolidge (2000), sample is a smaller group of scores selected from the population. In this study the sample was two classes from seven classes of eight grades; they were VIIIA as the experimental group and VIIIB as the control group. The selection of the sample was not chosen randomly, since the purposive technique was applied in this study.

3.5.2 Research Instruments

Research instruments are the tools used to measure something that we observe in order to obtain the data and answer the research problems (Sugiono, 2011). The instruments that were used in this study are pre-test, post-test, and questionnaire.

In this study, there were three instruments that used in collecting the data; pretest, posttest, and questionnaire. Firstly, pretest was administrated to both groups; experimental group and control group after tryout test was conducted in order to find out the students' initial ability before conducting the treatments to the experimental class. Secondly, post-test was used in last program of this study after giving some treatments to experimental groups in period of time. It was used to find out whether the method is effective or not. This test was also given to both groups.The last, questionnaire was administered to know the students' responses towards the use of small group discussion in teaching reading.It was given only to experimental group after treatment.

3.6   Procedures of Study

3.6.1   Administering Tryout Test

Tryout test were adiministered before pretest given to experimental group and control group. The purpose of administering tryout was to measure the validity and reliability of the instrument. The tryout was administered in other classes which were not involved in the study as the control group and the experimental group.

The tryout test was administered to class VIII-F of one of Junior High School in Bandung. Students were given 90 minutes in doing test. The test consisted of 50 items; all of questions were multiple choices and consisted of recount text, narative text and descriptive text. After scoring the result of the tryout, the writer made an analysis to find out the validity and reliability of the item of the tryout. All of them were used to decide which items should be used in making instrument.

3.6.2 Pretest

After conducted data analysis on tryout test, the next step was pretest. It was used to find out the students' ability before treatment. The test was administered to both experimental and control group in their classroom during school hours.

3.6.3 Treatment

In this study, the writer used small group discussion method in teaching reading as a treatment to increase students' reading comprehension. The experimental group was given the treatment for six meetings. Therefore, the experimental group was taught by small group discussion method, while the control group was taught by the conventional teaching method.Moreover, the lesson plan of both groups is presented bellow.

a. Teaching procedure in experimental group

Teaching procedure in experimental group was implemented small group discussion method in teaching learning reading . Firstly, the teacher was divided the students into small groups. Each group consisted of 4 to 5 students. After that, teacher gave a passage which consists of some paragraphs. And then, students in group discussed together what the paragraph told about and made same perception of what they have discussed. To make sure that all of the students comprehended all of the passage, teacher asked a student in each group to explain the main idea of several paragraphs and what the passage told about. Besides, at the end of the session, teacher gave a quiz which related to the passage.

In this study, the researcher arranged a small group discussion based on Duplass's theory (2005). In *pre discussion activities*, the researcher gave information about the techniques and steps of the discussion and the topic to

discuss; in *whilst discussion activities*, the researcher let the students did the small group discussion, reported their own discussion, and presented the result of their discussion to other groups or general discussion; and in *post discussion activities*, the researcher gave feedbacks, in form of comment, correction, clarification on the text discussed.

b. Teaching procedure in control group

Teaching procedure in control group was constructed through conventional teaching in learning process. Firstly, each student was given a passage which was same as experimental group. After giving a passage, teacher asked students to read and analyze the passage individually. Then teacher asked students to summarize the passage that they have read. To measure students' comprehension, teacher asked students to present their summary that they have made one by one.

3.6.4 Posttest

At the end of the treatment, the writer administered the post test. This test was given to both group (control and experimental group) to find out the students' reading comprehension after experimental group received the treatment. The test item was similar to the item of pre test.

3.6.5 Administering questionnaire to the experimental group.

According to Arikunto (2006), a questionnaire is a written test used to gain the information from the respondent. There are two types of questionnaire, namely closed questionnaire and open questionnaire. In closed questionnaire, a number of possible answers of questions are given by the researcher, so that the respondents only choose one of them. In open questionnaire, the respondents have a freedom to answer the question based on their own words or opinions. The advantageof using questionnaire is that the test can be given to a large number of people in the same time, while the disadvantages are the unclear or ambiguous questions cannot be clarified, and the respondents have no chance to expand or react verbally to particular questions (Conoley and Kramer, 1989)

To investigate students' responses towards the use of small group discussion in teaching reading, questionnaire in the form of open and closed ended were distributed to the students in the experimental group. There were 9 questions in the closed ended questionnaire in order to investigate the positive responses which are given by students to the implementation of using small group discussion in teaching reading. The closed ended framework is stated as follows.

Table 3.2

The framework of closed-ended questionnaire

No.	Aspects	Item Number
1	Respond to students' motivation in learning reading by using small group discussion method	1,2,3
2	Respond to students' participation in learning reading by using small group discussion method	4,5,6
3	Respond to students' responsibility in learning reading by using small group discussion method	7,8,9

Furthermore, this study used also an open questionnaire which aims at investigating the students' obstacles (negative responses) in learning reading through small group discussion method. The open question which was used in this study is stated bellow.
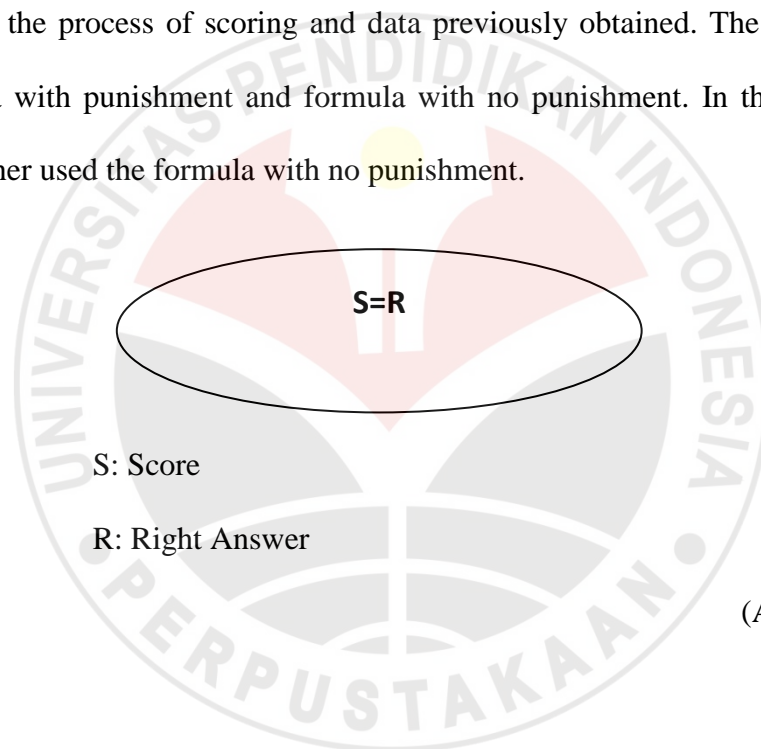
Question:

Masalah apa yang kamu hadapi ketika belajar reading menggunakan metode small group discussion ini?

3.7 Data Analysis

The next step after collecting the data is analyzing the data. There are some several steps taken in the data analysis, those are:

3.7.1 Scoring

Arikunto (2009) stated that there are two types of formulas that can be used in the process of scoring and data previously obtained. The formulas were formula with punishment and formula with no punishment. In the research, the researcher used the formula with no punishment.

$$S=R$$

S: Score

R: Right Answer

(Arikunto: 2009)

3.7.2 Tryout Test Analysis

These are the steps taken in analyzing the items:

3.7.2.1 Validity

Validity refers to appropriateness, meaningfulness, correctness and usefulness of the inferences that a researcher makes (Fraenkel&Wallen, 1990: 147). The purpose of conducting validity test is to see whether the test is valid or not to be used in pre-test and post-test.

Coefficient Point Biserial correlation was applied to test the validity. The data were calculated manually.

Before conducting pretest and posttest, the test items were analyzed manually in the terms of its validity, difficulty, discrimination index and reliability.

This study used 50 questions in the form of multiple choices, therefore the formula of validity in tryout test is stated as follows.

$$\gamma_{pbis} = \frac{Mp - Mt}{St} \cdot \sqrt{\frac{P}{q}}$$

γ_{pbis} = Coefficient of point biserial correlation

Mp = Mean score on the total of students who answered the item correctly

Mt = Mean of the total score

P = Proportion of students who answered the item correctly

$$P = \frac{\text{Number of students who answered the item correctly}}{\text{Number of students}}$$

q   = Proportion of students who answered the item incorrectly (q = 1-P)

St   = Standard deviation of the total score

<div align="right">(Arikunto, 2009:79)</div>

After obtaining the score of each item, then the next step was comparing the data from r_{obs} with r product moment (r_{table}) on the level significant 95% and degree of freedom (df) = 50. The data becomes valid if r_{obs} more than r_{table} and the data is not valid if r_{obs} less than $r_{table..}$.

3.7.2.2 Difficulty

Another requirement that needs to be considered as excellent instrument is difficulty test. The formula employed to measure difficulty as follows.

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

P   = index of difficulty

B   = the number of students who can answer the item correctly

JB   = the number of students

After obtaining the score, then consulting the score to the criteria were used to interpret the index of difficulty as follows:

Table 3.4

The difficulty level

Facility Value	Interpretation
0.000 – 0.300	Difficult
0.300 – 0.700	Moderate
0.700 – 1.000	Easy

(Arikunto,2009:208)

3.7.2.3 Discrimination Index

The discrimination index was used to indicate how far a single test item can differentiate the upper group from the lower group (Arikunto, 2009:211). The formula is presented as follows:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

D   = The discriminationindex

B_A = Number of upper group who answered the item correctly

B_B = Number of lower group who answered the item incorrectly

J_A = Number of upper group

J_B = Number of lower group

P_A = Proportion of upper group who answered the item correctly

$$\left(P_A = \frac{B_A}{J_A} \right)$$

P_B = Proportion of upper group who answered the item correctly

$$\left(P_B = \frac{B_B}{J_B} \right)$$

(Arikunto, 2009 :213-214)

The next step was consulting the score ofeach item with the criteria of discrimination index in the following table.

Table 3.5

The criteria of discrimination index

Coefficient Interval	Interpretation
0,00-0,20	Poor
0,21-0,40	Satisfactory
0,41-0,70	Good
0,71-1.00	Excellent
Negative	Throw away

(Arikunto, 2009 :218)

3.7.2.4 Reliability

Hatch and Farhady (1982) states that reliability is the extent which a test is produced in constant result when administered under similar condition. In computing the all items in estimating the reliability of the test, the writer used the formula of KR-20.

$$r_{11} = \left(\frac{k}{k-1}\right)\left(\frac{V_t - \Sigma pq}{V_t}\right)$$

r_{11} = Reliability index of test

P = Proportion of students who answered the item correctly

$$P = \frac{\text{Number of students who answered the item correctly}}{\text{Number of students}}$$

q = Proportion of students who answered the item incorrectly (q = 1-P)

Σpq = Sum of the total result of the multiply p and q

K = Number of items

Vt = Variance of the total score

(Arikunto, 2010 :231)

After obtaining the result (r_{11}), then comparing with r product moment (r_{table}) on the level significant 95% and degree of freedom (df) = 50. The test

becomes reliable if r_{11} more than r_{table} and the test is not reliable if r_{11} less than r_{table}.

3.7.3 Pretest and PosttestData Analysis

Pre-test was administered at the beginning of the steps in the research after tryout test in order to obtain the initial students' ability of both groups. Meanwhile, posttest was given to both groups at the end of the process. In analyzing the datain pretest and posttest, the writer used the similar procedures as bellow.

3.7.3.1 Normality distribution of test

In this study, the writer used Kolmogorov-Smirnov formula to analyze normality distribution of test by using SPSS 17.0 for Windows. Moreover, there are the steps taken to measure normality distribution of test:

1. Stating at the hypothesis

   H_0 = The distribution score of both groups in pretest is normally distributed

   Ha = The distribution score of both groups in pretest is not normally distributed

2. Analyze the normality distribution of testusing kolmogrov-smirnov formula in SPSS 17.0 for windows

3. Comparing level of significance to test hypothesis. If the result is more than the level of significance (0.05), the null hypothesis (H_0) is accepted. In contrast, if the result is less than the level of significance (0.05), the alternative hypothesis (Ha) is accepted.

3.7.3.2 Homogeneity variances of test

To analyze homogeneity variances of test, the writer used variance formula in SPSS 17.0. These are the steps taken to analyze homogeneityvariances of test, those are:

1. Stating the hypothesis

   Ho : The variances of the experimental and the control group are homogenous.

   Ha : The variances of the experimental and the control group are not homogenous.

2. Analyze the variance homogeneity using SPSS 17.0 for windows

3. Comparing the level of significance value to test hypothesis. If the result is more than the level of significance (0.05), the null hypothesis is accepted. In contrast, if the result is less than the level of significance (0.05), the alternative hypothesis is accepted.

3.7.3.3 The Independent t-test

There are some requirements of the data that must be considered before conducting independent t-test. Firstly, the data should be homogenous or equal. Secondly, the distribution data should be normaly distributed (Coolidge,2000:143).

The procedures of independent t-test computation were as follows.

1. Stating the hypothesis

   Ho   : There are no significantly differences between students' score of experimental and control groups

   Ha   : There are significantly differences between students' score of experimental

   and control groups.

2. Comparing the obtained level significance value (p) with the level of significance for testing hypothesis. If the result is more than the level of significance (0.05), the null hypothesis is accepted. In contrast, if the result is less than the level of significance (0.05), the alternative hypothesis is accepted.

3.7.3.4 Calculation of effect size

In this study, the calculation of size effect was performed with aim atverifying the influence of independent variable on the dependent variable and to know how well the treatment works,. In order to determine the effect size in the

independent t test, a correlation coefficient of effect size can be derived as presented below:

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

r = effect size

t = t value from the calculation of independent t test

$df = N1 + N2 - 2$

      After obtaining the value of r, the score was matched with the following scale to interpret the effect size.

Table 3.6

Effect size value

Effect Size	R value
Small	.100
Medium	.243
Large	.371

(Coolidge,2000:151)

3.7.4 QuestionnaireData analyses

In answering the research question number 2, the writer used questionnaire in order to collect the datato find out the students' responses towards the use of small group discussion method in teaching reading. The result of questionnaires was put in percentage below:

$$P = \frac{fo}{n} \times 100\%$$

$P = percentage$

$Fo = frequency\ of\ observed$

$n = number\ of\ samples$